

## Article

# The Essence of Agritourism and Its Profitability during the Coronavirus (COVID-19) Pandemic

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**Abstract:** The article aims to present the essence of agritourism in the literature regarding the subject of its profitability during the COVID-19 pandemic. To verify the goal, data from our own research was applied. The research was conducted in 2019 and 2020 with the exploratory survey method and an interview questionnaire. Thirty-two service providers running agritourism activities in randomly selected rural communes of the Podlaskie province (communes of Mielnik, Suchowola, Giby, Płaska, and Hajnówka) participated in the study. The Ward cluster analysis method was used to group the counties of the Podlaskie Province in terms of spatial differentiation in the development of agritourism. For this purpose, data provided by the Central Statistical Authority in Poland reported for 2019 and the primary data (research by M. Roman) was applied. In the first part of the article, the authors describe and explain the basic concepts of rural tourism and agritourism based on the literature. The figures were also quoted, for example, the number of agritourism farms in Poland and other European countries. The last part of the study provides the results of our own research. The study demonstrates that in 2020 agritourism was profitable, as the owners of the farms recorded a profit. The research confirms the massive impact of the COVID-19 pandemic on agritourism. During a pandemic, many people choose places with few people (e.g., rural areas). The research also considered the importance of innovation on agritourism farms and business profitability. The issues discussed in the study relate to current events—scientific studies examining the impact of COVID-19 on agritourism concern other countries; however, the authors were not able to find studies focusing on agritourism farms in Poland. A new element of methodology in this article was to organize the concepts of agritourism and to present the impact of coronavirus pandemic on the profitability of agritourism. It was also essential to present the classification of rural tourism. According to the authors of the study, the problems covered here are new and point to new trends in the development of agritourism during the pandemic.

**Keywords:** rural tourism; agritourism; profitability; COVID-19 pandemic; innovation; Poland; Podlaskie province; region

## 1. Introduction

Tourism is a spatial phenomenon that has a significant impact on society and various sectors of the economy during the COVID-19 pandemic. A detailed calendar of events related to the COVID-19 pandemic is presented in Table 1.

**Table 1.** Calendar of events related to the COVID-19 pandemic.

Event	Date
Unpublished Chinese government report on the first cases of new coronavirus infections	17 November 2019
First confirmed case of a new coronavirus infection in Wuhan, China	8 December 2019
The WHO declares the novel coronavirus outbreak as a public health emergency of international concern	30 January 2020
The International Committee on Taxonomy of Viruses (ICTV) named the new coronavirus: SARS-CoV-2. The WHO announces the official name of the disease caused by the coronavirus: COVID-19	11 February 2020
The first confirmed cases of a new coronavirus infection in the Visegrad Group countries	1 March 2020
The WHO announces that COVID-19 can be officially defined as a pandemic	11 March 2020

Source: [1,2].

Currently, the world (along with all tourism and agritourism) are facing the COVID-19 pandemic, which has spread to 206 countries. On 7 January 2020, the World Health Organization (WHO) announced that the coronavirus was causing cases of pneumonia, the cause of which in China was unclear. According to the WHO, 26.6 million patients worldwide fell ill with COVID-19, of which 17.7 million recovered. There were 875,000 reported deaths [3]. The infection became known as Coronavirus Disease 2 (SARS-CoV-2) with severe acute respiratory syndrome. Once the disease spread to 114 countries, the WHO declared the COVID-19 pandemic on 11 March 2020 [4].

As the virus spread worldwide, travel restrictions and border closures have been introduced in many countries and regions to limit its spread [5]. Richter [6] has suggested that the emergence of infectious diseases is one of the consequences of global tourism and mobility. Urbanization and globalization are spreading the virus rapidly [7], however, tourism plays a role in exacerbating the public health crises. Therefore, it is crucial to identify and quantify the risks and social costs of tourism during the COVID-19 pandemic to minimize the adverse effects on cities and target regions.

The virus has significantly influenced global tourism. According to the UNWTO, in 2020, there will be a decrease in the number of tourists traveling worldwide by about 60–80% due to the pandemic [8].

Higging-Desbioles [9] believes that the COVID-19 pandemic has changed the tourism industry as well as the context in which it operates. This global crisis, during which travel, tourism, hospitality, and events have shut down in many parts of the world, presents a chance to discover opportunities at this historic moment of transformation. The pandemic crisis could provide a rare and invaluable opportunity to rethink and restore tourism towards a better path for the future.

According to Skare, Soriano and Porada-Rochón [10], COVID-19 has been recognized by the World Health Organization as a public health emergency of international concern. Since then, this pandemic has made headlines in major international media channels that disseminate information globally.

Baum and Hai [11] writes that the effects of the pandemic will be long-lasting and will have an intergenerational impact on indigenous and non-indigenous peoples.

In turn, Prideaux et al. [12] believe that the COVID-19 pandemic has led to the end of almost all international travel in the first half of 2020. It will take time to recover from pre-pandemic growth patterns, which will depend on the depth and extent of the COVID-19 recession [13].

Table 2 presents a list of publications about the impact of COVID-19 on tourism. Information on the methods used and the period covered by the study is included.

**Table 2.** List of publications of 2020 about the impact of the COVID-19 pandemic on tourism.

Authors	Title	Methods
Gössling, Scott, Hall	Pandemics, tourism and global change: a rapid assessment of COVID-19	Period: 1972–2020 Methods: systematic literature review (SLR)
Roman, Niedziółka, Krasnodębski	XXX	Period: Methods: Period:
Qiu, Park, Li, Song	Social costs of tourism during the COVID-19 pandemic	Area: 1627 respondents of Hong Kong, Guangzhou, and Wuhan Methods: survey questionnaire, evaluation method
Zheng, Goh, Weng	The effects of misleading media reports about COVID-19 on Chinese tourists' mental health: a perspective article	Period: 1995–2020 Methods: SLR
Brouder	Reset redux: possible evolutionary pathways towards the transformation of tourism in a COVID-19 world	Period: 2013–2020 Methods: SLR
Fotiadis, Polyzos, Huanc	The good, the bad, and the ugly on COVID-19 tourism recovery	Period: 1998–2020 Area: world Methods: Long short-term memory (LSTM), generalized additive model (GAM)
Polyzos, Samitas, Spyridou	Tourism demand and the COVID-19 pandemic: an LSTM approach	Period: 2003–2019 Methods: long short-term memory (LSTM)
Carr	COVID-19, indigenous peoples and tourism: a view from New Zealand	Period: 1979–2020 Methods: SLR
Kaushala and Srivastava	Hospitality and tourism industry amid COVID-19 pandemic: Perspectives on challenges and learnings from India	Period: 2020 Area: India Methods: email interviews
Chang, McAleer, Ramos	A Charter for Sustainable Tourism after COVID-19	Period: 2020 Methods: SLR
Prideaux, Thompson, Pabel	Lessons from COVID-19 can prepare global tourism for the economic transformation needed to combat climate change	Period: 2001–2020 Methods: SLR
Uğur i Akbıyık	Impacts of COVID-19 on global tourism industry: A cross-regional comparison	Period: 2019–2020 Area: USA, Europa, Asia Methods: text mining
Wen, Kozak, Yang, Liu	COVID-19: potential effects on Chinese citizens' lifestyle and travel	Period: 2020 Methods: SLR

Source: [14–26].

The publications presented in Table 2 show that scientific literature focused on the use of databases to develop methods and tools to demonstrate the impact of the COVID-19 pandemic on tourism. The authors used several variables to show the problem of the pandemic and its importance in world tourism. The largest group of people used the systematic literature review method to present the issue of the impact of the COVID-19 pandemic on tourism.

In times of the pandemic crisis, the profitability of running a tourism business is significant to any owner. If running an agritourism farm is not profitable, the owner may decide to close his business, which is often the case in the times of the COVID-19 pandemic [27]. The profitability of running a business should be compared to other farms operating in similar conditions. One way to compare agritourism farms is to calculate the revenue per available room or the revenue per occupied room. This method allows for comparing companies of different sizes.

The article aims at presenting the essence of agritourism in the literature for an agritourism enterprise, looking at its profitability during the COVID-19 pandemic. Moreover, the following specific goals were set:

1. Presentation of selected definitions of rural tourism and agritourism.
2. Displaying the most popular methods of researching the profitability of enterprises and a business.
3. Showing the results of own research conducted on a group of selected owners of agritourism farms.
4. The significance of innovations on agritourism farms for the profitability of a business.

The article presents the following research hypothesis: conducting agritourism activities in a given commune during the COVID-19 pandemic is profitable.

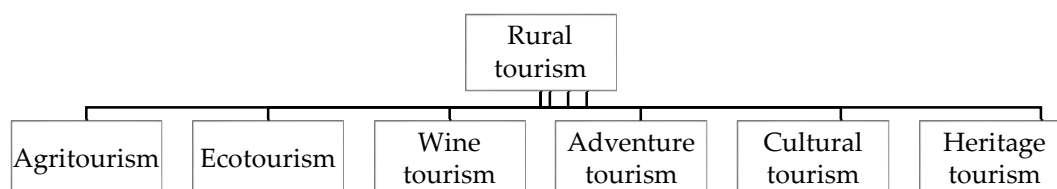
The theory part includes a review of the literature regarding agritourism and the state of development of agritourism in the European Union countries, with particular emphasis on Poland. The research part presents the results of our own research, the research methods applied, and conclusions.

