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Social and solidarity economy in agriculture, El Carrizo, Sinaloa

Economía social y solidaria en la agricultura, El Carrizo, Sinaloa

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ABSTRACT

Introduction: the capitalist model concentrates wealth in minority segments of humanity, driving the emergence of economic alternatives. The social and solidarity economy transforms productive practices by promoting sustainable development through principles based on reciprocity, cooperative management, democratic participation, distributive equity, ecological responsibility, gender parity, and other values that optimize relationships within organizational value chains.

Methodology: consequently, this research aims to analyze the social and solidarity economy as an alternative model applicable to the agricultural sector of El Carrizo, Sinaloa, examining its alignment with these principles to catalyze sustainable development processes. The study is based on a positivist paradigm, adopting a quantitative methodology with a descriptive design. This approach integrates exhaustive documentary research that supports the theoretical framework, complemented by an empirical study through structured interviews with producers and agricultural companies in the region of El Carrizo, Ahome, Sinaloa.

Results: the findings show that the social and solidarity economy is a viable alternative that generates multidimensional benefits. In the case of producers and companies, it contributes to organizational consolidation, while for consumers it helps promote ethical trade circuits.

Conclusions: this model fosters structures that guarantee fair trade, bioclimatic preservation, and the strengthening of sustainable rural economies, which is particularly relevant in vulnerable community contexts, although strategic for national macroeconomic indicators.

Keywords: agricultural economics, agriculture, collective economy, cooperative, economic and social development.

JEL Classification: D63, Q01, O10

RESUMEN

Introducción: el modelo capitalista concentra la riqueza en segmentos minoritarios de la humanidad, lo que impulsa la emergencia de alternativas económicas. La economía social y solidaria transforma las prácticas productivas al promover el desarrollo sustentable mediante principios fundados en la reciprocidad, la gestión cooperativista, la participación democrática, la equidad distributiva, la responsabilidad ecológica, la paridad de género y otros valores que optimizan las relaciones dentro de las cadenas de valor organizacionales.

Metodología: consecuentemente, esta investigación establece como objetivo analizar la economía social y solidaria como modelo alternativo aplicable al sector agrícola de El Carrizo, Sinaloa, examinando su alineación con dichos principios para catalizar procesos de desarrollo sostenible. El estudio se fundamenta en un paradigma positivista, adoptando una metodología cuantitativa con diseño descriptivo. Este enfoque integra investigación documental exhaustiva que sustenta el marco teórico, complementada con un estudio empírico mediante entrevistas estructuradas a productores y empresas agrícolas en la región de El Carrizo, Ahome, Sinaloa.

Resultados: los hallazgos evidencian que la economía social y solidaria constituye una alternativa viable que genera beneficios multidimensionales. En el caso de los productores y empresas contribuye a la consolidación organizacional, mientras que para los consumidores ayuda a la promoción de circuitos comerciales éticos.

Conclusiones: este modelo fomenta estructuras que garantizan el comercio justo, la preservación bioclimática y el fortalecimiento de economías rurales sostenibles, particularmente relevante en contextos comunitarios vulnerables, aunque estratégicos para los indicadores macroeconómicos nacionales.

Palabras clave: agricultura, cooperativa, desarrollo económico y social, economía agraria, economía colectiva.

Clasificación JEL: D63, Q01, O10

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INTRODUCTION

The International Labor Organization (ILO), according to Martí et al. (2023), maintains that the Social and Solidarity Economy (SSE) is a fundamental axis for reducing poverty, building inclusive societies, and optimizing economic systems. Its impact is evident in the creation of decent jobs, equitable participation, and the effective integration of marginalized groups through cooperative, mutual, associative, and community-based business structures.

In agriculture, a strategic sector due to its role in food security, González Costa (2021) warns of critical scenarios of unsustainability: degradation of agroecosystems, decline in crop quality, and even risks to livestock production. This crisis requires prioritizing solutions aligned with the Sustainable Development Goals (SDGs) of the 2030 Agenda, through regulatory frameworks, ethical markets, and organizations that guarantee the responsible management of natural resources.

In this context, the research poses a central question: Can the SSE operate as a viable alternative for transitioning toward sustainable development in agriculture in El Carrizo, Sinaloa? Consequently, the objective is to analyze this potential by examining the consistency between the principles of the SSE and the socio-environmental requirements of this region.

Methodologically, the study adopts a non-experimental, cross-sectional quantitative approach, using sustainability indicators and SSE parameters. The universe analyzed comprises local social solidarity organizations, with a sample focused on farmer members. A structured questionnaire was used to evaluate specific experiences, and the results were compared with the theoretical framework.

THEORETICAL FRAMEWORK

A comparative theoretical framework is established that examines the fundamental conceptualizations of agriculture and the SSE, contextualizing their historical evolution in Mexico and their synergy in achieving sustainable development models. This foundation articulates key disciplinary perspectives that shape the contemporary understanding of the agricultural sector.

