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THE INCOME FROM ACCOMMODATION AND FOOD SERVICES IN ECO-AGRITOURISTIC FARMS IN EASTERN POLAND

Abstract

The aim of the study was to assess the economic effects of the touristic activities in eco-agritouristic farms operating in the Eastern Poland as well as to determine the correlation between the accommodation and food services income value and the farms' leisure facilities base combined with the attractiveness of the recreational rural area. The study was conducted in 2010 in 50 farms located in the following provinces: Mazovia, Podkarpacie, Podlasie, Świętokrzyskie and Warmia-Mazovia. The source material was collected through the direct interview technique. The questionnaire form sent to farms' owners was used as the research tool. The data obtained in the study allow us to conclude that the gross margin generated by accommodation and food services in each farm amounted on average 70,997.36 PLN. The highest value was recorded in the Podkarpacie Province (137,485.56 PLN) and the Warmia-Mazovia Province (118,638.91 PLN), and the lowest in the Świętokrzyskie Province (19,686.21 PLN) and the Podlasie Province (21,946.37 PLN). The revenue per occupied room/bed (POR) ranged between 34.13 PLN and 76.71 PLN. Respectively, the revenue per available room/bed (PAR) ranged from 0.84 to 42.76 PLN. The value of gross margin was significantly correlated with the attractiveness of the recreational rural area and the farms' leisure facilities base. In contrast, the value of the PAR ratio was significantly correlated only with the farms' leisure facilities base. The correlation between these attributes was weak but still significantly positive. Among other attributes no significant correlations was proven.

Keywords: rural recreational space attractiveness indicator, based recreation, gross margin, POR, PAR

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Introduction

Eco-agritourism is a branch of sustainable tourism. It is a new segment of rural tourism offered by certified farms that produce food by the use of environment-friendly methods. The farms meet their guests' expectations concerning environment-friendly life, agricultural production and wastes management better than others. This form of recreation is targeted at people having big environmental awareness and sensitive to the nature. Sociological studies conducted by Kamienicka¹ in the area of Nature 2000 have demonstrated that, as regards the preferred forms and conditions of rest, a great number of tourists checks whether the farm has an organic farming certificate and offers organic produce coming directly from producers. In addition, the research indicates that such requirements are set by better educated agritourists. In the opinion of Ziółkowski,² the tourist offer of environment-friendly farms is addressed to the specific market niche and often compensates for other inconveniences, such as the lack of outstanding tourist attractions, or simple accommodation conditions.

The agritourist product is a very intricate issue including, without limitation, many elements such as e.g. natural tourist advantages. Natural environment is one of the main advantages of agritourism and its quality, in the opinion of Sikorska-Wolak³ and Wojciechowska⁴ and Durydiwka,⁵ is strictly correlated with tourism intensity. Little Poland, Podkarpacie, Pomerania, West Pomerania, Podlasie, Warmia–Mazovia are the main Polish provinces with a high potential

¹ J. Kamienicka, *Świadomość ekologiczna turystów. Interpretacja wyników badania socjologicznego. Turyści a Natura 2000*, Publikacja Narodowego Funduszu Ochrony Środowiska i Gospodarki Wodnej, Warszawa 2012, pp. 16–17.

² B. Ziółkowski, *Rolnictwo ekologiczne a turystyka wiejska – próba modelowego ujęcia wzajemnych zależności*, "Journal of Research and Applications in Agricultural Engineering" 2006, Vol. 51 (2), pp. 224–229.

³ I. Sikorska-Wolak, *Możliwości rozwoju i specyficzne cechy turystyki na obszarach prawnie chronionych w Polsce*, in: *Regionalny aspekt rozwoju turystyki*, ed. M. Jalinik, Wydawnictwo Politechniki Białostockiej, Białystok 2006, pp. 80–87.

⁴ J. Wojciechowska, *Procesy i uwarunkowania rozwoju agroturystyki w Polsce*, Rozprawy habilitacyjne, Wydawnictwo Uniwersytetu Łódzkiego, Łódź 2009, p. 167.

⁵ M. Durydiwka, *Tourist function in rural areas of Poland. Spatial diversity and changing trends*, "Miscellanea Geographica – Regional Studies on Development" 2013, Vol. 17, No. 3, pp. 5–11.

for the development of tourist functions, where tourism may be an important development factor.⁶

The main achievement of Polish agritourism, according to Wojciechowska⁷, is establishing the entities generating and forming its own development. To those entities we should include not only the agritouristic farm owners, but also associations, organizations and institutions supporting this development, such as agricultural advisory centers, communities and county bureaus. Also, tourists belong into this group, especially as their interest in the agritouristic product determines its development directions.

Agritourists also need their free time to be organized. Environmental education is a great attraction of the eco-agritourist farms. For that purpose, didactic natural paths are created within the farms or their surroundings.⁸ They become interesting tourist routes and an alternative for or a supplement of other tourist facilities. Eco-agritourism operators should also take into account that a great part of the society is increasingly interested in active tourism associated with physical recreation. In order to meet this trend, it is necessary to prepare recreational and sports facilities within the farm and its surroundings. The most common forms of recreation in agritourism are cycling, hiking, horse riding, canoeing, horse cab or sleigh rides. To organize some innovative recreational and entertainment services, a farmer must be particularly involved, but this is a way to attract customers to the agritourist farm and stand out against the competition.⁹ However, Sikora¹⁰ points out that innovativeness in agritourism should be moderate not to spoil the rusticity.

⁶ J. Sikora, *Turystyka wiejska, w tym agroturystyka, w kontekście perspektyw rozwoju wsi i rolnictwa w Polsce. Analiza wyników badań empirycznych*, Ekonomiczne Problemy Turystyki No. 3 (27), Zeszyty Naukowe Uniwersytetu Szczecińskiego No. 807, Wydawnictwo Naukowe Uniwersytetu Szczecińskiego, Szczecin 2014, pp. 113–126.