There is still little research on the profitability of agritourism activities during the COVID-19 pandemic. According to the authors of the study, this is an important topic that deserves some in-depth insights.

## 2. Literature Review on the Essence of Agritourism

Currently, rural recreation is used by an increasing part of the society (especially during the COVID-19 pandemic) [28]. Rural areas have been rediscovered as a place for passive rest and also for active leisure. The advantages of rural tourism are the rural landscape, the specificity, and diversity of farms. It has become competitive for large recreational complexes due to its variety and the possibility of contacts with the local population. A significant advantage of rural tourism is its availability to people with lower incomes, as well as the possibility of finding a vacation away from big cities and leisure centres, which is essential in times of the COVID-19 pandemic.

In the literature regarding the subject, one can also find a division of rural tourism into the following activities (Figure 1).



**Figure 1.** Rural tourism activities. Source: [29].

The essence of rural tourism can be defined by indicating its characteristics. It should be located in rural areas, ensuring peace, quiet, and unlimited contact with nature [30]. It is also essential to use local resources (natural, cultural, social, etc.). It is characterized by

the small scale of the undertaking (limited accommodation and catering places, etc.), so as not to dominate the primary function (mainly agricultural) of the area where it develops [31]. It is based on the existing buildings and uses local materials and human resources. Its advantage is its continuous development. It should serve meals and offer accommodation and provide new forms of recreation, such as rock climbing, art workshops, qualified tourism, and other forms [32].

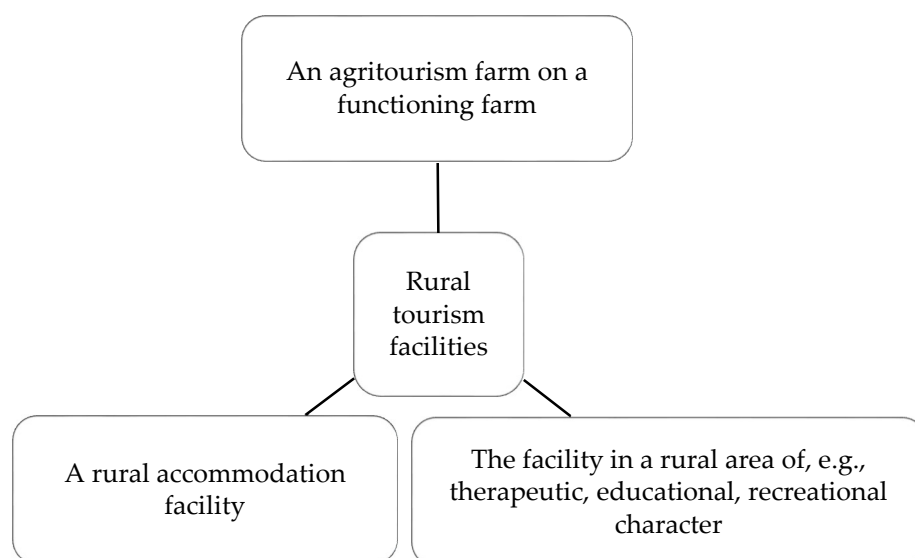
Another way rural tourism can be divided is the division according to the needs reported by tourists. The detailed scope of rural tourism is presented in Table 3.

**Table 3.** Types of rural tourism according to the needs reported by tourists (the demand).

Type	Principal Activity	Description
Agritourism	Agriculture	It is based on an operating active farm and attractions related to agriculture. It provides tourists with the so-called “Greenspace”, a protected landscape
Ecotourism	Nature, Ecology	by creating a stay in the natural environment, in places commonly inaccessible (e.g., in nature reserves). It has a dual character. First of all, it concerns trips to get to know and make contacts with people of different cultures, i.e., trips to learn, promote, and to protect the cultural values and cultural heritage locally. On the other hand, in the second sense, it includes sentimental tourism, i.e., visiting places, “old corners”, which are associated with memories and everything nice, which the former inhabitants of a given area remember from their childhood or know from the stories of family members or relatives.
Ethnotourism	Ethnic Tourism, Culture	It is an innovative type of rural tourism, which is currently well-developed in rural areas, e.g., care farms. It concerns the improvement (healing, rehabilitation, treatment) of the human body in a natural rustic environment (e.g., as part of rehabilitation stays, in mini sanatoriums, “rural spa”).
Therapiotourism*	Health	

\* Therapeutic tourism and ethnotourism can also be offered in an urban environment. Source: [33].

The breakdown provides various types of rural tourism different in terms of activity provided and the target group to which a given tourist offer is addressed. Ecotourism will be offered to people who want to rest outdoors, mainly in the forest, away from the urban environment. The target group will include people who want to break away from work in the city and go to the countryside. In contrast, therapeutic tourism will be addressed to the people with health problems or willing to receive spa and rehabilitation treatments. The breakdown of the rural tourism types according to the needs reported by tourists shows that it is possible to list the types of rural tourism facilities according to the activity (Figure 2).



**Figure 2.** Types of rural tourism facilities according to the activity offered. Source: [33].

The first type of facilities is agritourism farms on a functioning farm. Another division is a rural accommodation facility, i.e., farms without agricultural activity. The last type includes facilities in rural areas, such as therapeutic (care farms), educational (educational farms), recreational, etc. There are also facilities in which the traditions and values of the village are involved [33].

One of the types of rural tourism is agritourism, which includes stays of tourists with a farming family on their farm [34]. The definitions of agritourism and rural tourism have many standard features. The distinction between these two forms of tourism is essential and particularly noticeable in terms of the attractions offered and the accommodation conditions. In the case of agritourism, guest rooms will be located on an active farm [35]. The definitions of agritourism are presented in Table 4.

**Table 4.** Definitions of agritourism proposed by various authors.

Author	Definition
Iakovidou (1997) [36]	Tourism activities that are undertaken in non-urban regions by individuals whose main employment is in the primary or secondary sector of the economy.
Sharpley, Sharpley (1997) [37]	Tourism products that are directly connected with the agrarian environment, agrarian products, or agrarian stays.
Wall (2000) [38]	Provision of touristic opportunities on working farms.
Sonnino (2004) [39]	Activities or hospitality performed by agricultural entrepreneurs and then family members that must remain connected and complementary to farming activities.
Marques (2006) [40]	A specific type of rural tourism in which the hosting house must be integrated into an agricultural estate, inhabited by the proprietor, allows visitors to participate in agricultural or complementary activities on the property.
McGehee (2007) [41,42]	Rural enterprises that incorporate both a working farm environment and a commercial tourism component.
Kizos and Iosifides (2007) [43]	Tourist activities of small-scale, family or co-operative in origin, being developed in rural areas by people employed in agriculture.

Barbieri and Mshenga (2008) [44]	Any practice developed on a working farm with the purpose of attracting visitors.
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Source: [36–44].

The authors, whose definitions are given in Table 4, define agritourism in a very similar way. Each definition of agritourism mentions farms as a place of business [45]. For the study, it was assumed that agritourism is a part of rural tourism related to leisure (including active) for people on an active farm, which offers various types of recreational and tourist services in its area and beyond during the tourist season or throughout the calendar year [46]. Farmers, apart from farming, provide their guests with guest rooms on an agritourism farm and additional attractions related to the performance of duties on the operating farm [47].

### 3. State of Development of Agritourism in the European Union, Especially in Poland

Table 5 presents the number of farms and the percentage share of farms running non-agricultural activities in the European Union countries. Against the background of 27 European Union countries, Poland ranks third. Most farms are registered in Romania (2,411,500 more than in Poland) and Italy (101,500 more). In turn, in the ranking of non-agricultural farms, Poland ranks 6th, behind Austria and Great Britain. Romania also comes first in this comparison. Despite the high positions in the rankings, the percentage share of farms running other than agricultural activity in the total number of farms in Poland is only 3%, which is 7 percentage points less than the European Union average. The potential reason is too many registered farms, some of which live off the agricultural subsidies instead of plant or animal farming. It can be noticed that the percentage share is a better measure to compare it as the European Union countries differ in size and, therefore, the absolute values of the number of farms can be misleading. For example, when comparing small Luxembourg 2586 km<sup>2</sup> in size and over 90 times larger Romania (238,391 km<sup>2</sup>), the number of registered farms with non-agricultural activities in 2010 was 400 and 617,700, respectively, which accounts for 17% and 16% in the total number of farms.

**Table 5.** Family farms with non-agricultural activity, including agritourism, in the EU countries (EU 27) in 2010 (thousand).

