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**AVALIAÇÃO DA POTENCIALIDADE PARA IMPLANTAÇÃO DE UM  
EMPREENHIMENTO COM FOCO NO AGROTOURISMO EM PROPRIEDADES  
RURAS NOS MUNICÍPIOS DE CASCAVEL E BRAGANEY NO PARANÁ**

**EVALUATION OF POTENTIAL FOR IMPLEMENTATION OF AN ENTERPRISE  
FOCUSING ON AGRI TOURISM IN RURAL PROPERTIES IN THE  
MUNICIPALITIES OF CASCAVEL AND BRAGANEY IN THE STATE OF PARANÁ**

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**CASCAVEL/PR**

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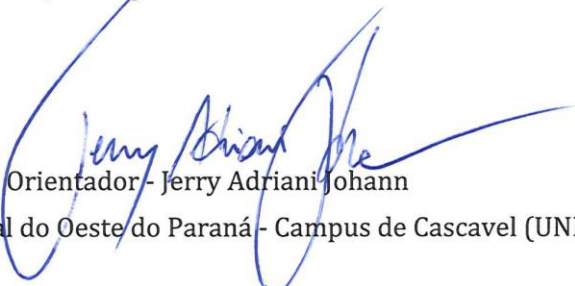
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## JUCÉ MARCOS DESSANTI

Avaliação da potencialidade para implantação de um empreendimento com foco no agroturismo em propriedades rurais nos municípios de Cascavel e Braganey no Paraná

Dissertação apresentada ao Programa de Pós-Graduação em Administração em cumprimento parcial aos requisitos para obtenção do título de Mestre em Administração, área de concentração Competitividade e Sustentabilidade, linha de pesquisa Sustentabilidade, **APROVADO** pela seguinte banca examinadora:



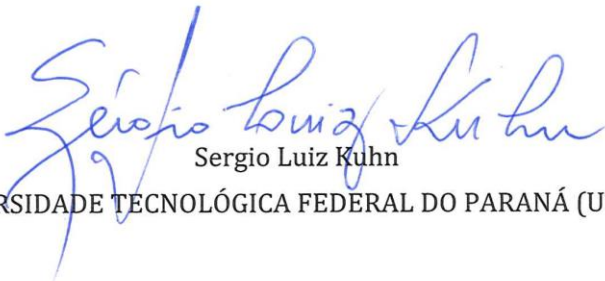
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Cascavel, 14 de abril de 2023

At some point in life the world's beauty becomes enough.  
Toni Morrison

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## RESUMO

Dessanti, Jucé Marcos (2023). *Avaliação da potencialidade para implantação de um empreendimento com foco no agrotourismo em propriedades rurais nos municípios de Cascavel e Braganey no Paraná*. Dissertação de mestrado profissional, Universidade Estadual do Paraná, Cascavel, PR, Brasil.

O agrotourismo é percebido como uma atividade de fonte de renda complementar realizada em propriedades com base na agricultura familiar, buscando a diversificação entre atividades agrícolas e não agrícolas, que compreende a oferta de hospedagem, alimentação, diversão e lazer para turistas adeptos ao campo e à natureza. Este trabalho tem por objetivo principal realizar um levantamento da situação atual e avaliar as potencialidades em propriedades rurais para empreender no segmento de agrotourismo nos municípios de Cascavel e Braganey, PR. Como forma de agregar renda na agricultura familiar, busca-se adaptar o instrumento proposto por Pedreira (2006) e identificar as potencialidades com um parecer conclusivo da atual situação e possíveis melhorias que foram levantadas na pesquisa. Os aspectos metodológicos são qualitativos e descritivos, que foram definidos por meio de roteiro metodológico de avaliação do potencial agroturístico em nível de propriedade rural adaptado de Pedreira (2006), aplicado nas propriedades rurais, como questionário estruturado, além da técnica de observador participante de forma sistemática, sendo também um estudo de caso por parte dos pesquisadores, com o instrumento adaptado para a região, sendo a primeira pesquisa realizada na região para a implantação do agrotourismo, diagnosticando indicadores que geraram os dados e informações essenciais sobre as características e atributos de atividades das propriedades. Os resultados esperados foram a identificação e diagnóstico dos atributos de potencialidade das propriedades rurais A e B para empreender no agrotourismo. Foram encontradas as características do agrotourismo com os fatores importantes das propriedades aos proprietários e aprovada as modificações e a adaptação do instrumental de Pedreira (2006).

**Palavras-chave:** Turismo Rural, Fonte de Renda, Desenvolvimento Rural, Sustentabilidade.

## ABSTRACT

Dessanti, Jucé Marcos (2023). *Evaluation of potential for implementation of an enterprise focusing on agritourism in rural properties in the municipalities of Cascavel and Braganey in the state of Paraná*. Professional Master's Degree, Western Paraná State University, Cascavel, PR, Brasil.

Agritourism is understood as an activity that provides a complementary source of income for properties based on family farming, seeking diversification between agricultural and non-agricultural activities, which includes the provision of accommodation, food, entertainment, and leisure for tourists who are enthusiasts of the countryside and nature. The main objective of this research was to carry out a survey of the current situation and evaluate the potential of rural properties to undertake in the agrotourism segment in the municipalities of Cascavel and Braganey, state of Paraná. As a way of including income to family farming, it was sought to adapt the instrument proposed by Pedreira (2006) and identify potentialities with a conclusive report of the current situation and possible improvements that were raised in the research. The methodological aspects are qualitative and descriptive, which were defined by means of a methodological script for evaluating the agrotourism potential at the rural property level, adapted from Pedreira (2006), applied in rural properties, as a structured questionnaire, in addition to the participant observer technique in a systematic way, being also a case-study by the researchers, with the instrument adapted for the region, being the first research carried out in the region for the implementation of agrotourism, diagnosing indicators that generated the data and essential information about the characteristics and attributes of activities of the properties. The expected results were the identification and diagnosis of potential attributes of rural properties A and B to undertake in agrotourism. The characteristics of agritourism were found with the important factors from the properties to the owners and the modifications and adaptation of Pedreira's instruments (2006) were approved.

**Keywords:** Rural tourism, Source of income, Rural development, Sustainability.



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## **LIST OF ABBREVIATIONS AND ACRONYMS**

ADETUR	Tourism Development Agency
AIAB	Associazione Italiana per l'Agricoltura Biologica
CEPEA	Center for Studies in Applied Economics
CNA	Confederation of Agriculture and Livestock of Brazil
CODESC	Cascavel Sustainable Economic Development Council
DIPAB	Directorate of Biodiversity and Protected Areas
EMATER	Institute of Technical Assistance and Rural Extension
EMBRATUR	Brazilian Tourism Company
IDR	Institute of Rural Development of Paraná
IAPAR	Paraná Institute of Technical Assistance and Rural Extension
INEA	State Institute of the Environment – RJ
MDA	Ministry of Agrarian Development
PIB	Gross Domestic Product
PRONAF	National Program for Strengthening Family Agriculture
ODS	Sustainable Development Goals
OMT	World Tourism Organization

SEAB	Secretary of Agriculture and Supply of Paraná
SETU	Secretary of Tourism of Paraná
TER	Rural Space Tourism
TR	Rural tourism
TRAF	Rural Tourism in Family Farming
UNIOESTE	Western Paraná State University

## SUMMARY

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## 1 INTRODUCTION

Since the establishment of agriculture by ancient mankind, new tools and more advanced procedures have gradually been developed to increase production and evolution of planting techniques, generating a transformation in the world's agricultural geographic space. During the 20th century, historically, agricultural mechanization is understood as a consequence of the industrial revolutions, which provided advances in productive means, reaching the agrarian environment with new techniques for handling cultivation goods.

In a globalized world, with innovations and technologies more accessible to the entire population, agriculture has been transformed with the implementation of new technologies and with the arrival of new inputs and machinery in the production process in rural areas, deriving from the process of agricultural modernization (Carneiro, 2010; INEA, 2014). These changes in traditional agricultural practices, with the process of modernization of the field, has carried out advances and significant production records that continue to progressively boost the agribusiness market, generating and distributing food around the world.

Brazil is known worldwide as the agricultural breadbasket for other unproductive or low-productivity regions of the planet, thus leading to the tireless search and effort to increase both production and productivity. This has occurred through the introduction of modern inputs related to agribusiness activity and the large-scale business process (Caporal et al., 2006). In monetary terms, the Brazilian GDP totaled R\$ 7.45 trillion last year, with agribusiness accounting for almost R\$ 2 trillion (CEPEA/CNA, 2021). When analyzing the GDP of agriculture as a whole, the largest share is from agriculture, with 68%, and 32% from livestock, making Brazil the 3<sup>rd</sup> largest producer of food and fiber and the 2<sup>nd</sup> largest exporter of global agribusiness in 2020 (CEPEA/CNA, 2021).

These advances in new techniques in the production process, in the food industries, in the expansion of market competitiveness and the large financial and production variations in commodities have led the large producers to dominate the foreign market. With diversified investments, they were able to increase production, as well as reduce the final value of the product, leaving small rural properties with not many options (Silva, 2010; Whitacker, 2012).

One of the problems presented over the years with mechanization was the rural exodus, in which small farmers abandoned traditional agriculture and adapted to conventional agriculture in a disorderly way and with no long-term planning. This led to a loss of physical space and productive capacity in small rural properties, due to lack of financial resources and investments in family farming. In some locations, the difficulties stem from the absence of

structure, access to policies aimed at family farming, financial deficiencies and the low level of education of farmers, contributing to the departure of young people from rural areas in search of work in cities (Facioni & Pereira, 2015).

However, currently, the domestic market is supplied by small rural producers who survived mechanization, as they differ from the dominant group by using family members as workers for food production, which characterizes a family farming system (Silva, 2010). In addition, they started to work as service providers, including activities related to tourism, agricultural activity practiced with agroecological techniques (organic, biodynamic, natural, ecological), creating a pluriactivity system (INEA, 2014; Carneiro & Palm, 2015).

Unlike large groups, small farmers sought to diversify their rural areas in search of innovative sources of remuneration (Brasil, 2004; 2008). As a result of this situation, there was an incentive to improve practices parallel to agribusiness in these rural properties, valuing rurality. New tourism ventures in rural areas have contributed to the transformation and technical densification of the rural environment and, consequently, to the complexification of objects, actors and actions in the Brazilian rural space (Candioto, 2011). Thus, the eminently technical action, seeking innovation, as a source of growth is explicit (Caporal, 2017).

The World Tourism Organization (OMT) prioritized Rural Tourism in 2020, highlighting the importance of qualifying the sector, structuring it and connecting rural tourism destinations to market innovations, such as the expansion of digitalization (OMT, 2020). In this context, with the health crisis experienced by the new Coronavirus (Sars-Cov-2) pandemic, rural areas are often associated by the urban population with quality of life. The World Tourism Organization (OMT) established the year 2020 as the international year of agrotourism and rural tourism for rural development, recognizing that tourism as well as agriculture are vital for communities around the world (OMT, 2020).

Agrotourism is the set of tourist activities in rural areas that add value to products and services, aiming at raising and rescuing the cultural and social heritage of the community. It needs to take place in an active property, managed and family organized, generating additional income, in which the consumer participates in the routine activities of the property, having direct contact with the product (Santos & Souza, 2012; Melo & Aguiar, 2017).

According to INEA/DIPAB (2014) and Carneiro & Palm (2015), agrotourism, when based on small family properties, occurs through the mutual process between work and management, in which farmers are the agents of the production process. This occurs emphasizing family work, eventually complemented by paid work, thus becoming a characteristic of small rural properties (Brazil, 2006). As stated by Santos & Souza (2012),

agrotourism can provide benefits to the social, environmental and cultural spheres, preserving the local sociocultural identity, traditional knowledge and, at the same time, being a means of disseminating clean production practices.

Therefore, agrotourism is pointed out as a viable income alternative that has also been gaining ground along with this model of family farming and, consequently, keeping people in the countryside. According to Fernando Schwanke, secretary of Family Agriculture and Cooperativism at Mapa, rural tourism represents an important tool to boost family production and an income alternative for the countryside that generates new possibilities for small producers and provides tourists with options of experiences that value the history, culture, and environment of that region (Brasil, 2021).

This context concerns the debate around the rural lifestyle, with the emergence of agricultural entrepreneurship, since the rural space has undergone visible transformations resulting from increasing interactions with the global dynamics and with the technical-scientific-informational environment (Santos, 1996; Candioto, 2009). In addition, it presents rural progress and changes in the technical base in the countryside, thus transforming agrotourism into a market niche, as an activity that induces the growth of non-agricultural occupations in rural areas, as well as promoting new methods of sustainable subsistence in the rural property economy (Schneider & Fialho, 2000).

However, agrotourism should encourage agricultural practices that allow producers to improve their living conditions and, jointly, preserve or recover forest remnants. To this end, agrotourism combined with agroecological techniques and practices, such as agroforestry systems, shows promising potential as a source of alternative solutions to the problems faced in conventional agriculture (Alves et al., 2013), allowing, especially for small producers, economic gains and greater conservation of natural resources.

Agrotourism also enhances the quality of infrastructure in the areas of tourism and reduces the departure of labor from rural areas, also promoting an increase in the supply of jobs and quality of life. Thus, agrotourism contributes to local development. According to Pedreira and Fidalgo (2019), this type of tourism helps maintain agricultural activity and has proven to be an effective means of adding value to products, goods, and services in rural areas, promoting the creation of jobs, improving income distribution, expanding the tax base, preventing rural exodus, in addition to integrating both urban and rural environments.

Therefore, the phenomenon under study, the dimensions and its potential to undertake in agrotourism are present in the ordering and data collection with the intention of evaluating

the attributes of environmental, agrotouristic, and tourist potential that are indicators of rural properties in the region.

### 1.1 RESEARCH PROBLEM

With the diversification in non-agricultural practices, a type of commerce is created in small properties in the region, previously considered marginal activities, due to their low financial expression and income generation. With the search for agricultural entrepreneurship, strategies and new forms are created in the constitution of income of the family rural property, raising the complex of tourist services in the rural environment and its biodiversity. In addition to seeking out agrotouristic activities to add income to families by offering products and services, it promotes the community's cultural and natural heritage, raising the interest of future rural managers (Brazil, 2003).

With the prosperity of these new properties in different regions of Brazil, there is also the intention to use agritourism as an economic alternative and organizational growth, which transcends other objectives, including the enhancement of rural space and sustainability (Guzzatti, 2003; Lima et al., 2013). Thus, small farms seek to discuss an innovative scenario that addresses the theme of rurality in agrotourism, seeking to understand the relationship between urban and rural areas, establishing a reduction in conventional agricultural practices. The increase in the search for other tasks (pluriactivity) in offering products and services through engagement in multiple economic activities leads to a significant improvement in family income (Abramovay, 2000).

In this new configuration of rural entrepreneurship, sustainable, based on solidarity linked to family farming, the earnings of small farmers increase and the urban community coexists with the environment, easing the fatigue of daily activities and their everyday lives. According to OMT (2019), rural tourism is a type of tourist activity in which the visitor's experience is related to a wide range of products related to activities linked to nature, agriculture, rurality, culture, fishing, and sightseeing.

Upon entering the rural environment, one finds the principles related to nature in general (field, ecology, agrotourism, sustainable development, eco-efficiency, agroecology, innovation in the rural context with its rural pluriactivity). Thus, contributions are presented on the perspective of the quality of this interaction of man *versus* nature, resulting from living with farmers and their beliefs, learning about environmental education and changing values and attitudes (Schwartz, 2006).

It also raises awareness to knowledge the form of production, products and services that are generated on the property, with the use of all organic matter in a sustainable and balanced way, in contrast to the consequences that the development model is causing through consumerism in the urban environment. and that generates serious environmental problems for the environment altogether (Costabeber & Caporal, 2003).

In this sense, it is believed that physical dynamics, sports, and leisure are positive, added to a healthy diet and sightseeing in the countryside, with people who demonstrate and share their way of life. The cultural and natural heritage is valued, supplementing revenue from other people's property, with the offer of products and services processed by the family themselves and which bring about social inclusion for farmers. Leisure linked to these places can provoke a rethinking of the themes previously mentioned, helping people to have awareness-raising experiences, in addition to enjoying moments rich in emotions and sensations, thus changing the habits of relating to nature itself (Schwartz, 2006).

Likewise, tourist practices in a rural environment are intended to develop other profitable ways to complement agricultural activity, and there is an important interest in conserving the natural and cultural heritage of this place for future generations (Versiani, 1999). The search for the implantation and economic, social, and environmental viability in a rural area with a business vocation destined to agrotourism incites the interest in analyzing innovative characteristics and potentialities to undertake the expansion of agrotourism and new opportunities in the properties in the interior of the Municipalities of Cascavel and Braganey in Paraná, where the agrotourism area is little explored.

### 1.1.1 Research Question

In this context, the following research question can be asked: is there potential for the implementation of an enterprise focused on agrotourism in a rural property in the region of Cascavel, PR?

## 1.2 OBJECTIVES

### 1.2.1 General

To evaluate the potential for implementing an enterprise focused on agrotourism in rural properties in the municipalities of Cascavel and Braganey, PR

### 1.2.2 Especific

- a) To characterize agrotourism as a possibility of income in the studied properties;
- b) To adapt the instrument developed by Pedreira (2006) to evaluate an agrotourism enterprise in the municipalities of Cascavel and Braganey, PR;
- c) To identify important factors for the success of an enterprise focused on agrotourism in rural properties in the municipalities of Cascavel and Braganey, PR.

### 1.3 JUSTIFICATION AND CONTRIBUTION OF THE TECHNICAL STUDY

This study was carried out in the municipalities of Cascavel and Braganey, in the state of Paraná, as it is a region that little explores agrotourism activities, even though it has held a Sustainable Economic Development Council and Tourism Development Agency of Cascavel in the region, which provides support and knowledge to develop such activities.

In the agrotourism market, there are many causes, factors and circumstances that could be listed to understand the recent rediscovery of rural spaces by economic agents, public administration, and society in general (Anjos & Caldas, 2012).

Demonstrating its importance as an option for rural development (Silva, 1999), associated with gastronomy, as an activity that induces the growth of non-agricultural occupations in rural areas (Schneider & Fialho, 2000), agritourism comes to strengthen economic dynamism and a fair distribution of income from wealth with enterprise management and finances entirely based on the family structure. This generates a new perception of organizations in the creation of yet another new supply chain and local and regional business networks in tourism and in modern agriculture, facing systemic productive systems. Agrotourism presents itself as an efficient strategy for the sustainable development of the rural area, constituting an important source of income for landowners (Pedreira et al., 2019).

Such change means that the way of life and occupation in the countryside changes, with the owner and their family looking for other activities to add income and, consequently, the appreciation of the rural environment in their territory (Abramovay, 2001). Likewise, generating sustainable development and integrating artisanal producers into the agro-industrial production chain leads to the social and economic inclusion of this segment in the market.

