Núcleo de Meio Ambiente
Universidade Federal do Pará
Rua Augusto Corrêa, 01, Guamá
Belém, Pará, Brasil
https://periodicos.ufpa.br/index.php/agroecossistemas

SUSTAINABILITY INDICATORS AND THE IDEA´S TOOL: A CASE STUDY IN A FAMILY RURAL PROPERTY OF URUGUAIANA, RIO GRANDE DO SUL

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Received:: 2022-12-23
Evaluated:: 2023-04-13
Accepted:: 2023-05-16

ABSTRACT: To promote an analysis of sustainability in a particular production system, it is essential to consider an approach that considers at least social, environmental, and economic indicators. In this type of survey, sustainability indexes are presented as results generated by diagnostic instruments to enable the collection and interpretation of information. Thus, this article aims to demonstrate the use of the Sustainability Indicators for Agricultural Farms (IDEA) tool on a family farm. The IDEA tool takes into account the agro-environmental, socio-territorial, and economic dimensions. Based on the diagnosis, it was possible to show that despite the tool having some gaps, it constitutes an important analysis instrument, demonstrating that the property studied in this research has low sustainability indices and requires intervention and correction of some crucial points to achieve more satisfactory levels of sustainability.

KEYWORDS: Production system, Family Farming, Tool, Indicators.

INDICADORES DE SUSTENTABILIDADE E A FERRAMENTA IDEA: UM ESTUDO DE CASO EM UMA PROPRIEDADE RURAL FAMILIAR DE URUGUAIANA, RIO GRANDE DO SUL

RESUMO: Para promover uma análise sobre a sustentabilidade em um determinado sistema de produção, torna-se fundamental levar em consideração uma abordagem que considere, minimamente, indicadores sociais, ambientais e econômicos. Neste tipo de levantamento, os índices de sustentabilidade apresentam-se enquanto resultados gerados por instrumentos de diagnóstico, a fim de possibilitar a coleta e a interpretação de informações. Assim, o presente artigo tem com o objetivo demonstrar a utilização da

ferramenta de Indicadores de Sustentabilidade das Explorações Agrícolas (IDEA) em uma propriedade rural familiar. A ferramenta IDEA leva em consideração as dimensões agroambiental, sócio-territorial e econômica. A partir do diagnóstico foi possível evidenciar que apesar de a ferramenta apresentar lacunas, constitui-se enquanto importante instrumento de análise, evidenciando que a propriedade objeto deste estudo possui baixos índices de sustentabilidade, necessitando a intervenção e correção de alguns pontos cruciais para que alcance níveis mais satisfatórios de sustentabilidade.

PALAVRAS-CHAVE: Sistema de produção, Agricultura Familiar, Ferramenta, Indicadores.

INDICADORES DE SOSTENIBILIDAD Y LA HERRAMIENTA IDEA: UN ESTUDIO DE CASO EN UNA PROPIEDAD RURAL FAMILIAR DE URUGUAIANA, RIO GRANDE DO SUL

RESUMEN: Para promover un análisis de sostenibilidad en un sistema de producción determinado, es fundamental considerar un enfoque que tenga en cuenta al menos indicadores sociales, ambientales y económicos. En este tipo de encuesta, los índices de sostenibilidad se presentan como resultados generados por instrumentos de diagnóstico para permitir la recopilación e interpretación de información. Por lo tanto, este artículo tiene como objetivo demostrar el uso de la herramienta Indicadores de Sostenibilidad para Explotaciones Agrícolas (IDEA) en una finca familiar. La herramienta IDEA tiene en cuenta las dimensiones agroambientales, socio-territorial y económica. A partir del diagnóstico, fue posible evidenciar que, aunque la herramienta tiene algunas limitaciones, constituye un importante instrumento de análisis, demostrando que la propiedad estudiada en esta investigación tiene bajos índices de sostenibilidad y requiere intervención y corrección de algunos puntos cruciales para alcanzar niveles más satisfactorios de sostenibilidad.

PALABRAS CLAVES: Sistema productivo, Agricultura Familiar, Herramienta, Indicadores.