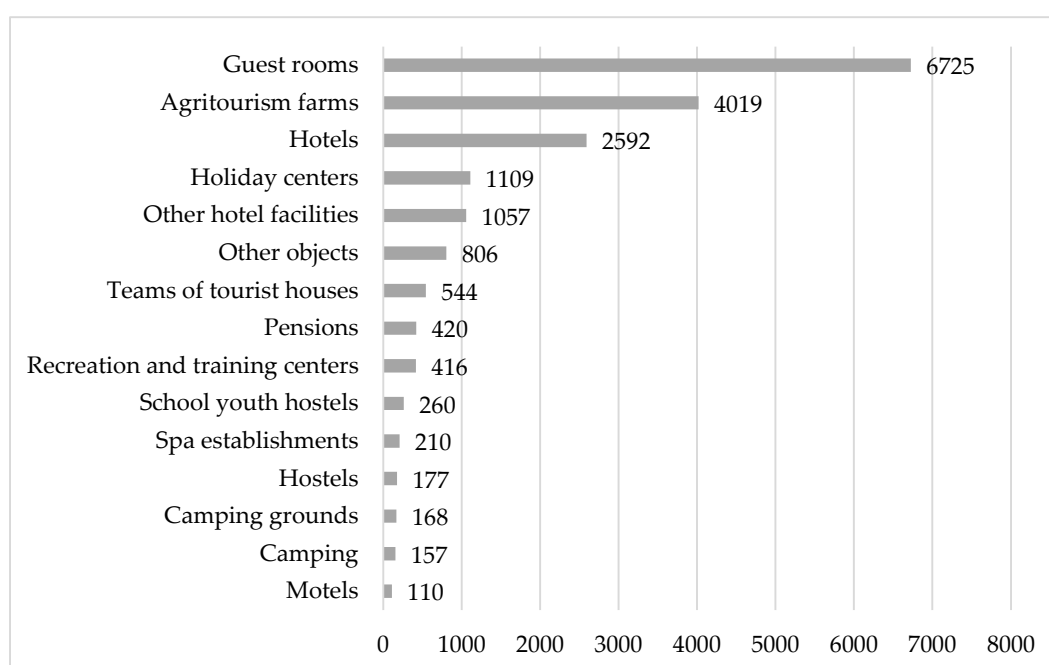
Countries	Family Farms in Total	Farms with an Activity Other than Agriculture (Including Agritourism)	Percentage Share [%]
Austria	141.5	56.1	40%
Sweden	65.9	24.1	37%
Germany	273.0	92.1	34%
Finland	57.6	16.9	29%
The Netherlands	68.1	17.8	26%
Great Britain	214.5	55.3	26%
Denmark	43.7	10.5	24%
Luxembourg	2.3	0.4	17%
Czech Republic	19.8	3.4	17%
Slovenia	74.4	12.5	17%
Romania	3913.7	617.7	16%
Estonia	17.9	2.7	15%
France	365.5	48.4	13%
Ireland	139.6	12.9	9%
Hungary	567.6	47.3	8%
Slovakia	22.2	1.5	7%
Latvia	81.8	4.2	5%

Portugal	297.4	15.2	5%
Italy	1603.7	76.2	5%
Belgium	44.2	1.9	4%
Poland	1502.2	49.7	3%
Malta	12.3	0.3	2%
Spain	929.7	20.8	2%
Bulgaria	489.8	10.3	2%
Greece	859.5	12.8	1%
Cyprus	38.4	0.4	1%
Lithuania	199.2	1.5	1%
EU-27	12045.5	1212.9	10%

Source: [48].

Based on the data in Table 5, it can be concluded that there are too few farms in Poland with activities other than agriculture, compared to the total number of farms. Actions should be taken to encourage subsequent owners of farms to launch agritourism.

As reported by the Central Statistical Authority in Poland, it can be concluded that the tourism industry developed between 2015 to 2018, as evidenced by the data on the number of tourist accommodation establishments. In 2015, there were 17,360 registered accommodation facilities. There were 3836 agritourism farms, which accounted for 22% of all the facilities. In the successive three years, the number of accommodation facilities was continually growing and were equal to 17,637, 18,382, and 18,770, respectively, in 2018. The number of agritourism farms was about 4000, which accounted for 21–23% of all the facilities. The majority of agritourism farms (80%) were farms with nine or fewer beds [49]. Detailed information on the number and type of tourist accommodation establishments in Poland in 2018 is presented in Figure 3.



**Figure 3.** Tourist accommodation establishments in Poland in 2018. Source: [49].

As reported by the Central Statistical Authority in “Tourism in 2018”, it is noted that in Poland, in 2018, the tourist facilities were mostly guest rooms. There were 6725 facilities offering guest rooms registered, which constituted 36% of all the tourist facilities that year. A detailed analysis shows that 2291 facilities provided at least 10 beds, while 4434 places offered 9 or fewer beds. Agritourism farms came second (4019), which accounted for 21%

of all the accommodation facilities. In this category, only 759 establishments offering 10 and more beds and 3260 places with fewer than 10 beds were distinguished. The division into those two categories is essential to analyze the size of the accommodation offer in Poland as one hotel with 300 beds provides the same number of beds as 30 agritourism farms with 10 beds (Table 6).

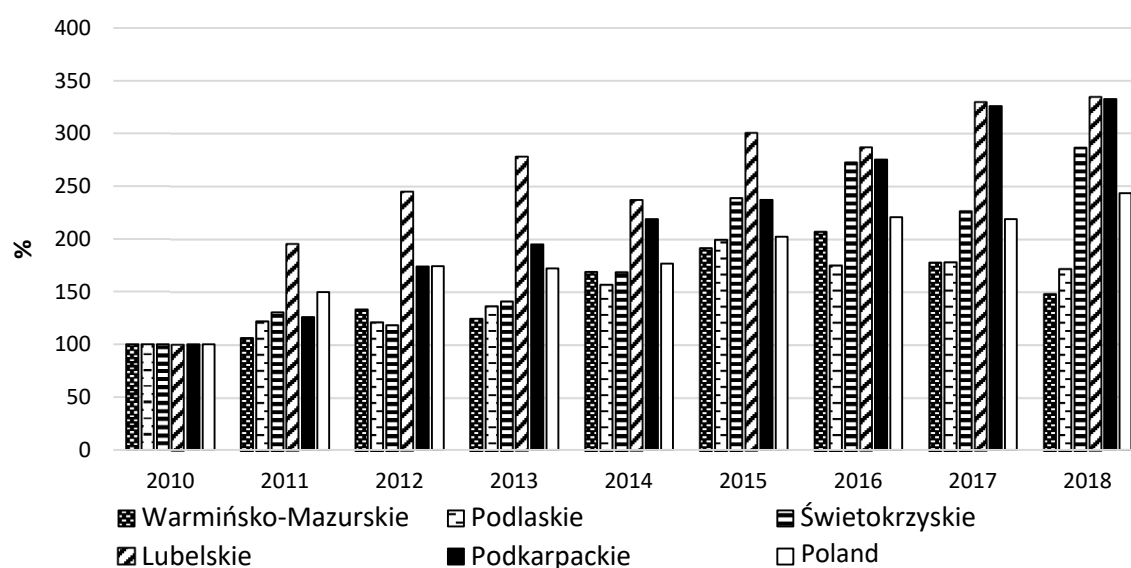
**Table 6.** Tourist accommodation establishments by province, in 2018.

Region	Tourist Accommodation Facilities						
	In Total	% of the Total	Hotel Facilities		Other Accommodation Facilities		
			All Together	Including Hotels	All Together	Including:	
						Campsites and Camping Sites	Guest Rooms and Agritourism Lodgings
Poland	11076	100	4179	2592	6897	325	3050
Dolnośląskie	1046	9	447	266	599	17	272
Kujawsko-pomorskie	414	4	204	136	210	16	65
Lubelskie	472	4	191	121	281	6	116
Lubuskie	300	3	136	66	164	13	45
Łódzkie	340	3	198	117	142	4	54
Małopolskie	1510	14	552	374	958	19	531
Mazowieckie	614	6	360	265	254	6	106
Opolskie	173	2	86	64	87	6	34
Podkarpackie	642	6	232	149	410	12	153
Podlaskie	281	3	97	48	184	9	82
Pomorskie	1637	15	350	202	1287	66	678
Śląskie	671	6	342	215	329	22	128
Świętokrzyskie	251	2	137	98	114	4	47
Warmińsko-mazurskie	507	5	211	115	296	39	117
Wielkopolskie	665	6	337	227	328	28	87
Zachodniopomorskie	1553	14	299	129	1254	58	535

Source: [49].

Analyzing tourist accommodation facilities across the provinces in Poland, it was noticed that most facilities are located in the Pomorskie (Pomeranian), Zachodniopomorskie (West Pomeranian), and Małopolskie (Lesser Poland) provinces. There are at least 1500 sites in all those regions, which is due to the tourist attractiveness of the provinces. It applies to the coastline in the north of the country and the mountains in the south. The lowest number of accommodation facilities is found in the provinces which are less popular tourist destinations or with fewer tourist attractions (e.g., Opolskie, Świętokrzyskie, Podlaskie and Lubuskie provinces).