In the search for an alternative for leisure, rest, living with nature in a place free of noise and agitation, agrotourism emerges as a viable option to be considered, since agrotourism consists of leisure activities carried out in this rural environment (Silva, 1999). Therefore, this

option presents itself as a socioeconomic and cultural option, seeking to associate the experience of rural everyday life with leisure, adventure, visitation, accommodation, food, and trade in organic products, featuring the environment.

Such modality of agrotourism are activities carried out in the natural environment, which may or may not involve other activities unrelated to the area (Verbole, 1997; Silva et al., 1998). However, it is a path to add value and income to rural producers, as well as to transform daily activities into local attractions, highlighting what is pleasant in rural daily life.

For the initial designing of an agrotourism enterprise, it is necessary to survey relevant Indicators and attributes (environmental, agricultural, and touristic) aimed at the elaboration of the basic diagnosis of information necessary to discover the feasibility of implementing and managing sustainable tourism on the rural property.

Pedreira (2006) states that:

To order the data collection process on the rural property and evaluate its agrotourism potential, some indicators can be considered essential and others, complementary, being grouped according to the different aspects of interest to agrotourism (agricultural, tourist, environmental) so that [...] the indicators considered most relevant were selected because they constitute the basic level of information necessary to manage sustainable tourism.

These Indicators reveal the most favorable areas to undertake, thus subsidizing information and important aspects of the property and decision-making, demonstrating the explored properties and the advantages of agrotourism in the adding of income for the owners.

#### 1.4 STRUCTURE OF THE THESIS

This master's thesis is structured with six chapters and three appendices, as follows:

In Chapter 1 – Introduction: with a presentation of agrotourism in Brazil and its importance in the social economy, contextualizing the topic addressed. The research problem was presented and justified, general and specific objectives were listed, as well as the context that led to the research on agrotourism and what the scientific contribution should come from this.

In Chapter 2 – Theoretical Foundation: the theoretical foundation was carried out, with the types of rural tourism and their importance in the context of agrotourism, carrying out a conceptual approach of the existing forms and types in Brazil. The important factors to undertake in agrotourism as an alternative form of income for the property were contextualized



and the literature based the criteria for scoring the Environmental, Agriculture and Tourism Indicators used in this work.

In Chapter 3 – Method and research techniques for technical production: the research design is presented, exploring methods and techniques used to meet the research purpose. The data collection procedures that were used and their adaptations are presented, in order to achieve the general and specific objectives of the research and, finally, presenting the research limitations.

In Chapter 4 – Analysis and discussion of the results are presented from the study of the proposed strategies and instruments developed in the studied rural properties. Maps of the rural properties are designed, as well as notes on the potential attributes for agrotourism.

In Chapter 5 – Contributions to the practice: contributions to the practice of agrotourism to be developed in rural properties in the region are presented.

The sixth chapter highlights the final contributions of the thesis.

## 2 THEORETICAL REFERENCES

### 2.1 ECOTOURISM, TOURISM IN RURAL SPACES, RURAL TOURISM AND AGROTOURISM – A BRIEF CONCEPTUAL APPROACH

In this chapter, the important fundamentS for the concept of agrotourism are presented and a brief explanation to differentiate between these other three tourist activities considered "prime" in the rural environment, providing a clear distinction in the tourist attractions and in the work activities carried out in the rural property.

With characteristics rooted in the influences of foreign literature on the subject of rural tourism, the concepts are applied without major reflections and adaptations to the Brazilian reality, as stated by Rodrigues (2000): "the imprecision of concepts about rural tourism in Brazil is linked to the attempt to classifications based on European parameters, given that the origin of rural tourism is European".

Similarly, there is the statement by Candiotto (2010) that reads: "despite these conceptual problems, it is believed that there are already studies that seek to establish a differentiation of tourism activities carried out in rural areas in Brazil", especially with regard to the concepts of tourism in space/rural environment, rural tourism, ecotourism, and agrotourism.

According to Tulik (2003), the following existing divisions and subdivisions can be observed: Tourism in the rural area encompassing rural tourism, and this encompassing agrotourism; Tourism in rural areas encompassing agrotourism and rural tourism, as a synonym; Nature tourism, encompassing ecotourism, and this encompassing rural tourism. Therefore, definitions for non-agricultural activities are listed with the authors defining the context of each form of tourism developed by farmers.

#### 2.1.1 Ecotourism

One of the first definitions of ecotourism or ecological tourism comes from Ceballos-Lascuráin (1991):

Ecotourism is the undertaking of a trip to natural areas that are relatively undisturbed or not contaminated with the specific objective of studying, admiring and enjoying the landscape, accompanied by its wild plants and animals, as well as any cultural manifestation (past or present) that occur in these areas.

Pedreira (2006) “considers some actions essential in order to achieve greater interaction between ecotourism and environmental conservation, among them: developing tourism in a sustainable way; determining the receiving capacity of natural resources and receiving communities; carrying out a detailed zoning of the potentialities and limitations of natural resources”.

However, the World Tourism Organization – OMT (1999) classifies as Sustainable Tourism what relates the needs of tourists and the receiving regions, protecting and strengthening opportunities for the future. This definition contemplates the management of economic, social, and aesthetic needs, maintaining cultural integrity, essential ecological processes, biological diversity, and life support systems.

It is also known as ecological tourism, that is linked to nature, which, according to Cavaco (2001), aims at maintaining the socio-environmental quality and harmonization with the agricultural activities carried out on the property.

According to the definition of the Ministry of Tourism (2010), ecotourism is a segment of tourist activity that uses, in a sustainable way, the natural and cultural heritage, encourages its conservation and seeks the formation of an environmentalist conscience through the interpretation of the environment, promoting the well-being of populations.

However, Campanhola (2001) states that both agrotourism and ecotourism should start from the initiative of farmers and the rural community and not from external interests. This is because authenticity and local cultural values must be maintained and must not become mass tourism.

### 2.1.2 Tourism in local areas

Tourism in the rural area (TER), according to Pedreira et al. (2006), “represents a new form of occupation of the workforce and higher remuneration in relation to traditional activities, in addition to being able to provide an increase in the quality of life of families and also greater economic stability in the rural property.”

According to Campanhola and Silva (2000):

Tourism in rural areas consists of leisure activities carried out in rural areas and covers several modalities defined based on their offer elements: rural tourism, ecological tourism or ecotourism, adventure tourism, cultural tourism, business tourism, youth tourism, tourism social, health and sports tourism.

However, the definition of TER for the Federal Government, adopted in the National Program of Rural Tourism in Family Agriculture, includes having all “the equipment located in the rural area that develop leisure, recreation, sports, events activities, not necessarily linked with agricultural production and rural culture” (Brasil, 2004). In this way, they demonstrate an evolution of the concept and recognition of differences in the TER and rural tourism, after a broad debate by EMBRATUR, to consolidate the concept.

In this sense of characterization of TER, the Ministry of Tourism (2014) expresses as basic characteristics the activities should be based on agricultural production, adding value to its products and services, rescuing and promoting the cultural and natural heritage of the community.

### 2.1.3 Rural tourism

Rural tourism is defined as activities carried out specifically on small rural properties, such as recreation and rest, which according to Silva and Almeida (2002), “when they perceive rural tourism as a more restricted modality than tourism in rural areas, because would be reserved only for cases in which traditional rural activities (agriculture, extractivism and fishing) play a role in the visit”.

Thus, it contemplates a greater scope in the definition of Portuguez (1999), “defined as a set of modalities that consist of attracting an eminently internal and urban demand to rural environments, where tourists can experience greater contact with a bucolic environment, as well as local customs and everyday life in the countryside”.

EMBRATUR (1994) defines rural tourism as a multidisciplinary activity that takes place in the environment, outside intensely urbanized areas, and that is characterized by small-scale tourist companies, whose predominant economic activity is land use, focused on for agricultural and livestock practices. However, Tulik (2003) states that, in 2002, there was a change in the concept of rural tourism at EMBRATUR, which came to be considered “a segment of tourism that provides knowledge, experience and enjoyment of the social, economic and cultural practices of the environment of each region in a sustainable way”.

Rural Tourism – TR or TRAF – “is the set of tourist activities developed in rural areas, committed to agricultural production, adding value to products and services, rescuing and promoting the cultural and natural heritage of the community” (Brasil, 2003).

However, Maggi (2016) presents this example, being the most accepted concept and defined by Law n. 15.143 of May 31, 2006, which defines as TRAF “all tourist activities that

take place in the production unit of family farmers who maintain the economic activities typical of family farming, willing to value, respect, and share their way of life, cultural and natural heritage, offering quality products and services and providing well-being to those involved” (Paraná, 2006, Art. 01), elaborated and carried out in partnership with the Secretariat of Agriculture and Supply of Paraná – SEAB and the Secretariat of Tourism – SETU, which is defined as up to four rural fiscal modules the size of the property as family farming, which in Cascavel, PR, corresponds to up to 72 hectares.

According to Maggi (2016),

Rural Tourism in Family Agriculture is the tourist activity that takes place within the scope of the production unit and on the property of family farmers, who maintain the typical economic activities of family farming, willing to value, respect and share their way of life, cultural heritage and natural, offering products and services produced by the family itself, that is, the tourist gets to know the daily lives of families.

For Candiotta (2010), in addition to all the debate around the concepts of tourism in rural areas and rural tourism, the concept of agrotourism is also fundamental for differentiating tourist activities carried out in rural areas.

#### 2.1.4 Agrotourism

However, in agrotourism it is necessary to have a broad definition listed in the definitions of several authors with in-depth studies on the theme, so that the aspects and attributes of tourism and agricultural activities carried out on the properties are not confused with the activities practiced in tourism in rural areas and rural tourism (TRAF).

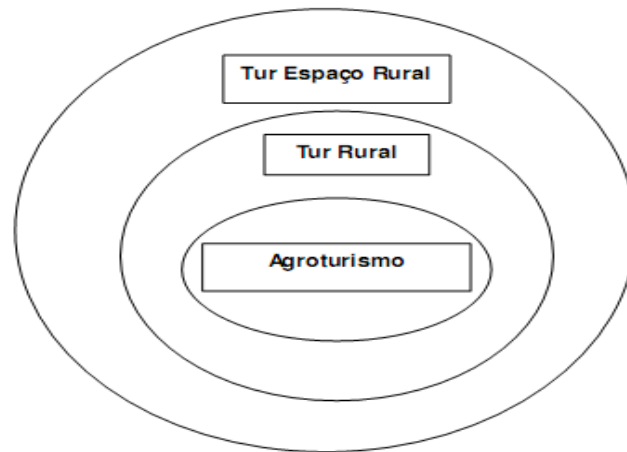
For the Ministry of Tourism (2010):

Activities internal to the property, which generate occupations complementary to agricultural activities, which continue to be part of the daily life of the property, to a lesser or greater extent, must be understood as part of a process of aggregating services to existing agricultural products and non-material goods on rural properties (landscape, fresh air, etc.), based on the “free time” of agricultural families, with eventual hiring of external labor.

In this context, Candiotta (2010) states that, just as rural tourism is part of something broader, which is tourism in rural areas, agrotourism constitutes a submodality of rural tourism (Figure 1).

As a uniformization and standardization model, several countries participating in the World Tourism Organization, it shows the understanding of tourism transcribed by Sancho

(2001): “Tourism comprises the activities that people carry out during their trips and stays in different places around them, usually for a consecutive period of less than one year, for leisure, business or other purposes.”.



**Figure 1.** Hierarchy of tourism in local areas  
Source: Organized by Candiotta (2007)

Not unlike large organizations, small farmers have committed themselves to diversifying their rural assets in search of alternative sources of income, according to the Ministry of Tourism (2003). As a result of this new situation, there was an impulse in several locations, the expansion of parallel activities (non-agricultural) with agriculture in these rural properties, valuing rurality and reaching new sources of income, thus creating a new type of tourism: agrotourism.

Agrotourism is defined by Portuguese (1999) as:

the modality of tourism in the rural space practiced within the properties, so that the tourist and/or excursionist gets in contact, even if for a short period, with the atmosphere of life on the farm, integrating in some way with the local habits.

Agrotourism, according to Schwartz (2006), as a characteristic of tourism where tourists look for unique activities with diversities outside the urban routine, entails what must be carried out in a rural space, in the place that presents itself as an option for practices not related to farming, where they get to share experiences and ways of living of farmers and their families with their property, having as rewards finding shelter, peace and being able to contemplate diverse eccentric natural landscapes followed by countless unforgettable adventures. Tourists find various ways of resting and ways of sharing the lifestyle and occupation with the local residents, and gradually insert themselves into the urban routine of actual agricultural

knowledge, land cultivation, gaining understanding of the paramount importance of crops in the human being life.

In contrast to their efforts, formerly contemporary, farmers carried out their daily routines with little notoriety, henceforth the new circumstances where the guests have the opportunity to discover and experience agricultural activities, products, *in natura* foods, local cuisine and the daily lives of its residents. According to Abramovay (2000), the aim is to add value to their income by engaging in multiple economic activities. However, services of a different quality than usual in the lives of visitors must be offered, as the provision of food, accommodation and leisure services, seeking the satisfaction of its customers.

In this new context, the project helps to collaborate with the stability of the region. Francisco Junior (1999) says that it establishes new jobs and development in the locality, constituting an option that must be explored and that are indirectly linked to agricultural practices and tourism, also becoming responsible for sustainable development and the promotion of various activities in the natural environment, invariably guided by procedures for the perpetuation of local culture and identity, adding income in the rural environment.

Similarly, Schwartz (2006) presents contributions from the perspective of the quality of this interaction between man and nature, resulting in environmental education and changes in values and attitudes, prioritizing sustainability and appreciation of the natural environment, as well as respect for local and genuine rural culture.

Also Verbole (1997) and Silva et al. (1998) state that rural tourism consists of leisure activities carried out in rural areas, which may or may not involve other activities unrelated to the area, being a form of tourism in a rural environment, which comprises an economic supplement to the family's income. It is essential that everyday and conventional practices are not disturbed, since one of the reasons that cause tourists to move to the property is to carry out the usual agricultural tasks, which remain as a priority source of income and should not be abandoned.

The concept of agritourism employed by the Ministry of Tourism, quoting the Ministry of Agrarian Development (2004), "is based on aspects that refer to tourism, territory, economic base, natural and cultural resources and society". Based on these references, agrotourism is defined as: "The displacement of people to rural spaces, in scheduled or spontaneous itineraries, with or without overnight stay, to enjoy rural settings and facilities" (Beni, 2002).

However, Salles (2003) recalls that agrotourism is a way of generating income in rural areas, which also promotes direct contact of tourists with the daily life on agricultural properties and with the customs of the countryside, with an interactivity between the countryside and the

urban environment, which characterizes the relevance of the farmer's family in the Presence of the activities carried out, as they are the protagonists of the entire process and the production of goods supplied to tourists. Therefore, the initiative must come solely from farmers and the rural community in which it operates, and cannot be pressured by interests outside the environment, maintaining authenticity and local cultural values.

## 2.2 IMPORTANT FACTORS TO UNDERTAKE IN AGROTOURISM

To undertake in this branch of tourism, it is necessary to carry out a feasibility study of implementation and planning, in order to prepare a diagnosis with the set of characteristics typical of agrotourism, seeking essential Indicators of potential and that are precisely in the rural property in a sustainable way, to which, added to agricultural production, tourism and environmental conservation becomes attractive to tourists and develops the property.

According to Pedreira et al. (2014),

It is suggested that two main issues should be considered: (a) that the starting point for defining the agrotourism potential of a locality be the environmental inventory, elaborated with efficient Indicators and associated with the other elements that involve the tourist activity; and (b) that the Indicators used in each study must undergo prior experimentation before being effectively adopted to express the agrotourism potential of a given rural space, so that local specificities can be taken into account.

Based on the researched literature, there are several characteristics and potential factors with the Presence of expressive agricultural activity, linked to the various tourist activities, which can be used as a source of alternative income generation and leisure and entertainment that can be of great interest to agrotourism.

The Ministry of Tourism (2003) has the following predominant factors in the local region: Predominance of small rural properties and the existence of agricultural settlements, with a large number of producers living from family farming; Presence of small handicraft, agro-industrial and transformation industries; Promotion of events related to agricultural production and ecological tourism, adventure and sports (parties, meetings, exhibitions, celebrations); Presence of sustainably protected areas; and Presence of a minimal infrastructure aimed at tourism (tourist attractions, leisure and entertainment alternatives, accommodation, access roads, communication, basic sanitation, among other items).

In this way, the Ministry of Tourism (2003) is based on:



In 1998, the activity was the focus of discussions at the International Congress on Rural Tourism and Sustainable Development, which resulted in the “Carta de Santa Maria”, a reference document for the activity in Brazil, which resulted in multidisciplinary work by technicians, agents and actors and gave rise to the conceptual framework and Operational Guidelines for Rural Tourism.

In this document some factors were diagnosed that help to understand the reasons why many localities have sought this segment, interested in the social and economic dynamization of their rural territories and in benefits, which according to the Ministry of Tourism (2003) are: Diversification of the regional economy, for the establishment of micro and small businesses; Generation of new job and income opportunities; Incorporation of women into paid work; Added value to the primary product; Decreased rural exodus; Improvement of transportation, communication and sanitation infrastructure in rural areas; Improvement of equipment, real estate and living conditions for rural families; Interiorization of tourism; Conservation of natural resources and cultural heritage; Promotion of cultural exchange and cultural enrichment; Integration of rural properties and the local community; Valuing rural practices, both social and work-related; and Rescue of rural workers’ self-esteem.

The practice of agrotourism offers several tourist services and activities that can be developed on rural properties and that must be adequate for the activities to be developed in a sustainable way and provide guidance to rural owners who are interested in implementing it. The Ministry of Tourism (2014) launched a report with estimates of the characterization of the formal and informal occupation of tourism, which are classified as services and activities:

- a) Tourist services and equipment: Lodging; Food; Guidance, Driving, and Reception.
- b) Activities that can be practiced by the visitor: Agricultural activities; Transformation activities (vegetable, animal, or mineral); Ecotourism activities; Adventure; Interaction activities with livestock; Fishing; Sport activities; Pedagogical activities; Cultural activities; Recreational activities.

Campanhola and Silva (2000) state that the agrotourism development process must take place at the local level, with the involvement and participation of all social actors, duly represented, and with a careful assessment of the tourist potential, having the local culture as reference.

In this sense, farmers interested in undertaking agritourism should acquire a deeper knowledge on the subject by carrying out an inventory of their property, seeking to have all the necessary information that subsidizes Indicators regarding the particularities of their region, thus generating a safe diagnosis, respecting the legislation in force in your municipality, so that it leads to a right decision, and that translates into success of the proposed enterprise.

However, by carrying out an inventory and consequent diagnosis it is possible to know the strengths and weaknesses of the study area, its historical evolution of occupation and the pressures of man on natural systems (Santos, 2004). In addition, Salles (2003) teaches: With the preparation of the inventory, the researcher will obtain valuable information for the evaluation of the environmental impact and sustainability in future projects, serving as a preventive and quantifying element, contributing to the identification of possible impacts on the countryside and its surroundings, thus, forming a set of specific Indicators for each property or region.