⁷ J. Wojciechowska, *20 lat polskiej agroturystyki – o przeszłości i przyszłości*, “Turystyka” 2011, No. 21/1–2, pp. 67–73.

⁸ J. Sikora, *Agroturystyka. Przedsiębiorczość na obszarach wiejskich*, C.H. Beck., Warszawa 2012, pp. 233–234.

⁹ B. Sawicki, A.K. Mazurek-Kusiak, *Agroturystyka w teorii i praktyce*, Wydawnictwo Uniwersytetu Przyrodniczego w Lublinie, Lublin 2010, pp. 37–38.

¹⁰ J. Sikora, *Innowacyjność w agroturystyce polskiej – teoria i praktyka*, in: *Innowacje w rozwoju turystyki*, ed. M. Jalinik, Wydawnictwo Politechniki Białostockiej, Białystok 2008, pp. 13–20.

Agritourism, as a non-agricultural activity carried out at farms, has mainly an economic aspect. Many studies on agritourism¹¹ indicate that farmers offer tourism services mainly to earn extra income. In addition, in accordance with multifunctional rural development strategies, agritourism is one of the developing symptoms of village and agriculture modernization.¹²

The purpose of the research has been both to evaluate the economic effects of tourist activities at the eco-agritourism farms operating in the Eastern Poland and find a relation between the income earned from accommodation and catering services, recreational facilities at farms, and the attractiveness of rural recreational space.

1. Material and methods

The research has been conducted at 50 eco-agritourism farms located in the following Eastern Poland provinces: Mazovia (7 farms), Podlasie (9 farms), Podkarpacie (10 farms), Świętokrzyskie (14 farms), and Warmia–Mazovia (10 farms). The area subject to the research (Eastern Poland) has been chosen on purpose. The farms are located in 41 municipalities. The list and location of farms has been obtained from the Regional Agricultural Consultancy Centers operating in particular provinces. These are mainly eco-agritourism farms operating in the above mentioned provinces in 2009. The research does not cover the Lublin Province since in the analyzed period there were no farms of the type in question recorded by the Consultancy Centre in Lublin. The research was conducted in 2010 and the information refers to 2009. The source material has been collected through direct interviews. A research tool is a questionnaire addressed to farm owners.

¹¹ K. Łęczycki, R. Jabłonka, A. Marcysiak, *Motywy i uwarunkowania lokalizacyjne prowadzenia działalności agroturystycznej*, in: *Agroturystyka – moda czy potrzeba?*, Monografie No. 80, eds. G.A. Ciepiela, J. Sosnowski, Wydawnictwo Akademii Podlaskiej, Siedlce 2007, pp. 180–199; A. Niedziółka, *Ekonomiczna opłacalność prowadzenia usług agroturystycznych w województwie małopolski*, in: *Agroturystyka – moda czy potrzeba?...*, pp. 79–82; J. Żbikowski, A. Kozak, M. Kuźmicki, *Motywy podejmowania działalności agroturystycznej w wybranych gminach województwa lubelskiego*, in: *Marketing w agroturystyce*, Monografie No. 75, eds. M. Plichta, J. Sosnowski, Wydawnictwo Akademii Podlaskiej, Siedlce 2006, pp. 117–125.

¹² J. Sikora, A. Jęczynek, *Agroturystyka przykładem przedsiębiorczości w wielofunkcyjnym rozwoju terenów wiejskich*, in: *Rola turystyki w strategii i polityce rozwoju gospodarki regionalnej*, Wydawnictwo Wyższej Szkoły Turystyki i Hotelarstwa, Gdańsk 2006, pp. 394–403.

The questions in the questionnaire refer to the surface area of tourist accommodation, recreational facilities, the type of catering services, the number of occupied rooms and catering services sold in the year, accommodation and catering prices, yearly expenses for farm advertisement and promotion, a unit price of water and sewage disposal, a unit price of wastes disposal, a price of 1 tonne of coal, including transport, food purchase prices, the cost of grain grinding, pig slaughtering and pork meat veterinary tests.

In addition, the data on the natural advantages of municipalities where the farms are located has been collected.

On the basis of the data, the following ratios have been calculated:

1. A rural recreational space ratio has been calculated for municipalities where the farms are located on the basis of an evaluation method described by Ciepiela and Sosnowski.¹³ In this method, diagnostic properties described as stimulants and destimulants are identified. Then, depending on their percentage share in the general area of the administrative units, a relevant number of points is assigned to them. The top unit value is assigned to surface (flowing and standing) waters. The second key component of the environment comprises forests, meadows and grazing lands. This method also takes into account the relative altitude of the municipality (1 point for each 10 m of the relative altitude). A destimulating value has been assigned to urbanized areas, whose increasing share in the structure of an area reduces the usefulness of the natural environment for tourism purposes.

The ratio reflecting the attractiveness of the rural recreational area of the municipalities has been calculated in accordance with the following formula:

$$W_{wa} = \left(\sum_{j=1}^s s \right) \times \frac{100 - d}{100} + W_w$$

where:

W_{wa} – the rural recreational area attractiveness ratio,

s – the number of points assigned to the stimulant,

d – the number of points assigned to the destimulant,

j – a property for the j^{th} administrative unit (municipality),

W_w – the number of points for the relative altitude.

¹³ G.A. Ciepiela, J. Sosnowski, *Wpływ atrakcyjności wiejskiej przestrzeni rekreacyjnej na działalność gospodarstw rolnych regionu siedleckiego*, "Wieś i Rolnictwo" 2011, No. 1 (150), pp. 134–146.