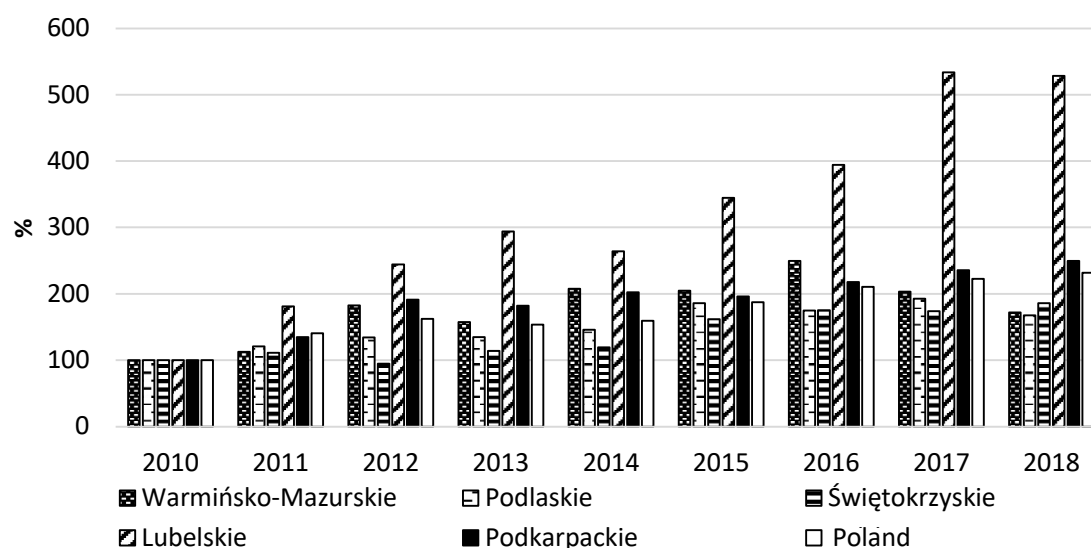
In the Figure 4 presented dynamics of changes in the number of tourists on agritourism farms in Poland in total and in selected provinces in 2010–2018.



**Figure 4.** Dynamics of changes in the number of tourists on agritourism farms in Poland in total and in selected provinces in 2010–2018. Source: [50].

between 2010 and 2018, the number of tourists on agritourism farms in Poland was increasing regularly. For Poland in total, there was an almost 150% increase recorded over 8 years. The highest growth dynamics was noted in the Podkarpackie and Lubelskie provinces, where the number of tourists on agritourism farms increased more than threefold. The increase in the number of tourists on agritourism farms is related to the increase in the number of overnight stays on agritourism farms across the provinces.

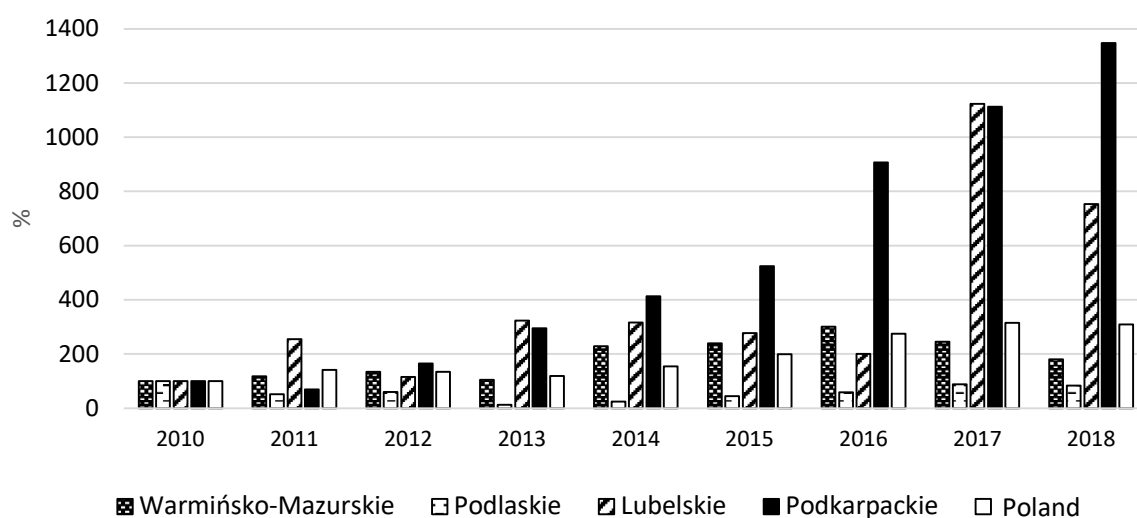
In the Figure 5 presented dynamics of changes in the number of overnight stays on agritourism farms in Poland in total and in selected provinces between 2010 and 2018.



**Figure 5.** Dynamics of changes in the number of overnight stays on agritourism farms in Poland in total and in selected provinces between 2010 and 2018. Source: [50].

The number of overnight stays on agritourism farms doubled in Poland between 2010 and 2018. The highest increase was recorded in the Świętokrzyskie province. Over 8 years, the number of overnight stays on agritourism farms has increased more than fivefold. The growing interest in such form of accommodation can be noticed not only among Poles but also among foreign tourists.

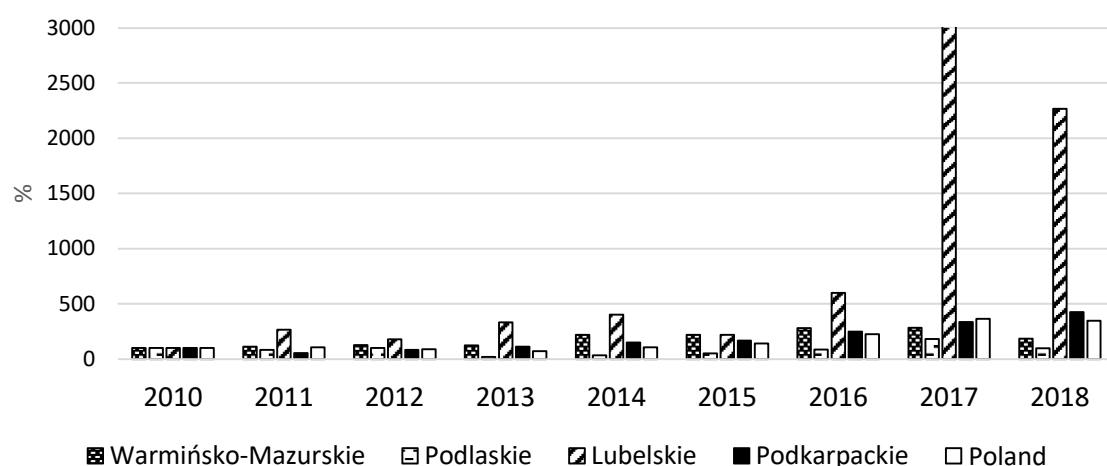
In the Figure 6 dynamics presented of changes in the number of foreign tourists on agritourism farms in Poland in total and in selected provinces between 2010 and 2018.



**Figure 6.** Dynamics of changes in the number of foreign tourists on agritourism farms in Poland in total and in selected provinces between 2010 and 2018 (Świętokrzyskie province is missing due to incomplete data). Source: [50].

The number of foreign tourists between 2010 and 2018 increased more than threefold across the provinces. The highest increase in the number of foreign tourists was recorded in the Podkarpackie province. In 2018, the number of foreign tourists was over 13 times higher than in 2010. In 2018, the farms in the Lubelskie province welcomed over 7 times more tourists from abroad than in 2010. Twenty percent fewer tourists visited the Podlaskie province in 2018, as compared to 2010.

In the Figure 7 presented dynamics of changes in the number of overnight stays of foreign tourists on agritourism farms in Poland in total and in selected provinces between 2010 and 2018.



**Figure 7.** Dynamics of changes in the number of overnight stays of foreign tourists on agritourism farms in Poland in total and in selected provinces between 2010 and 2018 (Świętokrzyskie province is missing due to incomplete data). Source: [50].

The increase in the number of overnight stays of foreign tourists on agritourism farms is related to the increase in the number of foreign tourists on agritourism farms in the provinces. Both numbers increased by over 200%, as compared with 2010. The sudden

increase in the number of overnight stays provided to foreigners in the Lubelskie province is particularly clear. In 2017, agritourism farms provided over thirty times more overnight stays than in 2010. This means that more tourists from abroad come to Poland and that their stays last longer.

With the data quoted in chapter 3, it can be seen that, in Poland, the agritourism farms are fewer than in the other EU countries. Agritourism farms and tourist accommodation facilities are not evenly distributed across Poland. Most of the facilities are located on the coast and in the mountains. Between 2010 and 2018, the number of tourists on agritourism farms in Poland increased gradually. The number of tourists increased fastest in the Lubelskie and Podkarpackie provinces.

#### 4. Literature Review on Agritourism Profitability

The profitability of agritourism is a significant factor from the point of view of developing a tourist facility in the times of the COVID-19 pandemic. Along with agritourism services, there is a need to control the finances on the farm [51]. With the accounting services, it is possible to assess the financial situation on an agritourism farm [52].

The performance of tasks by service providers generates costs and a surplus in the form of profit or loss. “The cost is considered to be expressed in money and resulting in the economic effect of the consumption of means of production (means of work and work items) as well as remuneration for work and payment for external services at a specific time, place, and space-in connection with the production of a material product or the provision of a service” [53]. Costs are incurred due to the consumption of fixed assets (amortization), equipment, materials, energy, human labor, and external services. With the emergence of cost categories, there is the concept of opportunity costs. On an agritourism farm, the farmer, making a given choice, at the same time has the possibility of another rational choice [54].

