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Family Farming and Organic Production as Strategies for the Sustainability and Resilience of Agri-food Systems

Family Farming and Organic Production as Strategies for the Sustainability and Resilience of Agrifood Systems

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Summary

This article analyzes family farming and organic production as strategies to promote the sustainability and resilience of agri-food systems. The study starts from the understanding that the adoption of sustainable production practices has intensified in recent decades, especially in light of environmental, social, and economic concerns related to the conventional agricultural model. In this context, it seeks to answer the following research question: how can organic production in family farming be integrated into the sustainability and resilience strategies of agri-food systems? The general objective is to analyze how organic production, within the scope of family farming, can constitute a strategy for sustainability and resilience. Specific objectives included describing the possibilities of articulation between family farmers and sustainable production practices, analyzing the environmental and economic impacts of organic production, identifying the main challenges faced by family farmers in adopting these systems, and discussing the role of public policies in strengthening this segment.

Methodologically, this is a qualitative, bibliographical research, based on scientific articles, books, and institutional documents on family farming, organic production, and sustainability. The results indicate that the integration between family farming and...

Organic production contributes to the conservation of natural resources, the strengthening of local economies, and the increased adaptive capacity of production systems. However, challenges persist related to access to credit, technical assistance, certification, and effective public policies. It is concluded that institutional strengthening, coupled with technical training and the empowerment of family farmers, is fundamental to consolidating more sustainable and resilient agri-food systems.

Keywords: Family farming; organic production; sustainability; agri-food systems; public policies.

Abstract

This article analyzes family farming and organic production as strategies to promote the sustainability and resilience of agri-food systems. The study is based on the understanding that the adoption of sustainable production practices has intensified in recent decades, particularly due to environmental, social, and economic concerns related to conventional agricultural models. In this context, the research seeks to answer the following question: how can organic production within family farming integrate strategies for sustainability and resilience in agri-food systems? The general objective is to analyze how organic production in family farming can constitute a strategy for sustainability and resilience. Specifically, the study aims to describe the possibilities of articulation between family farmers and sustainable production practices, analyze the environmental and economic impacts of organic production, identify the main challenges faced by family farmers in adopting organic systems, and discuss the role of public policies in strengthening this sector. Methodologically, this is a qualitative bibliographic study based on scientific articles, books, and institutional documents related

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to family farming, organic production, and sustainability. The results indicate that the integration between family farming and organic production contributes to the conservation of natural resources, the strengthening of local economies, and the improvement of the adaptive capacity of production systems. However, challenges remain in accessing credit, receiving technical assistance, obtaining certification, and implementing effective public policies. It is concluded that institutional strengthening, combined with technical training and the recognition of family farmers, is essential for consolidating more sustainable and resilient agri-food systems.

Keywords: Family farming; organic production; sustainability; agri-food systems; public policies.

1. Introduction

This article sought to investigate the presence of family farming and the evolution of its production. organic, with a view to understanding its contributions as strategies for sustainability and Resilience of agri-food systems. The need for awareness about sustainability.

This arises, above all, in the face of the ecological crisis that has been alarming the planet, resulting from the impacts caused by human action on the environment. These impacts have generated problems that They threaten the ecological balance and the survival of species (Hildefonso, 2019). In this context, Exacerbated consumerism, driven by globalization and capitalism, contributes to... This scenario is worsening in the food sector, where the consumption of animal protein is growing at a rate of... A rate higher than that of population growth.

Ecological sustainability refers to maintaining the balance of ecosystems through... The integration of society, economy, and nature, with the goal of reducing environmental impacts. and to ensure the conservation of natural resources for future generations. In this context, agriculture The family stands out as a strategic element, insofar as its productive practices are... They align with the principles of sustainable development when supported by public policies. aimed at strengthening it.

In recent decades, there has been an expansion of agricultural practices geared towards conservation. environmental initiatives, such as soil and water conservation, biological pest control, and the rational use of resources. natural resources and the pursuit of sustainable production levels (Karpinski et al., 2024). This set The practices that underpin organic agriculture are presented as an alternative to the traditional model. conventional in prioritizing the reduction of environmental impacts and the promotion of human health.

The organic production system, the focus of this study, consists of a set of practices agricultural practices that consider soil fertility as a result of the organic matter present in it. (Batista; Stoffel, 2022). Thus, the action of microorganisms on biodegradable compounds It enables the provision of essential nutrients for crop development, promoting a more balanced and sustainable production system (Almeida; Santos; Pereira, 2025).