The literature distinguishes a dual dimension in urban agriculture: as a system of immediate food production and as an engine of endogenous community economic development (Mendoza Ludeña, 2024; Wadumestrige Dona et al., 2021). This duality reveals its transformative potential by transcending its mere productive function to become a strategy for territorial revitalization.

For their part, Trigo et al. (2021) define sustainable agriculture as processes that institutionalize systemic ecological analysis, ensuring the resilience of natural resources through agricultural designs that rigorously integrate normative, socioeconomic, and environmental dimensions. This concept is expanded by de Gortari Rabiela (2020), who emphasizes skilled production through agroecological practices, where environmental conservation is inextricably linked to organized collective participation.

Likewise, sustainability-oriented literature introduces the principle of intergenerational justice, arguing that humanity requires healthy food systems that maintain critical ecosystem balances, ensuring future food sovereignty (Alvarez-Ochoa et al., 2024; De Bruin et al., 2024). This vision is consolidated by González Costa (2021), who proposes agricultural models based on rational water and soil management, safe food production, and organizational structures that reconcile social equity, decent job creation, and environmental preservation as the foundations for sustainable markets.

In the field of family farming, studied by authors such as Schwab Do Nascimento et al. (2020), Chao (2024), and Galdeano-Gómez et al. (2024), indigenous/peasant production in family plots is recognized for its triple socioeconomic contribution. This value is because it contributes to the supply of local marketing circuits, the creation of non-precarious rural employment, and the strengthening of incomes in peasant economies.

Social and solidarity economy: A historical perspective in Mexico

The SSE is conceptualized, following the ideas of Salustri (2021) and Villalba-Eguiluz et al. (2023), as an institutional model where diversified companies and entities carry out economic, socio-environmental, and cultural activities aimed at the common good, aligning themselves with decent work standards. This perspective is expanded

by Lopera-Arbeláez et al. (2024) and Lacan (2022), who define it as a socioeconomic movement based on humanistic values that prioritize comprehensive community development through structured cooperation and institutionalized reciprocity.

However, Fleischmann et al. (2022) emphasize that SSE organizations face three-dimensional challenges (social, economic, cultural) as they seek to improve quality of life through collective synergies. Their operation is based on guiding principles articulated in the literature: self-managed cooperation, mutual solidarity, democratic governance, organizational autonomy, and commitment to ecosystem sustainability (Bojórquez Carrillo, 2024; Lacan, 2022; Rossi et al., 2021). These principles are embodied in associative structures that transform traditional economic relations.

Historical evolution in Mexico

González Rivera (2024) documents that constitutional recognition of the SSE (1983) preceded by three decades the Social and Solidarity Economy Law (2012), which formalized its scope as an economic alternative committed to the reproduction of life. This milestone established the National Institute of Social Economy (INAES), responsible for designing sectoral public policies that, however, show programmatic discontinuity in recent years.

Complementarily, Céspedes Gallegos et al. (2025) analyze the Mexican "third sector" as a space for institutional innovation that transcends the public-private dichotomy, characterized by collective non-profit service initiatives. These entities operate under principles of social primacy over economic profit, participatory self-management, and equitable distribution, constituting moral economy networks.

The origins date back to nineteenth-century mutualism: the Junta de Fomento de Artesanos (1822) and the Sociedad Particular de Socorro Mutuo (1843) established protection systems for workers. Mogrovejo (2012) identifies the transition to cooperativism with nineteenth-century European immigration, when guilds and mutual societies developed risk funds for labor contingencies. This process culminated in 1873 with the first formal Mexican cooperative, which emerged from the institutional metamorphosis of mutual societies.

The vision of agriculture and the SSE for achieving sustainable development

Sustainable development emerges, according to Sánchez-Castillo et al. (2024), as a paradigm of global awareness of the intergenerational preservation of planetary resources. This concept is expanded upon by Gómez López (2020), who defines it as a transformative model that articulates systemic improvements in the economic, social, environmental, and political dimensions, generating dynamics of balanced progress.

Organizations operate as catalysts in this transition, particularly through the SSE. As Mozas Moral (2019) points out, based on United Nations documents, the SSE is a strategic driver for implementing the 2030 Agenda, reorienting the Sustainable Development Goals (SDGs) towards companies that prioritize the common good over capital accumulation, integrating collective well-being and ecosystem regeneration.

In the agricultural sector, agricultural cooperatives represent the backbone structures for global rural communities. These entities perform a dual socioeconomic function: they optimize safe food production-marketing chains while implementing, according to Ekmeiro-Salvador & Rivas Carrero (2024), triple sustainability models (economic, social, environmental). This approach requires eradicating extractive practices, such as the unsustainable use of water and agrochemicals denounced by Cuadras Berrelleza et al. (2021), in order to build fair, equitable, and ecologically regenerative agricultural systems.