The term “income from sales is understood as the sum of money obtained from the sale of goods or services” [55]. The surplus of income from sales over the costs incurred to achieve them is called profit on sales. The service provider’s income occurs when the owner is also the employee working on his own farm [56].

The category of profit on an agritourism farm appears when the owner of the holiday facility hires employees. Profit or income is a positive financial result, and when the costs exceed the income from sales (sales or revenues), then a loss is generated [57].

Accounting, which is an instrument of agritourism farm management, can be used as an element of control (directly), or as a management tool (indirectly), being a source of information for the needs of economic analysis. Therefore, agritourism farms should keep simplified accounting [58].

The profitability of agritourism is essential as it can show the development of a given accommodation facility. It is crucial to measure the income from accommodation and meals, considering the prices for meals during the day (full board or half board, e.g., breakfast or dinner). In agritourism, there are also other revenues from such services in rural areas, e.g., by offering souvenirs to be purchased by tourists or products to be purchased on the farm (fruit, vegetables, honey, etc.), a rental of bicycles, rafts, horses, guide services, transportation services. Some revenues are not recorded by service providers (e.g., sale of liqueurs, cheeses) [59]. However, it can be noticed that the price for agritourism services may vary. At the same time, it is comparable to the value of similar offers countrywide [60].

A low income also proves that agritourism is only available in the summer season. The revenues may be higher when there is greater cooperation between owners of agritourism farms, e.g., merging into cluster structures, agritourism associations [61]. Low revenues may indicate that service providers are unable to attract customers [62]. However, it should be remembered that agritourism is an additional form of income for a rural family [63].

In a situation where there is a rich natural and cultural area and where agritourism is properly advertised, the service providers earn more from agritourism [64].

There are many methods how to calculate agritourism profitability, as presented further in the paper.

### 5. Essence of Innovation in Agritourism as a Factor of Increasing Profitability

The concept of innovation comes from the Latin word *innovatio*, meaning to introduce something new. The term was introduced to the theory of economics by J. Schumpeter in 1912, for whom the innovative activity was the practical application and use of new products and processes. The key to understanding the essence of innovation is “novelty”—innovation is everything that has been used for the first time and has brought positive economic results and which could also be used in practice [65].

In recent years, the innovativeness of tourism operators has been attracting more and more interest, both among researchers and practitioners of the tourism economy [66]. In agritourism, innovations usually appear with a long delay. However, they are currently considered to be of particular importance in the context of stimulating the sustainable development of rural areas [67]. In this area, they can take the form of modernization of farms, and also appear in non-agricultural areas of the rural economy, including rural tourism and agritourism. They create new jobs and often significantly increase the income of rural residents and improve their quality of life [68].

The essence of innovation in agritourism is based on the assumption that, currently, a tourist who decides to rest in the countryside is looking for an offer that will satisfy his expectations and, at the same time, surprise him with its originality. Innovation in agritourism can consist in creating, from scratch, your own, original tourist product (e.g., a theme village based on the use of an attractive original idea), as well as building a professional marketing environment for the natural and cultural values existing in a given area (e.g., organizing services and tourism infrastructure around objects of material culture and their promotion) [69].

The space of innovative solutions also includes the improvement and differentiation of products already offered, e.g., a special nutritional offers or inviting tourists to participate in various types of workshops to make their stay more attractive. As a rule, creating your own innovative tourist product is based on use. More and more Polish agritourism farms offer innovative, proprietary products, e.g., benefiting from the local traditions for this purpose: pottery, wicker, herbalism, wood carving, regional inns, sleeping on hay [70].

Innovation is of key importance for the development of agritourism and its profitability as it is, currently, a farm competitiveness factor. In order to survive on the extensive market of services, agritourism farms must constantly change and strive to surprise tourists with new products and offers. In agritourism, constant changes are needed as stabilization often means stagnation leading to a loss of competitiveness. The introduction of innovative solutions allows the farm to remain competitive, which then translates not only into the attractiveness of a specific offer in the eyes of tourists and a good opinion but also into a measurable way in greater profitability [70].

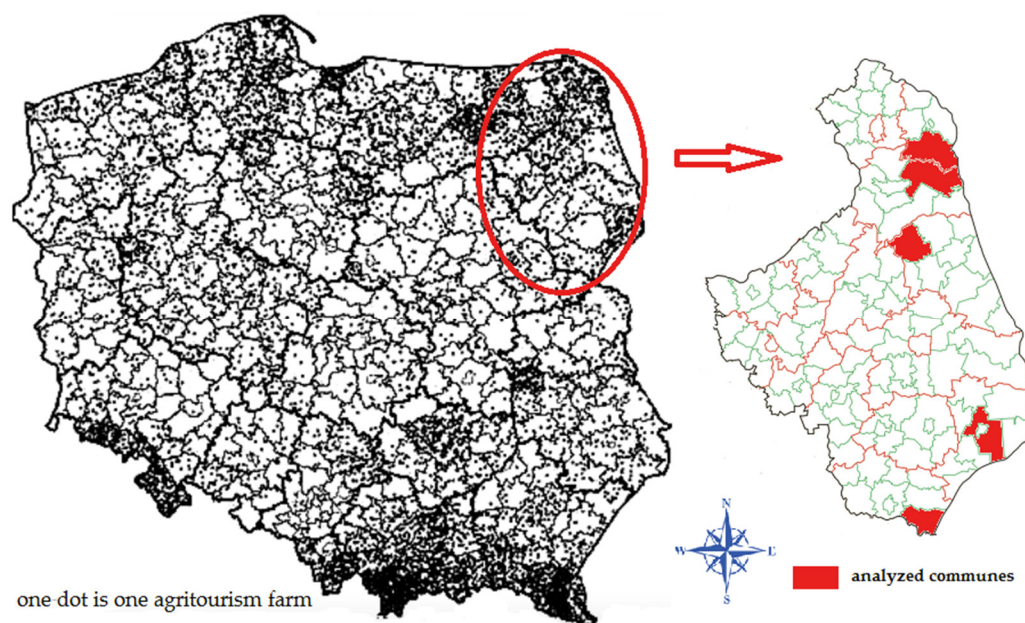
When analyzing innovation in agritourism, one should, therefore, take into account the market segment to which the tourist product is directed [71]. The expectations of innovation in the agritourism offer differ depending on the target group. For example, business tourists who want modern and attractive services in a rural setting expect innovation. In turn, foreign guests and weekend tourists are against innovation; for example, a modernized agritourism offer can make them dissatisfied with the service and not willing to come back anymore [72].

Innovation creates an opportunity for agritourism farms to develop new or existing tourist products. Innovative activities facilitate winning a competitive advantage, make the offer more attractive and, eventually, attract more and more tourists. Thanks to inno-

vation in rural areas, infrastructure develops, new jobs are created and the residents' income increases [72]. Innovations also have a significant impact on the profitability of agritourism.

## 6. Materials and Methods

The research involved an exploratory survey with the use of an interview questionnaire. Initially, a meeting with the farm owners who agreed to participate in the study was considered, however, due to the pandemic, the data was collected with an online questionnaire. The respondents answered questions about the annual operating income, annual operating costs, the number of rooms available on the farm, and the number of overnight stays in 2019 and 2020. The database of agritourism farms was obtained from the website of the Podlasie Agricultural Advisory Center in Szepietowo. The Podlaskie province and five rural communes of this province where at least five people were active included Mielnik, Suchowola, Giby, Płaska, and Hajnów, randomly selected for the research. The research was conducted in 2019 and 2020 among 32 owners of agritourism farms. Most of the property owners offered accommodation during the summer season. However, interestingly, agricultural production on those farms operates throughout the year. The research sample was not representative, as over 800 people are involved in agritourism in the Podlaskie province. The communes and the distribution of agritourism farms in Poland are presented in Figure 8.



**Figure 8.** Rural communes in Podlaskie province qualified for the research and distribution of agritourism farms in Poland. Source: [73].

In the communes, there was a large number of agritourism farms. The studies by Bednarczyk-Szczepańska and Bański [73] showed a high number of agritourism farms in the Małopolskie province of Poland, especially in its central and southern parts, related to the naturally valuable areas. There was also a high number of agritourism farms in the vicinity of Pasma Brzanki Landscape Park and Ciężkowicko-Rożnów Landscape Park. In addition to the landscape values in these areas, there are an increasing number of agritourism farms in Lake Rożnowskie, which is a recreational destination in the summer season. Another place with many agritourism facilities was the Sudetes, with the Karkonosze National Park and the Stołowe Mountains National Park. A great number of agritourism farms were found in the vicinity of the Świętokrzyski National Park, where the topography and extensive forest complexes of the Świętokrzyski Forest encourage visitors to visit

and the building of agritourism structures in this area. Many sites can also be seen in the north of Poland; in Pomerania and Masuria [74].

Thirty-two owners of agritourism farms from five communes participated in the study. The study group was diverse in terms of age, sex, and educational background. The majority were women (66%). Most people were 45 to 60 years of age (40%). None of the respondents under 25 took part in the study as there are few people under 25 who ran their own agritourism farms. As a rule, younger people completed secondary or university education, while the people representing the older age group completed primary education. Almost all the respondents declared profitability per household member of PLN 1000–4000. The population characteristics are presented in Table 7.