In this context, organic products are defined not only by their final characteristics, but, above all, because of the processes employed in its production, which prioritize natural methods and



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sustainable (Dalmoro, 2023). According to Hildefonso (2019), this production model comes exhibiting significant growth on a global scale, with a presence in over 130 countries.

Internationally, the trade in certified organic products is concentrated in Markets in high-income countries are organized into two main flows: trade between nations. developed, with particular emphasis on relations between the United States, Europe and Japan, and the performance from exporting countries, such as Australia, which are responsible for supplying these markets.

It is observed that the growth in demand for organic products, driven by Concern for health and the environment has intensified the need for regulation of sector. However, this process occurs unevenly between developed and developing countries. development, generating challenges related to compliance with international standards.

Given this scenario, the construction of regulatory mechanisms becomes fundamental. Consider the specific characteristics of each country in order to avoid excluding small producers. (Hildefonso, 2019). In the case of family farming, the difficulties of access to infrastructure, to Credit and institutional support limit their ability to meet regulatory requirements. compromising its competitive insertion in this market (Gomes; Abreu, 2019).

Despite these limitations, there has been a growing trend towards valuing Local, differentiated products with higher added value have boosted agriculture. familiar and expanded opportunities for economic inclusion. This context reinforces the need creating spaces for the exchange of knowledge, educational activities, and the strengthening of policies. public initiatives aimed at this productive segment (Dalmoro, 2023).

Therefore, in light of these transformations and challenges, the aim is to answer the following question: Research: How can organic production in family farming be integrated into strategies of Sustainability and resilience of agri-food systems?

Thus, the general objective is to analyze how organic production in family farming... It can constitute a strategy for the sustainability and resilience of systems. agri-food. The following specific objectives were defined: a) to describe the possibilities a) to articulate the relationship between family farmers and sustainable production practices; b) to analyze the impacts of organic production on environmental and economic sustainability; c) identify the main challenges faced by family farmers in adopting organic systems; d) discuss the role Public policies aimed at strengthening family and organic farming.

As a methodology, a qualitative approach of a bibliographical nature was adopted, having as a research universe scientific publications, articles, books and related official documents to family farming, organic production and sustainability, with the aim of providing a foundation for proposed discussions.



2. Theoretical Framework

2.1 family farming

Family farming can be understood as a form of productive organization in which ownership, management, and most of the work are carried out by individuals who maintain close family ties, such as blood relations or marriage (Siqueira; Araújo, 2018). In this model, land ownership, managerial control, and the centrality of the family stand out, both in... The execution of productive activities contributes to both income generation and remaining in rural areas.

In the Brazilian context, family farming is defined by Law No. 11.326/2006, which establishes criteria for its characterization and recognizes its economic and social relevance. It is about... from a segment that is fundamental to food security, responsible for a large part of the production of food destined for the domestic market (De Carvalho Vieira, 2025). On a global scale, according to the Food and Agriculture Organization of the United Nations (FAO), family farming constitutes the predominant form of food production, both in developed and developing countries.

Thus, it can be observed that family farming plays a strategic role in providing food supply to local markets, in addition to contributing to income generation. According to Ramos, Silva and Oliveira (2025), this segment is responsible for a significant portion of the production of fruit and vegetable production in Brazil. However, it faces significant challenges related to management, economic factors, such as the difficulty of setting sales prices appropriately, based on practices. empirical, due to the absence of systematic cost control.

In addition to its productive importance, family farming plays a social role, essential for generating employment and absorbing labor in rural areas, contributing to the reduction of rural exodus and for the improvement of living conditions for rural and urban populations (Nunes, 2021), which highlights its multifunctionality, since, in addition to producing food and raw materials, it also strengthens territorial and social dynamics (Batista; Stoffel, 2022).

In this broader context, family farming should be understood as part of a more comprehensive system that integrates social, economic, political, and environmental dimensions. The space Rural, therefore, cannot be reduced to a place of production of goods, and must be understood... as a complex and diverse territory, in which different forms of organization coexist. productive, such as agribusiness and family farming (De Carvalho Vieira, 2025).

Within this territorial complexity, family-based production is generally characterized by...



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through the diversification of productive activities, through the integration between agricultural and livestock crops and due to the strong link with regional markets, which favors community cooperation and added value.

of local knowledge and the production of food intended for both self-consumption and commercialization, contributing to regional supply (Almeida; Santos; Pereira, 2025).

Corroborating this perspective, Cardoso (2024) highlights that family farming presents high degree of productive diversification and vertical integration, often oriented towards the family's own food needs, with emphasis on traditional crops such as corn,

Beans and soybeans.