Sustainability, as conceptualized by Cota Montes & Guerrero Beltrán (2021), involves balancing cultural, environmental, and economic actions to generate holistic community development. In this regard, the literature expands on this balance, stating that it produces unquantifiable but essential values such as social capital, biocultural resilience, and community empowerment (Dushkova & Ivlieva, 2024; Winston, 2022). In this system, agriculture becomes a lever for improving the quality of life through its organizational structures, modes of production, and distributive ethics.

According to Fontenla (2022), the interrelationship with the SDGs requires organizations to internalize profound transformations: respect for biodiversity, circular resource management, emancipatory education, substantive equity, and labor justice. These principles form an ethical-operational framework for aligning agricultural SSE with the following priority SDGs (table 1).

Table 1.
Sustainable Development Goals in the context of Social and Solidarity Economy Agriculture

Num	SDGs	Relationship between agriculture and the social and solidarity economy	Citation
1	End of poverty	Agriculture generates jobs.	(Hossain et al., 2024)
2	Zero hunger	The agri-food sector is important for ensuring healthy food for communities.	(Iqbal et al., 2025)
3	Health and well-being	Agriculture must have as its primary objective the health of the population, the health of ecosystems, healthy land, and the well-being of society.	(Hidalgo-Capitán et al., 2019)
5	Gender equality	SDG 5 involves counteracting the lack of gender equality in the agricultural sector, where women represent half of the global agricultural workforce.	(Añaños Bedriñana & García Aguilar, 2024)
8	Decent work and economic growth	Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all. The agricultural sector generates a large part of employment in rural communities.	(González Costa, 2021); (Santhanam-Martin et al., 2024)
10	Reducing inequalities	Women are among those facing marked inequality, as evidenced by their lack of access to financing, land preparation, and other services. Governments must work to improve credit and financing for vulnerable groups.	(González Costa, 2021)
12	Responsible production and consumption	Producers and consumers are important actors in the value chain for food production and for promoting the need for healthy consumption.	(González Costa, 2021)
13	Climate action	Agriculture contributes to reducing the greenhouse effect, and controlling it is essential for the climate.	(Bhatnagar et al., 2024)
15	Life terrestrial ecosystems	The most important goal in agriculture for food is the conservation of ecosystem biodiversity.	(Venier-Cambron et al., 2024); (Wan et al., 2024)
16	Promote just, peaceful, and inclusive societies	Organizations are the means by which farmers can overcome social and economic constraints.	(González Costa, 2021)

Source: own elaboration based on the review conducted

Social and solidarity enterprises establish a structural alignment with the Sustainable Development Goals (SDGs). As Fontenla (2022) argues, these organizations operate as agents of socioeconomic transformation that articulate glocal scalings: they energize endogenous community development while contributing to sustainable global growth patterns. This synergy is reinforced by the literature, which identifies sustainability as a critical interface that mediates the organization-environment relationship, building bridges of reciprocity between economic activity and the integrity of ecological systems (Trigo et al., 2021).

METHODOLOGY

The research is based on a quantitative cross-sectional methodological design with a descriptive scope, following the principles of Pereyra (2022). This approach allows for the synchronous collection of data at a specific point in time, preserving the natural conditions of the context studied. As Novosel (2023) points out, the non-experimental nature of the study guarantees the observation of variables in their spontaneous manifestation, without manipulative intervention.

The sample was selected through purposive sampling, focusing on organizations that operate under SSE principles with institutional and commercial soundness. The sample universe included five key informants—legal representatives, partners, and workers from entities in El Carrizo, Ahome, Sinaloa—whose roles allow access to structural and operational perspectives. These primary sources were complemented by documentation from government institutions and an exhaustive review of specialized literature (scientific articles, theses, and monographs) that validate the reliability of the data.

The data collection technique used was structured interviews, based on the protocols of Fàbregues (2016), using a questionnaire designed to operationalize two central variables:

1. SSE principles: measured in:
    - *Organizational identity* (values and goals)
    - *Democratic participation* (decision-making)
    - *Inclusion and equity* (benefit distribution)

2. Sustainable development: measured in terms of:
    - *Social sustainability* (community capital)
    - *Economic sustainability* (productive viability)
    - *Environmental sustainability* (ecosystem management)

This instrument enables the systematic quantification of indicators for inter-organizational comparative analysis.

RESULTS AND DISCUSSION

The Social and Solidarity Economy in agriculture in El Carrizo, Ahome, Sinaloa

El Carrizo, also known as Gustavo Díaz Ordaz, is located in the municipality of Ahome, in the state of Sinaloa, Mexico. According to Mancera González (2023), agriculture in Sinaloa is a benchmark for success in agricultural activity; however, it is essential to incorporate strategies that ensure the conservation of available resources, thus strengthening sustainable development that links practice with theoretical foundations. Along the same lines, Gómez López (2020) argues that organizations governed by the principles of the SSE and the Sustainable Development Goals (SDGs) contribute significantly to the economic growth of rural communities.

