ANALYSIS OF TOURIST CIRCULATION IN AGRITOURISM GUESTHOUSES IN RURAL TOWNS IN IAȘI COUNTY

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Abstract

The dynamics of arrivals and overnight stays and the analysis of the average length of stay in the rural localities of Iasi County (Aroneanu, Bălțati, Bârnova, Brăești, Deleni, Dobrovăț, Holboca, Ion Neculce, Lețcani, Lungani, Miroslava, Popricani, Răducăneni, Rediu, Schitu Duca, Tomești, Valea Lupului), where there are agritourism guesthouses, highlights that, during the analyzed period (2013-2022), arrivals registered a relative increase of 7%, overnight stays registered a relative increase of 3% and the average length of stay of registered a decrease of 27.78% in the year 2022 compared to the base year (2013).

Key words: arrivals, overnight stays, average length of stay, absolute dynamics, relative dynamics

INTRODUCTION

Agritourism is a form of tourism through which the tourist can receive a quality product at a reasonable price, while also being a domain that can ensure sustainable development of the area where it takes place, being environmentally friendly at the same time [1].

In European countries, agritourism emerged as a tourism offering around the 1960s and has become a priority in the last few decades of this century, as an activity that links the economic components of sustainability to local communities.

Experts consider these rural communities as areas where economic activities can have real success in the future when referring to agritourism activities, for multiple reasons: in Europe, the aging population leads to an increase in the number of third and fourth-age tourists, who are attracted to this form of tourism; interest in environmental issues is growing; people

from urban areas take short vacations, so they want easily accessible destinations that are also financially convenient; and the number of those who desire a quiet tourist area in an unpolluted environment is also rising. The tourist benefits from contact with the rural environment primarily by learning about the specific way of life, from which a greater appreciation for the authenticity and naturalness of the products from this environment derives, and, why not, for the labor of the rural community [2].

Public awareness regarding the significance of rural areas is based on several aspects, namely: these areas are still struggling with a pronounced recession following the economic crisis that affected agriculture; the problem of depopulation in many rural areas, an increasingly aging population, and the decline of the workforce's skills; the lack of interest from younger generations in starting rural-specific activities, especially in agriculture,

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even though there are many areas with remarkable resources that could ensure sustainable development in terms of activities other than agriculture (such as agritourism activities); the necessity to preserve and revitalize the traditional cultural characteristics of rural areas and their natural environment qualities, as important elements of local identity and as sustainable places to live and work [3,4,5,6].

By studying the dynamics of arrivals and overnight stays and analyzing the average length of stay in rural localities in Iași County (Aroneanu, Bălțați, Bârnova, Brăești, Deleni, Dobrovăț, Holboca, Ion Neculce, Lețcani, Lungani, Miroslava, Popricani, Răducăneni, Rediu, Schitu Duca, Tomești, Valea Lupului), where agritourism activities exist, one of the fundamental needs of tourism is addressed, namely the definition of the tourism phenomenon.

Tourist circulation, along with tourism potential and material resources, is one of the components that contribute to defining the tourism phenomenon and best reflects the way and level of capitalization of the tourism potential of an area [7,8,9,10].

MATERIAL AND METHOD

Agrotourism guesthouses are tourist accommodation structures with a capacity of up to 8 rooms, operating in citizens' homes or in independent buildings. They provide, in specially arranged spaces, accommodation for tourists and the conditions for preparing and serving meals, as well as the opportunity to participate in household or craft activities [11].

The number of tourists accommodated in tourist lodging units includes all individuals (both Romanian and foreign) who travel outside the localities where they have their permanent residence, for a period of less than 12 months, and stay at least one night in a tourist accommodation unit in the visited areas of the country. The primary reason for the trip is different from engaging in a paid activity in the places visited [11].

A tourist overnight stay is the 24-hour period, starting from the check-in time, during which a person is registered in the records of the tourist accommodation and receives lodging for the corresponding room rate, even if the actual stay is shorter than the specified period. This also includes overnight stays for any additional beds installed (paid for by the guests) [11].