INTRODUCTION

The debate around sustainable development necessarily involves the food production model, since this theme is based on the society-nature relationship (LOPES et al., 2023).

In Brazil, industrial agriculture is the dominant model in rural areas and this sector is focused on production based on monocultures, such as soy (*Glycine max* L.) and corn (*Zea mays* L.), and extensive livestock activity, with a focus on export. It is known, however, that part of these production systems is umbilically linked to deforestation, land concentration, the intensive use of pesticides, soil degradation and the emission of gases that cause the greenhouse effect, as well as pressure family-based agriculture and traditional populations, causing serious environmental and socioeconomic impacts (LEFF, 2002; CAPORAL; COSTABEBER, 2004). In other words, the current scenario demonstrates the need to reverse the way of producing food, seeking alternatives to the use of natural resources, in line with principles such as agroecology.

The incompatibility of the agricultural-industrial production model with the proposals for sustainable rural development leads, opportunely, to think of sustainability as a field of production that privileges the production of "clean food", respecting rural communities, the environment, the culture local market, as well as short chains and fair and solidary trade. Moreover, this form of production is closely related to the traditional peasant way of producing. As a highlight, we can mention agroecology, since its practices "result culturally compatible with peasant productive rationality, as they are built on traditional agricultural knowledge, combining this knowledge with elements of modern agricultural science" (LEFF, 2002, p. 41).

Thus, Caporal and Costabeber (2004) emphasize the importance of some of the dimensions of sustainability, for example: economic, social, political, ecological, ethical and cultural, as essential elements of the systemic approach[1]. That is, moving away from the reductionism set in conventional production systems by considering the various layers existing within the dimensions themselves, as, in this way, it becomes possible to achieve a more dynamic and integrated result both to reality and to the natural environment.

[1] See Ozelame, Dessimon Machado and Hegedus (2002).

Sustainability indicators provide evaluation conditions for the researcher, the population and, above all, the State agents who guide the development and creation of public policies for the rural environment, since through certain instruments it is possible to carry out diagnoses and synthesize information with the purpose of measuring possible problems and pointing out ways. However, for this to be possible, the choice of indicator needs to be well structured, considering criteria such as: easy application, adaptation and interpretation.

In this sense, this article aims to demonstrate the use of the tool "Sustainability Indicators in Agricultural Properties" (IDEA)[2] in a family rural property. In order to achieve this objective, the Agricultural Exploration Sustainability Indicators (IDEA) method was chosen, since this tool has its structure based on three important dimensions of sustainability: agro-environmental, socio-territorial and economic.

From the choice of the IDEA tool, an interview was conducted with the owner of the Olhos D´água property, located in the municipality of Uruguaiana, Rio Grande do Sul. In this stage, data and information of the three dimensions of the tool were collected from the indicators.

Therefore, in addition to this introductory section, this article is structured in three more sections. In section 2, materials and method, we present the tool used in this study and the characterization of the studied property. In section 3, the results of the application of the rural property tool are exposed, subdivided into three subsections: Agro-environmental Sustainability Axis, Socio-territorial Axis and Economic Axis. Finally, in the last section, we present the final considerations.

MATERIALS AND METHOD

We chose to work with the Sustainability Indicators of Agricultural Explorations methodology, from the French acronym IDEA, *Indicateurs de Durabilite des*

[2] It is important to highlight that the IDEA has strong limitations for the evaluation of family agroecosystems, as it predetermines the indicators, in addition to their weights and weightings. It is a comparison tool and, therefore, does not prioritize local specificities or individual agroecosystems.

Exploitations Agricoles, created in 1996 by the French government to assess the sustainability of French agricultural systems. The use of this tool was chosen considering the diversity of its arrangement, although the challenge to its adaptability to certain production systems is recognized, as well as its contribution to self-reflection on the indicators and its multidimensional performance based on important components and indicators for the rural environment. The authors did not try to randomly "import" a tool used in another country. Opportunely, IDEA was resorted to in order to better observe it in the specific context of Brazil based on the diagnosis in a property in Rio Grande do Sul, given the environmental, social and economic situation established in this property, as described in the characterization of the studied property. Thus, this method "considers the axis that presents the lowest value, as the limiting factor to sustainability, and the main corrective and mitigating measures of the detected problems must be directed towards it" (VIEIRA, 2005, p. 69).