This territory is recognized as an agricultural valley that currently has 2022 producers, predominantly growing wheat, although other crops such as corn, beans, and various vegetables are also grown. Recently, the introduction of new crops such as figs, blueberries, and safflower has been promoted, the latter in response to the growing water shortage affecting the region.

The crop that best represents the agricultural identity of the area is wheat, whose production cycle begins with the application for planting and water use permits in September and extends until the end of October or early November. Harvesting takes place around April, during the spring-summer cycle. In the 2023–2024 cycle, production reached 18 000 hectares, mainly for flour and pasta production.

In terms of organization, different types of structures can be identified. Among private companies, Safinsa stands out. Despite operating in the local and regional market with a competitive business approach, it incorporates principles of the social and solidarity economy, promoting social responsibility and environmental care.

On the other hand, social and solidarity organizations are represented by farmers' unions, cooperatives, and associations, such as UPROGRANOS, the Local Agricultural Association of Grain and Fruit Producers of the Carrizo Valley, UEPIC SRA de RI Lic. Adolfo López Mateos, and the May 30 Association. All of them pursue the common good of their members and promote community cooperation.

In terms of membership, 60% are men, aged between 24 and 60, with professional training. Eighty percent of the organizations have around 25 members, while 20% have fewer than 10. As stated by Mariosa et al. (2022), members recognize that social enterprises generate tangible benefits for farmers.

These organizations maintain a clear social identity, reflected both in their statutes and formal documents and in their members' knowledge and ownership of the principles of the SSE. Participation is based on criteria of free association, openness, voluntariness, democracy, universality, and shared access to results and management processes, in line with the proposals of Arampatzi (2022) and Salustri (2021).

In terms of inclusion, equality, and economic equity, González Costa (2021) identifies that all organizations include non-member workers, but only one contemplates the participation of people with different abilities. Gender equality in decision-making is present in 80% of companies; however, economic equity presents challenges, as in 60% of cases, resources are not distributed proportionally, while 40% say they do so only occasionally.

The concept of sustainability, in line with the theoretical analysis carried out, is known to members, who recognize that their agricultural activity contributes to sustainable development. However, they warn that the continuity of this condition in El Carrizo is at risk. Concerning social investment, 60% allocate resources to education, 20% to infrastructure, and another 20% do not allocate resources for these purposes. In general, organizations implement actions related to equality, diversity, and social welfare, reaffirming the findings of González Costa (2021) and Li and Santhanam-Martin et al. (2024) on the importance of sustainable organizations in generating social growth and decent jobs.

In the economic dimension, 80% of organizations report working under fair trade and responsible consumption criteria, in line with González Costa (2021), who emphasizes that organizational responsibility is essential for social and economic progress. On the other hand, in the environmental dimension, 60% have internal regulations or measures that regulate environmental impact. In comparison, 40% address it in a limited way, suggesting the need to strengthen this aspect. Even so, organizations are developing sustainable supply practices, recycling, resource optimization, and biodiversity protection, as described in the literature (Venier-Cambron et al., 2024) (Wan et al., 2024).

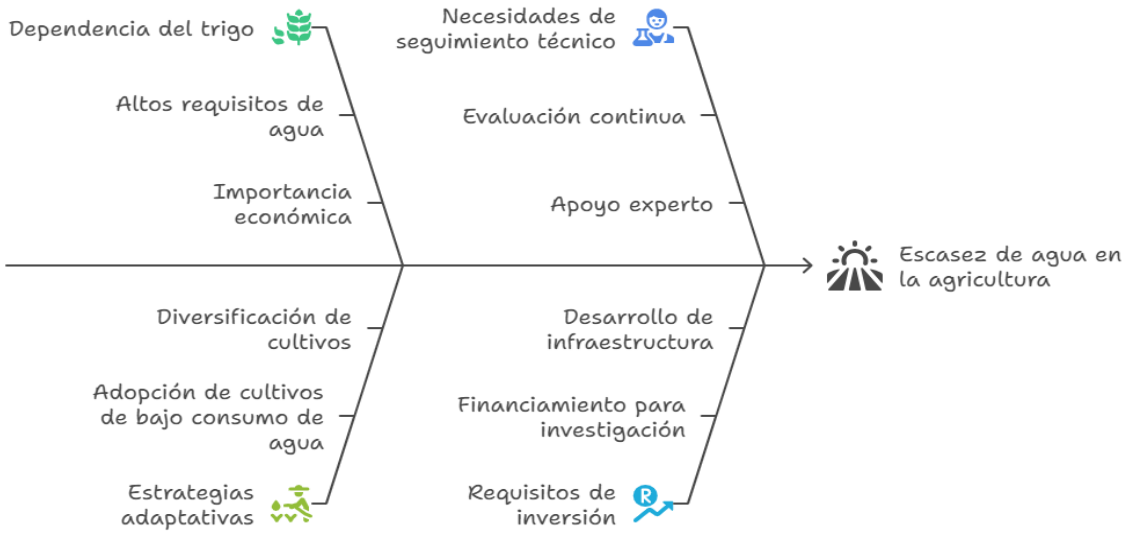
The study's discussion reaffirms that agriculture in El Carrizo, Sinaloa, is a strategic sector for the local economy, especially in crops such as wheat, corn, beans, vegetables, and emerging crops such as figs, blueberries, and safflower, the latter as an adaptive strategy to water scarcity. In this regard, Mancera González (2023) highlights that, although agriculture in Sinaloa has proven to be successful, its sustainability will depend on the efficient management of resources, particularly water, in a context marked by climate change. Water optimization is thus a fundamental axis for ensuring profitable and sustainable agriculture.