**Table 7.** Population characteristics.

	Community	Total	Giby	Hajnówka	Mielnik	Płaska	Suchowola
	Number of respondents	32	10	6	4	5	7
Gender	Female	21	7	4	3	3	4
	Male	11	3	2	1	2	3
Age Group	<25	0	0	0	0	0	0
	25–34	3	1	0	0	1	1
	35–44	9	3	2	1	0	3
	45–60	13	4	3	2	2	2
	>60	7	2	1	1	2	1
Education	Primary	3	1	1	0	0	1
	Vocational	4	2	0	1	1	0
	Secondary	15	5	3	2	2	3
	University	10	2	2	1	2	3
Profitability per Household Member (PLN)	<1000	1	1	0	0	0	0
	1000–2000	9	3	1	1	1	3
	2001–3000	11	5	1	1	1	3
	3001–4000	10	1	4	2	2	1
	>4000	1	0	0	0	1	0

Source: own research results.

The spatial differentiation of the development of agritourism was verified with the cluster analysis using the Ward method. In order to verify the spatial diversity of agritourism, the authors used the data provided by the Central Statistical Authority in Poland from 2019 [75] and primary data (research by M. Roman) [33].

## 7. Results

### 7.1. Profitability of Agritourism during the COVID-19 Pandemic

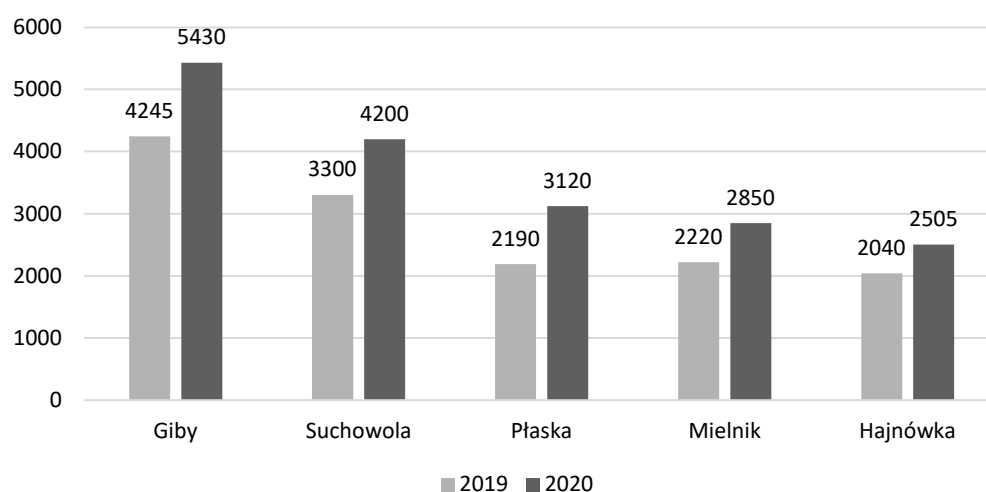
The questions addressed to the owners of agritourism farms were divided into three groups. The first group concerned the profitability of the agritourism services offered. The owners of all the farms declared a positive financial result from agritourism between PLN 1.8 thousand and PLN 29 thousand a year. A total of 32 farms compared as follows in 2019 and 2020:

- 5 owners declared a lower profit,
- 6 owners declared no significant change in profit,
- 21 owners declared a higher profit.

The mean total profit in the group was PLN 8162 in 2019 and PLN 10,278 in 2020. Year over year, the profit change increased by PLN 2116 in one year. The highest mean

total profit was in the Płaska commune—an agritourism farm, whose owners declared the greatest total profit. The agritourism farm profitability is presented in Table 8.

In the second part of the questionnaire, the respondents were asked about the existing accommodation and its use. Based on the answers, the maximum availability of accommodation in respective communes was calculated as the maximum number of people that could stay for the entire season. In 2020, the number of overnight stays in respective communes increased by 4110, as compared with 2019; an almost 30% increase as compared to the control year. In the Giby commune, 1185 more overnight stays were recorded, as compared with 2019. The highest percentage increase in the number of overnight stays was reported in the Płaska commune, a 40% increase, compared with the previous year. Detailed data on the number of overnight stays in respective communes is presented in Figure 9.



**Figure 9.** The number of overnight stays in respective communes in 2019 and 2020. Source: own research results.

On average, the farms offered 5 rooms and 15 beds. The mean revenue per occupied room was PLN 50. The highest mean was recorded in 2019 in the Giby commune, and in 2020 in the Suchowola commune. The number of overnight stays in 2019 ranged from 150 to 1110, and in 2020 from 180 to 1200. The mean number of overnight stays increased by 128 in one year. The farms offered from 1440 to 7200 bed places in the season. The average use in 2019 was from 6 to 31% of the total accommodation available. The highest mean occupancy of bed places was in the Mielnik commune. The average value increased in 2020 as more tourists used farm services. The mean use of the accommodation available grew from 17 to 22%. The highest increase was recorded in the Płaska commune (from 16 to 24%)

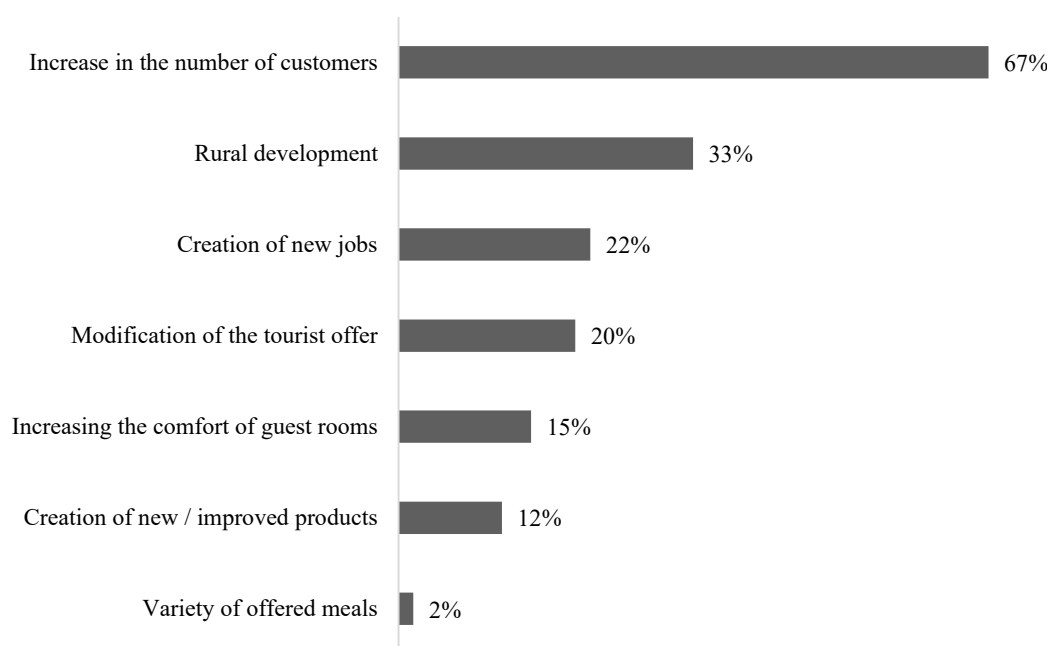
Table 8. Selected data from the farms.