Its structure is based on three dimensions of sustainability: agro-environmental, socio-territorial and economic. The dimensions are subdivided into components where 41 indicators are distributed. Values are arranged hierarchically by components and dimensions. Each dimension is evaluated on a scale from 0 to 100, the indices in the dimensions are not aggregated, that is, the approach avoids trade-offs between dimensions, but accepts trade-offs between components of the same dimension, for example: if the diversity component scores index equal to zero and the other components score 33 and 34, respectively, the index for this dimension will be 67, explaining that the poor performance of diversity was compensated by the excellent performance of the other components of the agro-environmental dimension. In Chart 1 we present the structure of the IDEA tool[3].

[3] The IDEA method is composed of three independent sustainability scales: agroecological, socio-territorial and economic. They are subdivided again into three or four components that will soon be regrouped, each one in a sequence of indicators. Each of the indicators is formed by one or more elementary items that define a practice or some characteristic of the property, which in the sum will form a final value: between zero and a maximum value, representing a low or high sustainability, respectively. The component is also limited to a maximum sustainability value, indicated by its relative weight, providing a large number of technical combinations (VILAIN, 2000).

Chart 1. IDEA tool structure

Dimensions	Component	Indicators	Weight
Agroenvironmental	Diversity	Diversity of annual and temporary crops; Diversity of perennial crops; Associated Plant Diversity; Animal diversity; Enhancement and conservation of genetic heritage.	33
	Space organization	Rotation; Size of plots; Organic matter management; Ecological regulation zone; Contributions to environmental issues; Valuation of space; Management of forage areas.	33
	Agricultural Practices	Fertilization; Treatment of effluents; pesticides and veterinary treatment; Animal welfare; Soil protection; Management of water resources; energy dependency.	34
	Total	**19 indicators**	**100**
Socio-territorial	Quality of products and the Territory	Quality approach; Enhancement of built property and landscape; Treatment of non-organic waste; Availability of space; Social Engagement.	33
	Jobs and Services	Improvement; Services; Pluriactivity; Contribution to employment; Collective work; likely perpetuity.	33
	Ethics and Human Development	Contribution to the world food balance; Training; Work intensity; Quality of life; Isolation; Housing, health and safety.	34
	Total	**16 indicators**	**100**
Economic	Viability	Economic viability; Economic specialization rate; Financial autonomy.	30
	Independence	Sensitivity to quotas and subsidies.	25
	Transmissibility	Economic transmissibility	20
	Efficiency	Efficiency of the production process	25
	Total	**6 indicators**	**100**

Source: Adapted from Vilain (2000).

CHARACTERIZATION AND LOCATION OF THE STUDIED PROPERTY

Object of this study, the property is located in the district called Vertentes, in the town called Olhos D'Água, in the municipality of Uruguaiana, Rio Grande do Sul. The climate is temperate, with an average temperature of 20 °C and an average annual rainfall of 1,627 mm per year. As a specific climatic characteristic of the municipality, Uruguaiana has the greatest thermal amplitude in Brazil, hot summer, temperate

autumn, winter with negative temperatures with incidence of frost and fog, and spring starting flowering (IRGA, 2021a).

The soil of the municipality is Luvisol, shallow with subsurface accumulation of clay, with an average content of 2.8% of organic matter, ideally between 4 and 5%, thus improving the water balance of the soil, gradual availability of nutrients and biological control of pests and diseases. Low levels of calcium, phosphorus and potassium (STRECK et al., 2002).

The property, as well as the municipality, is part of the Pampa Biome, or also called Southern Fields. According to Bencke (2009), as it is a region with countryside characteristics, the predominance of herbaceous vegetation brings an ecosystemic richness to the southern fields. This characteristic is due to the interaction of the geological order of the soils and the past climate, leaving nature in charge of selecting the best vegetation for each region, with its specificities and its own ecosystem services. Colonization brought livestock, an activity that was established with the regional economy and along with the culture of the gaucho. Natural pastures are considered biodiversity hot spots, host to plants, animals and microorganisms. Such characteristics ensure the southern fields a high resilience, however, it results in the difficult understanding of management for productive purposes.