In this context, social and solidarity organizations, such as cooperatives and agricultural associations, play an essential role. These organizations not only seek economic benefits for their members but also promote values of cooperation, equity, environmental sustainability, and social commitment. As Gómez López (2020) points out, entities aligned with the SSE and the SDGs become drivers of local economic development and community well-being, reinforcing the interdependence between economic prosperity, social justice, and care for the natural environment.

Main challenges

Water scarcity: as noted in the analysis, water scarcity is one of the main challenges facing agriculture in El Carrizo. Wheat cultivation, one of the region's most important agricultural products, depends on a constant and sufficient supply of water to maintain productivity. The adoption of less water-intensive crops, such as safflower, is emerging as a positive adaptive strategy to address this challenge (figure 1). However, this type of conversion requires ongoing technical monitoring, accompanied by investment in research and development, in order to assess its long-term productive, economic, and environmental viability.

Figure 1.
Representation of the main challenges associated with water scarcity



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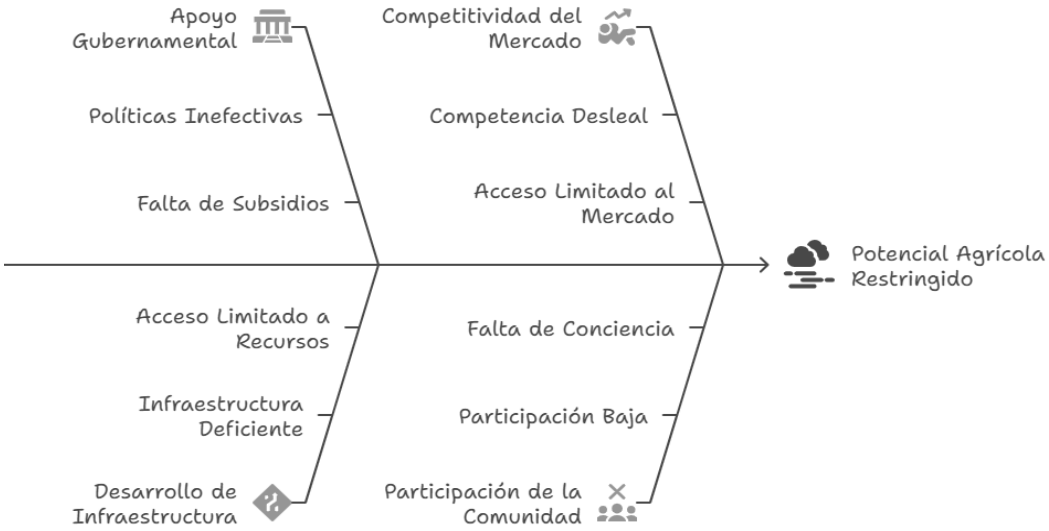
Source: own elaboration

Limited government support: although agriculture is a fundamental pillar of the local economy, the sector in El Carrizo faces a lack of institutional support. The formulation and implementation of public policies aimed at directly strengthening farmers and sector organizations, as recommended in the study, is imperative (figure 2). The absence of effective support, both in terms of subsidies and substantial improvements in rural infrastructure, limits the potential for expansion and competitiveness of the regional agricultural sector.