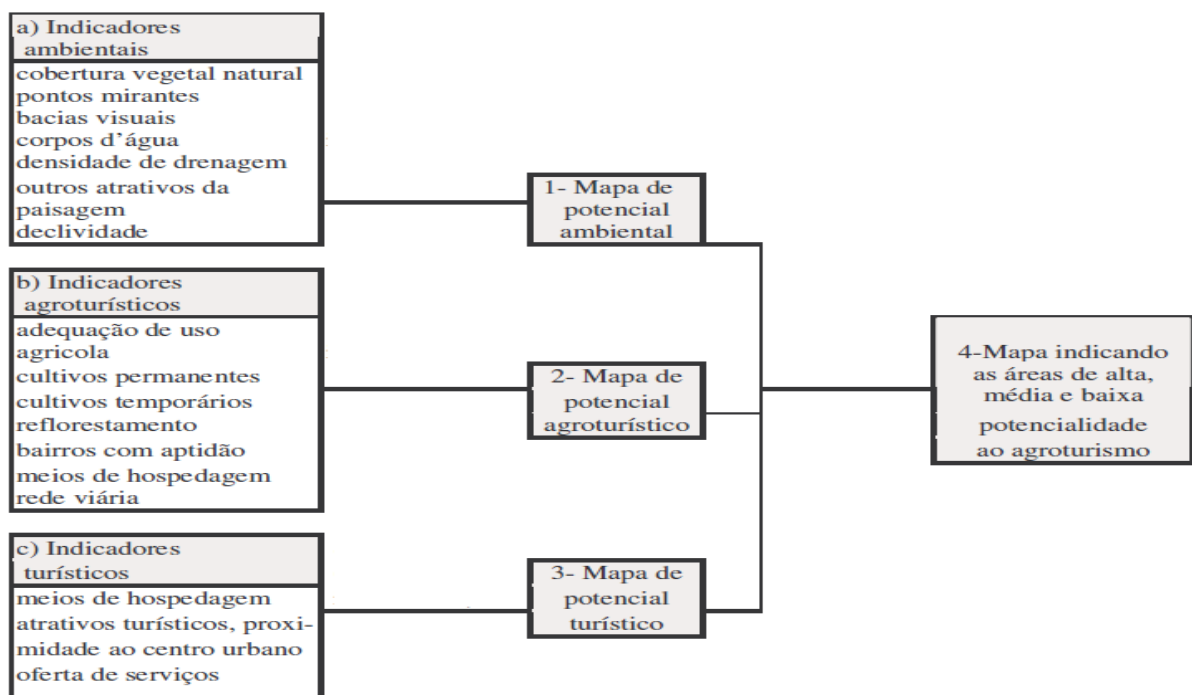
According to Pedreira (2006), the Indicators deemed most relevant should be selected as they constitute the basic level of information needed to manage sustainable tourism. Thus, based on the assumptions adopted, the Indicators were selected to be mapped and presented according to the aspects and characteristics of each region, justifying possible changes in the Indicators in relation to other regions. According to Boullón (1999), the use of Indicator mapping in the planning process is fundamental, as it allows a better understanding of the spatial problem and the preparation of tourist routes, thus being unique for each project.

The assessment (Figure 2) of the property's potential and fragility for agrotourism should be initiated by carrying out inventories referring to the physical, agricultural, tourist, and socioeconomic aspects, for the collection of data and information regarding the selected Indicators.

Pedreira (2006) considers that at least the following Potentiality and Fragility Indicators factors should be observed in an agrotourism project:

- Physical delimitation; Declivity; Climatic conditions (temperature, rainfall);
- The extent of agricultural and livestock areas (size of the production system, agricultural activity);
  - Land use and occupation;
  - The suitability of agricultural land use and agro-economic data;
  - The existence and conditions of access roads (road complex);
  - Hosting alternatives (type, hosting location, reception capacity, suitability of hosting means);
  - Infrastructure of the lodging places (potable water, sewage system, presence of attributes or tourist attractions);
  - Proximity to urban centers; Offer of services (health, pharmacy, bank, hospital, post office, commercial assistance, communication, and others);

- Landscape (presence of aesthetic, agricultural, natural or cultural attributes, aesthetic beauty, presence of natural vegetation cover and environmentally protected areas, proximity to rivers);
- Socioeconomic conditions; Historic Heritage, cultural, architectural and archaeological; Drainage pattern, distribution of watercourses; Tourist support and information infrastructure;
- Brief description of the stage of tourism in the region.



**Figure 2.** Structure of Indicators of agrotourism potential

Source: Adapted from Pedreira (2006).

These Indicators will provide subsidies for the preparation of the diagnosis of each location to be chosen for agrotourism, serving to highlight the positive and negative aspects (weaknesses, conflicts, successes, limitations, undesirable changes, and potentialities) of each location and to point out the most conducive to agrotourism activity, always considering the established premises (Pedreira, 2006). The assessment also allows the development of a set of alternatives for the region under study, dealing with the solution of impacts, weaknesses, rehabilitation of landscapes, development of potentialities and fulfillment of social concerns, among others (Santos, 2004) .

However, AIAB (2000) leads to the thought and practice of conduct that the relationship between agritourism and the natural environment is very close, and that it needs a qualified environment for its development.

Pedreira (2006) states that:

Thus, it is important to introduce a characterization of rural areas that respond to a correct representation of the specific elements that differentiate areas with potential for the development of sustainable tourism. Due to research limitations, it is not possible to adopt a complex classification system that includes natural, demographic, socioeconomic and cultural aspects. In this way, a qualitative classification of rural areas based on specific elements should be adopted, with a predominance of an association of potentialities for tourism in a rural territory.

Zimmermann (2000) points out that there are still no scientific criteria available to the public for assessing the tourist viability of rural units, since tourism practiced in rural areas is still a recent activity. Fidalgo (2003) points out that as an aid to the decision-making process in environmental planning, it is essential to obtain good quality information, well-formulated and that allows understanding of reality.

For Pedreira (2006), such information is usually presented in the form of Indicators, considered important tools in this process. However, the survey of Indicators, as well as the collection of data and its analysis, composing the diagnosis, are of paramount importance in the elaboration of the goals and objectives of the planning and the formulation of alternatives of action to achieve them.

The Indicators help in the identification of problems, selection of alternatives, formulation of policies and their implementation, and even in the phase of evaluating the results, thus leading to a safe and correct choice of tourist location and respecting, in this way, the particularities of each region. According to Novaes (1999), the existence of principles involving specific environmental protection legislation, among others, will guarantee the quality of life and the maintenance of the characteristics of the local community and the region, contributing to sustainable development.

According to Zimmermann (2000), rural tourism constitutes an aspect of sustainable development, and it is essential that it is integrated with the other objectives foreseen for the revitalization of a region: increase in jobs, rehabilitation of agriculture, appreciation of archaeological sites, biotypes, geological formations, and respect for the ecological system. Knowing the environmental issues relevant to rural properties that develop activities related to tourism is the first step towards the Conservation of natural landscapes (Santos & Gomes, 2003).

On the other hand, according to the current of the “regional method”, analyzed by Gomes et al. (1995), it is important to remember that there are infinite possibilities for dividing spaces into regions, as there are also many Criteria that can be used, so that for each one, there is a different result. The definition of the regionalization method depends, in this sense, on the

aim to be achieved, thus justifying the changes made to the Indicators and potentialities listed in the assessment of each region.

Ruschmann (1994) states that the process of elaborating the tourist plan must consider the regional characteristics and singularities that require the adoption of methodology and techniques adequate to each case.

In addition, Seabra (2001) considers that:

In tourism planning, one must fulfill the function not only of diagnosing the potential of natural resources, guiding the sustainability of their exploitation, but also of detecting the weaknesses contained in environmental systems and suggesting the most appropriate technical-economic procedure, in order to avoid the sensitive alteration of the ecosystemic balance.

In this context, the set of data and information inventoried and their interpretation can allow the development of an assessment that shows out the most favorable points of the Property To the development of the agrotouristic activity. Pedreira (2006) used crossings of the following Indicators for the development of Points: climate, relief, hydrography, geology, soils, and land use. These different Indicators were later integrated through geoprocessing techniques, in a geographic information system (GIS) environment, following previously defined models and methodologies, in order to generate a synthesis.

For Pedreira (2006, p. 84):

The attribution of different weights to the Indicators can help in the outlining of the agrotourism potential, allowing the hierarchization of the areas conducive to this activity. Thus, in order to carry out the crossings between the three groups of Indicators, a weighting was used, attributing degrees of relative importance to the parameters or to these Indicators themselves, through the application of Weights (exponents) to the information obtained about the different attributes locations.

In this way, the three groups of Indicators were weighted, attributing degrees of relative importance to the parameters or to these Indicators referenced in the literature and in the current laws, by applying Weights (exponents) to the information obtained about the different local attributes, as used by Pedreira (2006) (Chart 1).

Weight of potential maps	Attribute category	Weight of category
Map of agrotourism potential (9)	High	3 <sup>9</sup>
	Medium	2 <sup>9</sup>
	Low	1 <sup>9</sup>
Map of tourism potential (6)	High	3 <sup>6</sup>
	Medium	2 <sup>6</sup>
	Low	1 <sup>6</sup>
	High	3 <sup>3</sup>

Map of environmental potential (3)	Medium	2 <sup>3</sup>
	Low	1 <sup>3</sup>

**Chart 1.** Criteria of exponential attribute ponderation for potential  
Source: Pedreira (2006).

Therefore, Pedreira (2006) advises that the Points to the Indicators will be attributed subjectively, but considering their importance for agritourism deduced from the literature review carried out on the subject, with the attribution of different Weights to the Indicators, which may help in outlining the potential for agrotourism, enabling the hierarchization of the areas conducive to this activity.

### 2.3 AGROTOURISM IN BRAZIL

The reports that follow show how recent and new this type of tourism in Brazil is, and the search for knowledge, development and references is opportune for its implementation in the market. According to Portuguez (1999), “agrotourism in its various versions began to be projected around the world from the 60s onwards, although some successful experiences had occurred in earlier periods”.

It was in this context that agritourism entered the countryside in Venda Nova do Imigrante, as an “alternative to diversify the source of income, keep the population in the countryside, overcome the problems that farmers were going through, boosting a new performance in this space” (Zandonadi & Freire, 2016).

Portuguez (1999) states that:

In Espírito Santo, agrotourism was chosen as one of the main activities to be promoted by the state government, as an opportunity to promote the development of the countryside, not to replace traditional agro-silvo-pastoral activities, but to enable the multifunctionality of properties and as an alternative of income generation and employment for the population of the so-called central mountain region.

Agritourism emerged in Brazil in the past decades, as a possible practice to make rural growth viable, as alternatives to reestablish the social and economic life of small rural areas, stimulating the projection of the countryside and the products of that locality, in addition to playing an important role in preservation of the natural environment and the management of plurality and the preservation of landscapes in agricultural environments.

Over the years, the expansion of rural properties and the agricultural sector maintained a close relationship in the propagation of innovative and efficient techniques and production methods. However, Cavaco (2001) describes these production and work connections in the rural

environment that followed changes, such as the intensification of globalization and the modernization of agriculture, making many of the small rural properties technically and economically unfeasible.

Differently, Salvati (2003) explains that:

The emergence of this new productive scenario in rural areas generates encouragement for private investment and government support, fostering greater fascination on the part of new rural entrepreneurs; discovering the environmental importance, mainly with regard to the conservation of natural resources, including water, forest, soil and fauna, resulting in the maintenance of the rural Landscape for the very life of the planet.

For the Ministry of Tourism (2010), the farmer, little by little, is no longer just a producer of raw materials and now discovers the possibility of developing non-agricultural activities, in order to guarantee his permanence in the countryside.

However, agritourism lists a clear involvement with the visitor, allowing the farmer to offer, in addition to accommodation, tours, food and leisure services, its *in natura* production (fruits, eggs, vegetables) or created goods (jams, cheeses, handicrafts). For the Ministry of Agriculture (2003), better price and quality of products are obtained for the tourist and, thus, greater income for the producer. The same Ministry of Tourism (2008) identified that changes have been taking place in rural areas due to increased globalization and progress in agriculture.

Following the same thought, Cox and Fox (2003) propose that the connection between agriculture and tourism in rural economies must be recognized in order to protect the potentiality of agriculture as a progenitor in the realization of leisure that is capable of being used, and the agritourism activities overcome obstacles, transforming the farmer into a promoter and/or user of this activity.

However, the tourist is part of this organization, which becomes the target audience of the practice, where in line with their will, their way of thinking and/or desire can predetermine particularities to the goods and services performed (Fernandes et al., 2021). Within this organization, the excursionist becomes intrinsic to a whole system, that is, a propelling agent, of great community occurrence that is agrotourism, which, as a generating agent, comprises actions of advances that must occur for the modification and elevation earnings on the property where they are establishing their tourist practices.

Kuo and Chiu (2006) present this link that is organized in agrotourism as becoming a key element for the prosperity of tourism aware of social and environmental issues in rural properties. Likewise, the dynamics provide new income opportunities for farmers, promoting

cultural expression of an equal nature in the exchange of agricultural activities, artistic richness and regional culinary traditions.

However, as highlighted by Campanhola and Silva (2000), there are particular environmental characteristics in each space, regardless of the scale of work or its physical limits, and it is necessary to incorporate space planning and management so that productive activities cause less degradation of the environment and ensure the sustainability of natural resources.

Agrotourism in Brazil, as the aspect of tourism in a rural environment, brings together the opportunity to live in rural life, even for a short period together with farmers and their families, for those who seek a natural experience with the insertion with the environment and its lighter habitat characteristics, away from the stress and accelerated and dull routines that the urban life provides.

Also as a type of tourism in rural areas, it presents itself as an economic complement to the local family in various regions of Brazil, not excluding traditional agricultural practices, which remain the main source of income. It is vitally important that agricultural practices are not interfered with, as this is one of the factors that attracts the tourist interest to the place.

As a way of inducing knowledge, agritourism is practiced in current ways and characterized by the great importance of the farmer's family, so that it is carried out personally and professionally, and that he remains in the countryside, after all, these are the actors who are present in this activity, commanding all the stages, from agricultural production to the sale of products intended for tourists.



### 3 METHOD AND RESEARCH TECHNIQUES FOR TECHNICAL PRODUCTION

In this chapter, details are presented on the methodology that will support the study, including the research design, type, scope, sample, selection of subjects, and also the form of data collection and treatment. The limitations of the chosen method are also listed.

#### 3.1 RESEARCH DESIGN

In order to meet the research purpose, qualitative and descriptive research was used, being necessary to describe characteristics and attributes of potential existing in the rural property to undertake in agrotourism. In order to satisfactorily achieve the predetermined results in the instrument adapted from Pedreira (2006), the evaluation script was applied to the chosen property with a rural owner involved in the process of undertaking agrotourism.

Therefore, the participant and systemic observer technique was used, following the planning and goals of the methodological map for evaluating the agrotourism potential, with the agents involved in the property to achieve the results, considering elements able to provide strong and relevant information to be analyzed and processed for a reliable evaluation in relation to the subject studied.

For this work, single or multiple case studies were also used, which, according to Yin (2001), contribute, in an unparalleled way, to the understanding of individual, organizational, social, and political phenomena. In summary, the case study allows an investigation to preserve the holistic and meaningful characteristics of real-life events without distortions between reality and literature.

Deslandes (1994) reinsures this note when states that “it should be considered which social individual has a more significant link to the problem under investigation”. In this context, when applying the proposal, the owners involved in agrotourism must be identified and a person responsible for the family, qualified in the agrotourism process, who can provide relevant information for the research.

Therefore, a case study is an empirical inquiry that has the following characteristics: a) It investigates a contemporary phenomenon within a real-life context; b) The boundaries between the phenomenon and the context are not clearly evident; and c) Multiple 17 sources of evidence are used (Yin, 2001). Therefore, since there is no control over the phenomenon of agrotourism and its variables and as it is a contemporary event, the case study methodology

becomes more suitable for this research, thus presenting an evaluation of Indicators true to the current situation of the studied property.

Within the universe of rural properties, one or more properties in the region of Cascavel, PR, were chosen to participate in the case study, representing the population to be studied. This procedure consists of selecting a subgroup of the population that, based on the information, can be considered representative of the entire population (Prodanov & Freitas, 2013). With this case study, intentional or rational selection samples can be evidenced.

### 3.2 DATA COLLECTION PROCEDURE

In order to meet the research purpose, it was necessary to easily and effectively reach any person or rural owner who was involved in the process of undertaking agrotourism. Therefore, the agents involved in the chosen property were determined as the research population, applying the questionnaire in the form of a methodological script for evaluating the potential for agrotourism, as developed by Pedreira (2006).

The knowledge acquired *in loco* on the rural property, using the evaluation script by Pedreira (2006), benefits the observation of the real potential of the organization, the local infrastructure and the possible support services, among other points, in which the scores of the three indicators were:

- 1 – Environmental quality;
- 2 – Agricultural potential; and
- 3 – Tourism attributes.

In order to assess and provide data with the purpose of identifying the potential or not of the enterprise in agrotourism, criteria were distributed according to the analysis of the potential for activities, according to their higher or lower characteristic for the use of the agrotourism activity on the property, using the Points Criteria developed by Pedreira (2006).

The methodological scheme used by Pedreira (2006) was excluded according to Figure 3 and adapted according to Figure 4, since, in his dissertation, he used the mapping of land use made on the reference images for Landsat 7 ETM+, from 2001, on a scale of 1 : 50,000, with data from the SRTM project (Shuttle Radar Topography Mission/ NASA/NGA) and GIS module Idrisi (Reformat>Expand).

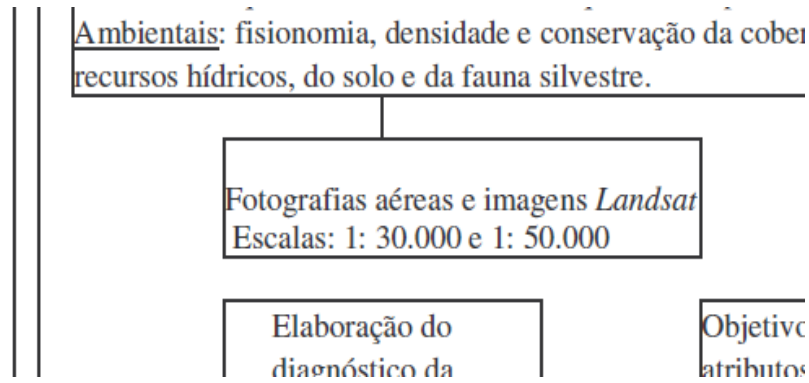


Figure 3. Part of the itinerary scheme for application  
Source: Pedreira<sup>1</sup> (2006).