Despite its economic and social importance, family farming faces challenges. significant structural challenges, notably limitations in access to productive resources and credit. Technical assistance, infrastructure, and rural services are factors that hinder their competitive integration. in the markets (FAO). Furthermore, the increasing integration into agro-industrial chains and the adoption of Technologies stemming from the industrial model have contributed to the erosion of traditional knowledge. transmitted from generation to generation (Costa, 2025).

Family farming in Brazil has maintained relationships with the market since the colonial period. but it underwent significant transformations starting in the 1980s, when modernization Agriculture and the expansion of agribusiness have resulted in the exclusion of some small producers from... dominant production chains. This process has led many farmers to seek strategies Alternatives for social reproduction, such as productive diversification and the promotion of local products.

From the 1990s onwards, there has been progress in the institutional recognition of Family farming, with the implementation of public policies aimed at strengthening it. Among Among these initiatives, the National Program for Strengthening Family Farming stands out. (PRONAF), the Food Acquisition Program (PAA) and the National Food Program School (PNAE), which expanded opportunities for market access and encouraged production. local (Gomes; Abreu, 2019).

The National School Feeding Program (PNAE), in particular, is relevant in promoting the acquisition of food from... Family farming for school meals, encouraging healthy eating habits and valuing regional food culture (Friedrich; Feiden; Fulber, 2022). Furthermore, it contributes to Sustainable development by prioritizing local products and strengthening regional economies. (Brazil, 2010).

Despite the progress, public policies still face challenges regarding their effectiveness. its implementation, requiring the expansion of access to credit, technical assistance, and to Cooperativism, in order to overcome structural obstacles that limit the development of agriculture. familiar (Santos et al., 2025).

In this way, family farming consolidates itself as a strategic actor in the articulation between



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the rural and the urban, playing a central role in the construction of a new paradigm of rural development, based on sustainability, valuing territories and promoting Food safety.

2.2 Organic products in family farming

Organic agriculture is characterized as a sustainable management system that prioritizes... Ecological balance, environmental preservation, agrobiodiversity, and the quality of human life. based on the rational use of natural resources and the maintenance of biogeochemical cycles (Santos, 2025). This production model adapts to the specific characteristics of each locality, seeking to promote harmony between human beings and the environment.

Conceptually, organic foods are those produced without the use of artificial inputs. artificial substances, such as chemical fertilizers, pesticides, hormones, and antibiotics, are being prioritized instead of artificial processes. natural factors that ensure food quality and the sustainability of the production system (De Carvalho Vieira, 2025). In this sense, the production process assumes centrality, determining the classification of products as organic (Karpinski et al., 2024).

Organic agriculture began to develop in Brazil in the 1970s, initially associated with alternative movements, such as the hippie movement, which questioned the models conventional agricultural production methods. Despite initial resistance from traditional producers, This model is growing, driven by concerns about health and environmental preservation.

This growth is related to changes in consumer behavior, which It has come to value healthier, safer and more responsible foods (Almeida; Santos; Pereira, 2025). As a result, there is an increase in the presence of organic products in the markets, even though its consumption remains, to some extent, restricted to certain social segments, especially in higher prices, resulting from smaller production scale and difficulties. challenges faced by small producers (Lombardi; Moori; Satiko Sato, 2022).

In the context of family farming, organic production presents strong strategic potential. since it is based on practices adopted by these farmers, such as crop diversification, The use of natural resources and respect for the cycles of nature. Agroecological knowledge, Often passed down from generation to generation, they constitute an important cultural heritage. and technical aspects that favor the adoption of this production model.

Organic practices involve nutrient recycling, composting, and fertilization. Organic farming and biological pest control, promoting soil balance and sustainability. production. Soil fertility, in this context, is related to the activity of microorganisms, responsible for the decomposition of organic matter and the provision of essential nutrients



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to plants (Martinez; Marotta; Mangas, 2021).

Adopting these practices helps to reduce the environmental impacts associated with conventional agriculture, resulting from the intensive use of pesticides, since exposure to these substances pose health risks to rural workers, potentially affecting the nervous system and cause acute and chronic poisoning, as well as contaminate the soil, water and food (Menezes; Rodrigues; Campos, 2024).

It is noteworthy that, although the use of pesticides has been associated with an increase in productivity and cost reduction are important factors, their socio-environmental and health impacts have been widely discussed and debated, which has led to the search for more sustainable production models (De Carvalho Vieira, 2025). In this scenario, organic agriculture emerges as a viable alternative, capable of reconciling agricultural production, environmental conservation and health promotion (Silva et al., 2025).