Figure 2.
Representation of the main challenges associated with the poor support received



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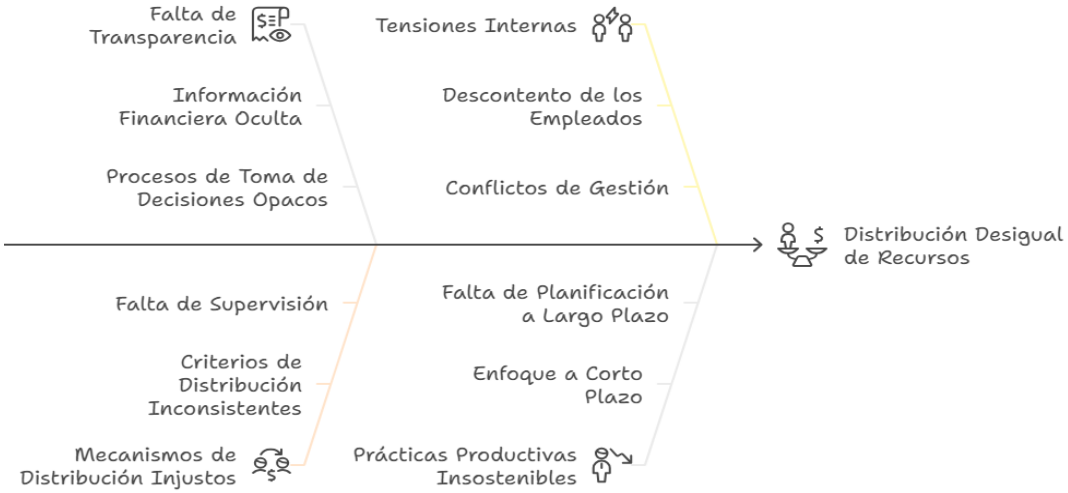
Distribución equitativa de los recursos: en materia de equidad económica dentro de las organizaciones sociales, los datos evidencian que un número considerable de empresas no realiza una distribución proporcional de los recursos generados, situación que podría derivar en tensiones internas y en un debilitamiento de la cohesión organizativa (figura 3). Fortalecer la transparencia y garantizar mecanismos de reparto justo de las utilidades se torna esencial para prevenir conflictos y asegurar la sostenibilidad social, económica y cooperativa de las prácticas productivas.

Figure 3.
Analysis of the factors causing unequal distribution of products



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Opportunities for sustainable development

Within the framework of the SSE: the organizations analyzed reflect a tangible commitment to the principles of the SSE, both in their understanding and in their practical application by their members, which constitutes a significant asset. The emphasis on cooperation, equity, and environmental sustainability can be consolidated as a driver of more inclusive and balanced development. The deepening and dissemination of these principles in local agricultural activity can multiply the positive impact of organizations on the social and productive fabric of the community (figure 4).