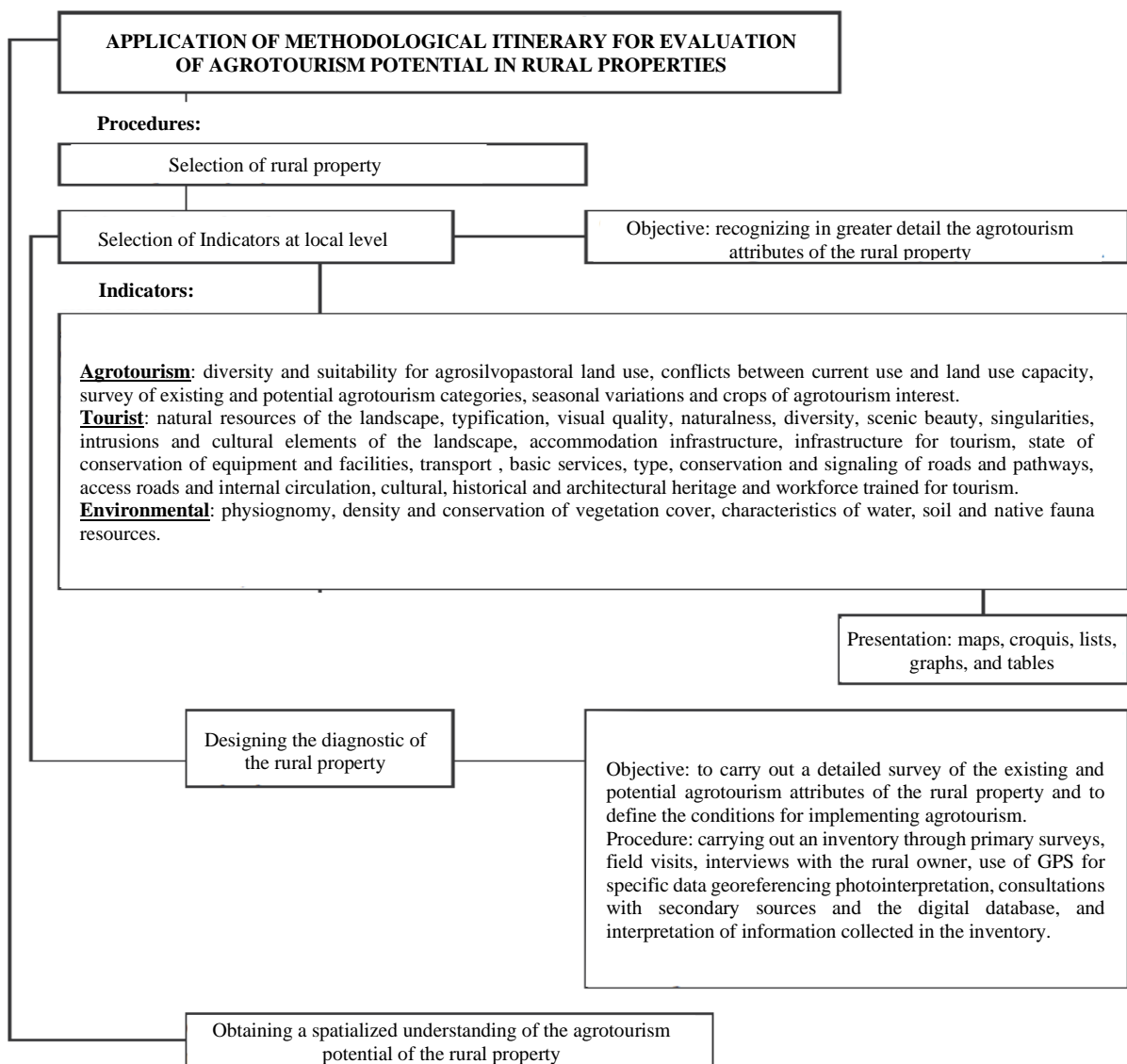


Figure 4. Scheme for itinerary application  
Source: Adapted from Pedreira (2006)

<sup>1</sup> Translation: Environmental: physiognomy, density, and conservation of forests, water, soil and native fauna resources. Aerial photography and Landsat images, Scale 1: 30,000 and 1: 50,000.

The integrated assessment of Environmental Indicators, tourist and agricultural, carried out by Pedreira (2006) was used, which, by crossing the respective maps of environmental potential, agrotourism potential and tourism potential among themselves, generated the Criteria and Weights.

This was done by reclassifying the total sum of points obtained for the new polygons resulting from the intersection developed by Pedreira (2006), who, in his dissertation, divided into three equal intervals, enabling the generation of a map that spatializes the potential for agrotourism.

According to Pedreira (2006):

these procedures were carried out following a hierarchy of scales and an increasing sequence of detailing the Indicators used at each stage, identifying the most favorable areas where planning efforts should be invested to develop agrotourism. The attribution of different Weights to the Indicators can help in the outlining of the agrotourism potential, allowing the hierarchization of the areas most appropriate to this activity.

However, in order to carry out the crossings between the three groups of Indicators, a weighting method was used, attributing degrees of relative importance to the parameters or to these Indicators themselves, through the application of Weights (exponents) to the information obtained about the different attributes locations, trying to adapt the methodology (Chart 2) used by Pedreira (2006), changing the exponentiation values and changing the order of the potentials.

Weight of potential	Attribute category	Weight of category
Environmental potential (2)	High	$3^2$
	Medium	$2^2$
	Low	$1^2$
Agrotourism potential (3)	High	$3^3$
	Medium	$2^3$
	Low	$1^3$
Tourism potential (4)	High	$3^4$
	Medium	$2^4$
	Low	$1^4$

**Chart 2.** Criteria of ponderation exponential for potential

Source: Adapted from Pedreira (2006).

With the change of exponentiation values and the order of potentials, it will not interfere in the evaluation and use of the integrated evaluation of Environmental Indicators, agrotourism and tourism, which will be carried out through systemic observation of the property and the respective environmental potentials, agrotourism potentials and potentials tourist, which remain

showing the essence of the property and Criteria and Weights that aim to reach the necessary standards.

Points is subjectively laid out, but based on the concepts of agrotourism listed in the consulted literature, being of paramount importance for the property (Pedreira, 2006), containing Weights of 1, 2 or 3 points and changing the exponential 2 for environmental attributes, exponential 3 for agrotourism attributes and exponential 4 for tourist attributes. The attribution of different Weights to the Indicators can help in the outlining of the agrotourism potential, allowing the hierarchization of the areas conducive to this activity.

In this way, to carry out the crossings between the three groups of Indicators, a weighting different from that used by Pedreira (2006) was used, attributing degrees of relative importance to the parameters or to these Indicators themselves, through the application of Weights (exponents) to the information obtained about the different local attributes, but maintaining the same criteria of evaluating the property for the implementation of agrotourism, as explained next.

This exponentiation continues to give amplitude and distance to each other in the Points of the attribute weighting Criteria, generating a result for the property and specific knowledge in which agrotourism can be developed in its essence, but changes the environmental potentials to exponential 2 so that it reaches lower Points than the others, discouraging and protecting the environment from interference and changes in the local habitat by the farmer and forcing the lower use of chemical products in nature, in order to raise these Points.

As for potential agrotourism, the exponential 3 will give median Points to the property, and the farmer will be able to expand his knowledge and diversify sales of products, either through partnerships with other local farmers or through his own production, using only the resources of agriculture developed and natural resources available on the property.

For tourist potential, the exponential 4 aims to give the highest Points where the owner only builds buildings regulated by the government, uses natural resources, and develops activities of reception, accommodation, offer of cultivated food and tour to private places of the property. All this elevates Points and meets environmental standards, in which interaction with the environment can be promoted. It will also serve to stimulate the preservation of the local culture, the search for labor specialization, comfort, and safety for rural tourists, thus understanding the importance of preserving the environment for the place.

However, the strategy of participant observer is maintained, providing the researcher the possibility of regular interaction on the property, where frequent and direct meetings are promoted for the researcher, in the form of meetings with chats and observation of the routine

of the property proceeding with data collection. Application of the map for evaluating the agrotourism potential at the property level will provide information at this point in the research, so that it contributes to data analysis and more accurate drawing of conclusions.

The knowledge acquired *in loco* on the rural property benefits the observation of the organization's real potential, the local infrastructure and possible support services, among other points, in which the scores of the three Indicators will also be collected (Chart 2), with the completion of the Weights (Charts 3, 4 and 5) of Criteria for scoring of Indicators.

In this way, it was necessary to diagnose and promote data with the purpose of identifying the weighting of the attributes of an enterprise in agrotourism, distributed with the Criteria Weights according to the analysis of the potential for activities perceived in the property, generating a map with a score of each indicator analyzed.

Environmental Indicators	Criteria	Weights	Criteria	Points
<b>1. Vegetation cover Naturalidade, estado de preservação ou alteração.</b>	Presence	3 <sup>2</sup>	Signs of alteration (secondary vegetation, clearing, deforestation)	3 Criteria greatly altered
	Absence	1 <sup>2</sup>		2 to 3 Criteria somewha t altered
				1 Criterium little altered
<b>2. Solo Declividade e Conservation</b>	Presence	3 <sup>2</sup>	<b>(2A)</b> - Forests, Woods and Paddocks	0 to 6%
	Absence	1 <sup>2</sup>		>6% to 25%
				>25%
	Presence	3 <sup>2</sup>	<b>(2B)</b> Micro basins, wide base and level curve, ciliary forests	>5
Absence	1 <sup>2</sup>	3 to 5		
<b>3. Water resources</b>	Natural	3 <sup>2</sup>	Rivers, lakes, water dams, waterfalls, fountains, springs, dams, canals.	1 to 2
	Artificial	2 <sup>2</sup>		3 to 5
				>5
<b>4. Piscosity Artificial Environment</b>	Presence	3 <sup>2</sup>	<b>(4A)</b> Tank quantities	1 to 2
	Absence	1 <sup>2</sup>		3 to 5
				>5
	Presence	1 <sup>2</sup>	<b>(4B)</b> Fish species cultivated	1 to 2
Absence	3 <sup>2</sup>	3 to 5		
<b>5. Wild fauna</b>	Presence	3 <sup>2</sup>	Species that could be harmful to humans, rare/threatened species.	>5
	Absence	1 <sup>2</sup>		1 to 2
				3 to 5
	Presence	3 <sup>2</sup>	<b>(6A)</b> Paraná pine, Cinnamon tree, Ipe,	1 to 5

<b>6. Flora Natural e Artificial/Frutífera</b>		Absence	1 <sup>2</sup>	Peroba, Cedar, Mimosa scabrella, Aroeira tree, Acacia tree, Yerba Mate, Brazilian Caroba-tree, Gabiroba, Cherry tree.	5 to 10	
					>10	
		Presence	3 <sup>2</sup>	<b>(6B)</b> Orange tree, coconut tree, banana tree, lemon tree, grapevine, avocado tree, apple tree, peach tree, persimmon tree, mandarin tree, mango tree, guava tree, jabuticaba tree, chestnut tree.	1 to 5	
					5 to 10	
Absence	1 <sup>2</sup>		>10			
<b>7. Fertilization treatment, and disease and pest control</b>	Use of pesticide	Presence	1 <sup>2</sup>	<b>(7A)</b> Use of agricultural defensives, pesticides, and chemical fertilizers.		
		Absence	3 <sup>2</sup>			
	Produção Orgânica	Presence	3 <sup>2</sup>	<b>(7B)</b> Use of pesticides and fertilizers of organic origin.		
		Absence	1 <sup>2</sup>			
	Agro Florestal	Presence	3 <sup>2</sup>	<b>(7C)</b> Uses the consortium with the forest as a defense and development partner		
		Absence	1 <sup>2</sup>			

**Chart 3.** Criteria for scoring of Environmental Indicators

Source: Adapted from Pedreira (2006)

Agrotourism Indicators	Criteria	Weights	Criteria	Points	
<b>Tourism Categories</b>	Presence	3 <sup>3</sup>	Entertainment associated with: Family farming, leisure, recreation, sports, cooking, water, adventure.	1 to 2 categories	
				>3 to 6 categories	
	Absence	1 <sup>3</sup>	>6 categories		
<b>8. Diversity of agropastoral exploration of agrotourism interest with good management and conservation practices</b>	Presence	3 <sup>3</sup>	Sugar cane, corn, beans, cassava, peas, citrus fruits, peanuts, vegetable gardens, grapes, potatoes, orchards, sheep, cattle, pigs, poultry, bees, fish, firewood, sweets, jellies, cakes, biscuits, jams, sausages, dairies, artisanal beverages, flowers, spices, and medicinal and ornamental plants.	1 to 3	
				4 to 7	
	Absence	1 <sup>3</sup>		>7	
	Presence	3 <sup>3</sup>			

<b>9. Touristic agropastoral activities</b>			Planting, harvesting, caring for animals, cutting, milking, gathering (eggs, fruits, and honey) preparing food, making artisanal drinks, fishing, handling livestock, use of agricultural machinery, overnight stays.	1 to 3	
	Absence	1 <sup>3</sup>		4 to 7	
				>7	

**Chart 4.** Criteria for scoring of agrotourism Indicators

Source: Adapted from Pedreira (2006)

Tourism Indicators	Criteria	Weights	Criteria	Points
<b>10. Agricultural and pastoral historical and cultural heritage (antiques)</b>	Presence	3 <sup>4</sup>	Photographs, locker room, instruments, music, dance, utensils, tools, equipment, agricultural machinery, warehouses, old cottage, sheds.	1 to 3
	Absence	1 <sup>4</sup>		4 to 7
				>7
<b>12. Agropastoral Craftsmanship</b>	Presence	3 <sup>4</sup>	Clay, Waxes, pastes, plaster, Horns, bones, skins, Leather, Fibers, Wood, Stationery, Seeds, bark, leaves, and flowers, Textiles (yarn and fabric).	1 to 3
	Absence	1 <sup>4</sup>		4 to 7
				>7
<b>13.Landscape</b>	Presence	3 <sup>4</sup>	Scenic beauty, visual quality, color diversity, singularities (vegetable species, forests, medicinal plants)	1 to 2 Criteria
				2 to 4 Criteria
	Absence	1 <sup>4</sup>		>4 Criteria
<b>14. Access roads and internal circulation</b>	Presence	3 <sup>4</sup>	(14 A) Signaling (Presence)	Informative
			(14 B) Conservation state	With maintenance
				No maintenance
	Absence	1 <sup>4</sup>	(14 C) Paving	Asphalt
				Cobblestone
Presence	3 <sup>4</sup>	Conservation	Good Conservation	



<b>15. Architectural cultural heritage (buildings and cultural elements)</b>		Absence	1 <sup>4</sup>		Bad Conservation	
<b>16. Food and lodging infrastructure</b>		Presence	3 <sup>4</sup>	Restaurants, lodgings, single rooms and camping area, country house.	Well maintained	
		Absence	1 <sup>4</sup>		Poorly maintained	
<b>17. Skilled workforce for agrotourism</b>		Presence	3 <sup>4</sup>	Academic training, technical courses.	1 to 3 people	
		Absence	1 <sup>4</sup>		>3 people	
<b>18. Social and Physical infrastructure</b>	<b>(18A)</b> Potable water	Presence	3 <sup>4</sup>			
		Absence	1 <sup>4</sup>			
	<b>(18B)</b> Electric energy	Presence	3 <sup>4</sup>			
		Absence	1 <sup>4</sup>			
	<b>(18C)</b> Sewage treatment	Presence	3 <sup>4</sup>			
		Absence	1 <sup>4</sup>			
	<b>(18D)</b> Recycling	Presence	3 <sup>4</sup>			
		Absence	1 <sup>4</sup>			
	<b>(18E)</b> Garbage collection	Presence	3 <sup>4</sup>			
		Absence	1 <sup>4</sup>			
<b>19. Basic services</b>	<b>(19A)</b> Transportation	Presence	3 <sup>4</sup>	Municipal, state and national.		
		Absence	1 <sup>4</sup>			
	<b>(19B)</b> Internet	Presence	3 <sup>4</sup>	High speed, optical fiber, cable, via Radio. Antenna and via satellite.	1 to 5 mega	
		Absence	1 <sup>4</sup>		5 to 15 mega	
	<b>(19C)</b> Telephone Printer	Presence	3 <sup>4</sup>	Fixo, Celular, via satélite.		
		Absence	1 <sup>4</sup>			
	<b>(19D)</b> Radio/ TV	Presence	3 <sup>4</sup>	Antenna, satellite dish.		
		Absence	1 <sup>4</sup>			
	<b>(19E)</b> Mail	Presence	3 <sup>4</sup>	Home Delivery, PO Box, email.		
		Absence	1 <sup>4</sup>			
<b>20. Other points</b>	Service assistance distance	Presence	3 <sup>4</sup>	Hospital, public services, banks, commerce in general.	>40 km	
		Absence	1 <sup>4</sup>		>25 to 15 km	
					5 to 15 km	

**Chart 5.** Criteria for scoring of Tourism Indicators  
Source: Adapted from Pedreira (2006)

### 3.3 DATA ANALYSIS PROCEDURE

The set of data, inventoried information and its interpretation allowed the elaboration of a diagnosis that pointed out the most favorable points of the Property for the development of agrotourism activities. However, the study is characterized by its cross-sectional nature, that is, the data were collected during a specific period, not considering the evolution of the data over time.

According to its higher or lower characteristic for the implementation of agrotourism activity and scored in each of its observed items ranging from 1 to 20, according to Table 1, for an effective evaluation total points of the individual and total weights.

**Table 1**  
Potential Attributes Indicators Criteria

Item number	Minimum of points obtained	Maximum of possible points
1	$(1)^2 = 01$	$(3)^2 = 9$
2-A 2-B	$(1)^2 = 01$	$(3)^2 = 9$
3	$(1)^2 = 01$	$(3)^2 = 9$
4-A 4-B	$(1)^2 = 01$	$(3)^2 = 9$
5	$(1)^2 = 01$	$(3)^2 = 9$
6-A 6-B	$(1)^2 = 01$	$(3)^2 = 9$
7-A 7-B 7-C	$(1)^2 = 01$	$(3)^2 = 9$
8	$(1)^3 = 01$	$(3)^3 = 27$
9	$(1)^3 = 01$	$(3)^3 = 27$
10	$(1)^3 = 01$	$(3)^3 = 27$
11	$(1)^4 = 01$	$(3)^4 = 81$
12	$(1)^4 = 01$	$(3)^4 = 81$
13	$(1)^4 = 01$	$(3)^4 = 81$
14-A 14-B 14-C	$(1)^4 = 01$	$(3)^4 = 81$
15	$(1)^4 = 01$	$(3)^4 = 81$
16	$(1)^4 = 01$	$(3)^4 = 81$
17	$(1)^4 = 01$	$(3)^4 = 81$
18-A 18-B 18-C 18-D 18-E	$(1)^4 = 01$	$(3)^4 = 81$
19-A	$(1)^4 = 01$	$(3)^4 = 81$

19-B		
19-C		
19-D		
19-E		
20	(1) <sup>4</sup> = 01	(3) <sup>4</sup> = 81
Total	<b>35</b>	<b>1809</b>

Source: Developed by the author (2021)

In this way of analyzing and interpreting the results, the data were sorted using the descriptive method, analyzed qualitatively, and presented in the agrotourism design, for a better visualization of the results, with the attributes of Environmental Indicators, agriculture and tourism adapted from Pedreira (2006).