The area of arable land (including orchards), meadows and grazing lands, forests and tree-covered areas, urbanized land and surface waters of particular municipalities is based on the statistical data obtained electronically from competent offices of the municipalities and districts.¹⁴ While the relative altitude came from the website. An additional source of information was the Statistical Yearbook of Agriculture.¹⁵

2. The scoring of recreational facilities offered by the farms. This evaluation covers recreational facilities of the agritourism farms. The number of points for the categories as specified in Table 1 has been calculated on the basis of the cost of preparation which differs depending on the quality and price of materials and equipment used as well as the price of the related construction services. That is why, the average cost of the preparation of individual types of recreational facilities has been taken into account and calculated on the basis of price offers and cost estimates obtained from various companies selling recreational equipment and devices and constructing the recreational facilities. This method assumes 1 point for the facilities whose cost exceeds PLN 1000. The growth of costs by not more than PLN 1000 increases the number of points by 1. Therefore, the number of points for particular types of recreational facilities has been calculated by dividing the average preparation cost by 1000. The result has been rounded to the closest integer. The number of points that a farm may obtain for recreational horses and equipment (bicycles, quads, buggies, canoes, etc.) depends on the number of the facilities.
3. The yearly direct costs of tourist maintenance at the farm without food has been calculated as the product of the daily maintenance cost per tourist and the number of nights sold. The daily cost covers water (including sewage), electricity, bottled gas, cleaning agents, wastes disposal, the heating of the area used by tourists, and advertising expenses. It is very difficult to calculate the tourist maintenance cost of the agritourism farm because it is not possible to find out which part of the above cited costs is spent for agricultural activity and the maintenance of the farmer's family and which for the maintenance of tourists. Therefore, the calculation of costs related to tourist maintenance is based on the accounting documents kept

¹⁴ www.wysokosc.mapa.info.pl.

¹⁵ *Rocznik Statystyczny Rolnictwa*, GUS, Warszawa 2010.

for the tourist facilities located in the village of Zabuze (Łosice District). Its activity is not identified with agriculture and its accommodation facilities are used only by tourists. On the basis of the 2009 invoices and the number of person-days (accommodation and board), the consumption of water supplied to the water system, the consumption of electricity used for lighting purposes, the operation of household goods and water heating, the cost of bottled gas used for cooking, the cost of cleaning agents and consumable articles, the quantity of wastes per tourist per day have been calculated. In the farms equipped with the gas pipeline, the daily cost of natural gas used for cooking and water heating per person has been taken into account (as based on the information obtained during direct interviews and the daily cost of natural gas used for cooking and water heating, the number of person-days, and the number of family members). The electricity unit price has been quoted after the Small Statistical Yearbook of Poland,¹⁶ whereas the price of water (including sewage) and wastes disposal – from direct interviews. The cost incurred to heat the area used by tourists at the farms has been calculated on the basis of the actual surface area used for that purpose, as specified by farm owners during direct interviews. The yearly consumption of coal for the tourist area heating purposes has been calculated in accordance with Gradziuk's¹⁷ method taking into account the consumption of hard coal to heat 1 square meter of the living area, as calculated by the author, while the price of one tonne of coal, including transport, has been obtained during the direct interviews. The heating cost is divided by the number of accommodation services sold by the farm. The cost incurred by farm owners for advertising purposes has been calculated in a similar way: yearly related expenses have been divided by the number of services sold. Direct tourist maintenance costs do not include: own work, credit interest, the depreciation of premises, furniture, household goods, kitchen tools, bed coverings, towels and tablecloths.

¹⁶ *Mały Rocznik Statystyczny Polski*, GUS, Warszawa 2010.

¹⁷ P. Gradziuk, *Ekonomiczna analiza wykorzystania słomy na cele energetyczne*, in: *Słoma – energetyczne paliwo*, eds. A. Grzybek, P. Gradziuk, K. Kowalczyk, "Wieś Jutra" 2001, pp. 54–56.

Table 1

Number of points for each elements of recreational amenities base
in the agritouristic farm

Ordinal number	Elements of recreational amenities base	Number of points
1	No recreational facilities	0
2	Garden house and furniture	10
3	Bonfire/grill place with equipment	3
4	Fireplace (fireplace room)	7
5	Playground for children (sandpit, swings, slide)	7
6	Multifunctional sports grass field	15
7	Tennis court (artificial surface) (sztuczna nawierzchnia)	80
9	Bowling alley (1 track)	65
8	Table tennis	2
9	Billiard table	7
10	Mini golf (10 holes)	30
11	Paintball (10 pieces)	10
12	Foosball	1
13	Darts	1
14	Buggy (off-road car) (1 pieces)	60
15	Bicycle (1 pieces)	1
16	Recreational horse (1 horse)	6
17	Canoe, boat (1 pieces)	2
18	Pedal boat (1 pieces)	5
19	Quad (1 pieces)	20
20	Horse cab, carriage (1 pieces) (1 szt.)	5
21	Sleigh (1 pieces)	3
22	Fish pond (200 m ²)	12
23	Heated garden swimming pool (16m x 12m)	120
24	Finnish sauna for 7 persons	20
25	Jacuzzi for 7 persons	30
26	Shooting range (1 air rifle)	1
27	Fitness room (treadmill, multigym, bicycle, barbell, weights)	11

Source: author's elaboration.

- The direct cost of daily catering. To calculate catering costs, it has been assumed that tourists living at the agritourism farm should be fed with the produce of the farm or products bought at purchase prices from nearby agricultural producers. The tourist's daily demand for food at the agri-

tourism farm (milk, consumer grains, eggs, pork and poultry meat with bones, potatoes, vegetables and fruit) is quoted after Świetlikowska's¹⁸ paper. The demand for pork and poultry has been translated into livestock on the basis of the slaughter value of pigs and poultry.¹⁹ The daily consumption of the food produced outside the farm (sugar, oil, margarine, rice, yellow cheese, fish, coffee, tea) is calculated on the basis both of the 2009 invoices and the number of catering services provided at the tourist farm located in the village of Zabuze (Łosice District). Unit prices of the above articles are quoted after the Small Statistical Yearbook of Poland.²⁰ The purchase prices of food and the cost of grain grinding, pig slaughtering and pork veterinary tests have been obtained during the direct interviews.