Figure 4.
Cycle of introduction and development of the SSE in local agriculture

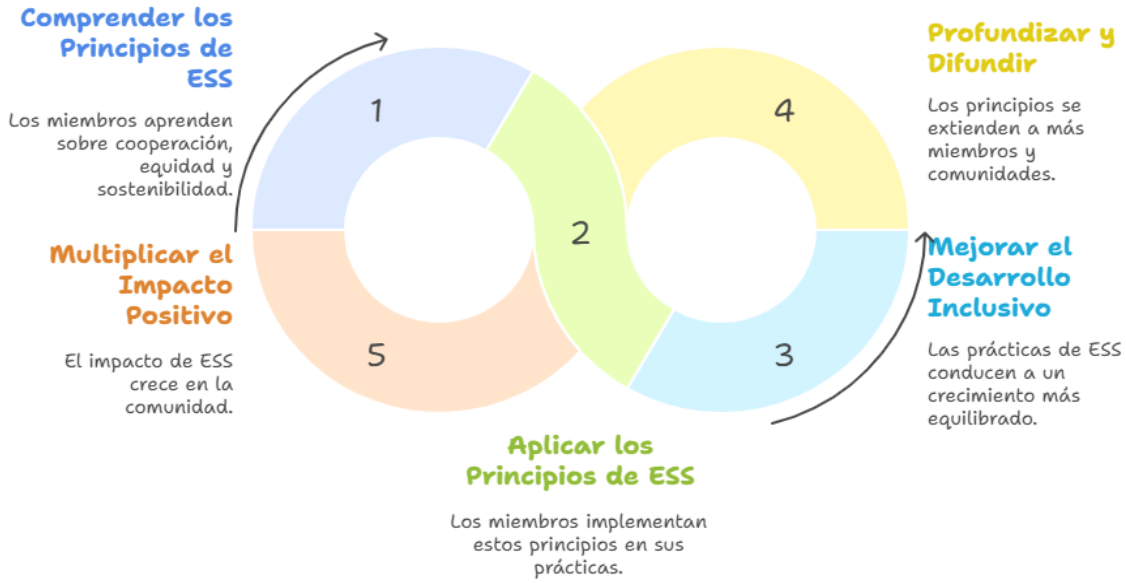

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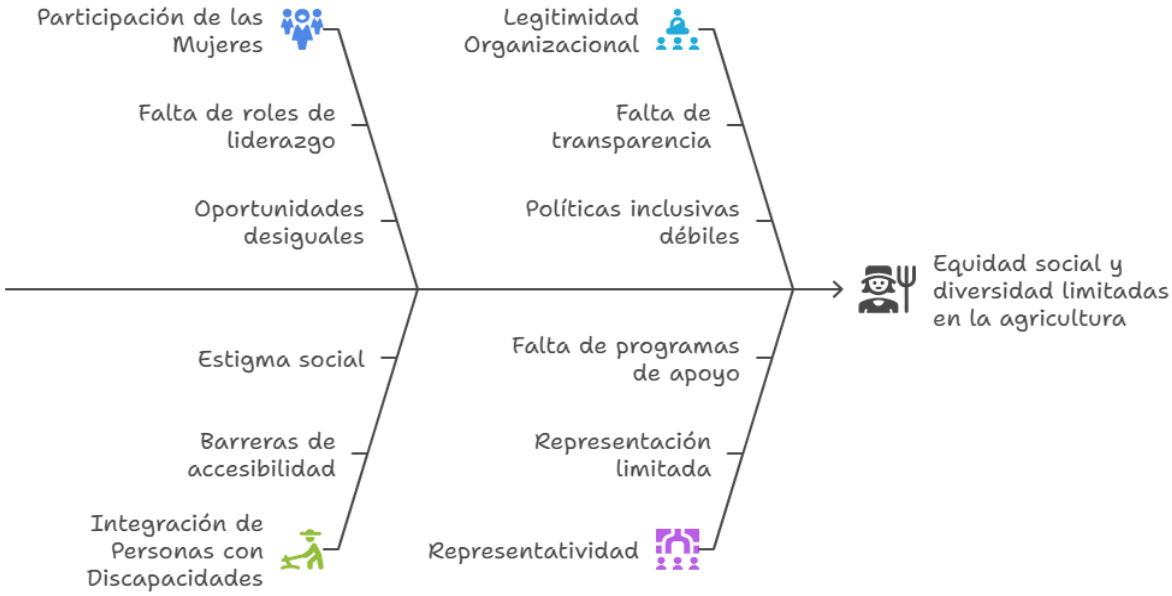
Figure 5.
Outline for strengthening social equity and diversity in agriculture



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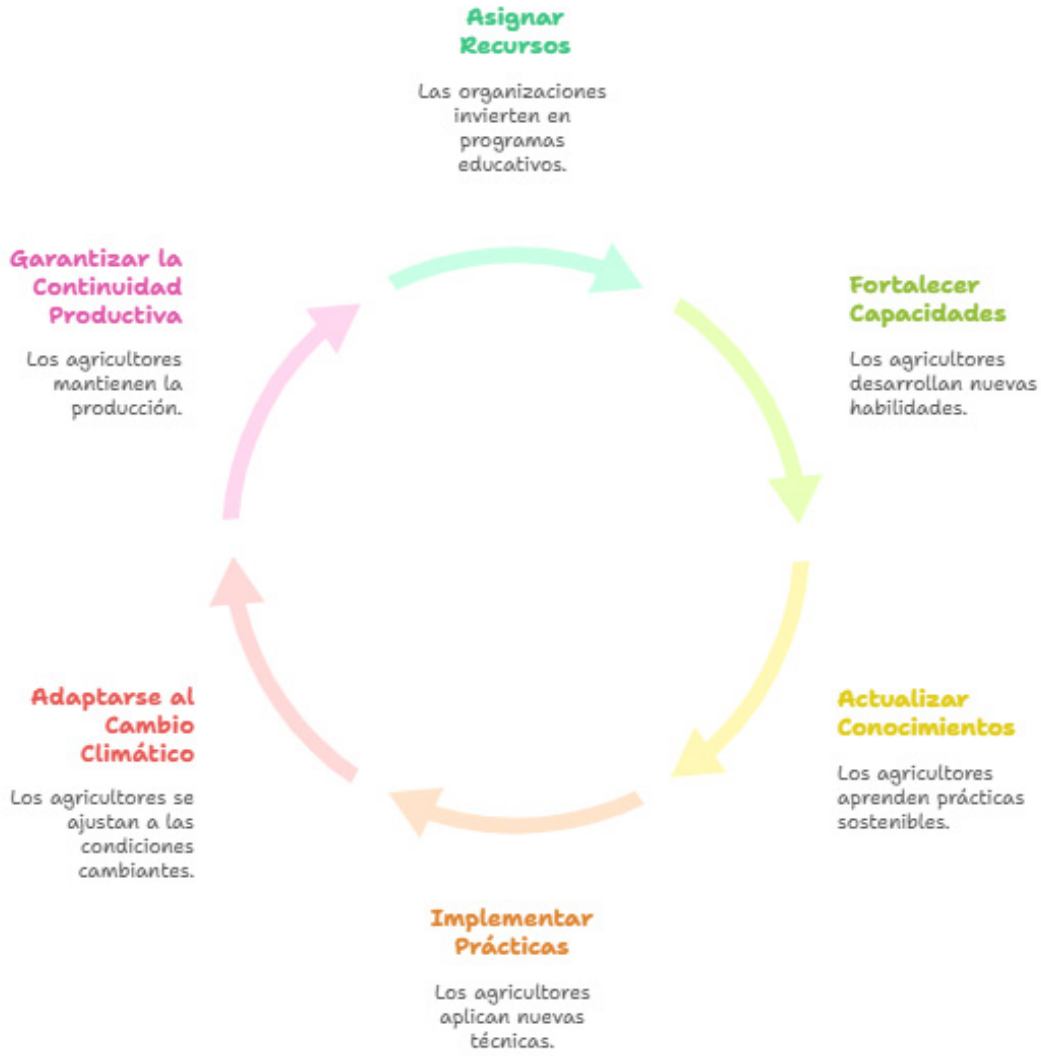
Inclusion of women and people with special needs: although female participation and the inclusion of people with special needs still face limitations in specific organizations, the data show significant progress. Increasing the presence of women in decision-making spaces and strengthening the integration of historically vulnerable groups are measures that would contribute to greater social equity and diversity within the agricultural sector, thereby reinforcing its legitimacy and representativeness (figure 5).