The property uses 110 hectares and the producer leases 170 hectares nearby, with his sister and godfather as tenants, totaling 280 hectares occupied with cattle and sheep farming, rice farming, poultry and pig farming. The owner, a 65-year-old man, with four daughters and a wife, has lived in the rural establishment since he was born and is the only resident of the property.

In addition to producing meat for self-consumption, the owner sells directly: eggs, cheese and milk. The rancher also produces pork sausage products, such as sausage and salami. The agro-industrialized products on the property - in addition to being consumed by the family and the property's workers - are sold directly on the property or taken to consumers in the cities of Quaraí and Uruguaiana. The property has an orchard with fruit and native trees that also serve for self-consumption.

RESULTS AND DISCUSSION

AGRO-ENVIRONMENTAL SUSTAINABILITY AXIS

The Agro-Environmental Axis deals with production principles that are very close to agroecology, as it aims at economic efficiency with a compatible environmental cost. For its evaluation, 19 indicators are used that were chosen by the methodology with the objective of evaluating the autonomy of the agricultural system, providing an overview of how natural resources are being managed by the production system in the short and medium term (VILAIN, 2000).

Within this Axis, we group the indicators into three large groups for analysis: diversity, space organization and agricultural practices. Chart 2, below, presents the results of each group that make up the Agro-Environmental Axis.

In Group 1, which comprises diversity, we can see that the property scores top marks when it comes to indicators involving animals. This is justified due to the variety of species, except regional breeds, which do not exist on the property. On the other hand, there is no diversification of annual vegetable production, since rice is the only cultivated vegetable production. However, it should be noted that "monocultures in general are very harmful to the environment, as they reduce the biodiversity of agroecosystems, reducing their stability and making them especially vulnerable to attacks by pests and diseases" (SAMBUICHI et al., 2017, p. 12). In turn, perennial vegetation exploits only fruit trees, which is a way of optimizing the use of space, favoring self-consumption.

In Group 2 (space organization), it is possible to assess that there is monoculture and neither crop rotations nor green manure are performed, which represents an economic, ecological and parasitic risk. Plots, when they are single and large, represent a high risk of erosion and pests. Regarding preservation areas and patrimony, the property does not have native areas, but it preserves the springs on the property and produces hay from cultivated rice. In this criterion, the property reaches 50% of the

maximum score. On the other hand, with regard to surface management, the property does not have any type of forage, which undermines the balance of biodiversity.

Chart 2. Sustainability Indicators according to the IDEA tool - Agroenvironmental Axis.

Component	Indicators	Acronym	Score	Maximum	Observations
Diversity	Animal	A1	15	15	Horses, cattle, sheep, poultry and pigs.
	Vegetable (annual)	A2	2	15	Rice
	Vegetal (perennial)	A3	8	15	Lemon tree, orange tree, cherry tree, mulberry tree.
	Regional Breeds	A4	0	15	Does not have
Space Organization	Crops	A5	4	10	No culture greater than 40%. Does not use green manure and does not use crop rotation
	Plot Dimension	A6	0	8	Plant only rice. Plot greater than 16 ha.
	Reserve Areas (preservation)	A7	6	12	Has sheds on the property, makes hay from rice.
	Action in favor of property	A8	2	2	Preserves the water sources that exist on the property.
	Load capacity	A9	2	5	High number of cattle and sheep per Hectare, has native grassland.
	Surface Management (Pasture)	A10	0	3	It does not have a forage.
Agricultural Practices	Fertilization	A11	-6	12	Chemical fertilization for growing rice.
	Wastewater treatment	A12	0	4	Waste is not used.
	Pesticide	A13	-3	12	Uses herbicides, class 2 products and pesticides.
	Animal welfare	A14	2	3	Has little or no shade.
	Soil Protection	A15	1	3	Bare soil greater than 30% of the property.
	Irrigation	A16	1	3	It has a reservoir
	Energy Dependence	A17	3	3	It has solar panels from 200 to 300, 1 ha per year.
Total			37	130	28,46%

Source: Research Data (2021).