5. Direct revenues are calculated as the product of the number of services sold in the year (accommodation + board) and the unit prices of the services.
6. Income from accommodation and catering services (measured as a direct surplus) is the difference between direct revenues and indirect costs.
7. A ratio reflecting the farm's income in comparison to the demand for services (POR, revenue per occupied room): income per room/bed sold in the period. The ratio was calculated as the quotient of the yearly income of the farm (measured as the direct surplus) and the number of occupied rooms sold by the farm in the year²¹.
8. A ratio reflecting the farm's income in comparison to the supply of services (PAR, revenue per available room): an income ratio per a room/bed available in the period. The ratio is calculated as the quotient of the yearly income of the farm (measured as the direct surplus) and the number of available rooms in the farm in the year (the farm's yearly service capacity: the number of places x 365 days).²²

¹⁸ U. Świetlikowska, *Agroturystyka*, Wydawnictwo SGGW, Warszawa 2000, pp. 242–255.

¹⁹ M. Osek, A. Milczarek, *Wynik tuczu, wartość rzeźna oraz jakość mięsa świń rasy puławskiej żywionych mieszankami z udziałem nasion bobiku i rzepaku*, "Roczniki Nauk Zootechnicznych" 2005, Vol. 32, f. 2, pp. 103–113; M. Osek, A. Janocha, A. Milczarek, B. Klocek, *Wyniki produkcyjne i poubojowe oraz walory smakowe mięsa kurcząt brojlerów żywionych mieszankami natłuszczanymi różnymi olejami roślinnymi*, "Rośliny Oleiste" 2005, Vol. XXVI/2, pp. 541–550.

²⁰ *Mały Rocznik Statystyczny Polski...*

²¹ B. Lubas, *Układ hotelowego rachunku zysków i strat według Standardowego Systemu Rachunkowości Hotelowej (SSRH)*, www.e-finanse.com.

²² *Ibidem*.

9. A Pearson's correlation coefficient (r) defining a relation between the value of the ratios. StatSoft, Inc. (2011). STATISTICA (data analysis software system), version 10.²³

2. Results and discussion

2.1. Evaluation of the site in terms of the attractiveness of rural recreational area

Agritourism services are offered in the rural recreational area comprising the closer and farther surroundings of the farm and should allow rural tourism. This area is formed by the elements of the natural environment and the system of such elements is a determinant of the attractiveness of the area. To examine the attractiveness of the rural recreational area, the site, usually a municipality, is valorized.²⁴

The site valorization based on the modified scoring system enables us to identify the attractiveness of the rural recreational space of the municipalities in a measurable way. The data presented in Table 2 indicate that the site where the eco-agritourism farms are located is very diversified in terms of its natural advantages. Municipalities located in the Podkarpacie and Świętokrzyskie Provinces are the most attractive because of landform features, highly scored in the method used. Based on the evaluation of the attractiveness of the rural recreational area, it may be also concluded that the share of surface waters in the region of Warmia and Mazovia does not determine the attractiveness of all the municipalities examined in the region. The ratio in some municipalities of the Warmia-Mazovia Province does not differ substantially from the one obtained for municipalities located in the Mazovia and Podlasie Provinces. It is also necessary to note that all the municipalities have a relatively high attractiveness ratio, which creates favourable conditions for rural tourism in the region.

²³ www.statsoft.com.

²⁴ M. Drzewiecki M., *Agroturystyka w Polsce – stan obecny i tendencje rozwojowe*, in: *Uwarunkowania rozwoju turystyki związanej z obszarami wiejskimi*, eds. B. Sawicki, J. Bergier, Wydawnictwo Państwowej Wyższej Szkoły Zawodowej w Białej Podlaskiej, Międzyrzec Podlaski 2005, pp. 46–51.

Table 2

Rural recreational space attractiveness indicator value of communities,
where analysed eco-agritouristic farms are located

Province	Community	Rural recreational space attractiveness indicator (points)
1	2	3
Mazovia	Cegłów	34.22
	Głowaczów	29.31
	Kadzidło	32.34
	Paprotnia	23.69
	Sanniki	28.97
	Stanisławów	28.05
	Żuromin	24.99
Podkarpacie	Baligród	68.81
	Bukowsko	65.66
	Cisna	80.76
	Dukla	56.55
	Lesko	84.90
	Leżajsk	36.50
	Olszanica	57.97
	Solina	76.68
Podlasie	Czarna Białostocka	39.28
	Dąbrowa Białostocka	24.85
	Hajnówka	38.34
	Narewka	38.01
	Piątnica	19.81
	Sokoły	24.00
	Sokółka	31.04
	Zabłudów	34.91
Świętokrzyskie	Bodzentyn	50.66
	Chęciny	38.65
	Łagów	46.45
	Nowa Słupia	44.68
	Radków	52.11
	Radoszyce	41.71
	Stopnica	37.11
	Złota	31.81

1	2	3
Warmia-Mazovia	Budry	27.66
	Ełk	38.13
	Grunwald	34.40
	Kruklanki	42.46
	Kurzężnik	24.00
	Młynary	25.17
	Mragowo	45.32
	Sorkowity	39.50
	Srokowo	27.02
	Świątajno	35.22

Source: author's research.

2.2. Recreational facilities in eco-agritourism farms

Recreational facilities at the farms are poor. These comprise mainly a bonfire and barbecue place, a resting place in the garden, and a playground (Table 3). Not all farms are prepared to offer active forms of rest identified with physical recreation. Only a half of the farms offer a sports field, while bicycles can be rented at 32 farms (64%), and water equipment – at 17 (34%). It is also vital to note that only a few farms are equipped with the expensive recreational and sports facilities such as buggies, quads or a fitness room.

Billiards, table tennis, table football or darts are also less popular. However, horses for recreation are held by 17 farms (34%). Enthusiasts of fishing have a great chance to display their skills and can go in for their hobby in the fish ponds owned by 21 farmers (44%).

The number of points given to the farms for their recreational facilities fluctuates from 20 to 129, but the scoring above 100 points has also been granted to a few farms (Table 4).