Education and training: the allocation of resources to educational programs by organizations in El Carrizo is a key factor in strengthening capacities and updating knowledge on sustainable agricultural practices (figure 6). This training effort should be extended to strategic areas such as the rational and efficient use of water, as well as the transition to crops that are more resilient to the effects of climate change, in order to ensure adaptation and productive continuity.

Figure 6.
Education and training cycle in local agriculture based on the social and solidarity economy



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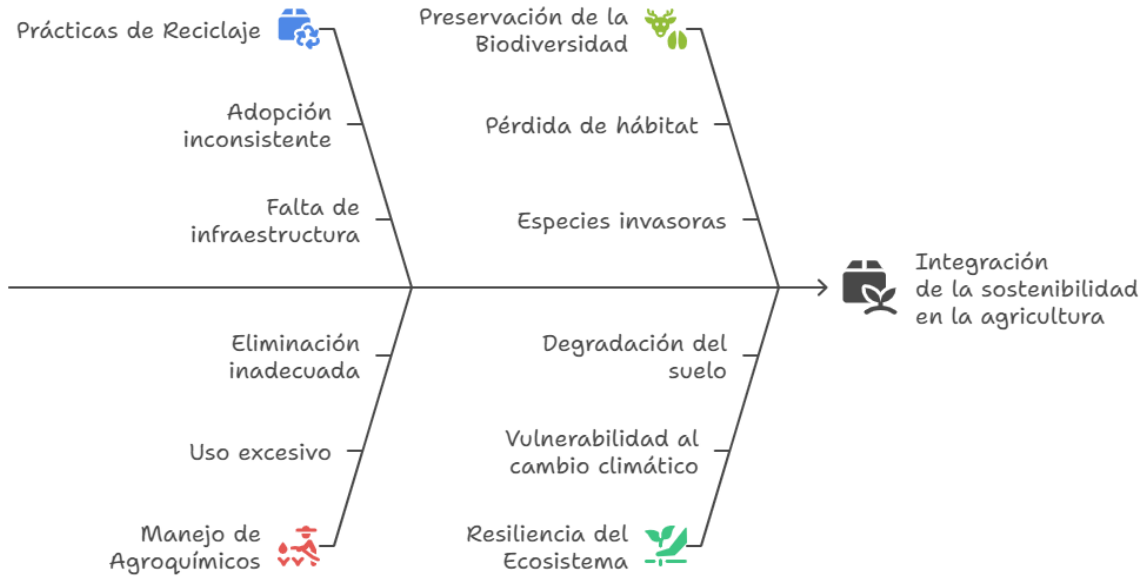
Environmental focus: although 60% of organizations have incorporated measures to reduce their environmental impact, there is still a need for broader integration of sustainability into agricultural management. The systematic adoption of practices such as recycling, responsible management of agrochemicals, and biodiversity preservation must be consolidated as a priority (figure 7). In line with the literature, these actions not only mitigate environmental degradation but also strengthen ecosystem resilience and the future viability of agricultural activity.

Figure 7.
Outline for strengthening sustainability in agricultural management



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CONCLUSIONS

In summary, the El Carrizo Valley in Sinaloa is a representative example of agriculture with high profitability potential but facing structural challenges mainly associated with water scarcity and limited institutional support. In this scenario, social and solidarity organizations play a strategic role in promoting regional economic development based on principles of equity, cooperation, and sustainability. However, to ensure the long-term viability of this model, it is essential to strengthen internal equity, expand the participation of women and vulnerable groups, and systematically implement sustainable agricultural practices, with a special emphasis on efficient and responsible water resource management. Only through a comprehensive approach that integrates economic, social, and environmental sustainability will El Carrizo be able to move toward a fully sustainable development model capable of generating lasting benefits for both producers and the community as a whole.

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