The average length of stay is determined by the ratio between the number of tourist days (NTZ) and the number of tourists (T). It reflects the ability of the tourism offering to retain a tourist in a specific area, region, or country [12,13].

$$D_s = \frac{\sum NZT}{\sum NT}$$

where: D_s - mean duration of sojourn;
NZT - numbers of days/tourist;
T - tourists number.

Absolute indicators represent a basic form of dynamic series, based on which could be obtained general indicators.

Level indicators are the terms of a series formed by absolute indicators ($y \dots y_t \dots y_{t-1}$).

Total level of terms ($\sum_{t=1}^{n} y_t$), only for time interval series with absolute measures.

The absolute modifications: with fixed base $\Delta_{t/1} = y_t - y_1$ where, $t = \overline{2, n}$; with in chain base (mobile or variable base) $\Delta_{t/t-1} = y_t - y_{t-1}$ where, $t = \overline{2, n}$.

Relative indicators

It is a presentation way, mainly percentage. In this situation is mandatory that in title or outside the table to be mentioned the rating based so the data interpretation to be correctly done.

Dynamic index: with fixed base $I_{t/1(\%)} = \frac{y_t}{y_1} \times 100$; with in chain base $I_{t/t-1(\%)} = \frac{y_t}{y_{t-1}} \times 100$.

Dynamic rhythm: with fixed base $R_{t/1} = I_{t/1(\%)} - 100\%$; with in chain base $R_{t/t-1} = I_{t/t-1(\%)} - 100\%$, $t = \overline{2,n}$.

Average indicators: $\overline{y}$ – the average level of the interval time series $\overline{y} = \frac{\sum_{t=1}^{n} y_t}{n}$, $\overline{\Delta}$ – the average level of the absolute change (increase or decrease) $\overline{\Delta} = \frac{yn - y1}{n-1}$, $\overline{I}$ – the average index of dynamics $\overline{I} = \sqrt[n-1]{\frac{yn}{y1}}$, $\overline{R}$ – the average growth rate $\overline{R} = \overline{I} - 100$.

To adjust the number of tourists, the method of trends adjusted according to the linear trend, for the time period 2013-2027 was used:

Linear model: $y = a + bt$.

R is the correlation between the values predicted by the equation and the current values. The square R is used to indicate the variation of the values from the trend line [15].

RESULTS

Using the statistical data provided by the National Institute of Statistics [11] regarding the tourism demand in agritourism guesthouses in Iași County, we analyzed the level and dynamics of the following indicators: total arrivals, total overnight stays, and the average length of stay. These indicators were analyzed over a 10-year period (2013-2022), both in terms of dynamics and structure.

Table 1 presents the number of agritourism guesthouses in Iași County, across the 17 rural localities of the county.

In Table 2, the level and dynamics of arrivals in agritourism guesthouses in Iași County were analyzed using both a fixed base and a chain base, along with the average indicators.

In Table 3, the level and dynamics of overnight stays in agritourism guesthouses in Iași County were analyzed similarly, with both a fixed base and a chain base, along with the average indicators.

To estimate the number of tourists arriving at agritourism guesthouses in Iași

County over the next five years beyond the analyzed period (2013-2022), the following adjustment function was used:

$y = 16.684x^2 - 66970x + 7E + 07$,

with the R-squared (R^2) value indicating the variance from the trendline: $R^2 = 0.5418$.

To estimate the number of overnight stays in agritourism guesthouses in Iași County for the next five years, the following adjustment function was used:

$y = 4.405x^2 - 17375x + 2E + 07$,

with R^2 indicating variance from the trendline: $R^2 = 0.5802$ (Figure 1 and Table 4).

The average length of stay, an indicator reflecting the average time (in days) tourists remain in accommodation, and thus the ability of the offer to retain tourists in a certain area or region [16], was calculated as the ratio between the number of tourist days (NTZ) and the number of tourists (T) (Table 5). The level and dynamics of the average length of stay in agritourism guesthouses in Iași County were also analyzed using both a fixed base and a chain base, along with average indicators (Table 6).