Table 3

Recreational amenities base in eco-agritouristic farm

Specification	Province					Region	% farms
	Mazovia	Podkarpacie	Podlasie	Świętokrzyskie	Warmia- -Mazovia		
	Number of farms						
Garden house and furniture	7	10	9	12	10	48	96
Bonfire/grill place with equipment	7	10	9	14	10	50	100
Fireplace – fireplace room	4	3	3	5	5	20	40
Play ground for children: sandpit, swings, slide	6	7	7	10	8	38	76
Multifunctional sports grass field	4	4	4	6	7	25	50
Tennis court	1	1	0	2	2	6	12
Billiard table	0	0	0	0	1	1	2
Foosball	0	1	0	0	1	2	4
Darts	2	2	0	1	3	8	16
Bicycle	6	7	3	9	7	32	64
Recreational horse	2	4	4	3	4	17	34
Canoe, boat, pedal boat	1	2	4	1	9	17	34
Quad	1	0	0	0	1	2	4
Horse cab, carriage, sleigh sane	2	4	4	3	4	17	34
Fish pond	5	1	3	5	8	22	44
Fitness room	1	0	0	1	1	3	6

Source: author's research.

Table 4

Ranking of eco-agritouristic farms according to the number of points obtained for the recreational amenities base

Ranking	Number of farms	Province	Number of points	Ranking	Number of farms	Province	Number of points
1	G4	Mazovia	129	22	G2	Mazovia	43
2	G1	Warmia-Mazovia	110	22	G5	Mazovia	43
3	G6	Podlasie	109	23	G10	Świętokrzyskie	42
4	G3	Warmia-Mazovia	104	24	G12	Świętokrzyskie	40
4	G7	Mazovia	104	25	G6	Mazovia	39
5	G4	Warmia-Mazovia	93	25	G3	Świętokrzyskie	39
6	G1	Mazovia	91	26	G9	Podkarpacie	37
7	G2	Podlasie	87	26	G3	Podlasie	37
8	G6	Warmia-Mazovia	76	27	G1	Podlasie	35
8	G2	Warmia-Mazovia	76	27	G7	Świętokrzyskie	35
9	G8	Warmia-Mazovia	72	28	G3	Mazovia	32
10	G9	Warmia-Mazovia	64	28	G2	Świętokrzyskie	32
11	G8	Świętokrzyskie	61	29	G5	Świętokrzyskie	29
12	G1	Podkarpacie	60	29	G14	Świętokrzyskie	29
13	G5	Warmia-Mazovia	59	30	G9	Świętokrzyskie	28
14	G10	Warmia-Mazovia	55	31	G4	Świętokrzyskie	27
15	G4	Podkarpacie	54	32	G5	Podkarpacie	26
16	G13	Świętokrzyskie	52	32	G6	Podkarpacie	26
17	G7	Warmia-Mazovia	50	33	G3	Podkarpacie	24
18	G5	Podlasie	49	33	G8	Podkarpacie	24
18	G8	Podlasie	49	34	G10	Podkarpacie	22
19	G7	Podkarpacie	48	34	G4	Podlasie	22
19	G7	Podlasie	48	34	G6	Świętokrzyskie	22
20	G2	Podkarpacie	47	34	G11	Świętokrzyskie	22
21	G9	Podlasie	44	35	G1	Świętokrzyskie	20

Source: author's research.

The best equipped recreational facilities are offered by the farms located in the Warmia-Mazovia Province, where the average number of points per farm was 75.9. The Mazovia Province scores as the second best (68.7). The ranking of farms based on the number of points granted for recreational facilities (Table 4) indicates that farms specializing in horse and water recreation obtained the top scoring. The G4 farm from the Mazovia Province has obtained 129 points and gained the first place. It is worth noting that the farm has 13 horses and provides horse recreation. A similar situation has been recorded at the G1 and G3 farms from the Warmia-Mazovian Province occupying the second and fourth place in the ranking respectively. It is also worth pointing out that the top ten include the seven farms from the Warmia-Mazovia Province, while the last ten places are occupied by farms from the Świętokrzyskie and Podkarpacie Provinces, which have received from 20 to 37 points.

2.3. Income from accommodation and catering services at eco-agritourism farms

The financial analysis of tourist activities at the agritourism farms concerns many issues and is a complicated tool subject to advanced book-keeping. The farms usually do not keep such advanced books, therefore our studies are limited to the calculation of direct costs and revenues related to accommodation and catering for tourists at the analyzed eco-agritourism farms in 2009. On the basis of revenues and costs, we have calculated the direct surplus allowing for the measurable evaluation of financial benefits earned by the farm from tourism.

The yearly direct cost per tourist at the farms has been determined by the number of service units sold and the daily cost of food and tourist maintenance. The data presented in Table 5 indicates that the number of the service units sold by the farms is very diversified and fluctuates from 45 to 5495. The biggest number of service units has been sold by the farms in the Podkarpacie and Warmia-Mazovia Provinces. Tourists were much less interested in the eco-agrotourism in the Świętokrzyskie and Podlasie Provinces.

Expenses incurred for the advertisement and rooms used for tourist purposes have a significant impact on the daily tourist maintenance cost (without food). Therefore, in each of the provinces in question there are farmers who

provide fewer services in comparison to the others but allocate a bigger surface for tourists and a bigger amount for advertising purposes and their yearly tourist maintenance cost is bigger.