Regarding agricultural practices (Group 3), intense chemical fertilization occurs on the property in rice cultivation, there is no type of treatment of animal waste and there is intensive use of pesticides, denoting that some practices developed on the property are still considered harmful, demanding for new more sustainable production practices capable of promoting a certain greening of the agroecosystem (CAPORAL; COSTABEBER, 2004). With regard to animal welfare, there are appropriate places for poultry and pigs, while for cattle, they have easy access to water, but there is a lack of shade on the property, affecting the thermal comfort of the animals. The soils are not covered in more than 30% of the area, the irrigation takes place from its own dam and the water is transported through pipes. Regarding energy dependence, an average of 228 l/ha/year of diesel oil is used and there are three solar panels in the area.

Within the Agro-Environmental Axis, the analyzed property presented the highest evaluation in the indicators referring to animal diversity, with horses, cattle, sheep, pigs and birds, in the action in favor of the patrimony, with the preservation of special ecosystems and in the conservation of water sources that exist on the property and referring to energy dependence, with emphasis on the existence of solar panels. However, most of the indicators evaluated within the Axis in question are low, mainly due to the low plant diversity, with the cultivation of only rice, which demands intense chemical fertilization and soil turning. Still, the non-existence of regional breeds and surface management, the mode of use of space was evaluated, susceptible to multiple favorable impacts on soils, waters, landscape and biodiversity, precisely because it contains an area of native grassland, production of silage and orchard with living cover formed by native plant species.

It stands out, as a negative point, if it is taken into account that producing without polluting is a fundamental condition of sustainability, the lack of treatment of animal waste. Also, with a low score in the scale adopted, there is the item that refers to pesticides, as there is intensive use of insecticides, fungicides and herbicides, aimed at controlling pests, diseases and undesirable plants, with the owner highlighting that the

use occurs for technical indication and the products are class II (yellow stripe), being considered highly toxic. In this regard, Lopes (2022) reinforces that some models of technical guidance still carry traces of productivist diffusion, conditioning the service to the acquisition of inputs, such as pesticides, fertilizers, chemical fertilizers, among others.

Regarding the protection of the soil against erosion and its consequent loss, it was identified that there is no coverage in more than 30% of the area, and no direct planting, live or dead coverage, is adopted, since the rice straw is used for production of hay, demonstrating, to some extent, the possibility of using this material, rich in some nutrients (protein, fiber and fat).

In this sense, the Agro-Environmental Axis has low sustainability rates, mainly due to the limited plant diversity, which results in an environment conducive to pests and incipient soil fertility, leading the owner to resort to the intense use of external inputs.

SOCIO-TERRITORIAL AXIS

It is essential to include the social and territorial aspects in the context of evaluating the sustainability of rural properties, since they are set in a set of dimensions that occur from local relations, thus giving rise to a territorial praxis, capable of adjusting to the specificities of territories and their ecosystems (SAQUET, 2019). Thus, the Socio-Territorial Axis "[...] seeks to evaluate the quality of life related to agriculture and services, economic or not, provided to the territory (environment) and society" (VIEIRA, 2005, p. 34). Food quality is one of the evaluated items that received a "zero" score. The justification for this note is due to the production conditions that prevent the obtaining of a seal by any certifier, as well as the lack of traceability of the products. Table 3 presents the results of the Socio-Territorial Axis.

Chart 3. Sustainability Indicators according to the IDEA tool - Socio-Territorial Axis