DISCUSSIONS
Tourist accommodation structures

The number of agritourism guesthouses in the 17 rural localities of Iași County (Aroneanu, Bălțați, Bârnova, Brăești, Deleni, Dobrovăț, Holboca, Ion Neculce, Lețcani, Lungani, Miroslava, Popricani, Răducăneni, Rediu, Schitu Duca, Tomești, Valea Lupului) varied over the 10 years analyzed (2013-2022), ranging from 10 to 19 structures (Table 1), with their number being 60% higher in 2022 compared to 2013. The level and dynamics of arrivals and overnight stays

Analyzing the absolute and relative dynamics of arrivals during the period 2013-2022 (Table 2) in agritourism guesthouses in Iași County, across the 17 rural localities, a significant increase was observed in 2022, with an 84.8% rise compared to the base year (2013).

Table 1 Agritourism guesthouses in the rural localities of Iași county, in the period 2013-2022

Places	Years									
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Aroneanu	:	:	1	1	:	:	:	:	:	:
Bălțați	:	:	:	:	:	:	:	:	1	:
Bârnova	:	:	1	2	2	2	2	2	2	2
Brăești	1	1	1	1	1	1	1	1	1	1
Deleni	:	1	:	:	:	:	:	:	:	:
Dobrovăț	:	:	:	:	:	1	1	1	:	:
Holboca	1	1	1	1	1	1	1	1	1	1
Ion Neculce	1	1	1	1	1	1	1	1	1	1
Lețcani	1	2	2	2	2	2	2	2	3	3
Lungani	:	:	:	:	:	1	1	1	1	:
Miroslava	:	:	:	:	:	1	1	1	2	1
Popricani	1	1	1	1	1	1	1	1	1	1
Răducăneni	1	1	1	1	1	1	1	1	1	1
Rediu	2	2	2	2	2	2	2	2	2	2
Schitu Duca	1	1	:	:	:	:	:	:	:	:
Tomești	1	1	1	1	1	1	1	1	1	1
Valea Lupului	:	:	:	1	2	1	3	3	2	2
Total	10	12	12	14	14	16	18	18	19	16

Source: insse.ro

The most notable increase in the number of arrivals compared to the previous year was also recorded in 2022, at 90.39%, while a significant decrease in the number of arrivals compared to the previous year occurred in 2020 (a pandemic year) with a 40.19% drop. Overall, the average level of arrivals was 8,749.9 persons, with an absolute average increase of 714.88 persons and a relative increase of 7%.

Table 2 Absolute and relative changes in arrivals at agritourism guesthouses in Iași County during the period 2013-2022

Years	Arrivals (number of persons)	Absolute changes		Dynamics index %		The rhythm of dynamics %	
		$\Delta t/1$	$\Delta t/t\text{-}1$	$I_{t/1}$	$I_{t/t\text{-}1}$	$R_{t/1}$	$R_{t/t\text{-}1}$
2013	7585	-	-	-	-	-	-
2014	6512	-1073	-1073	85.85	85.5	-14.15	-14.5
2015	6921	-664	409	91.24	106.28	-8.76	6.28
2016	8634	1049	1713	113.82	124.74	13.82	24.74
2017	9070	1485	436	119.57	105.04	19.57	5.04
2018	10012	2427	942	131.99	110.38	31.99	10.38
2019	10877	3292	865	143.4	108.63	43.4	8.63
2020	6506	-1079	-4371	85.77	59.81	-14.23	-40.19
2021	7363	-222	857	97.07	113.17	-2.93	13.17
2022	14019	6434	6656	184.8	190.39	84.8	90.39
	$\bar{y}$	$\bar{\Delta}$		$\bar{I}$		$\bar{R}$	
	8749.9	714.88		1.07 (107%)		7%	

$\Delta t/1$ – Absolute changes with fixed base; $\Delta t/t\text{-}1$ – Absolute changes with chain base; $I_{t/1}$ – Fixed base dynamic index; $I_{t/t\text{-}1}$ – Chain base dynamic index; $R_{t/1}$ – Fixed base dynamic rate; $R_{t/t\text{-}1}$ – Chain base dynamic rate; Source: Calculated based on insse.ro

Analyzing the absolute and relative dynamics of overnight stays during the period 2013-2022 (Table 3) in agritourism guesthouses in Iași County, a 33.78% increase was recorded in 2022 compared to the base year (2013).