Thus, despite its advantages, the expansion of organic production remains facing significant challenges in the context of family farming, among which the following stand out: the high certification costs, the difficulty of accessing credit, the lack of technical assistance specialized and the limited performance of public support policies (Santos et al., 2025).

In addition to structural and regulatory challenges, there is a need to strengthen education and environmental practices aimed at rural producers, as a way to raise awareness about best practices, sustainable and the ability to adopt ecological production systems (Santos et al., 2025). This process contributes to the more responsible use of natural resources and to the transformation of values and practices in rural areas, favoring the construction of more balanced agricultural systems. (Pivetta et al., 2024).

In this sense, the development of organic production is related to the planning of rural properties and the articulation between public policies, technical knowledge and participation social, fundamental elements for promoting economic, social and environmental transformations, ensuring greater efficiency and sustainability to production systems (Weber; Silva, 2021).

As a result of these dynamics, organic production has a growing potential for expansion, both in the domestic and international markets (Menezes; Rodrigues; Campos, 2024). Brazil, due to its diverse climate and natural resources, possesses favorable conditions for the production of a wide variety of organic products, expanding their possibilities of insertion into foreign markets that are increasingly demanding in terms of quality and sustainability. (Friedrich; Feiden; Fulber, 2022).

However, entering these markets requires compliance with rigorous standards of quality and certification, which can represent a barrier for small producers (Menezes; Rodrigues; Campos, 2024). Therefore, strengthening public policies becomes fundamental and support mechanisms that enable the inclusion of family farming in this segment.



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Finally, it is worth highlighting that the consolidation of organic production in family farming depends from the adoption of sustainable practices, efficient management of natural resources, and institutional support. The balance between production, environmental preservation, and quality of life is a central element. for the construction of more resilient and sustainable agri-food systems.

Final considerations

Based on the analyses carried out, it is concluded that family farming, associated with production Organic farming constitutes a relevant strategy for promoting the sustainability and resilience of agri-food systems. This integration is achieved to the extent that it articulates productive practices. based on the rational use of natural resources, the appreciation of traditional knowledge and on diversification of production, contributing to environmental conservation, food security and the Strengthening local economies.

Regarding the overall objective, it was found that organic production, when developed In the context of family farming, it favors the construction of more balanced production systems and adaptable to environmental and socioeconomic changes, reinforcing their capacity to respond to them. of crises and instabilities. Thus, it becomes evident that family farming not only produces food, but it also plays a strategic role in structuring more agri-food systems sustainable.

Regarding the specific objectives, a significant possibility was observed of The connection between family farmers and sustainable production practices, through the adoption of of agroecological techniques, the use of natural inputs, and the integration of different activities productive. Such practices contribute directly to environmental sustainability by reducing negative impacts, and for economic sustainability, by adding value to products and expanding the Opportunities for entry into differentiated markets.

However, significant challenges limiting the expansion of [the program/service] have also been identified. Organic production in family farming. Difficulties in accessing credit are highlighted, as well as... specialized technical assistance, adequate infrastructure and certification processes, in addition to a lack of technical and management knowledge on the part of producers. Added to this is... The complexity of regulatory requirements and the limited understanding of institutional mechanisms of public policies, factors that compromise the effectiveness of actions aimed at strengthening of the sector.

In this sense, the fundamental role of public policies as an instrument of Support and incentives for family farming and organic production. Government programs, when Well-structured and accessible, they have the potential to expand access to markets and promote inclusion.



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productive and strengthen the sustainability of agricultural systems. However, it becomes necessary To improve its implementation, ensuring greater reach, integration, and adaptation to local realities.

The importance of environmental education and technical training is also highlighted. fundamental elements for the consolidation of sustainable practices in rural areas, since the Strengthening these aspects contributes to the transformation of values and the conscious use of... natural resources and the adoption of more resilient production models.

Thus, the research question of this study is answered by stating that the production Organic farming in family agriculture is integrated into the sustainability and resilience strategies of the systems. agri-food sectors, by promoting ecological practices, by strengthening local economies, by reducing the addressing socio-environmental vulnerabilities and expanding the adaptive capacity of production systems.

Finally, it should be noted that, for this integration to be effectively consolidated, it is Strengthening public policies and investing in technical assistance are essential. rural education, as well as valuing family farmers as key players in the construction of a more sustainable and resilient development model.

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