Table 5

Cost, revenue and surplus resulted from the accommodation and full-day food services for tourists in eco-agritouristic farms

Province	Number of farms	Number of delivered service (accommodation and food service)*	Annual direct services cost (PLN)	Service price (accommodation and food service) (PLN)	Annual direct services revenue (PLN)	Annual direct services surplus (PLN)
1	2	3	4	5	6	7
Mazovia	G1	1870	29355.26	85	158950	129594.74
	G2	678	12087.38	85	57630	45542.62
	G3	695	11563.41	80	55600	44036.59
	G4	1030	18239.24	83	85490	67250.76
	G5	1760	29159.68	85	149600	120440.32
	G6	743	13090.17	70	52010	38919.83
	G7	1109	19006.04	80	88720	69713.96
Mean		1126.43	18928.74	81.14	92571.43	73642.69
Podkarpackie	G1	5495	73017.56	90	494550	421532.44
	G2	4352	57785.86	85	369920	312134.14
	G3	2120	31986.56	80	169600	137613.44
	G4	3952	58837.38	85	335920	277082.62
	G5	315	5596.92	75	23625	18028.08
	G6	641	11357.24	90	57690	46332.76
	G7	899	13851.79	70	62930	49078.21
	G8	549	9381.31	75	41175	31793.69
	G9	1218	17402.78	65	79170	61767.22
	G10	317	5867.04	80	25360	19492.96
Mean		1985.80	28508.44	79.50	165994.00	137485.56
Podlasie	G1	400	7007.20	90	36000	28992.80
	G2	100	2160.80	80	8000	5839.20
	G3	180	6440.04	75	13500	7059.96
	G4	140	2605.12	80	11200	8594.88
	G5	1095	17408.31	60	65700	48291.69
	G6	360	7400.88	75	27000	19599.12
	G7	1500	24342.00	60	90000	65658.00
	G8	190	5264.52	80	15200	9935.48
	G9	90	2753.82	70	6300	3546.18
Mean		450.56	8375.85	74.44	30322.22	21946.37

1	2	3	4	5	6	7
Świętokrzyskie	G1	550	8067.40	70	38500	30432.60
	G2	1494	24020.53	75	112050	88029.47
	G3	560	9647.68	75	42000	32352.32
	G4	45	1450.71	85	3825	2374.29
	G5	630	12497.94	75	47250	34752.06
	G6	160	2943.68	75	12000	9056.32
	G7	105	2568.09	65	6825	4256.91
	G8	900	14281.20	50	45000	30718.80
	G9	150	4603.20	65	9750	5146.80
	G10	45	1450.71	80	3600	2149.29
	G11	60	1667.88	90	5400	3732.12
	G12	70	2079.56	90	6300	4220.44
	G13	180	5603.04	85	15300	9696.96
	G14	330	6061.44	75	24750	18688.56
Mean		377.07	6924.50	75.36	26610.71	19686.21
Warmia-Mazovia	G1	2475	39892.05	75	185625	145732.95
	G2	2850	43228.80	70	199500	156271.20
	G3	1540	24760.12	65	100100	75339.88
	G4	1520	24803.36	80	121600	96796.64
	G5	1113	17672.21	70	77910	60237.79
	G6	3212	48205.70	80	256960	208754.30
	G7	900	14479.20	85	76500	62020.80
	G8	4000	62592.00	75	300000	237408.00
	G9	1380	26990.04	90	124200	97209.96
	G10	800	13382.40	75	60000	46617.60
Mean		1979.00	31600.59	76.50	150239.50	118638.91
Eastern Poland	Mean	1137.34	18118.35	77.06	89115.70	70997.36

* The number of delivered full-day food service is equal to the number of the delivered accommodation services

The cost of full-day food service for one tourist – 1 person/day – amounts to 6.41 (PLN).

The economic analysis of the tourist activity of the farms

Source: author's research.

The prices of accommodation and board per tourist at the farms differ. However, an average price of the services in individual provinces does not differ significantly (Table 5). The direct revenue from accommodation and daily

board is from PLN 3,600 to PLN 494,550, and amounts to PLN 89,115.7 per farm on the average, while the yearly direct surplus is from PLN 2,149.29 to PLN 421,532.44 (Table 5), while an average per farm oscillates around the amount of PLN 70,997.36, although it is the biggest in the Podkarpacie Province (PLN 137,485.56) and the Warmia–Mazovia (PLN 118,638.91) Province, and the smallest – in the Świętokrzyskie Province (PLN 196,86.21). Comparing the data obtained herein with the data coming from the agritourist farms of the region of Siedlce in the years 2006–2007²⁵, it must be noted that an average income generated by tourism in the eco-agritourism farms has been over 10-times bigger. In addition, the farms whose income (direct surplus) from tourist services is from PLN 208,754 to PLN 421,532 constitute 10%, while the farms with the income from PLN 60,000 to PLN 100,000 constitute 20% of the population. However, the group also includes both the farms (12%) whose income from agritourism activities does not exceed PLN 5,000 and farms making the income of PLN 5,000 – PLN 10,000 constitute 14%.

Economic effects in the hotel industry are commonly described with the use of POR (income per occupied room) and PAR (income per available room in the defined period) indicate that income (measured as the direct surplus) per occupied room is from PLN 34.13 to PLN 76.71 (Table 6). The biggest income has been earned by farms whose offer is targeted at one group of tourists (primary school students) and enriched with elements of environmental education and handicraft workshops. Services offered under the so-called “Residential School Trips” are very popular. The biggest income per available room (PAR) has been recorded by the G2 farm (PLN 42.76) in the Podkarpacie Province (Table 7), while the G10 farm in the Świętokrzyskie Province is at the last place in the PAR ranking as the PAR coefficient there is the smallest (1.76 %).²⁶

²⁵ G.A. Ciepiela, J. Sosnowski, *Efekty ekonomiczne działalności turystycznej w gospodarstwach agroturystycznych*, “Zagadnienia Ekonomiki Rolnej” 2012, No. 2 (331), pp. 131–149.

²⁶ G.A. Ciepiela, A. Balińska, *Usługi turystyczne w gospodarstwach ekoagroturystycznych położonych w regionie Polski Wschodniej*, in: *Przedsiębiorczość w turystyce*, eds. S.J. Starski, M. Jalinik, Wydawnictwo Eko. Pres, Białystok, 2014, pp. 261–277.