Compared to the previous year, the highest increase in the number of overnight stays was also observed in 2022, at 38.2%, while a significant decrease in the number of overnight stays compared to the previous year occurred in 2020 (a pandemic year) with a 27.79% drop.

Overall, the average level of overnight stays was 16,172.7, with an absolute average increase of 617.33 overnight stays and a relative increase of 3%.

Table 3 Absolute and relative changes in overnight stays at agritourism guesthouses in Iași County during the period 2013-2022

Years	Overnight stays (number)	Absolute changes		Dynamics index %		The rhythm of dynamics %	
		$\Delta t/1$	$\Delta t/t-1$	$I_{t/1}$	$I_{t/t-1}$	$R_{t/1}$	$R_{t/t-1}$
2013	16448	-	-	-	-	-	-
2014	14314	-2134	-2134	87.03	87.03	-12.97	-12.97
2015	13269	-3179	-1045	80.67	92.70	-19.33	-7.30
2016	15763	-685	2494	95.84	118.80	-4.16	18.80
2017	15204	-1244	-559	92.44	96.45	-7.56	-3.55
2018	17350	902	2146	105.48	114.11	5.48	14.11
2019	18264	1816	914	111.04	105.27	11.04	5.27
2020	13189	-3259	-5075	80.19	72.21	-19.81	-27.79
2021	15922	-526	2733	96.80	120.72	-3.20	20.72
2022	22004	5556	6082	133.78	138.20	33.78	38.20
	$\bar{y}$	$\bar{\Delta}$		$\bar{I}$		$\bar{R}$	
	16172.7	617.33		1.03 (103%)		3%	

$\Delta t/1$ – Absolute changes with fixed base; $\Delta t/t-1$ – Absolute changes with chain base; $It/1$ – Fixed base dynamic index; $It/t-1$ – Chain base dynamic index; $Rt/1$ – Fixed base dynamic rate; $Rt/t-1$ – Chain base dynamic rate; Source: Calculated based on insse.ro

If the influencing factors on tourism activity in the rural localities with agritourism guesthouses in Iași County continue at the same rate over the next five years as during the analyzed period (2013-2022) (Table 4), the number of arriving tourists could reach approximately 13,000 and the number of overnight stays could reach approximately 20,000 by the year 2027.
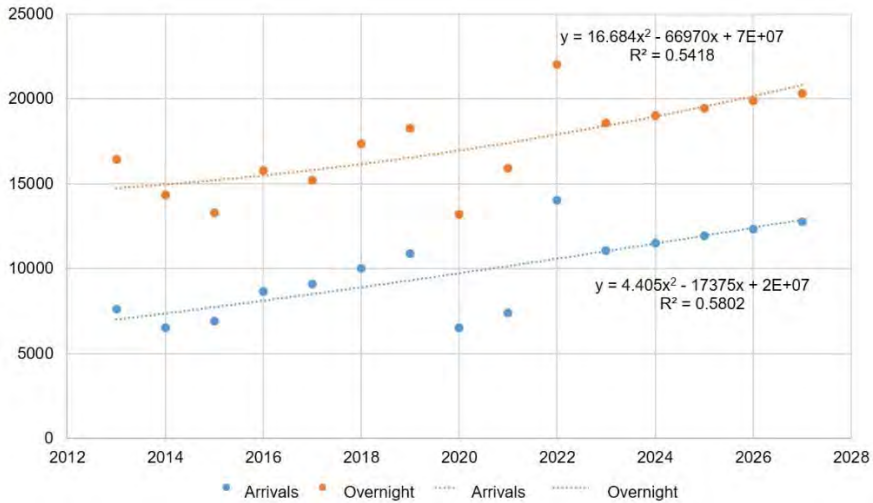
Fig. 1 Dynamics and estimation of arrivals and overnight stays, from 2013 to 2027, in agritourism guesthouses in Iași County

Table 4 Estimation of arrivals and overnight stays, for the period 2023–2027, in agritourism guesthouses in Iași County