Classifying the total sum of weights obtained for the Points resulting from this sum was carried out, stratified into three equal intervals (Chart 6), resulting in the fairest classification and closest to the reality of the case study carried out. Observing the appreciation of the Merit of Criteria and its relevance for agrotourism in the region, it was possible to generate a specialized assessment with the potentialities for agrotourism of the property studied in the region of Cascavel in three levels (high, medium, and low).

<b>Classification</b>	<b>Low Criteria</b>	<b>Medium Criteria</b>	<b>High Criteria</b>
<b>Points interval</b>	35 to 602	603 to 1206	1207 to 1809
<b>%</b>	Lower than 33.33%	33.34% to 66.69%	Higher than 66.70 %
<b>Recommendation</b>	Not recommended undertaking in agrotourism	Scoring needs to improve in order to undertake in agrotourism	Scoring sufficient to undertake in agrotourism

**Chart 6.** General valuation indices of the Criteria of Indicators of potential attributes

Source: Adapted from Pedreira (2006)

The set of data and information inventoried and their interpretation allowed the designing of a final report that shows the Points reached by the property, revealing to be favorable or not for the development of agrotourism activity. After obtaining the result, lists were prepared with examples of possible recommendations or suggestions for actions for the property, municipality and region, aiming at the implementation of a future agrotourism enterprise, in a more adequate way and aligned with Environmental Conservation.

## 4 RESULTS ANALYSIS AND DISCUSSION

In this chapter, the contexts of Rural Tourism at the state, municipality and rural properties studied are presented, as well as a conclusive report of the mentioned properties. It is sought to list the set of tourist activities developed in rural areas, committed to agricultural production, adding value to products and services, rescuing and promoting the cultural and natural heritage of the community in a sustainable way, respecting the environment and the local biome.

### 4.1 CONTEXT OF AGROTOURISM IN THE STATE OF PARANÁ

The State of Paraná started with Rural Tourism in 1992, when the Pousada das Alamandas, located in Rolândia, a coffee farm, received its first guests, becoming one of the pioneers of its kind in the State and arousing interest for the practice of the segment.

In 2006, the Government of the State of Paraná enacted the State Law on Rural Tourism in Family Farming, Law n. 15.143/2006, which conceptualizes the tourist activity carried out by family farmers. In 2007, the State Secretariats for Agriculture and Tourism (SETU-PR) and the Secretariat for Agriculture and Supply – (SEAB) signed a Term of Technical Cooperation for the elaboration and execution of the Paraná Rural Tourism Program.

Rural tourism has been a trend in Brazil ever since, and with the advent of the pandemic, many people sought out closer locations in the open air to break the routine of social isolation. Aiming at improving the service to this growing demand, the board of SETU-PR created itineraries to attract the population of the cities to experience the contact with the countryside, nature, and handicraft products, generating income and increasing profitability, especially for small properties and small producers. These rural circuits aim to promote feelings and offer a memorable experience for the tourist through sustainable experiences, different from those that exist in the urban environment. The model adopted in this segment comes from the other side of the Atlantic.

Europe is the birthplace of rural tourism, as the countryside has a huge appeal for an urbanized society that is also concerned about the environment. When traveling through the interior of Italy, France, Portugal, and Spain, it is possible to perceive the impact of the integration between culture, gastronomy, tourism, and agriculture in the promotion of local economies. This enables a huge range of new businesses, jobs and income, as well as the preservation of traditions, local customs and the rural Landscape.

The Institute of Rural Development of Paraná (IDR) and the Paraná Institute of Technical Assistance and Rural Extension (IAPAR/EMATER) are part of the debate at the national level, as a partner of the Ministry of Agrarian Development (MDA), through the National Program for Strengthening of Family Agriculture (PRONAF), which since 2003 considers tourism activities as an important strategy for local development and social inclusion.

The growth in demand for leisure in rural areas has required the trade to adopt marketing that does not always match the concept and classification of activities as Rural Tourism. Therefore, rural tourism is a non-agricultural activity that can complement the income of farmers and their families, as it does not replace other productive activities on the property. Tourism is seen as a tool to develop national, regional, and local economies (Silveira, 2001; Moletta & Goidanich, 1999) and can move up to 52 economic activities when there are tourists in a location.

Currently, attempts have been made to make it clearer that Rural Tourism is more reliable when it is linked to some agricultural production or, even more, that its primary production is associated with tourism in the supply of products, whether food and/or handicrafts. It is necessary to build public policies that boost rural tourism to be an agent of economic development and social inclusion, which places it as a segment, using the tripod of sustainability and the adoption of the Sustainable Development Goals (ODS), bringing light to the importance of valuing the work of women and the rural youth.

In this sense, IDR-Paraná seeks to encourage actions that strengthen the rural environment through the reconnection of the urban with the rural, identifying and valuing vocations for rural tourism, as well as the characterization of products and itineraries of family agriculture and technology-based tourism, involving research centers and public and private partners.

They constitute actions developed by IDR-Paraná:

### **Technical and experience tourism in properties**

- Creating tourist itineraries involving family farming properties from different production chains and with varied products;
- Crafts as a business option for tourism;
- Stimulating the creation of a process that consolidates manufactured goods in rural areas associated with tourism, as an alternative to generate income for family farming, making it possible to propose specific public policies in various spheres, with legislation, training, production, organization, and marketing.

### **Hiking and Cycling in Nature**

- Restructuring adapted nature walk circuits so that they can publicize IDR-Paraná actions on rural properties, as well as the precepts of environmental responsibility;
- Creating permanent nature walk circuits.

### **Rural gastronomy**

- Boosting gastronomic tourism;
- Valuing the territory through local products;
- Promoting events for the dissemination and commercialization of rural gastronomy.

### **Technical Tourism at Research Centers**

Visitation programs that aim to serve national and international groups of producers, students (technical tourism) and the general public (consumer tourist).

## **4.2 CONTEXT OF AGROTOURISM IN THE CASCAVEL REGION, PR**

The Sustainable Economic Development Council of Cascavel-PR (CODESC) presented in 2023 the government plan proposals, being a tool that aims to plan the future and weave alliances of the city hall and civil entities, to carry out actions and projects to develop the territory.

It aims to promote the sustainable economic development of Cascavel, PR, democratically integrating the interests of organized civil society. This also seeks to be recognized as the main entity supporting the economic development of Cascavel, PR until 2030.

Cascavel, PR, as a regional important city, should seek to define integrated and regionalized actions that meet regional needs, valuing projects that contemplate and benefit regional development. Meetings were held to develop the following areas.

1. Entrepreneurial Education;
2. Energy;
3. Health and well-being;
4. Transportation and Mobility;
5. Urbanism and Environment; and
6. Tourism.

In Topic 6 – Tourism, adaptation, modernization, expansion, and construction of new spaces for corporate events and tourist reception are proposed. The aim is to create a tourism management ecosystem, strengthening decentralized actions and joint social participation that is beneficial to all.

The aim is to increase the attractiveness for the tourist, through marketing strategies, attracting events, incentive, and highlighting its potential, which may guarantee interest to visitation, such as to promote the tourist products, technical events, rural tourism, beer crafting, culture, gastronomy, and entertainment. In urban and rural infrastructure, ensure quality, accessibility, and ease for visitors.

It is intended to institute and develop policies aimed at valuing, preserving, and maintaining traditions, history, and socio-environmental responsibility in the historic, cultural, natural, and religious heritage of the city. Structuring the tourist destination, promoting, regulating, and qualifying tourist services and implementing an ongoing marketing campaign for the destination.

However, some actions have already been taken and others are in progress at an innovative pace. The Small Producer Fair was created by Law No. 6281 of October 16, 2013, and aims to encourage rural production by small producers, trade in horticultural products, agro-industrial products, and handicrafts, as well as promoting products in the urban and rural areas.

Its purpose is to encourage people to seek diversification of rural products, improve the quality of rural and urban lives, offer healthier and better quality foods, respecting food safety standards, adding value and increasing family income, providing better quality of life for families.

The Regional Rural Tourism Development Project in Western Paraná was developed, which has been carried out since 2018 in partnership between Itaipu Binacional, UNIOESTE – Western Paraná State University, ADETUR Oeste – Tourism Development Agency and municipalities (Cascavel, Ubatã and Guaraniaçu).

It has conquered, through the participation of the institutions, the Training Course for Territorial Development Promoters, offered at the Cascavel headquarters and whose general objective was to develop a systematized methodology for the promotion of Rural Tourism in the three municipalities of Paraná, which can be replicated for different tourist regions of the State.

#### 4.3 4.3 CHARACTERIZATION OF RURAL PROPERTIES

The results of the two rural properties of this research were presented from visits carried out in the months of December 2022 to February 2023, observing the characteristics and attributes of existing potential in the rural property, in order to undertake in agrotourism. Objectively, the properties whose owners have knowledge and intention to develop ways to increase income of the property through tourism were analyzed.

Even for the individuals on the properties who did not have knowledge of agrotourism techniques, the evaluation scripts that were applied to the properties reveal that, using some diversification strategies and applying them to the property, they are involved in a transformation process very close to the concept of agrotourism, and are achieving some of the objectives.

Therefore, the studied family rural properties were analyzed from the Environmental Indicators, tourist and agricultural that was adapted from Pedreira (2006), dividing into three intervals of Points, enabling the generation of a map of Indicators that spatialize the potentialities of agrotourism for each property studied, revealing to owners if the potential exists and what are the needs for change and transformation to meet the Criteria that characterizes agrotourism and attracts the tourist.

An initial and descriptive interview was carried out with the owners for data collection, and a systematic observation was carried out, as well as a participant observation on the property to prove relevant information that reflected the current condition of the properties. In this sense, an attempt was made to inventory and evaluate the existing potential in the properties, observing whether it would in fact be a viable option in the place, generating income diversification, new sources of work and that could add social and cultural values in the implementation of agrotourism.

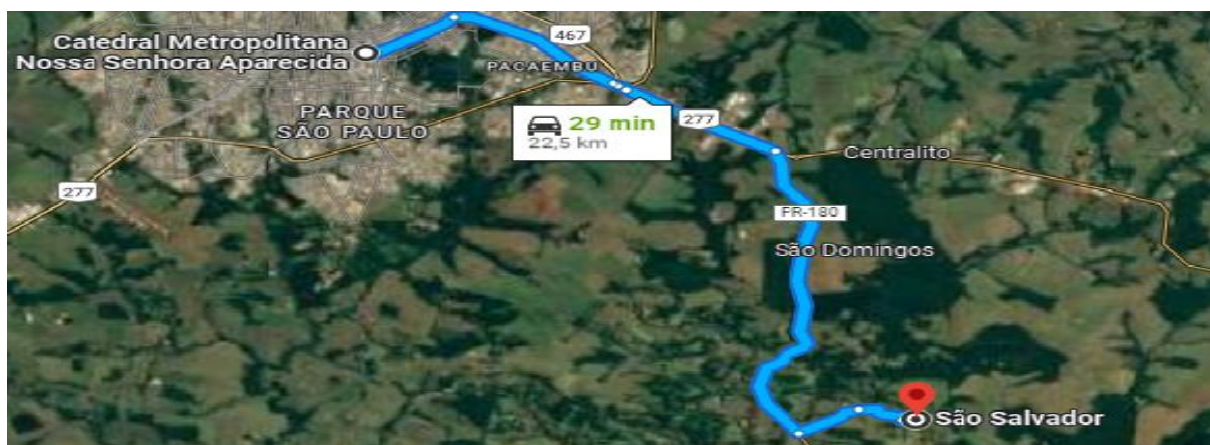
In analyzing the total area of the properties, their dimensions, access to the road network, telephone access, information, as well as their natural potential were observed, as well as its geography with areas dedicated to leisure, entertainment, the existence of a vast forest area with trails for hiking, a river with waterfalls, ponds for fishing, stables, pigsty, hose for handling cattle, aviary, beehives and other inherent potentialities to agrotourism.

In addition, it was assessed the level of technical training of family members to provide support services and carry out activities inherent in the development of agrotourism on the property. Next, each property is described, with its characteristics and potential, followed by its Points achieved using the adapted instrument.



#### 4.1.1 PROPERTY A

The property belongs to the owner since 1990, located on a rural property, on the Caldart line, in the District of São Salvador, in the municipality of Cascavel, PR. At a total distance of 22.5 km from the city center, access is via the BR-277 highway towards Curitiba, entering Horácio R. dos Reis Highway – PR-180, taking approximately 29 minutes by car, according to Figure 5.



**Figure 5.** Access to rural property A  
Source: Google Earth, edited by the author (2023)

Its formal structure is composed of four people, father, mother, daughter, and son-in-law, with their own families. The daughter holds a university degree in gastronomy and has a postgraduate degree in confectionery and cooking, as well as courses about the preparation of fish derivatives, cassava, corn, and wheat. She teaches Confectionery and Bread at APAE Cascavel, as well as teaches her skills in food preparation through a television program and conducts training courses at Emater, PR frequently, with courses in food manipulation, making jams, sweets, biscuits, cheeses, salamis, among others. The son-in-law took a cafeteria attendant course and studies and applies handicraft and woodworking techniques.

The property has a total area of 152,638.82 m<sup>2</sup>, approximately 15.26 ha<sup>-1</sup>, (Figure 6), being defined as 0.87 rural fiscal modules and classified as a small rural property, complying with current legislation on family farming, and consequently in the law of TRAF – Rural Tourism in Family Agriculture (Law n. 15.143 of May 31, 2006) elaborated and executed in partnership between the Secretariat of Agriculture and Supply of Paraná – SEAB and the Secretariat of Tourism – SETU, in which it is defined as up to four rural fiscal modules such as family farming, comprising each Paraná fiscal module in the Cascavel region, with 18 ha<sup>-1</sup> and supervised by the Environmental Institute of Paraná – IAP (Paraná, 2006; Brasil, 2006).



**Figure 6.** Total view of Property A  
Source: Google Earth, edited by the author (2023)

The property has four tanks for raising, fattening, and selling fish in a catch-and-pay style. Each tank has three kiosks to protect and welcome tourists, a facility for slaughtering, cleaning, and preparing fish purchased by tourists, a large snack bar, offering drinks and meals, with food dishes prepared using innovative techniques, learned and developed in the gastronomy course held by the daughter.

#### 4.3.1.1 DIAGNOSTIC MAP OF PROPERTY A WITH THE PROPOSED INSTRUMENT

An inventory was carried out in order to result in an assessment of the agrotourism potential for the rural property through the instrument proposed with Points for each of its existing agricultural, tourist and environmental attributes.

For each of the evaluated Indicators, pre-defined criteria were adopted with a Points, being with the position of its higher or lower adequacy to the use for the tourist activity (Appendix A). Points to the Indicators were attributed as defined in Chart 1, thus generating a specific map, but considering its importance for the existing agrotourism on the property, which was approached and developed from the literature review carried out on the subject.

The set of data and information inventoried for the Environmental Indicators, agrotourism and tourism allowed its interpretation and the elaboration of a diagnosis to make a map of property attributes, according to Charts 7, 8, and 9. The most favorable points of the Property A have pointed out development of the activity and of each item individually, for quick identification.

Likewise, it also presents the unfavorable points that need intervention and correction in order to raise their Indicator scores, reaching the necessary and satisfactory classifications for the development of agrotourism activities.

Item number	Points achieved	Points possible
1	$(3)^2 = 01$	$(3)^2 = 09$
2 - A	$(3)^2 = 09$	$(3)^2 = 09$
2 - B	$(3)^2 = 04$	$(3)^2 = 09$
3	$(3)^2 = 09$	$(3)^2 = 09$
4 - A	$(3)^2 = 09$	$(3)^2 = 09$
4 - B	$(3)^2 = 09$	$(3)^2 = 09$
5	$(3)^2 = 01$	$(3)^2 = 09$
6 - A	$(3)^2 = 06$	$(3)^2 = 09$
6 - B	$(3)^2 = 01$	$(3)^2 = 09$
7 - A	$(3)^2 = 09$	$(3)^2 = 09$
7 - B	$(3)^2 = 09$	$(3)^2 = 09$
7 - C	$(3)^2 = 01$	$(3)^2 = 09$
Total	68	108

**Chart 7.** Criteria for scoring of Environmental Indicators Property A  
Source: Adapted by the author (2023)

Nº Item	Points achieved	Points possible
8	$(3)^3 = 27$	$(3)^3 = 27$
9	$(3)^3 = 27$	$(3)^3 = 27$
10	$(3)^3 = 27$	$(3)^3 = 27$
Total	81	81

**Chart 8.** Criteria for scoring of agrotourism Indicators Property A  
Source: Adapted by the author (2023)

At the end of the process of valuing these sets of Indicator attributes, the property's predominant potential for carrying out agrotourism planning was identified. With the survey of the data and the information of the set of valuation of the inventoried processes, through the proposed Indicators, its interpretation allowed the elaboration of a conclusive report demonstrating the predominant potentialities of the property, which is presented next.