Table 6

Revenue (direct surplus) generated from accommodation services and full-day food service in the eco-agritouristic farm compared to the service demand (POR)

Ranking	Number of farms	Province	POR (PLN)	Ranking	Number of farms	Province	POR (PLN)
1	G1	Podkarpacie	76.71	26	G8	Podkarpacie	57.91
2	G1	Podlasie	72.48	27	G3	Świętokrzyskie	57.77
3	G6	Podkarpacie	72.28	28	G5	Podkarpacie	57.23
4	G2	Podkarpacie	71.72	29	G14	Świętokrzyskie	56.63
5	G9	Warmia-Mazovia	70.44	30	G6	Świętokrzyskie	56.60
6	G4	Podkarpacie	70.11	31	G1	Świętokrzyskie	55.33
7	G1	Mazovia	69.30	32	G5	Świętokrzyskie	55.16
8	G7	Warmia-Mazovia	68.91	33	G2	Warmia-Mazovia	54.83
9	G5	Mazovia	68.43	34	G7	Podkarpacie	54.59
10	G2	Mazovia	67.17	35	G6	Podlasie	54.44
11	G4	Mazovia	65.29	36	G5	Warmia-Mazovia	54.12
12	G6	Warmia-Mazovia	64.99	37	G13	Świętokrzyskie	53.87
13	G3	Podkarpacie	64.91	38	G4	Świętokrzyskie	52.76
14	G4	Warmia-Mazovia	63.68	39	G6	Mazovia	52.38
15	G3	Mazovia	63.36	40	G1	Podlasie	52.29
16	G7	Mazovia	62.86	41	G9	Podkarpacie	50.71
17	G11	Świętokrzyskie	62.20	42	G3	Warmia-Mazovia	48.92
18	G10	Podkarpacie	61.49	43	G10	Świętokrzyskie	47.76
19	G4	Podlasie	61.39	44	G5	Podlasie	44.10
20	G12	Świętokrzyskie	60.29	45	G7	Podlasie	43.77
21	G8	Warmia-Mazovia	59.35	46	G7	Świętokrzyskie	40.54
22	G2	Świętokrzyskie	58.92	47	G9	Podlasie	39.40
23	G1	Warmia-Mazovia	58.88	48	G3	Podlasie	39.22
24	G2	Podlasie	58.39	49	G9	Świętokrzyskie	34.31
25	G10	Warmia-Mazovia	58.27	50	G8	Świętokrzyskie	34.13

Source: author's research.

Table 7

Revenue (direct surplus) generated from accommodation services and full-day food service in the eco-agritouristic farm compared to the service supply (PAR)

Ranking	Number of farms	Province	PAR (PLN)	Ranking	Number of farms	Province	PAR (PLN)
1	G2	Podkarpacie	42.76	26	G7	Podkarpacie	14.94
2	G7	Warmia-Mazovia	42.48	27	G7	Mazovia	14.69
3	G1	Podlasie	39.72	28	G9	Podkarpacie	14.10
4	G2	Warmia-Mazovia	38.92	29	G1	Świętokrzyskie	13.90
5	G4	Podkarpacie	37.96	30	G5	Podlasie	11.03
6	G6	Warmia-Mazovia	35.75	31	G8	Podkarpacie	8.71
7	G1	Podkarpacie	33.97	32	G3	Świętokrzyskie	8.06
8	G8	Warmia-Mazovia	32.97	33	G10	Podkarpacie	7.63
9	G4	Mazovia	30.71	34	G14	Świętokrzyskie	7.31
10	G3	Mazovia	30.16	35	G5	Podkarpacie	6.17
11	G1	Mazovia	29.59	36	G8	Świętokrzyskie	5.26
12	G5	Mazovia	27.50	37	G4	Podlasie	4.71
13	G9	Warmia-Mazovia	26.63	38	G8	Podlasie	4.54
14	G1	Warmia-Mazovia	26.62	39	G6	Podlasie	4.47
15	G10	Warmia-Mazovia	25.54	40	G6	Świętokrzyskie	4.14
16	G3	Podkarpacie	25.13	41	G13	Świętokrzyskie	2.95
17	G7	Podlasie	22.49	42	G3	Podlasie	2.42
18	G4	Warmia-Mazovia	22.10	43	G9	Podlasie	1.62
19	G2	Mazovia	17.82	44	G2	Podlasie	1.60
20	G6	Mazovia	17.77	45	G11	Świętokrzyskie	1.46
21	G2	Świętokrzyskie	16.08	46	G12	Świętokrzyskie	1.45
22	G3	Warmia-Mazovia	15.88	47	G4	Świętokrzyskie	1.08
23	G6	Podkarpacie	15.87	48	G9	Świętokrzyskie	1.01
24	G5	Świętokrzyskie	15.87	49	G7	Świętokrzyskie	0.97
25	G5	Warmia-Mazovia	15.00	50	G10	Świętokrzyskie	0.84

Source: author's research.

The examination of the relationships between the ratio reflecting the attractiveness of rural recreational areas and the number of points obtained for recreational facilities by the farm as well as POR and PAR coefficients and the direct surplus based on the correlation coefficient have indicated that the direct surplus is strictly correlated with the attractiveness of the rural area and recreational facilities. On the other hand, the income per available room has been substantially influenced only by recreational facilities (Table 8). It must also be emphasized that the relationship between these features is poor, but highly positive. No material relationships between other features have been demonstrated.

Table 8

Correlation coefficients

Tested trait	Mean	Standard deviation	Maximum value	Minimum value	Rural recreational space attractiveness indicator	Number of points for recreational amenities base	Direct surplus	POR indicator value	PAR indicator value
					Correlation coefficients (r)				
Rural recreational space attractiveness indicator	41.78	15.61	84.90	19.81	-	-	0.19*	0.12	0.01
Number of points for recreational amenities base	51.32	27.40	129.00	20.00	-	-	0.29*	0.11	0.32*
Direct surplus	77997.35	87535.64	421532.40	2149.29	0.19*	0.29*			
POR indicator value	57.61	10.02	76.71	34.13	0.12	0.11		-	-
PAR indicator value	16.61	13.04	42.76	0.84	0.01	0.32*		-	-

*statistically significant coefficient

Source: author's research.