Component	Indicators	Acronym	Score	Maximum	Observations
Quality of the region's products	Food quality	B1	0	12	Products do not have seal conditions. There is also no traceability of the products.
	Valorization of Patrimony (constructions) and landscape	B2	2	7	There is a portion of the native countryside preserved.
	Space Accessibility	B3	4	4	There is easy access to the property.
	Social Implications	B4	5	10	The owner has a relationship of reciprocity with the community.
Jobs and services	Direct-to-consumer sales mechanisms	B5	2	5	Sales are through short chains.
	Services and Pluriactivity	B6	1	5	There is no relationship between the owner and non-agricultural activities on the property.
	Employment Generation	B7	1	7	There are contracted and temporary jobs according to demand
	Collective Work	B8	3	9	Offers bank of work.
	Expected perpetuity	B9	3	3	The owner expects to continue with the activities.
Ethics and Human Development	Contribution to World Food Balance	B10	-	-	It does not apply to Brazil.
	Training	B11	2	7	Receives professionals and students for livestock activities
	Labor Intensity	B12	0	7	The producer has few hours of leisure and many hours of work.
	Quality of life	B13	6	6	The producer is proud of his activity, and in his opinion he has quality of life.
	Isolation	B14	3	3	The producer has a cell phone, TV, radio and reads the newspaper weekly.
Total			32	85	43,52%

Source: Research Data (2021).

However, we present here a pertinent criticism of IDEA, considering that the tool seeks to evaluate the conditions of "food quality" aiming at the certification or

traceability of products and, however, many rural family properties are immersed in short circuits of commercialization or Alternative Food Networks (SCHNEIDER; GAZOLLA, 2017) which, to a large extent, are far removed from conventions (POLANYI, 1980) and the regulations instilled in conventional markets. Therefore, these networks and marketing spaces are essential for this profile of farmer, contributing to income and reproduction of livelihoods (ELLIS, 1998), without necessarily adapting to a normative set established in conventional markets, which does not reduces the value of the food. For this analysis, it is necessary to dissociate, on the one hand, the criteria and objectives for certification, considering the reality of each rural family establishment and, on the other hand, the way food is produced (use of chemical inputs, etc.).

As for the valuation of the patrimony, which includes the preservation of the landscape and the property, there are few spaces with preserved forests in the place and the absence of living fences, exposing a deficiency in the landscape that, in this criterion, assigns a score of 2 to the property. However, regarding the ease of access to the property, there is a maximum score in this regard, taking into account the good conditions of the local roads. The scale that made it possible to analyze the owner's relationship with the surroundings (B4), reached 50% of the maximum possible score, even though the owner had a relationship of reciprocity with the community (mutual help between neighbors and days of collective effort). However, the non-participation in associations, in the case of this owner, entails a limitation regarding the articulation of actions aimed at the community. Thus, associativism can contribute - from its expression and performance in solidarity networks -, both to oppose the logic of technological packages (VALE, 2003), and to add value to products and services (ANJOS et al., 2020).

The sale of products (cheese and eggs) is carried out in the city with direct sales to consumers, reinforcing the owner's role in short marketing circuits. The result observed in this criterion is a score of 40% of the total scale, as there is not a diversity of products sold. In item B6, Services and Pluriactivity, the evaluation presents a very low score percentage,

given that although the property sells some products locally, there are no incentives for rural tourism, failing to provide non-agricultural income and the practice of pluriactivity (SCHNEIDER, 2003), a very common feature among family farmers. Also, when questions about job creation are observed, the property has contracted and temporary workers. The latter, only when the rice is harvested and the sheep's wool is sheared.

In Group 1 of this dimension, with regard to collective work, the score reached a value of 3, as the producer accumulates hours worked on neighboring properties, when asked for help, these hours added up to more than 10 hours a year, however, the group work, as well as community use of machinery and equipment, is not carried out by the producer. In the "expected perpetuity" criterion, the owner obtained the maximum score because he is motivated to continue with his rural activities.

In Group 2, which concerns training, the property receives students and professionals for livestock activities, an activity that makes the producer proud, as it contributes to knowledge and experiences, serving as a reference in the community. However, the item "work intensity" obtained a score of zero, as the producer does not enjoy leisure time and exceeds two four-hour shifts per day. Quality of life and isolation represented the maximum score, because, through the cultural appeal, childhood and upbringing were in the same place where he currently resides, the producer is proud of his activity, has esteem for what he does and in his opinion the farming activity provides a high quality of life. The data also reveal that the producer has the habit of reading the newspaper, following news on television and radio, as well as having a cell phone to communicate.

ECONOMIC AXIS

IDEA's Economic Axis is made up of six indicators. However, due to the fact that some did not apply to the researched property, it was necessary to make adaptations, thus working with only four of them, excluding the others.