Item number	Points achieved	Points possible
11	$(1)^4 = 01$	$(3)^4 = 81$
12	$(1)^4 = 01$	$(3)^4 = 81$

13	$(2)^4 = 16$	$(3)^4 = 81$
14 - A	$(3)^4 = 81$	$(3)^4 = 81$
14 - B	$(3)^4 = 81$	$(3)^4 = 81$
14 - C	$(3)^4 = 81$	$(3)^4 = 81$
15	$(2)^4 = 16$	$(3)^4 = 81$
16	$(3)^4 = 81$	$(3)^4 = 81$
17	$(3)^4 = 81$	$(3)^4 = 81$
18 - A	$(1)^4 = 01$	$(3)^4 = 81$
18 - B	$(3)^4 = 81$	$(3)^4 = 81$
18 - C	$(1)^4 = 01$	$(3)^4 = 81$
18 - D	$(3)^4 = 81$	$(3)^4 = 81$
18 - E	$(3)^4 = 81$	$(3)^4 = 81$
19 - A	$(1)^4 = 01$	$(3)^4 = 81$
19 - B	$(2)^4 = 16$	$(3)^4 = 81$
19 - C	$(3)^4 = 81$	$(3)^4 = 81$
19 - D	$(2)^4 = 16$	$(3)^4 = 81$
19 - E	$(2)^4 = 16$	$(3)^4 = 81$
20	$(3)^4 = 81$	$(3)^4 = 81$
Total	895	1620

**Chart 9.** Criteria for scoring of Tourism Indicators Property A  
Source: Adapted by the author (2023)

#### 4.3.1.2 RESULTS FOR PROPERTY A

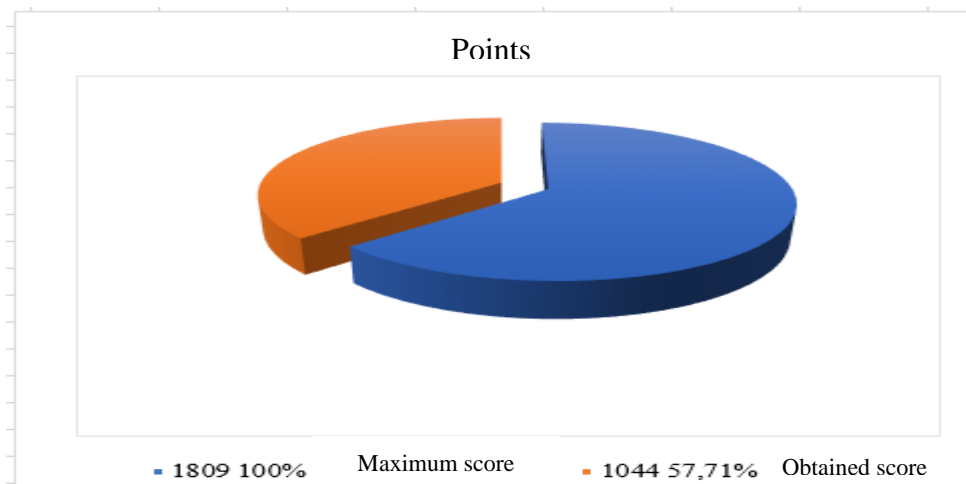
Based on the agrotourism planning carried out on the property and listed in the data analysis, various information was generated that, according to the instrument proposed for this case, may occur in a dispersion of points according to the characteristics of each property. In its Criteria Points with an interval classification of points, the property studied showed a small dispersion in some Criteria, which was analyzed aligned with the Indicators presented.

In this way, Chart 10 presents the fairest and closest classification to the reality of the case study carried out, noting the appreciation of Criteria's merit and its relevance for agrotourism in the region.

Classification	Low Criteria	Medium Criteria	High Criteria
Points range	35to 602	603 to 1206	1207 to 1809
%	Inferior to 33.33%	33.34% to 66.69%	Superior to 66.71 %
Recommendation	Not recommended undertaking in agrotourism	Scoring needs to improve in order to undertake in agrotourism	Scoring sufficient to undertake in agrotourism
Score results for Property A	-	<b>1044 (57,71%)</b>	-

**Chart 10.** Criteria for scoring of Indicadores propostos Property A  
Source: Adapted by the author (2023)

Therefore, information is presented (Figure 7) that helped to visualize quickly and more generically and assess how much the property needs to improve in the total indexes to reach its objectives, considering only the totality of the Criteria found in the property, yielding a more accentuated and individual analysis of the Criteria of potentialities.



**Figure 7.** Results of Criteria for scoring of Indicadores Property A  
Source: Designed by the author (2023)

In this context, the study reveals that Property achieved a total of 1,044 points, reaching 57.71%, remaining in a range of points with an average Criteria rating between 603 and 1,206 points, thus demonstrating that there are Criteria factors to be achieved, improved and/or developed so that it can be closer to agrotourism, as the literature reports. This does not disqualify the property, only reveals that some aspects and characteristics have not yet been achieved, lacking actions to achieve these potential Criteria.

In order to better translate the data collected by the Indicators, it is necessary to verify each weighting criterion, in order to generate a faithful diagnosis of the property and that results

in useful information, thus highlighting the possible merits or problems, reading the data that translates an interpretation close to the reality of the property, which can suggest future strategies to achieve the objectives. In this way, it would be possible to demonstrate and analyze each set of Indicators separately, thus providing better visualization of possible problems and a search for accurate and correct measures for each Indicator.

#### 4.3.1. 3 CRITERIA ANALYSIS FOR SCORING OF ENVIRONMENTAL INDICATORS

The Environmental Indicators are formed by a set of twelve Criteria, which seek to preserve and characterize aspects of the fauna, local flora, with procedures and conduct of sustainable practices. The proposed instrument indicates a total of 108 points (100%) for the Environmental Quality Indicators for the implementation of agrotourism.

In this regard, the property obtained a score of 68 (62.96%) points (Chart 11), thus revealing that some Indicators reached the minimum Points, requiring intervention to raise the points, as they are important Criteria for efficient management and that seek to value the environment focused on agrotourism.

N° Item	Criteria Analyzed	Points Obtained	Percentage Reached	Points Possible	Percentage Maximum
1	Vegetation cover	1	0,92	9	8,33
2 A	Woods and forests	9	8,33	9	8,33
2 B	Conservation of land and ciliary forest	4	3,70	9	8,33
3	Presence of river, lake, springs	9	8,33	9	8,33
4 A	Fish tank	9	8,33	9	8,33
4 B	Cultivated fish species	9	8,33	9	8,33
5	Harm to mankind	1	0,92	9	8,33
6 A	Species of trees	6	5,55	9	8,33
6 B	Fruit trees	1	0,92	9	8,33
7 A	Absence of defensives	9	8,33	9	8,33
7 B	Organic production	9	8,33	9	8,33

7 C	Consortium with nature	1	0,92	9	8,33
Total achieved		68	62,96	108	100%

**Chart 11.** Criteria for scoring of Environmental Indicators Property A  
Source: Adapted by the author (2023)

#### 4.3.1.4 CRITERIA ANALYSIS FOR SCORING OF AGROTOURISM INDICATORS

Agricultural Indicators are formed by a set of three Criteria that lead to the practices of a life in the countryside, based on agricultural production and agropastoral activities strongly present in family farming, which are also a way to add income and are linked to adventure and leisure for the tourist, merging their activities and boosting agrotourism.

Thus, the maximum Points of the proposed instrument reaches 81 points (100%), although of low expression in comparison with the other Indicators, it is not less important, as it is based on the increase of income from family farming. With these Criteria, the Property reached a Points of 81 (100%) of the points (Chart 12), showing that the property performs predominantly agricultural activities, it obtains a score of 100%, as there are enough elements in the Indicators aimed at adventure and leisure for the tourist, as can be seen next.

Nr Item	Criteria analyzed	Obtained points	Achieved percentage	Possible points	Maximum percentage
8	Tourism category	27	33,33	27	33,33
9	Agricultural diversity	27	33,33	27	33,33
10	Agricultural activities	27	33,33	27	33,33
Total achieved		68	100%	68	100%

**Chart 12.** Criteria for scoring of agrotourism Indicators Property A  
Source: Adapted by the author (2023)

#### 4.3.1.5 CRITERIA ANALYSIS FOR SCORING OF TOURISM INDICATORS

The Indicators are formed by a set of twenty Criteria that praise the region's cultural and architectural heritage, benefiting tourism, culture, socioeconomic life and the enhancement of

the rural environment. Even for a short period, people can experience the tourist and recreational practices that the property can offer.

In this way, the maximum Points for these Criteria of Tourism Indicators are 1620 points (100%), in which the Property reached a total of 895 (55.25%) points (Chart 13), highlighting the main characteristics of this property, with its facilities in an excellent conservation state, scenic beauty and other factors that project the Property to acceptable levels. However, there is a need to improve some Indicators, through management, so that the points are increased to reach, thus, a new concept within agritourism.

Nr item	Criteria analyzed	Points Obtained	Percentage Reached	Points Possible	Percentage Maximum
11	Historic Heritage	1	0,06	81	5
12	Agropastoral Craftsmanship	1	0,06	81	5
13	Landscape	16	0,98	81	5
14 A	Signaling	81	5	81	5
14 B	Conservation state das vias	81	5	81	5
14 C	Type of Paving	81	5	81	5
15	Cultural heritage	16	0,98	81	5
16	Food and lodging	81	5	81	5
17	Professional training	81	5	81	5
18 A	Potable water	1	0,06	81	5
18 B	Electric energy	81	5	81	5
18 C	Sewage treatment	1	0,06	81	5
18 D	Recycling	81	5	81	5
18 E	Garbage collection	81	5	81	5
19 A	Public transport	1	0,06	81	5



19 B	Data transmission systems	16	0,98	81	5
19 C	Communication systems	81	5	81	5
19 D	Satellite Signal Receiver	16	0,98	81	5
19 E	Postal service	16	0,98	81	5
20	Public services 15 > KM	81	5	81	5
Total achieved		895	55,25%	1620	100%

**Chart 13.** Criteria for scoring of Tourism Indicators Property A  
Source: Adapted by the author(2023).

In Chart 13, it is evident which Criteria of Indicators need a reorganization to improve their Indicators and which ones have the necessary Points to satisfy the model for the implementation of agrotourism.

#### 4.1.2 PROPERTY B

Property has been in the same family since 1960, located on a rural property, close to the city of Braganey, PR, at a total distance of 2.3 km from the city center, having access through Rua Tigre, taking an approximately 6-minute travel with a car, as shown in Figure 8.



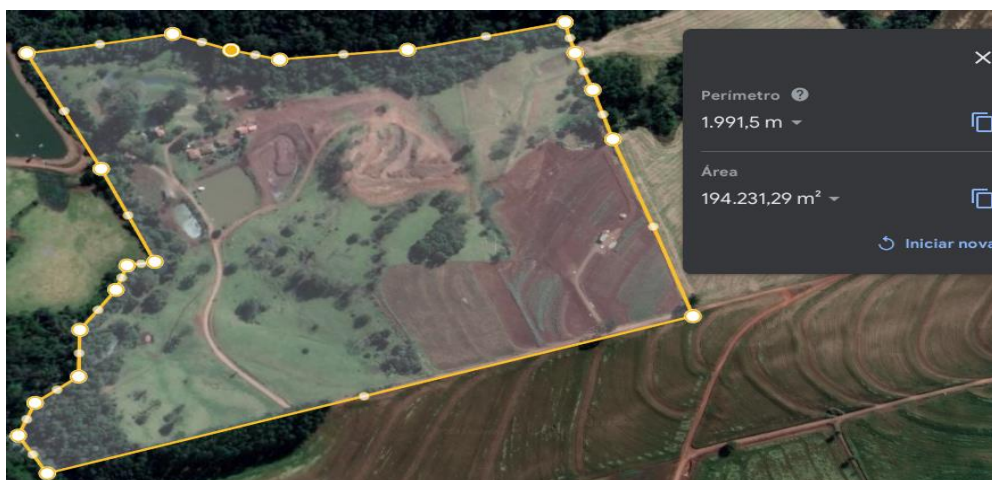
**Figure 8.** Access to Property B  
Source: Google Earth, edited by the author (2023)

This property had never been used as a source of income related to the use of natural resources in touristic aspects by the owners. Over the years and the growth of individuals in families and rising costs for food consumption, the owners' children realized that they should seek new sources of income for family subsistence on the small property.

They began to make future plans for the implementation of an enterprise linked to agrotourism, with accommodation, food, leisure and entertainment, leading to strong resistance and initial acceptance from the elderly, not realizing the pre-disposition of the property for agrotourism, as a way to add and generate income with non-agricultural activities.

Thus, with the absence of the patriarch, one of the sons returned to the countryside, moving away from a job in the city of Cascavel, PR, and decided to remain in the countryside, to take care of his loved ones and the property. Its formal structure is composed of five people, being a mother, aunt, son, daughter-in-law, and grandson. He reported the need for improvement and study for the diversification of income and adding of values, as he imagined in the past. This sharpened the interest in taking several courses, online and at ADETUR – Cascavel-PR, seeking innovation and the opportunity to undertake tourism on their properties, trying to achieve new goals. In this sense, agrotourism can be seen as a way to take advantage of the potential already existing in the property.

The property has a total area of 194,231.29 m<sup>2</sup>, approximately 19.42 ha<sup>-1</sup>, according to Figure 8, being defined as 1.08 rural fiscal modules and classified as a small rural property, which also fits the current legislation on family farming, and consequently in the law of TRAF – Rural Tourism in Family Agriculture (Law n. 15.143 of May 31, 2006), as previously described.



**Figure 9.** Total view of Property B  
Source: Google Earth, edited by the author (2023)

In this property, an inventory was also carried out in order to result in an assessment of the agrotourism potential for the rural property through the proposed instrument with the Points of each of its existing agricultural, tourist and environmental attributes. For each of the evaluated Indicators, a pre-defined criterion was adopted correspondent to Points, being the position of its higher or lower suitability for use in the tourist activity (Appendix B). The Points of the Indicators were also assigned as defined in Chart 1, repeating the same process, generating a specific map for Property B, taking into account its importance for agrotourism.

#### 4.1.2.1 PROPERTY B DIAGNOSTIC MAP WITH THE PROPOSED INSTRUMENT

In this property, an inventory was also repeated in order to result in an assessment of the agrotourism potential for the rural property through the proposed instrument with the Points attributed to each of its agricultural, tourist and environmental attributes existing in Property B. For each of the evaluated Indicators, the same pre-defined criteria was adopted with Points, being with the position of its higher or lower suitability for use in the tourist activity (Appendix B).

The Points of the Indicators are the same assigned in Property A, as defined in Chart 1, thus generating a specific and individual map, but considering its importance for the existing agrotourism in the property, which was previously described.

The set of data and information for this Property B follows the same principle as for the Previous Property, listing the Environmental Indicators, agricultural and tourism, for their interpretation and the preparation of a diagnosis. Property B's attribute map, according to Charts 14, 15 and 16, pointed out the most favorable aspects of Property B when developing activities and each item individually, thus being quick to identify.

Likewise, it presents the unfavorable points that need intervention and corrections in order to raise their Indicator score levels, reaching the necessary and satisfactory classifications for the development of agrotourism activities.

Nr do Item	Points achieved	Points possible
1	$(3)^2 = 09$	$(3)^2 = 09$
2 - A	$(3)^2 = 09$	$(3)^2 = 09$
2 - B	$(3)^2 = 09$	$(3)^2 = 09$
3	$(3)^2 = 09$	$(3)^2 = 09$
4 - A	$(3)^2 = 09$	$(3)^2 = 09$

4 - B	$(2)^2 = 06$	$(3)^2 = 09$
5	$(3)^2 = 09$	$(3)^2 = 09$
6 - A	$(2)^2 = 06$	$(3)^2 = 09$
6 - B	$(2)^2 = 06$	$(3)^2 = 09$
7 - A	$(3)^2 = 09$	$(3)^2 = 09$
7 - B	$(1)^2 = 01$	$(3)^2 = 09$
7 - C	$(2)^2 = 06$	$(3)^2 = 09$
Total	88	108

**Chart 14.** Criteria for scoring of Environmental Indicators Property B  
Source: Adapted by the author (2023)

Nr do Item	Points achieved	Points possible
8	$(3)^3 = 27$	$(3)^3 = 27$
9	$(3)^3 = 27$	$(3)^3 = 27$
10	$(2)^3 = 8$	$(3)^3 = 27$
total	62	81

**Chart 15.** Criteria for scoring of agrotourism Indicators Property B  
Source: Adapted by the author (2023)

Nr do Item	Points achieved	Points possible
11	$(2)^4 = 16$	$(3)^4 = 81$
2	$(1)^4 = 01$	$(3)^4 = 81$
13	$(3)^4 = 81$	$(3)^4 = 81$
14 - A	$(3)^4 = 81$	$(3)^4 = 81$
14 - B	$(3)^4 = 81$	$(3)^4 = 81$
14 - C	$(3)^4 = 81$	$(3)^4 = 81$
15	$(2)^4 = 16$	$(3)^4 = 81$
16	$(3)^4 = 81$	$(3)^4 = 81$
17	$(1)^4 = 01$	$(3)^4 = 81$
18 - A	$(1)^4 = 01$	$(3)^4 = 81$
18 - B	$(3)^4 = 81$	$(3)^4 = 81$
18 - C	$(1)^4 = 01$	$(3)^4 = 81$
18 - D	$(2)^4 = 16$	$(3)^4 = 81$
18 - E	$(2)^4 = 16$	$(3)^4 = 81$
19 - A	$(1)^4 = 01$	$(3)^4 = 81$
19 - B	$(2)^4 = 16$	$(3)^4 = 81$
19 - C	$(3)^4 = 81$	$(3)^4 = 81$

19 - D	$(2)^4 = 16$	$(3)^4 = 81$
19 - E	$(2)^4 = 16$	$(3)^4 = 81$
20	$(3)^4 = 81$	$(3)^4 = 81$
Total	765	1620

**Chart 16.** Criteria for scoring of Tourism Indicators Property B  
Source: Pedreira (2006), adapted by the author (2023)

At the end of the process of valuing these sets of Indicator attributes, it was identified which was the predominant potential of Property B, in order to carry out an agrotourism planning. With the survey of data and information from the set of valuation of the inventoried processes, through the proposed Indicators, its interpretation allowed the elaboration of a conclusive report demonstrating the predominant potentialities of the property, which is presented next.

#### 4.1.2.2 RESULT FOR PROPERTY B

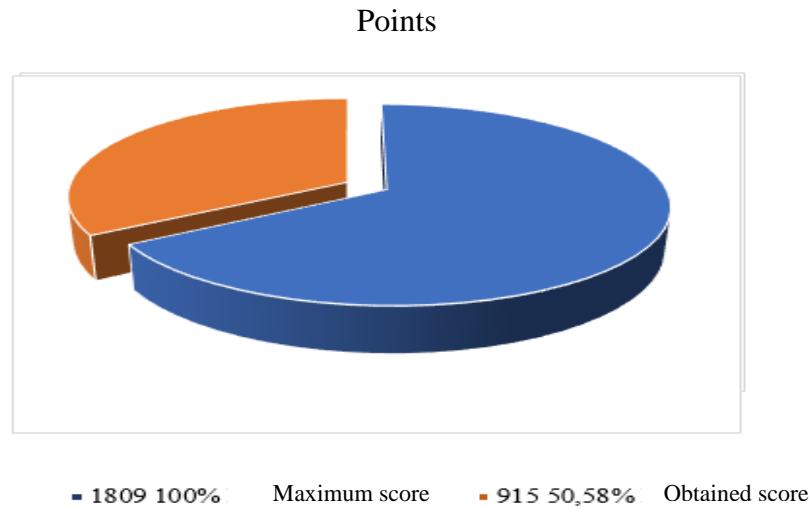
Based on the agrotourism planning carried out on the property and listed in the data analysis, various information was generated, which according to the instrument proposed for this case can occur in a dispersion of points according to the characteristics of each property. In its Criteria Points with an interval classification of points, the studied property showed a small dispersion in some Criteria, which is analyzed in line with the presented Indicators.

In this way, Chart 17 presents the fairest and closest classification to the reality of the case study carried out, noting the appreciation of Criteria's merit and its relevance for agrotourism in the region.