Conclusion

On the basis of the research we may conclude that the eco-agritourism in the Eastern Poland in 2009 was very uncommon. Then, the eco-agritourism farms constituted 1.9% of all agritourism farms operating in the six provinces (Lubline, Mazovia, Podkarpacie, Podlasie, Świętokrzyskie and Warmia-Mazovia). Also, in the period in question the farms constituted 0.52% of the total number of environment-friendly farms operating in the region.

The site valorization based on the modified scoring number has indicated that the region where the eco-agritourism farms are located is highly diversified in terms of natural advantages. The municipalities with the most attractive landform features are located in the Podkarpacie and Świętokrzyskie Provinces.

Recreational facilities offered the farms are usually poor. They mainly include a bonfire and barbecue place, a resting place in the garden and a playground for children. Only few farms have been equipped with more expensive facilities, such as buggies, quads or a fitness room. Horses for recreation are maintained by 34% farms.

The best recreational facilities are offered by the farms in the Warmia-Mazovia Province and the Mazovia Province. The ranking of farms based on the number of points granted for recreational facilities indicates that the farms specializing in horse and water recreation have been evaluated at the top places.

All the farms provide full board for tourists. Accommodation and board prices differ. The biggest price (on the average per farm) has been recorded in the Mazovia Province and the smallest – in the Podlasie Province; however, the difference is small (PLN 6.70).

Income from accommodation and catering services in the eco-agritourism farms, measured as the direct surplus, is highly diversified and oscillates between PLN 2,149.29 and PLN 421,532.44, and average income per farm is PLN 70,997.36. The biggest income (on the average per farm) has been earned in the Podkarpacie (PLN 137,485.56) and Warmia-Mazovia (PLN 118,638.91) Provinces, and the smallest income has been recorded in the Świętokrzyskie Province (PLN 19,686.21). The farms whose income from tourist services fluctuate from PLN 208,754 to PLN 421,532 constitute 10%, and the farms whose income is from PLN 60,000 to PLN 100,000 constitute 20% of the population. However, the group also includes the farms (12%) whose income from agritourism does not exceed PLN 5,000 and the farms which earn the income of PLN 5,000 to PLN 10,000 constitute 14%.

The income analysis based on the demand and supply of services has indicated that the income per occupied room (POR) was from PLN 34.13 to PLN 76.71. The biggest income per occupied room has been earned by the farms whose offer is targeted at one group (primary school students) and enriched with elements of environmental education and handicraft workshops. Services provided under the so-called “Residential School Trips” are very popular. Still, the biggest income per available room (PAR) has been earned by one farm in the Podkarpacie Province (PLN 42.76). The smallest income per available room has been recorded by a farm in the Świętokrzyskie Province.

The direct surplus is strictly correlated with the attractiveness of the rural area and recreational facilities of the farm. Yet, the income per available room has been substantially influenced only by the quality of recreational facilities (PAR). It must be also noted that the relationship between these features is poor, but highly positive. No material relationships between other features are proven.

Based on the statistical analysis, we are of the opinion that the number of (accommodation and catering) services sold – the major determinant of the economic effects of tourist activities of the eco-agritourism farms – does not depend only on the natural attractiveness and recreational facilities of a site. We may assume that factors influencing the demand for eco-agritourism services also include a distance from large urban agglomerations to the farm, the accessibility of the farm, good cuisine, nice atmosphere and accommodation standard – all these differing significantly in the eco-agroiturism farms.²⁷

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²⁷ Ibidem, pp. 261–277.

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DOCHÓD Z USŁUG NOCLEGOWYCH I GASTRONOMICZNYCH W GOSPODARSTWACH EKOAGROTURYSTYCZNYCH POLSKI WSCHODNIEJ

Streszczenie

Celem pracy była ocena efektów ekonomicznych działalności turystycznej w gospodarstwach ekoagroturystycznych, funkcjonujących na terenie Polski Wschodniej oraz określenie związku pomiędzy wielkością dochodu z usług noclegowych i gastronomicznych a wyposażeniem bazy rekreacyjnej w gospodarstwach i atrakcyjnością wiejskiej przestrzeni rekreacyjnej. Badania przeprowadzono w 2010 roku w 50 gospodarstwach zlokalizowanych na terenie województwa mazowieckiego, podkarpackiego, podlaskiego, świętokrzyskiego i warmińsko-mazurskiego. Materiał źródłowy zebrano techniką wywiadu bezpośredniego. Narzędziem badawczym był kwestionariusz ankiet skierowany do właścicieli gospodarstw. Uzyskane dane pozwalają stwierdzić, że nadwyżka bezpośrednia z usług noclegowych i gastronomicznych w gospodarstwie wynosiła średnio 70 997,36 zł. Najwyższą jej wartość uzyskano w województwie podkarpackim (137 485,56 zł) i warmińsko-mazurskim (118 638,91 zł), a najniższą w województwie świętokrzyskim (19 686,21 zł) i podlaskim (21 946,37 zł). Dochód uzyskany z jednego sprzedanego miejsca (POR) kształtował się w przedziale 34,13–76,71 zł. Natomiast

dochód przypadający na jedno dostępne miejsce (PAR) wahał się w granicach od 0,84 zł do 42,76 zł. Wartość nadwyżki bezpośredniej była istotnie skorelowana z atrakcyjnością wiejskiej przestrzeni rekreacyjnej i wyposażeniem bazy rekreacyjnej. Natomiast na wartość wskaźnika (PAR) istotny wpływ miało tylko wyposażenie bazy rekreacyjnej. Związek tych cech był słaby, ale istotnie dodatni. Pomiędzy pozostałymi cechami nie udowodniono istotnych zależności.

Słowa kluczowe: wskaźnik atrakcyjności wiejskiej przestrzeni rekreacyjnej, baza rekreacyjna, nadwyżka bezpośrednia, POR, PAR