	Total			Suchowola			Mielnik			Płaska			Hajnówka			Giby		
	min	max	mean	min	max	mean	min	max	mean	min	max	mean	min	max	mean	min	max	mean
Total revenues in 2019 (PLN)	4500	52500	20230	7500	44400	17807	12000	36000	20775	9000	48000	21900	4500	48750	16750	9000	52500	22962
Total revenues in 2020 (PLN)	6300	73500	28062	8400	48000	24514	18000	54000	29400	18000	62400	33180	6300	63000	22213	9600	73500	30960
Total costs in 2019 (PLN)	2250	39375	12069	5625	22200	9894	7200	15750	11408	5760	19200	12391	2250	29250	10246	5472	39375	14788
Total costs in 2020 (PLN)	3780	57167	17784	6503	27600	13898	10800	29077	18189	11250	33429	20533	3780	40950	14335	6720	57167	21036
Total profit in 2019 (PLN)	1875	28800	8162	1875	22200	7913	4800	20250	9368	3240	28800	9509	2133	19500	6504	2450	15429	8174
Total profit in 2020 (PLN)	1897	28971	10278	1897	20400	10616	5520	24923	11211	3600	28971	12647	2160	22050	7878	2743	19800	9924
YOY change (PLN)	−2040	9200	2116	−1800	6633	2703	−2040	4673	1843	−0574	9200	3138	0027	3045	1374	−0768	4371	1750
Number of rooms	3.0	12.0	5.1	3.0	12.0	5.7	5.0	6.0	5.5	5.0	8.0	6.2	3.0	5.0	4.0	4.0	7.0	4.7
Number of beds	8.0	40.0	14.6	8.0	40.0	17.6	14.0	20.0	16.0	12.0	20.0	15.4	8.0	16.0	11.8	10.0	18.0	13.1
Average beds in the room	2.3	3.8	2.8	2.7	3.3	3.0	2.5	3.3	2.9	2.3	3.0	2.5	2.5	3.8	2.9	2.4	3.8	2.8
Revenue per occupied room 2019	20.4	108.0	50.4	23.3	80.0	49.0	22.5	75.0	48.9	27.8	108.0	45.9	23.7	83.2	50.7	20.4	107.3	54.0
Revenue per occupied room 2020	19.2	98.7	50.1	24.1	91.7	56.2	24.0	69.2	44.8	19.2	83.6	45.3	21.3	78.4	49.8	28.4	98.7	50.4
Revenue per available room 2019	3.0	21.7	8.5	3.3	17.6	7.6	4.5	18.8	9.2	3.0	20.0	7.8	3.1	21.7	8.4	3.4	17.1	9.4
Revenue per available room 2020	3.5	24.5	10.9	3.5	16.2	10.8	6.1	23.1	11.0	4.0	20.1	11.0	3.5	24.5	10.1	3.8	22.0	11.4
Max availability of beds	1440	7200	2621	1440	7200	3163	2520	3600	2880	2160	3600	2772	1440	2880	2130	1800	3240	2358
Overnight stays in 2019	150	1110	437	150	1110	471	240	900	555	300	600	438	150	750	340	225	750	425
Overnight stays in 2020	180	1200	566	210	1200	600	360	1200	713	450	900	624	180	900	418	240	1050	543
YOY change	−30	300	128	−30	270	129	60	300	158	150	300	186	30	150	78	0	300	119
Utilization factor in 2019	6%	31%	17%	8%	31%	15%	10%	25%	19%	11%	28%	16%	6%	26%	16%	8%	30%	18%
Utilization factor in 2020	7%	42%	22%	13%	33%	20%	14%	33%	24%	15%	42%	24%	7%	31%	20%	9%	42%	24%
Rooms sold in 2019	40	389	158	45	389	158	86	270	188	100	267	180	40	234	118	60	268	160
Rooms sold in 2020	48	420	205	72	420	200	129	360	240	150	375	255	48	281	145	64	375	205
YOY change	−11	125	47	−11	96	42	24	90	52	50	125	76	8	60	27	0	125	45
Fair share	7%	34%	17%	7%	33%	15%	24%	34%	27%	18%	30%	23%	12%	24%	17%	10%	17%	12%
Market share 2019	5%	41%	16%	5%	34%	14%	11%	41%	25%	14%	27%	20%	7%	37%	17%	5%	18%	10%
Market share 2020	4%	42%	16%	5%	29%	14%	13%	42%	25%	14%	29%	20%	7%	36%	17%	4%	19%	10%

Source: own research results.

The third part of the study included questions about innovation on the farms. The respondents answered the question of whether innovation is important in agritourism, what benefits it brings, and what innovations are found in their enterprises. Most of the respondents (72.8%) claimed that innovation in agritourism is needed. On the other hand, 18% said they had no opinion on the subject. The others believed that innovation in agritourism was not necessary. Our own research, as well as the research from 2018, showed that the respondents most often noticed such innovations in rural tourism and agritourism: theme villages, farms with organic food, educational farms or theme routes.

Figure 10 presents the impact of innovation on the development of agritourism farms in the respondents' opinion.



**Figure 10.** Impact of innovation on the development of agritourism farms. Source: own research results.

More than half of the respondents believed that innovations primarily affect customers' growth; they attract more people to agritourism farms. The development of agritourism services changes its image and increases the income of the farmer and his family. It also stimulates the growth of tourism-related industries, such as services, trade, gastronomy, folk handicrafts, etc. The development of agritourism services provides perfect conditions for creating new jobs and for enhancing the professional qualifications of the people already working in this type or related services. It stimulates the initiative of the inhabitants of rural areas and it encourages them to be creative. Its development impacts the improvement of infrastructure and an increase in demand in rural areas, which favors the development of small- and medium-sized enterprises. It is also important that, thanks to the development of agritourism services, the rural area's residents become more eco-friendly as the well-preserved natural environment becomes a source of income. The perception of the forces of nature and eco-friendly investments encourages the use of environmentally friendly technologies. Various types of innovations can become a chance for the development of agritourism. However, one should remember not to "lose" what is most important; the whole essence of the village.

The issues of innovation are closely related to competitiveness. According to the authors of the study, the problems presented are new and show the recent trends in agritourism development. The topic is very broad, and the research is not fully exhausted. There are dynamic changes in agritourism, therefore, it is worth investigating the problems in

the future with similar research, e.g., showing the impact of innovations introduced in agritourism on the profitability of agritourism.

In one of the questions, the farm owners mentioned additional attractions offered on their farms. And so the agritourism farms were divided into three groups:

- Group 1: 15 highly innovative farms (water equipment rental, windsurfing, sailing, water skiing, horse riding)
- Group 2: 6 farms with little innovation (fishing, Nordic walking, children's playground, river/lake without a possibility of renting water equipment on the farm)
- Group 3: 11 farms not applying innovation or offering attractions and not considered innovative (hiking in the forest, mushroom picking, place for a bonfire and barbecue, a TV set).

Table 9 presents examples of innovations in rural tourism and agritourism in the opinion of the respondents. The data from 2020 included in the table concerns selected additional attractions offered by farm owners, which were considered innovative by the authors.

**Table 9.** Examples of innovations in rural tourism and agritourism in the opinion of the owners of agritourism farms and other studies (%).

Description	2018 N = 221	2020 N = 32
Theme villages	67.2	43.8
Farms with organic food	58.8	34.4
Water equipment rental	-	34.4
Educational farms	11.8	18.8
Theme routes (e.g., culinary)	52.9	15.6
Rural houses of creative work	14.9	6.3
Hippotherapy	7.7	3.1
Dog Therapy	6.3	-
Rehabilitation stays	2.7	-

Source: [33] and own research results.

The most frequent innovations on the farms were theme villages, provided by 67% of the respondents in the 2018 survey and 44% in 2020. In 2020, 34% of the farms provided a water equipment rental. Kayaks, pedalos, and windsurfing were offered most.

The last part of the study was to compare individual groups of farms with each other and to examine the impact of the innovations on the profit and the number of overnight stays in 2019 and 2020 (see Table 10).

**Table 10.** Comparison of the annual profit and the number of overnight stays in selected groups of farms in 2019 and 2020.

Measured Value	Highly Innovative	Little Innovative	Not Innovative	Total
Number of farms	15	6	11	32
Mean total profit in 2019 (PLN)	10,697	8351	4601	8162
Mean total profit in 2020 (PLN)	13,697	9930	5805	10,278
Mean of YOY change (PLN)	3000	1578	1204	2116
Mean of overnight stays in 2019	505	470	327	437
Mean of overnight stays in 2020	658	620	410	566
Mean of YOY change	153	150	83	128

Source: own research results.

Based on the research results, a clear difference can be noticed across the groups. The owners of highly innovative farms (group 1) received more tourists and provided more accommodation. The average number of overnight stays in group 1 was higher than in

group 3 by 178 in 2019 and 248 in 2020. The greater number of overnight stays resulted in higher profits from agritourism. The average annual profit in group 1 was higher than in group 3 by almost PLN 6100 in 2019 and almost PLN 7900 in 2020. However, as a rule, farms from group 1 were larger than farms from group 3 and they enjoyed a better location. None of the farms from group 3 offered a water equipment rental as none of them was located near a water reservoir. The level of innovation of agritourism farms may not be the only factor determining the number of tourists and the profit of farm owners.

## 7.2. Cluster Analysis of Agritourism Development in the Podlaskie Province before the COVID-19 Pandemic

Another method used in the article is the Ward cluster analysis. Cluster analysis is a set of multidimensional statistical analysis methods used to isolate homogeneous subsets of objects of the population studied. The measures of similarities or differences are based on the distance between units [76]. The distance  $d(O_i, O_j)$  is a function of the dissimilarity of a pair of objects  $(O_i, O_j)$ ; the greater the distance between two objects, the more dissimilar they are. Thus, in grouping, objects close to each other are combined, while being distant from others, forming a different focus. In this study, the Euclidean distance was used:

$$d(x, y) = \sqrt{\sum_{i=1}^p (x_i - y_i)^2} \quad (1)$$

All the variables used were standardized according to the formula:

$$z_i = \frac{x_i - \bar{x}}{s_x} \quad (2)$$

where  $\bar{x}$ —mean,  $s_x$ —standard deviation of the variable in the sample.

Based on the results, a square matrix of distance is obtained. The matrix is symmetrical ( $d_{ij} = d_{ji}$ ) and has zeros on the main diagonal ( $d_{ii} = 0$ ). Ward's method was chosen for grouping objects. It is one of the hierarchical agglomeration clustering methods in which participants between clusters and the variance approach [77]. This method aims at minimizing the sum of squared deviations inside the clusters. The measure of the clustering of mean values is the ESS, is also known as the error of the sum of squares. The ESS is expressed as:

$$ESS = \sum_{i=1}^k (x_i - \bar{x})^2 \quad (3)$$

where  $x_i$ —the value of the variable being the segmentation criterion for the  $i$ -th object,  $k$ —number of objects in the cluster.