<b>Classification</b>	<b>Low Criteria</b>	<b>Medium Criteria</b>	<b>High Criteria</b>
<b>Points range</b>	35 a 602	603 a 1206	1207 a 1809
<b>%</b>	Inferior to 33.33%	33.34% a 66.69%	Superior to 66.71 %
<b>Recommendation</b>	Not recommended undertaking in agrotourism	Scoring needs to improve in order to undertake in agrotourism	Scoring sufficient to undertake in agrotourism
<b>Score results for Property A</b>	-	<b>915 (50,58%)</b>	-

**Chart 17.** Criteria for scoring of Indicadores propostos Property B  
Source: Pedreira (2006), adapted by the author (2023)

Therefore, the information Figure 9 is presented that helped to visualize and diagnose quickly and more generically how much Property B needs to improve in the total indexes to reach its objectives, considering only the totality of the Criteria found in the property, yielding a more accentuated and individual analysis of the Criteria of potentialities.



**Figure 10.** Result of Criteria for scoring of Indicadores Property B  
Source: Designed by the author (2023)

In this context, the study reveals that Property B achieved a total of 1809 points, reaching 50.58%, falling within a range of points with an average Criteria rating between 603 and 1206 points, thus demonstrating that there are factors from Criteria to be achieved, improved and/or developed so that it can be closer to agrotourism as described in the literature. This does not disqualify Property B, but reveals that some aspects and characteristics have not yet been achieved, lacking actions to achieve these Potential Criteria.

In order to translate the data collected by the Indicators, it is necessary to verify each weighting criterion, in order to generate a faithful diagnosis of Property B, as carried out in Property A. The information collected created the possible merits or problems and made it possible to suggest future strategies for achieving the objectives of the property. In order to demonstrate and analyze each set of Indicators separately, it was also analyzed to define possible problems and a search for accurate and correct measures for each Indicator.

#### 4.3.2.3 CRITERIA ANALYSIS FOR SCORING OF ENVIRONMENTAL INDICATORS

The Environmental Indicators are formed by a set of twelve Criteria, which seek to respect and characterize aspects of the fauna, local flora, with procedures and conduct of sustainable practices, previously reported.

However, with the proposed instrument, it indicates a total of 108 points (100%) for the Indicators with environmental quality for the implementation of agrotourism. Property B obtained a score of 88 (81.48%) of the points (Chart 18), thus revealing that in some Indicators it reached more expressive Points than the Previous Property, requiring small interventions to approach the total points, as they are important Criteria for efficient management and aim at valuing the environment focused on agrotourism.

Nr item	Criteria analyzed	Points Obtained	Percentage Reached	Points Possible	Percentage Maximum
1	Vegetation cover	9	8,33	9	8,33
2 A	Woods and forests	9	8,33	9	8,33
2 B	Conservation of land and ciliary forest	9	8,33	9	8,33
3	Presence of river, lake, springs	9	8,33	9	8,33
4 A	Fish tank	9	8,33	9	8,33
4 B	Cultivated fish species	6	5,55	9	8,33
5	Harm to mankind	9	8,33	9	8,33
6 A	Species of trees	6	5,55	9	8,33
6 B	Fruit trees	6	5,55	9	8,33
7 A	Absence of defensives	9	8,33	9	8,33
7 B	Organic production	1	0,92	9	8,33
7 C	Consortium with nature	6	5,55	9	8,33
Total achieved		88	81,48	108	100%

**Chart 18.** Criteria for scoring of Environmental Indicators Property B

Source: Adapted by the author (2023)

#### 4.3.2.4 CRITERIA ANALYSIS FOR SCORING OF AGRICULTURAL INDICATORS

Agricultural Indicators are formed by a set of three Criteria that lead to practices of a life in the countryside based on agricultural production and agropastoral activities strongly present

in family farming, which are also ways to add income that are linked to adventure and tourist leisure, merging their activities, and boosting agrotourism.

Thus, the maximum Points of the proposed instrument reaches 81 points (100%), although of low expression in comparison with the other Indicators, it is not less important, as it is the basis for increasing income from family farming. With these Criteria, the Property reached a score of 81 (100%) points (Chart 19), showing that the property carries out predominantly agricultural activities, it obtains a score of 100%, as there are enough elements in the Indicators aimed at adventure and leisure for the tourist, as can be seen below.

Nr item	Criteria analyzed	Points Obtained	Percentage Reached	Points Possible	Percentage Maximum
8	Tourism category	27	33,33	27	33,33
9	Agricultural diversity	27	33,33	27	33,33
10	Agricultural activities	8	9,88	27	33,33
Total achieved		62	76,54%	81	100%

**Chart 19.** Criteria for scoring of agrotourism Indicators Property B

Source: Adapted by the author (2023)

#### 4.3.2.5 CRITERIA ANALYSIS FOR SCORING OF TOURISM INDICATORS

The Indicators are formed by a set of twenty Criteria that praise the region's cultural and architectural heritage, benefiting tourism, culture, socioeconomic life and the enhancement of the rural environment. Even for a short period, you can experience the tourist and recreational practices that the property can offer.

In this way, the maximum Points for these Criteria of Tourism Indicators are 1620 points (100%), in which the Property reached a total of 895 (55.25%) points (Chart 22), highlighting the main characteristics of this property, with its facilities in an excellent conservation state, scenic beauty and other factors that project the Property to acceptable levels. However, there is a need to improve some Indicators, through management, so that the points are increased to reach, thus, a new concept within agrotourism.



In Chart 20 it is evident which Criteria of Indicators need a reorganization to improve their Indicators and which ones have the necessary Points to satisfy the model for the implementation of agrotourism.

Nr item	Criteria analyzed	Points Obtained	Percentage Reached	Points Possible	Percentage Maximum
11	Historic Heritage	16	0,98	81	5
12	Agropastoral Craftsmanship	1	0,06	81	5
13	Landscape	81	5	81	5
14 A	Signaling	81	5	81	5
14 B	Conservation state das vias	81	5	81	5
14 C	Type of Paving	81	5	81	5
15	Cultural heritage	16	0,98	81	5
16	Food and lodging	81	5	81	5
17	Professional training	1	0,06	81	5
18 A	Potable water	1	0,06	81	5
18 B	Electric energy	81	5	81	5
18 C	Sewage treatment	1	0,06	81	5
18 D	Recycling	16	0,98	81	5
18 E	Garbage collection	16	0,98	81	5
19 A	Public transport	1	0,06	81	5
19 B	Data transmission systems	16	0,98	81	5
19 C	Communication systems	81	5	81	5
19 D	Satellite Signal Receiver	16	0,98	81	5
19 E	Postal service	16	0,98	81	5
20	Public services15 > KM	81	5	81	5
Total achieved		765	47,22%	1620	100%

**Chart 20.** Criteria for scoring of Tourism Indicators Property B

Source: Adapted by the author (2023)

#### 4.4 CONCLUSIVE REPORT OF PROPERTIES A AND B

The set of data and information inventoried and their interpretations allowed the elaboration of this diagnosis that pointed out the most favorable points of Properties A and B, to develop agrotourism activity. At the end of the process of valuing these sets of Indicator attributes, it was identified which is the property's predominant potential for carrying out agrotourism planning and for corrections.

In this result, as a way to expand and diversify the family income, it was sought to carry out and observe non-agricultural activities so that it could meet the wishes of the owners. It was analyzed, diagnosed and suggested to the owners the need for improvement in some Indicators so that they can contribute to the properties, thus raising the levels of scores necessary for the development that involves agrotourism.

The need for improvement in general was also perceived, with the need for elaboration and implementation that comply with relevant legislation, regarding safety and leisure for the dissemination and provision of services.

However, one must take into account the costs of maintenance and operation of the enterprises, with the expansion of their capacity to serve tourists, as well as a way of reducing fixed costs. The occupation and use of the entire area, providing its productive efficiency will generate effectiveness in the properties making them more economically viable and sustainable.

According to the bibliographical study and the observation of the researcher, regarding the potential of the natural resources already existing in the rural property and other built ones, the following observations revealed by the data collected with the support of the research instrument adapted from Pedreira (2006) are cited to the region. The processing of these data brings us information relevant to agrotourism, which reveal which Indicators need intervention and improvement to add value to those already existing in the properties.

In the Environmental Indicators, the properties (Chart 21) obtained different scores, as they have different characteristics in terms of environmental preservation and agricultural use. In Property A, there is a deficiency in the Vegetation cover, and it is possible to observe signs of alteration, such as some clearings of small extensions in the riparian forest. There is Absence of species of fruit trees and forest consortium with the plantation.

As for Property B, it refers to artificial piscosity, fish tanks with insufficient breeding and low species diversification. There is Absence of native trees, fruit trees and forest pools. It is observed the use of chemical fertilizers for cultivation.

All these items are Indicators with potential to be developed and that would raise the scores of both properties. In matters of planting agricultural products in consortium with nature and organic fertilization, it is necessary to evolve their techniques, since it calls for demand of the produce.

Property A		Property B	
Environmental Indicators			
Item	Indicator	Item	Indicator
4B	Fish species	1	Vegetation cover
6A	Absence of natural species	2B	Ciliary Forest
6B	Absence of fruit species	6B	Absence of fruit species
7B	Use of chemical fertilizers	7C	Absence of forest consortium
7C	Absence of forest consortium		

**Chart 21.** Criteria for scoring of Environmental Indicators Properties A e B  
Source: Adapted by the author(2023)

As for Agricultural Indicators, both properties were identical in Points (Chart 22), but with differences in the offer of products and services. Property A lacks Recreation, adventure, and leisure, while in Property B the lack of food and products produced on the property decreases its Points. For both properties, points can be improved, as other agents from the local community can be involved and offer what is not present in the property.

Property A		Property B	
Agritourism Indicators			
Item	Indicator	Item	Indicator
8	Recreation, adventure, and leisure	10	Food preparation

**Chart 22.** Criteria for scoring of agrotourism Indicators Properties A e B  
Source: Adapted by the author(2023)

For the Agritourism Indicators, the properties lack Historic and Cultural Heritage, becoming evident for a tourist. Similarly, the Agropastoral Craftsmanship is a notable deficiency in both properties, an inflexibility from the owners, generating evident loss in Points, mainly in Property A.

Finally, as for the Tourism Indicators (Chart 23), Property B needs professional training in food, as it is a very important factor for the provision of this service, requiring professional qualification in food preparation and ongoing service provision for such purpose. Regarding items 18 and 19, both present challenges, mainly in the treatment of sewage. It is a factor that

needs to be adapted to the laws and technical norms in force for treatment, thus being a critical factor, since it is under strict environmental legislation. Other issues in these items depend on public policies for improvement.

Property A		Property B	
Tourism Indicators			
Item	Indicator	Item	Indicator
11	Historic Heritage	11	Historic Heritage
12	Agropastoral Craftsmanship	12	Agropastoral Craftsmanship
13	Landscape, scenic beauty	15	Cultural heritage
15	Cultural heritage	17	Qualified workforce
18 A	Treated water	18A	Treated water
18 C	Sewage treatment	18C	Sewage treatment
19 A	City Transportation	18D	Absence de Recycling
19 D	No signal/weak	18E	Garbage collection
19 E	Absence of forest consortium	19A	City Transportation
		19B	Low quality Internet
		19D	No signal/weak
		19E	Absence de postal service

**Chart 23.** Criteria for scoring of Tourism Indicators Properties A e B  
Source: Adapted by the author (2023)

In this context, the results achieved by the properties make it clear that there are potentialities when it comes to the objectives of meeting indicators related to agrotourism. The use of the space's specific potential is observed in a more orderly way, making it useful for valuing the environment and Conservation of local nature in a sustainable way, making it possible to use and coexist harmoniously with the local biome.

However, after this implementation and restructuring of some of the items to improve the Indicators and increase their scores, the possibility of implementation in the rural properties studied, with emphasis on agrotourism, becomes noteworthy. The aim is, therefore, to primarily address the transformation of these Indicators so that activities related to the development of small rural properties can take place, for which agrotourism can be a way of adding income to family farming in the region, in a responsible and sustainable manner.

## 5 CONTRIBUTIONS FOR PRACTICE

As a way to expand and diversify the family income, it was sought to carry out and observe non-agricultural activities so that they could meet the expectations of the rural property owners. It was analyzed, diagnosed, and suggested to the owners the need for improvements in some management and work processes, as well as the creation of a strategic planning of the enterprise, along with a more in-depth study in the marketing area on the offer of products and services that involve agrotourism.

It was also perceived the necessity of improvement in the existing structures, in general, being necessary the elaboration and implantation of new places that address the specific legislation to lodging, food, and leisure. In addition, it is necessary to identify the properties and accesses to the road networks, for better promulgation and provision of services.

However, it must be taken into account the maintenance and operationalization costs of the enterprise, with expansion of its service capacity and as a way of reducing fixed costs. The occupation and use of the entire area must be environmentally friendly and sustainable, thus providing its productive efficiency and generating effectiveness in the property, making it economically viable and sustainable for the implementation of agrotourism.

According to the bibliographical study and the observation of the researchers regarding the potential of the natural resources already existing in the rural property, the following suggestions can be listed: building of new accommodation types, individual chalets, building a complete restaurant, swimming pools, cleaning and organization of the dams, as well as repopulation of native species of fish from the local watershed, organization of access to trails and waterfalls, with informative signs and planning of routes, implementation of internal access to the property's locations with stone pavement, restructuring of access ways and roads from the highways.

Finally, a total organization of all the leisure activities that the properties can offer with safety and quality, thus generating the creation of their own portfolio, with organic products and services that can be purchased and used at the Properties, employing resource management and strategic planning to add value.

It is presented, as a suggestion, a preliminary study (Figures 9, 10 and 11) for the implementation of a modern entrance and restaurant with an architecture that interacts with the local Landscape and offers comfort, containing the capacity to serve tourists staying on the property, with access to all internal roads, as part of the suggestions for changes aimed at improving the property.



**Figure 11.** Restaurant – sight 1  
Source: Author’s personal files (2023)

The proposed planning is an architectural pre-project that evidences the objective of both properties in offering agrotourism activities.



**Figure 12.** Restaurant – sight 2  
Source: Author’s personal files (2023)

In this project demonstration, in which the planning of the entire area can be seen, the use of the specific potentialities of the space in a more orderly way is observed, making it useful to value the environment and the Conservation of local nature in a sustainable way, making it possible to utilization along with harmonious coexistence with the local biome.



**Figure 13.** Cottages – Accommodations

Source: Author's personal files (2023)

After this implementation of the new physical structures and restructuring of the existing ones, a modern rural inn becomes a possibility, which primarily could offer options of adventure, leisure, and varied entertainment choices for tourists, always providing safety and quality, both in the services as well as the products processed on the property and offered as a way to improve income.

In this sense, seeking better adaptation to the implantation norms in the property, which suggests the observation of the following guidelines of SEAB – Secretariat of Agriculture and Supply, which, since 2008, adopts as principles of REDETRAF (Rural Tourism Network in Family Agriculture) in Paraná (Paraná, 2008a):

- a) Being environmentally correct and socially fair tourism;
- b) Offering local products;
- c) Valuing and rescuing regional handicrafts, local culture, and typical events in rural areas;
- d) Encouraging the diversification of production and promoting the direct sale of products;
- e) Contributing to the revitalization of the rural territory, as well as rescuing and maintaining the self-esteem of family farmers;
- f) Being complementary to the other activities of the family production unit;
- g) Providing coexistence between visitors and the rural family;
- h) Stimulating the development of agroecology;
- i) Developing associations in the territory.

With investments in the planning and implementation of the proposed project, the properties would reach a new market niche yet to be explored in the region, listing a differential

of competitive organization in tourism, generating a suggested local association with other farmers. It would provide, with personalized service, new experiences for users in the fields of accommodation, food, leisure, and adventures, thus contemplating the characteristics of activities unique to agrotourism, as seen in the cited literature.



## 6 CONCLUSION

The main objective was achieved as planned, following the elaboration of a theoretical research on the theme of agrotourism as a viable income for family farms, which proved to be efficient and capable of supplementing income to the subsistence of local families. Considering that there is a need for some changes in the properties, the results reveal that they should be carried out to achieve the specific objectives, thus identifying the low potential indicators.

However, with an effective intervention in order to improve the Indicators, aiming to undertake in agrotourism, the properties reached the mentioned important factors, followed by an elevation in the points, circumstantially enriching the characteristics of the properties, which reassured the use of the proposed project and use of the maps to identify the potential of the property, according to the results of this research, with the analysis instrument of Pedreira (2006), adapted.

In relation to adapting the instrument used for the research, it is considered satisfactory since it is an academic investigation specializing on the subject, in which its adaptation was carried out according to the researched literature and regional characteristics observed in the properties. Validation of the changes made to the proposed instrument according to the specific characteristics of each region can be necessary for future research endeavors.

It is necessary to validate the changes made and to seek to list in the theoretical instrument more Criteria factors for weighting indicators, thus validating the characteristics of the region as potential to undertake in agrotourism, as well as in other rural properties.

According to what has been found in this research, the necessary changes in the physical structures and strategic management that the properties must address in their implementation of non-agricultural activities in the agrotourism sector are noteworthy – from improvements in the physical space to the rearranging and building of new places for accommodation, food, and leisure, in the areas of the properties, as well as the optimization, use, and operability of all the intrinsic natural environment of that rural property. Likewise, the use of its main available resources stands out as a way of adding income with the diversification of non-agricultural activities.

It is also suggested that future research could encompass a larger number of properties to further understand the possibility of agrotourism in the region, to make it possible for visitors to move beyond the boundaries of the properties and to enable them to travel through a circuit or thematic itineraries in the other properties, neighbors, in the municipality and in the region.

Therefore, with such arrangements, it can be ensured that these places can offer a set of potential attributes linked to agrotourism, in addition to areas of diversified and environmentally attractive interests. Thus, the adaptation of the Property to agrotourism and its integration into one of the city's tourist routes can occur with the tourist's desire to socialize in rural areas in a sustainable and pleasant way.

As some of the points to be considered can be: making effective use of the property's potential attributes for the implementation of agrotourism; making effective use of the property's potential attributes for the implementation of agrotourism – for example, transforming the existing coffee processing machine into a visitation piece, as well as animal clothing and some pieces of furniture; inserting the visitor into productive activities; exploring cooking on a wood stove; taking advantage of dealing with small livestock (chickens, sheep, pigs) as entertainment; turning the existing honey production into an attractive activity; extracting of sugarcane juice as an activity; raising cattle and related activities as a circuit; exploring contemplative activities *per se*; taking advantage of the landforms of the farm for different recreation and leisure purposes.

Finally, if the implantation follows a meticulous planning in an orderly way and that follows the Environmental Laws in force, the pursuit of agrotourism will be successful and can guarantee the income and the permanence of the producer in the field. It can be understood from the agrotourism literature, observations and researchers' survey, as benefits of this study to subsidize future research, which should, as a suggestion, carry out a market survey and a detailed financial survey, thus guaranteeing total security and success for the owners to undertake in the branch of agritourism.