It is possible to observe that the property manages to remain financially viable, that is, the producer manages to survive from his activity in the field. However, there are some points of attention regarding the maintenance of the economic sustainability of this property. As much as it reaches good indications regarding items C1 and C6 and this makes it reach a result in relation to economic sustainability that is somewhat reasonable, it is necessary to pay attention to items C2 and C3, respectively, which can compromise the activity on long term.

Rural activity has a high cost, requiring a large enterprise of financial resources for its development. Most rural producers, in order to make production and marketing viable, need to seek credit from financial institutions, through credit lines such as the National Program for Strengthening Family Agriculture (PRONAF). In addition, the agricultural activity is of great risk, as many of these risks are beyond the control of the farmer, as they are uncontrollable variables. Vulnerabilities, for example, from crop failures, drought and recently, the Covid-19 pandemic (VESTENA, 2022), resulted in difficulties in the commercialization and production of family-based agriculture in the country. Given this, the farmer who is linked to financing from credit institutions and does not have a medium and long-term program, can become indebted and put his production and social reproduction at risk. Chart 4, below, presents the result of the economic axis.

> With the extremely competitive market, large and medium-sized rural producers end up having an easier time competing in the market compared to small properties, which do not have as much access to new technologies. That said, small rural producers need, most of the time, access to financial resources to honor commitments, and maintain economic and financial sustainability and even their own survival in rural areas. In order for these small producers, known as family farmers, to remain in rural areas, rural property management is necessary, keeping them economically and financially viable (SCHIAVO, 2019, p. 27).

Chart 4. Sustainability Indicators according to the IDEA tool - Economic Axis

Component	Indicators	Acronym	Score	Maximum	Observations
Viability	Economic viability	C1	20	20	Property with low depreciation value. Rice provides a higher income than livestock
	Economic Specialization Rate	C2	2	10	Main buyer accounts for more than 70% of gross income
Independence	Financial autonomy	C3	0	15	High amount of bank financing.
	Sensitivity to Quotas and Subsidies	C4	-	-	It does not apply to the property
Transmissibilidade	Economic transmissibility	C5	-	-	It does not apply to the property
Eficiência	Efficiency of the production process	C6	15	25	Result of the property's income and its expenses with inputs.
Total			37	70	52,85%

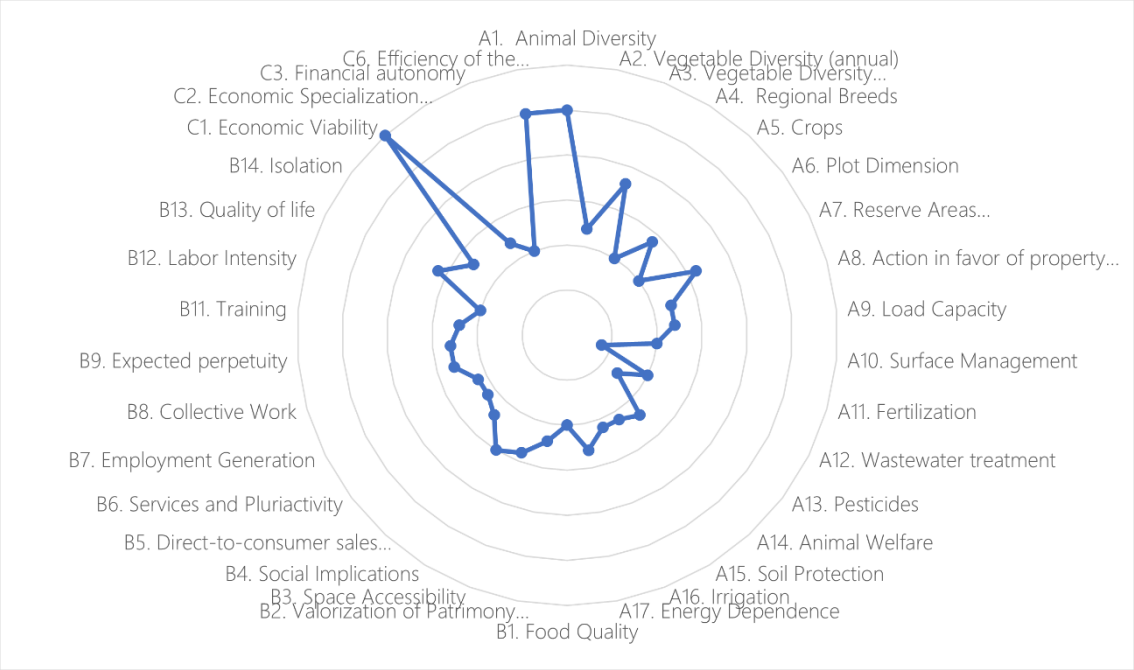
Source: research data (2021).