Cubic clustering criterion (CCC) and Pseudo F [78,79] were used to choose the number of classes. All the calculations were performed using SAS 9.4 software

To verify the assumed goal, the authors used the data provided by the Central Statistical Authority in Poland [75] and primary data (research by M. Roman) [33]. In order to measure the spatial differentiation of agritourism development, variables were used, which are indicators relating to agritourism farms [33,75] (Table 11).

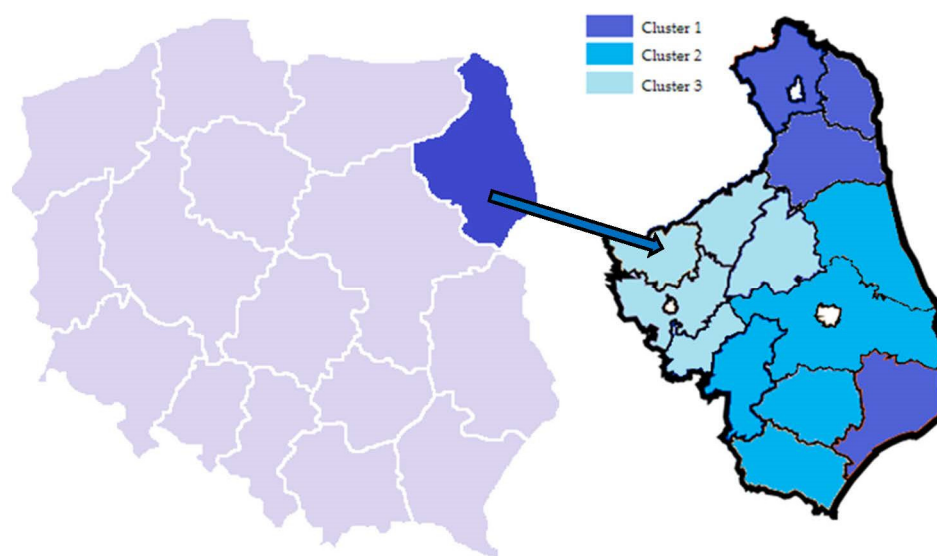
**Table 11.** Thematic scope, diagnostic variables, and data source.

Thematic Scope	Diagnostic Variables	Data Source
Guest rooms and agritourism farms	$X_1$ —Guest rooms and agritourism farms	2019 data of the Local Data Bank of the Central Statistical Office in Poland [75]
	$X_2$ —Total number of agritourism farms in the county	
	$X_3$ —Total number of bed places in the county	

Economic factors for the development of agritourism farms	X <sub>4</sub> –Percentage of agritourism farms in the county which invested in innovation in the total number of respondents	Research by M. Roman [33]
	X <sub>5</sub> –The scale of investing in innovative activities in the last three years in the total number the agritourism farms surveyed in the county	
	X <sub>6</sub> –Percentage of agritourism farms selling innovative products in the total number of the agritourism farms surveyed in the county	

Source: [33,75].

The analysis of the spatial differentiation of agritourism development was made for the county. The availability of data was responsible for the choice. Apart from the substantive criterion, the selection of variables also resulted from a relatively low correlation between the variables (correlation coefficient below 0.7). In the Figure 11 presented grouping of the counties with cluster analysis.



**Figure 11.** Grouping of the counties with cluster analysis. Source: Own research.

The analyses show that the counties of the Podlaskie province are significantly diversified in terms of agritourism development. The counties in cluster 1 showed a high agritourism development (4 counties). These are the districts of the north-eastern and southern parts of the Podlaskie province. These areas are characterized by a high coefficient of forest cover and favorable natural and cultural conditions; the regions of Sejny, Augustów, and Hajnówka. These are the areas with a huge number of agritourism farms. It is related to natural values, such as lakes, rivers, and abundant fauna and flora. These areas are protected under numerous national and landscape parks, such as the Wigierski National Park, the Biebrza National Park, the Białowieża National Park, and the Suwałki Landscape Park. These areas can be considered one of the cleanest and healthiest in Poland due to their peripheral location and long distances from urban areas (“Green Lungs of Poland”). The tourist infrastructure of these counties is very well-developed (numerous hotels, guesthouses, agritourism farms).

The second area was the counties in cluster 2, with an average agritourism development (5 counties). These were the areas of the central part of the Podlaskie province. These are the areas with abundant and varied agritourism offer, under the protection of the Narew National Park and the Knyszyn Forest Landscape Park.

The last area stands for a low level of agritourism development; the western part of the Podlaskie province (5 counties). The areas are protected by the Łomża Landscape Park of the Narew Valley.

## 8. Conclusions and Discussion

Tourism is one of the largest and fastest-growing industries in the world [80]. Thanks to job creation, export revenues, investments, and infrastructure development, the tourism sector makes a significant direct and indirect contribution to the socio-economic process. However, it should be highlighted that the COVID-19 pandemic has significantly influenced the development of tourism in the world.

The pandemic presented a huge change for agritourism. Research reported by other authors shows that agritourism has a significant and positive impact on the profitability of farms. The impact on profits is highest on small farms, which are the only source of income for their owners [81,82].

The results of own research show that all the farm owners declared a profit on agritourism. The mean total profit in the group was PLN 8162 in 2019 and PLN 10,278 in 2020. Year over year, the profit change increased by PLN 2116 in one year. The value of profit was diversified and depended on the size of the farm. To compare farms of different sizes, it is best to use indicators such as revenue per occupied room. The values converted in this way can be compared and can indicate the most effective farm. The study positively confirmed the research hypothesis and demonstrated that running agritourism during the COVID-19 pandemic was profitable. The farm profit varied, just like operating income differed, depending on the facility size, the tourist offers, and the number of visitors to the farm.

The profit from agritourism should be compared to alternative profits, such as full-time employment. The median of the annual operating profit in the group was PLN 10,278 in 2020. For comparison, the Central Statistical Authority in Poland reports that the median gross salary in 2020 amounted to approximately PLN 5167 per month [83], i.e., PLN 62,004 per year (net of PLN 43,992). The average profit from agritourism is lower than the median salary, but it is unknown whether the owners of the farms would find a full-time job near their place of residence, for over PLN 5000 per month. The income from agritourism was not the only source of income for the respondents. The respondents mentioned farm income, full-time employment and retirement pension as additional sources of income.

One of the factors influencing the profitability of agritourism were innovations introduced by farm owners. The research confirmed the research hypothesis that farms applying innovations have more tourists and have higher income. The average annual profit on highly innovative farms was higher than on low-innovative farms by almost PLN 6100 in 2019 and almost PLN 7900 in 2020. However, the level of innovation of agritourism farms may not be the only factor determining the number of tourists and the profits of farm owners. Farm size and attractive surroundings are also the factors that affect the amount of income earned.

In 2020, the farm owners managed to earn a profit, however, this does not mean that in 2021 agritourism will generate the same profit. The impact of the COVID-19 pandemic can have different consequences for the owners of agritourism farms. The COVID-19 pandemic has triggered business downturns and an economic crisis. Tourist traffic was hindered in order to limit the spread of the coronavirus. Probably many people, in fear of getting infected, canceled their vacation trips. Enterprises from the agritourism industry lost potential revenues for several months and still had to bear the fixed costs of their activities. In addition, new sanitary restrictions have been imposed on tourist facilities, such as the disinfection of certain surfaces or maintaining distances and a smaller number of guests. Complying with these requirements is an imperative and has resulted in increased operating costs, and reduced guest numbers have reduced revenues. However, in the following months of the COVID-19 pandemic, large numbers of tourists chose

agritourism farms over large hotels to avoid large crowds and to reduce the risk of contracting the virus. It is difficult to predict how these changes will affect the market of agritourism services in 2021, so it is worth conducting similar research in the future.

The issues discussed in the study relate to current events. Scientific studies examining the impact of COVID-19 on agritourism activities concern other countries; the authors were not able to find studies focusing on agritourism farms in Poland. The discussed topic is pervasive, and the study has not been exhausted. According to the authors, the impact of the COVID-19 pandemic on agritourism farms in different parts of Poland should be examined. Tourism and agritourism in times of the COVID-19 pandemic record dynamic changes [84–89], so following the problem and conducting similar studies, e.g., it would be justified to demonstrate the impact of the pandemic on the profitability and profitability of selected agritourism farms with a larger research sample. In this case, the coronavirus restrictions made it impossible to conduct research with a larger group of service providers. It is also important to perform research among service providers in various regions of Poland and in other European Union countries and to compare these results. It is probably necessary to carry out a qualitative survey of agritourism farms to answer the following questions properly:

- What is the impact of the coronavirus on the labor market in agritourism?
- Will the COVID-19 virus lead to a radical transformation of agritourism?
- How can the agritourism industry react to such changes in the future?
- How to mitigate similar future public health crises?

Further research is needed to answer the following questions, as research in this area has rarely focused on the effects of COVID-19 on rural tourism. There are no publications on this subject in the world literature, especially on the profitability of agritourism during the COVID-19 pandemic. It would be also justifiable to focus on the impact of innovations on agritourism farms on their profitability during or after the COVID-19 pandemic. Such research may show how important innovations (especially product innovations) are in diversifying the offer of agritourism farms in Poland and in other European countries.

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