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## APPENDIX- RESULTS FOR PROPERTY A

Environmental Indicators	Criteria	Weights	Criteria	Score	Points	
<b>1. Vegetation cover, Naturalness, state of preservation or alteration.</b>	Presence	3 <sup>2</sup>	Signs of alteration (secondary vegetation, clearing, deforestation)	>4 Criteria to a large extent (very altered)	<b>1</b>	<b>1</b>
				2 to 3 Altered criteria		
	Absence	1 <sup>2</sup>		1 Criterium little altered		
<b>2. Soil, Slope and Conservation</b>	Presence	3 <sup>2</sup>	<b>(2A)</b> - Forests, Woods and Paddocks	0 to 6%	<b>3</b>	<b>9</b>
	Absence	1 <sup>2</sup>		>6% to 25%		
				>25%		
	Presence	3 <sup>2</sup>	<b>(2B)</b> Micro basins, wide base and level curve, ciliary forests	>5	<b>2</b>	<b>4</b>
Absence	1 <sup>2</sup>	3 to 5				
<b>3. Water resources</b>	Natural	3 <sup>2</sup>	Rivers, lakes, water dams, waterfalls, fountains, springs, dams, canals.	1 to 2	<b>3</b>	<b>9</b>
				3 to 5		
	Artificial	2 <sup>2</sup>		>5		
<b>4. Picosity Artificial Environment</b>	Presence	3 <sup>2</sup>	<b>(4A)</b> Tank quantities	1 to 2	<b>3</b>	<b>9</b>
				3 to 5		
	Absence	1 <sup>2</sup>		>5		
	Presence	1 <sup>2</sup>	<b>(4B)</b> Fish species cultivated	1 to 2	<b>3</b>	<b>9</b>
Absence	3 <sup>2</sup>	3 to 5				
<b>5. Wild fauna</b>	Presence	1 <sup>2</sup>	Species that could be harmful to humans, rare/threatened species.	1 to 2	<b>3</b>	<b>9</b>
				3 to 5		
	Absence	3 <sup>2</sup>		>5		
<b>6. Fruitful Natural and Artificial Flora</b>	Presence	3 <sup>2</sup>	<b>(6A)</b> Paraná pine, Cinnamon tree, Ipe, Peroba, Cedar, Mimosa scabrella, Aroeira tree, Acacia tree, Yerba Mate, Brazilian Caroba-tree,	1 to 5	<b>2</b>	<b>6</b>
				5 to 10		
	Absence	1 <sup>2</sup>		>10		

			Gabirola, Cherry tree.			
	Presence	3 <sup>2</sup>	(6B) Orange tree, coconut tree, banana tree, lemon tree, grapevine, avocado tree, apple tree, peach tree, persimmon tree, mandarin tree, mango tree, guava tree, jabuticaba tree, chestnut tree.	1 to 5	1	1
	Absence	1 <sup>2</sup>		5 to 10		
>10						
<b>7. Fertilization treatment and control of diseases and pests</b>	Use of pesticide	Presence	1 <sup>2</sup>	(7A) Use of agricultural defensives, pesticides, and chemical fertilizers.	3	9
		Absence	3 <sup>2</sup>			
	Organic production	Presence	3 <sup>2</sup>	(7B) Use of pesticides and fertilizers of organic origin.	3	9
		Absence	1 <sup>2</sup>			
	Agro Florestal	Presence	3 <sup>2</sup>	(7C) Uses the consortium with the forest as a defense and development partner	1	1
		Absence	1 <sup>2</sup>			

**Chart 3.** Criteria for scoring of Environmental Indicators  
Source: Adapted from Pedreira (2006)

Agritourism Indicators	Criteria	Weights	Criteria	Score	Points	
<b>8. Agritourism categories</b>	Presence	3 <sup>3</sup>	Entertainment associated with: Family farming, leisure, recreation, sports, cooking, water, adventure.	1 to 2 categories	3	27
				>3 to 6 categories		
	Absence	1 <sup>3</sup>		>6 categories		
<b>9. Diversity of agropastoral exploration of agrotourism interest with good</b>	Presence	3 <sup>3</sup>	Sugar cane, corn, beans, cassava, peas, citrus fruits, peanuts, vegetable	1 to 3		
				4 to 7		

<b>management and conservation practices</b>	Absence	1 <sup>3</sup>	gardens, grapes, potatoes, orchards, sheep, cattle, pigs, poultry, bees, fish, firewood, sweets, jellies, cakes, biscuits, jams, sausages, dairies, artisanal beverages, flowers, spices, and medicinal and ornamental plants.	>7	3	<b>27</b>
<b>10. Touristic agropastoral activities</b>	Presence	3 <sup>3</sup>	Planting, harvesting, caring for animals, cutting, milking, gathering (eggs, fruits, and honey) preparing food, making artisanal drinks, fishing, handling livestock, use of agricultural machinery, overnight stays.	1 to 3	3	<b>27</b>
	Absence	1 <sup>3</sup>		4 to 7		
				>7		

**Chart 4.** Criteria for scoring of Agritourism Indicators  
Source: Adapted from Pedreira (2006)

Tourism Indicators	Criteria	Weights	Criteria	Score	Points	
<b>11. Agricultural and pastoral historical and cultural heritage (antiques)</b>	Presence	3 <sup>4</sup>	Photographs, locker room, instruments, music, dance, utensils, tools, equipment, agricultural machinery, warehouses, old cottage, sheds.	1 to 3	1	<b>1</b>
	Absence	1 <sup>4</sup>		4 to 7		
				>7		
<b>12. Agropastoral Craftsmanship</b>	Presence	3 <sup>4</sup>	Clay, waxes, pastes, plaster, horns, bones, skins, leather, fibers, wood, stationery, seeds, bark, leaves, and flowers, textiles (yarn and fabric).	1 to 3	1	<b>1</b>
	Absence	1 <sup>4</sup>		4 to 7		
				>7		
			Scenic beauty, visual quality,	1 to 2 Criteria		

<b>13. Landscape</b>	Presence	3 <sup>4</sup>	color diversity, singularities (vegetable species, forests, medicinal plants)	2 to 4 Criteria	2	<b>16</b>
	Absence	1 <sup>4</sup>		>4 Criteria		
<b>14. Access roads and internal circulation</b>	Presence	3 <sup>4</sup>	<b>(14 A)</b> Signaling	Informative	3	<b>81</b>
	Absence	1 <sup>4</sup>				
	Presence	3 <sup>4</sup>	<b>(14 B)</b> Conservation state	With maintenance	3	<b>81</b>
	Absence	1 <sup>4</sup>		No maintenance		
	Presence	3 <sup>4</sup>	<b>(14 C)</b> Paving	Asphalt	3	<b>81</b>
	Absence	1 <sup>4</sup>		Cobblestone		
			Soil			
<b>15. Architectural cultural heritage (buildings and cultural elements)</b>	Presence	3 <sup>4</sup>	Conservation	Good Conservation	2	<b>16</b>
	Absence	1 <sup>4</sup>		Bad Conservation		
<b>16. Food and lodging infrastructure</b>	Presence	3 <sup>4</sup>	Restaurants, lodgings, single rooms and camping area, country house.	Well maintained	3	<b>81</b>
	Absence	1 <sup>4</sup>		Poorly maintained		
<b>17. Skilled workforce for agrotourism</b>	Presence	3 <sup>4</sup>	Academic training, technical courses.	1 to 3 people	3	<b>81</b>
	Absence	1 <sup>4</sup>		>3 t		
<b>18. Physical and Social Infrastructure</b>	<b>(18A)</b> Potable water	Presence	3 <sup>4</sup>		1	<b>1</b>
		Absence	1 <sup>4</sup>			
	<b>(18B)</b> Electric energy	Presence	3 <sup>4</sup>		3	<b>81</b>
		Absence	1 <sup>4</sup>			
	<b>(18C)</b> Sewage treatment	Presence	3 <sup>4</sup>		1	<b>1</b>
		Absence	1 <sup>4</sup>			
	<b>(18D)</b> Recycling	Presence	3 <sup>4</sup>		3	<b>81</b>
		Absence	1 <sup>4</sup>			
	<b>(18E)</b> Garbage collection	Presence	3 <sup>4</sup>		3	<b>81</b>
		Absence	1 <sup>4</sup>			
<b>19. Basic services</b>	<b>(19A)</b> Transportation	Presence	3 <sup>4</sup>	Municipal, state and national.	1	<b>1</b>
		Absence	1 <sup>4</sup>			
	<b>(19B)</b>	Presence	3 <sup>4</sup>		1 to 5 mega	

	Internet			High speed, optical fiber, cable, via Radio. Antenna and via satellite.	5 to 15 mega	2	<b>16</b>
		Absence	1 <sup>4</sup>		>25 mega		
	<b>(19C)</b> Telephone Printer	Presence	3 <sup>4</sup>	Landline, Cellphone, Satellite Cellphone		3	<b>81</b>
		Absence	1 <sup>4</sup>				
	<b>(19D)</b> Radio/ TV	Presence	3 <sup>4</sup>	Antenna, satellite dish.		2	<b>16</b>
		Absence	1 <sup>4</sup>				
	<b>(19E)</b> Mail	Presence	3 <sup>4</sup>	Home Delivery, PO Box, email.		2	<b>16</b>
		Absence	1 <sup>4</sup>				
<b>20.Outros</b>	Service assistance distance	Presence	3 <sup>4</sup>	Hospital, public services, banks, commerce in general.	>40 km	3	<b>81</b>
		Absence	1 <sup>4</sup>		>25 to 15 km		
					5 to 15 km		

**Chart 5.** Criteria for scoring of Tourism Indicators  
Source: Adapted from Pedreira (2006)

## APPENDIX – RESULTS FOR PROPERTY B

Environmental Indicators	Criteria	Weights	Criteria	Score	Points	
<b>1. Vegetation cover, Naturalness, state of preservation or alteration.</b>	Presence	3 <sup>2</sup>	Signs of alteration (secondary vegetation, clearing, deforestation)	>4 Criteria to a large extent (very altered)	<b>3</b>	<b>9</b>
	Absence	1 <sup>2</sup>		2 to 3 Altered criteria		
				1 Criterium little altered		
<b>2. Soil, Slope and Conservation</b>	Presence	3 <sup>2</sup>	<b>(2A)</b> - Forests, Woods and Paddocks	0 to 6%	<b>3</b>	<b>9</b>
	Absence	1 <sup>2</sup>		>6% to 25%		
	Presence	3 <sup>2</sup>	<b>(2B)</b> Micro basins, wide base and level curve, ciliary forests	>5	<b>3</b>	<b>9</b>
	Absence	1 <sup>2</sup>		3 to 5		
<b>3. Water resources</b>	Natural	3 <sup>2</sup>	Rivers, lakes, water dams, waterfalls, fountains, springs, dams, canals.	1 to 2	<b>2</b>	<b>6</b>
	Artificial	2 <sup>2</sup>		3 to 5		
<b>4. Picosity Artificial Environment</b>	Presence	3 <sup>2</sup>	<b>(4A)</b> Tank quantities	1 to 2	<b>3</b>	<b>9</b>
	Absence	1 <sup>2</sup>		>5		
	Presence	1 <sup>2</sup>	<b>(4B)</b> Fish species cultivated	1 to 2	<b>2</b>	<b>6</b>
	Absence	3 <sup>2</sup>		>5		
<b>5. Wild fauna</b>	Presence	1 <sup>2</sup>	Species that could be harmful to humans, rare/threatened species.	1 to 2	<b>3</b>	<b>9</b>
	Absence	3 <sup>2</sup>		>5		
<b>6. Fruitful Natural and Artificial Flora</b>	Presence	3 <sup>2</sup>	<b>(6A)</b> Paraná pine, Cinnamon tree, Ipe, Peroba, Cedar, Mimosa scabrella, Aroeira tree, Acacia tree, Yerba Mate, Brazilian Caroba-tree, Gabiroba, Cherry tree.	1 to 5	<b>2</b>	<b>6</b>
	Absence	1 <sup>2</sup>		5 to 10		
				>10		
	Presence	3 <sup>2</sup>	<b>(6B)</b> Orange tree, coconut tree, banana tree, lemon tree, grapevine,	1 to 5	<b>2</b>	<b>6</b>
		5 to 10				

		Absence	1 <sup>2</sup>	avocado tree, apple tree, peach tree, persimmon tree, mandarin tree, mango tree, guava tree, jabuticaba tree, chestnut tree.	>10		
<b>7. Tratamento de Adubação, e controle de doenças e pragas,</b>	Use of pesticide	Presence	1 <sup>2</sup>	<b>(7A)</b> Use of agricultural defensives, pesticides, and chemical fertilizers.		3	<b>9</b>
		Absence	3 <sup>2</sup>				
	Produção Orgânica	Presence	3 <sup>2</sup>	<b>(7B)</b> Use of pesticides and fertilizers of organic origin.		1	<b>1</b>
		Absence	1 <sup>2</sup>				
	Agro Florestal	Presence	3 <sup>2</sup>	<b>(7C)</b> Uses the consortium with the forest as a defense and development partner		2	<b>6</b>
		Absence	1 <sup>2</sup>				

**Chart 3.** Criteria for scoring of Environmental Indicators  
Source: Adapted from Pedreira (2006)

Indicadores agropecuários	Criteria	Weights	Criteria	Score	Points	
<b>8. Agritourism categories</b>	Presence	3 <sup>3</sup>	Entertainment associated with: Family farming, leisure, recreation, sports, cooking, water, adventure.	1 to 2 categories	3	<b>27</b>
				>3 to 6 categories		
	Absence	1 <sup>3</sup>		>6 categories		
<b>9. Diversity of agropastoral exploration of agritourism interest with good management and conservation practices</b>	Presence	3 <sup>3</sup>	Sugar cane, corn, beans, cassava, peas, citrus fruits, peanuts, vegetable gardens, grapes, potatoes, orchards, sheep, cattle, pigs, poultry, bees, fish, firewood, sweets, jellies, cakes, biscuits, jams, sausages, dairies, artisanal beverages, flowers, spices, and medicinal	1 to 3	1	<b>27</b>
				4 to 7		
	Absence	1 <sup>3</sup>		>7		

			and ornamental plants.			
<b>10. Touristic agropastoral activities</b>	Presence	3 <sup>3</sup>	Planting, harvesting, caring for animals, cutting, milking, gathering (eggs, fruits, and honey) preparing food, making artisanal drinks, fishing, handling livestock, use of agricultural machinery, overnight stays.	1 to 3	2	<b>8</b>
	Absence	1 <sup>3</sup>		4 to 7		
				>7		

**Chart 4.** Criteria for scoring of Indicadores agropecuários  
Source: Adapted from Pedreira (2006)

Tourism Indicators	Criteria	Weights	Criteria	Score	Points	
<b>11. Agricultural and pastoral historical and cultural heritage (antiques)</b>	Presence	3 <sup>4</sup>	Photographs, locker room, instruments, music, dance, utensils, tools, equipment, agricultural machinery, warehouses, old cottage, sheds.	1 to 3	2	<b>16</b>
	Absence	1 <sup>4</sup>		4 to 7		
				>7		
<b>12. Agropastoral Craftsmanship</b>	Presence	3 <sup>4</sup>	Clay, Waxes, pastes, plaster, Horns, bones, skins, Leather, Fibers, Wood, Stationery, Seeds, bark, leaves, and flowers, Textiles (yarn and fabric).	1 to 3	1	<b>1</b>
	Absence	1 <sup>4</sup>		4 to 7		
				>7		
<b>13. Landscape</b>	Presence	3 <sup>4</sup>	Scenic beauty, visual quality, color diversity, singularities (vegetable species, forests, medicinal plants)	1 to 2 Criteria	3	<b>81</b>
				2 to 4 Criteria		
	Absence	1 <sup>4</sup>		>4 Criteria		



<b>14. Access roads and internal circulation</b>	Presence	3 <sup>4</sup>	<b>(14 A)</b> Signaling	Informative	3	<b>81</b>
	Absence	1 <sup>4</sup>				
	Presence	3 <sup>4</sup>	<b>(14 B)</b> Conservation state	With maintenance	3	<b>81</b>
	Absence	1 <sup>4</sup>		No maintenance		
	Presence	3 <sup>4</sup>	<b>(14 C)</b> Paving	Asphalt	3	<b>81</b>
	Absence	1 <sup>4</sup>		Cobblestone		
Soil						
<b>15. Architectural cultural heritage (buildings and cultural elements)</b>	Presence	3 <sup>4</sup>	Conservation	Good Conservation	2	<b>16</b>
	Absence	1 <sup>4</sup>		Bad Conservation		
<b>16. Food and lodging infrastructure</b>	Presence	3 <sup>4</sup>	Restaurants, lodgings, single rooms and camping area, country house.	Well maintained	3	<b>81</b>
	Absence	1 <sup>4</sup>		Poorly maintained		
<b>17. Skilled workforce for agrotourism</b>	Presence	3 <sup>4</sup>	Academic training, technical courses.	1 to 3 people	1	<b>1</b>
	Absence	1 <sup>4</sup>		>3 people		
<b>18. Physical and Social Infrastructure</b>	<b>(18A)</b> Potable water	Presence	3 <sup>4</sup>		1	<b>1</b>
		Absence	1 <sup>4</sup>			
	<b>(18B)</b> Electric energy	Presence	3 <sup>4</sup>		3	<b>81</b>
		Absence	1 <sup>4</sup>			
	<b>(18C)</b> Sewage treatment	Presence	3 <sup>4</sup>		1	<b>1</b>
		Absence	1 <sup>4</sup>			
	<b>(18D)</b> Recycling	Presence	3 <sup>4</sup>		2	<b>16</b>
		Absence	1 <sup>4</sup>			
	<b>(18E)</b> Garbage collection	Presence	3 <sup>4</sup>		2	<b>16</b>
		Absence	1 <sup>4</sup>			
<b>19. Basic services</b>	<b>(19A)</b> Transportation	Presence	3 <sup>4</sup>	Municipal, state and national.	1	<b>1</b>
		Absence	1 <sup>4</sup>			
	<b>(19B)</b>	Presence	3 <sup>4</sup>		1 to 5 mega 5 to 15 mega	2

	Internet	Absence	1 <sup>4</sup>	High speed, optical fiber, cable, via Radio. Antenna and via satellite.	>25 mega		
	(19C) Telephone Printer	Presence	3 <sup>4</sup>	Landline, Cellphone, Satellite Cellphone		3	<b>81</b>
		Absence	1 <sup>4</sup>				
	(19D) Radio/ TV	Presence	3 <sup>4</sup>	Antenna, satellite dish.		2	<b>16</b>
		Absence	1 <sup>4</sup>				
	(19E) Mail	Presence	3 <sup>4</sup>	Home Delivery, PO Box, email.		2	<b>16</b>
		Absence	1 <sup>4</sup>				
<b>20. Other points</b>	Service assistance distance	Presence	3 <sup>4</sup>	Hospital, public services, banks, commerce in general.	>40 km	3	<b>81</b>
		Absence	1 <sup>4</sup>		>25 to 15 km		
					5 to 15 km		

**Chart 5.** Criteria for scoring of Tourism Indicators  
Source: Adapted from Pedreira (2006)