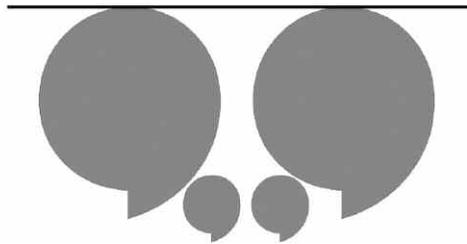


Extended abstract

*Territoriality, Ecosystem Services
and Sustainable Practices of Farmers
in the Southeast of Buenos Aires,
Argentina*



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Highlights:

1. The relationship between territoriality, knowledge about ecosystem services and sustainable practices was analyzed.
2. Producers with a greater knowledge about ecosystem services carry out a greater number of sustainable practices.
3. Territoriality is not positively linked to the other variables, except for local participation.
4. Economic-productive security, operational complexity, lack of knowledge and disengagement emerged as limitations to change practices.

Abstract: Rural landscapes are becoming increasingly homogeneous as industrial agriculture advances, posing a risk to the sustainability of the agro-ecosystem. In an exploratory way, this article seeks to research the knowledge of farmers in southeast of Buenos Aires about ecosystem services and their territoriality, in relation to the adoption of certain sustainable practices. A qualitative methodology was applied, with twenty-one interviews with farmers. The results obtained show a positive relationship between knowledge of ecosystem services and sustainable practices, a link that is not expressed with equal intensity depending on the territoriality of the farmers. Those who were more attentive to sustainable practices had a higher level of education, resided outside the farm and were multi-activity. Uncertainty regarding economic and productive results, operational complexity, lack of knowledge and disengagement with regard to some decisions were the limitations to their adoption. It is desirable that the results allow progress to be made in certain priority areas, such as technical and financial support, spaces for sharing experiences, strengthening knowledge about ecosystem services, and social responsibility and vision of the landscape.

Keywords: Sustainability, farmers, local participation, decision making.

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Extended abstract

1. Introduction and justification

Rural landscapes are becoming increasingly homogeneous as industrial agriculture advances, posing a risk to the sustainability of the agro-ecosystem. Not only technological changes but also changes in agricultural social actors have led to changes in the rural territory. These changes transform the traditional vision of farmers, who lived and worked their fields, and when the relationship between man and nature was closer. Researching these aspects and their relationship with the adoption of certain agricultural practices is important for developing public policies that aim to promote the use of practices that are friendly to the environment and human health.

2. Objectives, methodology and sources

In an exploratory way, this article seeks to research the knowledge of farmers in the southeast of the province of Buenos Aires (Argentina) about ecosystem services and their territoriality, in relation to the adoption of certain sustainable practices. A qualitative methodology was applied. Twenty-one interviews were conducted between March and April 2016 with horticultural, agricultural and livestock farmers in three districts - Balcarce, General Pueyrredon and Mar Chiquita - in the southeast of the province of Buenos Aires. The sample was purposive and non-probabilistic. The script consisted of closed-ended questions about the characteristics of the farm and farmers, their perception and knowledge about ecosystem services and different agricultural practices; and open-ended questions on the reasons for the adoption of the mentioned practices and other information related to farm management. The information collected was used to study farmers' responses and accounts, the number of cases per variable and relationships among them, as well as the motivations that lead them to act in this way.

3. Results

The results reflect the processes of change related to industrial agriculture, such as working with rural service contractors, land rental practices, pluriactivity, non-residence on the farm or the use of agrochemicals. In terms of territoriality, some farmers, especially livestock farmers and horticulturalists, live on their own property. Farming is still the main occupation, although pluriactivity is frequent. In half of the cases studied, farmers come from families that have been involved in farming, especially livestock farmers. The exchange of information between peers is common and most of them participate in local organisations, generally productive ones. In relation to ecosystem services, respondents have shown a high perception of ecosystem services, especially among agricultural farmers. Food provision and opportunities for recreation and tourism, followed by sense of belonging, cultural identity and species habitat are perceived as the ecosystem services that most benefit local people. Even so, there was low recognition of natural enemies of pests, being highest among agricultural and horticultural farmers, who in some cases have ignored the benefits of natural vegetation on the edges of crops and streams. Although farmers recognise the importance of some practices for long-term soil conservation, many of them do not carry them out, citing economic factors or uncertainty about production results as the main reasons. Regarding the adoption of sustainable practices, crop rotation is common among respondents, as well as soil analysis and, to a lesser extent, water analysis; there are cases in which neither is carried out. Soil analysis is used by half of the respondents to estimate the fertilisation dose, while the rest do it from the minimum upwards, because in their words "the more the land is fertilised, the more it produces", with the worst results for horticulturists. Two thirds of the farmers surveyed monitor pests, but still treat them with chemical inputs (except in three cases). Although they are willing to carry out integrated management, they say they do not do so because of lack of knowledge of the practice, uncertainty about the complexity involved, and mistrust in the economic and productive results. Land application of agrochemicals is common, and most farmers consider wind when applying agrochemicals, although the main reason is efficiency of use or economic issues. Although in most cases they are trained to do so, there is still a need to improve the use of protective clothing and masks and to take into account container considerations as safety and hygiene measures, as well as the handling of empty containers.

Farmers who were more thoughtful about the sustainable practices mentioned above, especially about agrochemical use and management, had better knowledge about ecosystem services, higher level of education, and larger farm size. They were

generally involved in local organisations, did not reside on the farm, the farm activity was not their main activity, and the owners tended to be more involved in long-term and day-to-day decision-making processes. The three farmers who did not apply agrochemicals lived on the farm, with two women involved in horticulture and one man in livestock farming. On the other hand, farmers less attentive to environmental/human care measures, paradoxically, resided on the farm, were less educated, had been in the business longer, generally with smaller units, the farm was their main activity, and family work predominated. These farmers were more knowledgeable about the benefits of natural vegetation on the edges of crops regarding biodiversity.

4. Discussion

The results found in the present study make us wonder how the mentioned changes affect territoriality, finding that territoriality is now related to the bonds between actors rather than to the physical link to the land. The implication of this change in territoriality seems to give greater dynamism to the activity, but at the same time, greater fragility to the system, from an environmental and social point of view. At the same time, although it is common to recognise the economic factor as the main driving force behind the implementation of some practices or the non-implementation of others, we found that there are other major factors: the security of the productive benefits, the operational complexity, the lack of knowledge of certain practices and the dissociation in many cases from the subject. Based on this, the article reflects on the drivers of change that would allow for improvement in this regard, in terms of greater technical and financial support, spaces for sharing experiences, strengthening knowledge of ecosystem services, social responsibility and a landscape-scale vision.

5. Conclusions and next steps

It is necessary to go deeper into the subject to better grasp the complexity of the processes addressed, as well as the diversity of the farmers. These tasks require academia not only to obtain primary information from farmers as protagonists, but also to consider research as having an active role of co-research and reflexivity. Given the number of interviews carried out and the qualitative methodological strategy derived from the exploratory nature of the research, the results are not generalizable.

However, they do provide a diagnosis that should be made more complex, for example, through the application of in-depth interviews to understand the complexity of the reasons why they carry out certain practices. In turn, a quantitative study is needed, with a larger sample applied to the whole province of Buenos Aires, to find typologies of farmers based on their territoriality, knowledge of ecosystem services and level of adoption of sustainable practices. In this sense, an instrument is being developed and will be applied this year. This methodological triangulation could be complemented with the systematisation of new secondary sources, such as the recently published national agricultural census.