Years	T(x)	Arrivals stays (number) $y = 16.684x^2 - 66970x + 7E + 07$	Overnight stays (number) $y = 4.405x^2 - 17375x + 2E + 07$
2023	11	11065.2	18523
2024	12	11486.16	18950.33
2025	13	11907.13	1937765
2026	14	12328.09	19804.94
2027	15	12749.05	20232.31

The average length of stay, as an indicator showing the average time (in days) tourists remain in accommodation and reflecting the ability of the offer to retain tourists in a specific area or region [16], for agritourism guesthouses in Iași County during the analyzed period (2013-2022) (Table 5), varied between 1.19 days (in 2015) and 2.19 days (in 2014).

Table 5 Average length of stay, during the period 2013-2022, in agritourism guesthouses in Iași County

Years	Overnight stays (number)	Arrivals stays (number)	DMS (days)
2013	16448	7585	2.16
2014	14314	6512	2.19
2015	13269	6921	1.19
2016	15763	8634	1.82
2017	15204	9070	1.67
2018	17350	10012	1.73
2019	18264	10877	1.67
2020	13189	6506	2.02
2021	15922	7363	2.16
2022	22004	14019	1.56

DMS – Average length of stay; Source: Calculated based on insse.ro

Table 6 Absolute and relative changes in the average length of stay at agritourism guesthouses in Iași County during the period 2013-2022

Years	DMS (days)	Absolute changes		Dynamics index %		The rhythm of dynamics %	
		Δt/1	Δt/t-1	It/1	It/t-1	Rt/1	Rt/t-1
2013	2.16	-	-	-	-	-	-
2014	2.19	0.03	0.03	101.38	101.38	1.38	1.38
2015	1.19	-0.97	-1.00	55.09	54.33	-44.91	-45.33
2016	1.82	-0.34	0.63	84.25	152.94	-15.75	52.94
2017	1.67	-0.49	-0.13	77.31	91.75	-22.69	-8.25
2018	1.73	-0.43	0.06	80.09	103.59	-19.91	3.59
2019	1.67	-0.49	-0.06	77.31	96.53	-22.69	-3.47
2020	2.02	-0.14	0.35	93.51	120.95	-6.49	20.95
2021	2.16	0	0.14	100	106.93	0	6.93
2022	1.56	-0.6	-0.6	72.22	72.22	-27.78	-27.78
	$\bar{y}$	$\bar{\Delta}$		$\bar{I}$		$\bar{R}$	
	1.81	-0.06		0.96 (96%)		-4%	

DMS – Average length of stay; Δt/1 – Absolute changes with fixed base; Δt/t-1 – Absolute changes with chain base; It/1 – Fixed base dynamic index; It/t-1 – Chain base dynamic index; Rt/1 – Fixed base dynamic rate; Rt/t-1 – Chain base dynamic rate; $\bar{y}$ – Average level of the series; $\bar{\Delta}$ – Average level of absolute increase/decrease; $\bar{I}$ – Average dynamic index; $\bar{R}$ – Average rate of increase/decrease.

Analyzing the absolute and relative dynamics of the average length of stay during the period 2013-2022 (Table 6) in agritourism guesthouses in Iași County, a significant decrease of 27.78% was observed in 2022 compared to the base year (2013) as well as compared to the previous year (2021). However, the most significant decrease in the average length of stay compared to the previous year was recorded in 2015, at 45.33%. Overall, the average level of the length of stay was 1.81 days, with an absolute average decrease of 0.06 days and a relative decrease of 4%.

CONCLUSIONS

Analyzing the absolute and relative dynamics of arrivals during the period 2013-2022 in agritourism guesthouses in Iași County, it was observed that the number of arriving tourists increased significantly in 2022 compared to 2013, by 84.8%. Overall, the average level of arrivals was 8,749.9 people, with an average absolute increase of 714.88 people and a relative increase of 7%. Examining the absolute and relative dynamics of overnight stays during the same period, it was noted that the number of overnight stays increased

in 2022 compared to 2013, by 33.78%. The overall average level of overnight stays was 16,172.7, with an average absolute increase of 617.33 overnight stays and a relative increase of 3%. These increases may be attributed to a slight economic growth in the area and a growing interest among tourists in agritourism in Iași County. The average length of stay in agritourism guesthouses in Iași County at the end of the analyzed period (2022) showed a decrease of 27.78% compared to the base year. This indicates a reduction in the purchasing power of clients for the offered tourism services and possibly the practice of tariffs not commensurate with the services provided.