Aiming at the financial sustainability of the property, it is not recommended to carry out production and marketing based on one type of market, however good it may be. Ideally, the producer should be able to diversify his production and thereby diversify outlets/sales points. Obviously, it is important to consider the markets that are most accessible to your reality, as already discussed (local/territorial, institutional, solidarity or proximity markets) (WILKINSON, 2008; SCHNEIDER, 2016). Thus, the farmer creates possibilities to not be "hostage" of a buyer/market for the maintenance of his main income. In this sense, Ellis (1998, p. 4) addresses that "the diversification of rural livelihoods is defined as the process by which rural families build a diversified portfolio of activities and assets in order to survive and improve their life standard".

As highlighted (see Figure 1), the Olhos D'água property manages to remain financially viable, mainly with the production and sale of rice. However, a point of attention is the high percentage of financing from financial institutions that directly affects the autonomy of this property. The fact that it also has its production and commercialization very focused on a single market/buyer, becomes a high-risk factor

in maintaining its income. Therefore, it is important that the owner has medium and long-term planning, seeking to reduce the risks of bad weather in his activity, keeping his property economically sustainable.

Figure 1. Sustainability Indicators according to the IDEA tool



Source: Research Data (2021).

CONCLUSION

In addition to observing the level of sustainability of the rural property object of this study, this article sought to present the importance of using tools and indicators for the analysis of environmental, productive and socioeconomic sustainability. Although it has limits, through the application of the IDEA tool it was possible to carry out a diagnosis of the sustainability levels of the Olhos D´água property, considering the Agro-environmental, Socio-territorial and Economic Axes.

As shown in the analysis of the axes, the one that presented the greatest fragility, having a low level of sustainability, is the agro-environmental, demanding improvements, mainly, in the aspects: diversity (animal and vegetable) and

elimination of the use of chemical inputs. The fact that it has a low plant diversity, contributing to an environment more conducive to pests, increasing the use of pesticides, impacting soil fertility and thus the intense use of external inputs, compromises the levels of sustainability in other axes. Despite the socio-territorial and economic axes presenting levels considered reasonable, they also suffer from the negative impacts diagnosed in the agro-environmental group. Therefore, although they have been dismembered into three parts and none can be used to compensate the other, it is clear that these indicators form a whole in the end (a systemic field), one being relevant to the other and, likewise, one or the other element can directly affect the other.

The IDEA tool showed a certain fragility by "immobilizing" its analysis mechanism in indicators, not guaranteeing a functional analysis of the agroecosystem, since it disregards so many other realities of the rural environment, its subjects, organizations and rural enterprises. However, through its final diagnosis, it was possible to show which points of the property need more attention to improve its levels of sustainability, aiming to think about a necessary integration from the indicators that somehow complement each other and are interdependent. It should be emphasized that this was a first diagnosis of the property's sustainability levels, suggesting the need to carry out other future diagnoses and the use of different methodological tools to monitor performance from this initial analysis.

Therefore, despite recognizing the limits expressed in the tool itself, it is important to emphasize that sustainability analysis models are not necessarily ineffective in terms of their essence and purposes, since the diversity of rural family enterprises and the contexts under which these properties are immersed, are dynamic and are, in many cases, under constant transformation, requiring new tools and new diagnoses to be used. Thus, we express the need to strengthen new research agendas around this topic so that other studies cover these spaces, deepening the countless gaps that constitute this theme.

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