The analysis of tourist traffic in the 17 rural localities in Iași highlights clear opportunities for the development of agritourism through a positive estimation of arrivals and overnight stays. This activity can ensure sustainable development of the area, generating necessary economic growth for the rural space in Iași while being environmentally friendly. Therefore, agritourism can be considered a current business reality for the sustainability of the rural area in Iași, thanks to its valuable tourism potential demonstrated by the

presence of authentic villages, rich agricultural products specific to the area, traditional products' authenticity.

REFERENCES

1. Muresan, IC.; Oroian, CF.; Harun, R.; Arion, FH.; Porutiu, A.; Chiciudean, GO.; Todea, A.; Lile, R. Local residents' attitude toward sustainable rural tourism development. *Sustainability*, **2016**, *8*, 100. https://doi.org/10.3390/su8010100.

2. Khan, A.; Bibi, S.; Lorenzo, A.; Lyu, J.; Babar, ZU. Tourism and development in developing economies: A policy implication perspective. *Sustainability*, **2020**, *12*, 1618. https://doi.org/10.3390/su12041618

3. *Jurnalul Oficial al Uniunii Europene. Aviz-Sustenabilitatea Zonelor Rurale*. **2013**. Available online: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2013:356:0080:0085:RO:PDF (accessed on 5 April 2024).

4. Adamowicz, M.; Zwolinska-Ligaj, M. The "Smart Village" as a Way to Achieve Sustainable Development in Rural Areas of Poland. *Sustainability*, **2020**, *12*, 6503. https://doi.org/10.3390/su12166503

5. Kim, K.; Uysal, M.; Sirgy, J. How does tourism in a community impacts the quality of life of community residents? *Tour. Manag.*, **2013**, *36*, 527–540.

6. Mitrache, ¸S.; Manole, V.; Stoian, M.; Florina, B.; Istrate, I. *Agroturism si Turism Rural; Editura Fax Press: Bucuresti, Romania*, **1996**

7. Marin, D. Study on the economic impact of tourism and of agrotourism on local communities. *Res. J. Agric. Sci.*, **2015**, *47*, 160–163.

8. Gheres, M. Agroturism, de la Tradiție la Oferta Comerciala; *Editura Risoprint: Cluj-Napoca, Romania,* **2003**.

9. Nistoreanu, P. Turismul Rural-O Afacere Mica cu Perspective Mari; *Editura Didactică și Pedagogica: Bucuresti, Romania*, **1999.**

10. Simeanu, Cristina; Avarvarei, BV.; Simeanu, D.; Usturoi, Al.; Păsărin, B. The assessment of tourist flow in Suceava county's touristy and agro-touristy boarding houses, *Lucrări Ştiinţifice - Seria Zootehnie*, **2021,** vol. 75 (26), Editura "Ion Ionescu de la Brad" Iaşi, ISSN 2067-2330, pag. 285-295

11. http://statistici.insse.ro8077/tempo-online/

12. Badita, Maria; Cristache, Silvia Elena; Iacob, Andreea Iluzia. Statistică aplicată în managementul turistic, *Editura ASE, Bucuresti,* **2005**

13. Merce, Emilian; Merce, Cristian Călin. Statistică – paradigme consacrate şi paradigme întregitoare, *Editura Academic Pres, Cluj – Napoca*, **2009**

14. Petcu, Nicoleta. Statistică în turism 2005, teorie și aplicații, *Editura Albastră, Cluj Napoca,* **2005**

15. Panțiru Mariana. Tehnologia informației și a comunicațiilor TIC 3 (sisteme de gestiune a bazelor de date), *Editura ALL, Bucureşti*, **2006**

16. Turcu, Daniela, Weisz Janeta. Economia turismului, *Editura Eurostampa, Timişoara*, **2008.**