

How to build an agribusiness giant: the role of rural extension services in Brazil during the 20th Century

FLAVIA SOARES RAMOS & KAROLYNA MARIN HERRERA

KEYWORDS: rural extension, rural development, public policy, Brazilian history.

JEL CODES: O18, O33, Q16, Z18.

In this article, we argue that Brazil's 'exporting vocation' is not a natural tendency but the result of national political and economic projects aligned with the international context and external interests. To support this thesis, we reconstructed the trajectory of rural extension services during the 20th century in three distinct phases, according to the official philosophical and pedagogical perspectives adopted in each. Based on extensionist reports and an interdisciplinary bibliographical review, our objective is to present the sociopolitical and economic panorama along with the motivations, general characteristics, and consequences of the extension service in establishing Brazil as an agribusiness giant. We conclude that rural extension services assisted rural and agrarian development that favoured the agrarian elite in the concentration of land, resources, and knowledge. It also consolidated agribusiness as an intensely active political category at all levels of Brazilian government.

Como se constrói um gigante do agronegócio: O papel da extensão rural no Brasil no século xx

PALABRAS CLAVES: **extensão rural, desenvolvimento rural, políticas públicas, História brasileira.**

CÓDIGOS JEL: **O18, O33, Q16, Z18.**

Neste artigo argumentamos como a chamada “vocaç  o” exportadora do Brasil n  o    uma tend  ncia natural, mas o resultado de projetos pol  ticos e econ  micos nacionais alinhados ao contexto internacional e aos interesses externos. Para fundamentar esta tese, reconstru  mos a trajet  ria dos servi  os de extens  o rural no s  culo xx, considerando tr  s fases distintas com base nas perspectivas filos  ficas e pedag  gicas oficiais adotadas em cada uma delas. Com base em relatos de extensionistas, e em revis  o bibliogr  fica interdisciplinar, nosso objetivo foi apresentar os contextos sociais, pol  ticos e econ  micos, bem como as motiva  es, caracter  sticas gerais e consequ  ncias do servi  o de extens  o para o estabelecimento do pa  s como um “gigante do agroneg  cio.” Conclu  mos que esse processo de desenvolvimento rural e agr  rio relacionado aos servi  os de extens  o rural favoreceu a concentra  o de terras, recursos e conhecimentos pela elite agr  ria e consolidou o agroneg  cio como uma categoria pol  tica profundamente atuante em todos os n  veis do governo brasileiro.

Received: 2024-02-15 · Reviewed: 2024-06-23 · Accepted: 2024-08-12

Flavia Soares Ramos [orcid.org/0000-0002-0587-6023] is a Ph.D. from the Interdisciplinary Program in Human Sciences at the Federal University of Santa Catarina (UFSC/Brazil). Collaborating Researcher at the Rural Studies Lab (LERU) at UFSC/Brazil. Address: Rod. Admar Gonzaga, 1346, CEP 88034-000 Florian  polis - Santa Catarina / Brazil. E-mail: flavia.soares.ramos@gmail.com

Karolyna Marin Herrera [orcid.org/0000-0002-9524-9524] is a Ph.D. in Political Sociology at the Federal University of Santa Catarina (UFSC/Brazil). Professor at the Center for Agricultural Sciences at UFSC/Brazil. Researcher at the Rural Studies Lab (LERU) at UFSC/Brazil. Address: Rod. Admar Gonzaga, 1346, CEP 88034-000 Florian  polis - Santa Catarina / Brazil. E-mail: karolyna.herrera@ufsc.br

1. INTRODUCTION

Agribusiness in the contemporary context, especially in the last two decades, has strengthened in Brazil, driven by political and economic processes that go beyond national borders, enabling notable economic growth rates and consolidating the country as an “agribusiness giant.” Taking the evidence from macroeconomic data only as a general reference, it reveals that agribusiness was responsible for 24.8% of the country’s Gross Domestic Product (GDP) in 2022, with the country ranking first as a producer and exporter of commodities such as soy (58.2% worldwide share), sugar (48.2%), coffee (30.8%), and orange juice (75.8%) and ranking first in the export of products such as beef (24.6%), and poultry (35.5%) (MAPA, 2023).

However, what cannot be left aside is that this phenomenon is closely linked to a historical process led by a political class related to land ownership, which knew how to reformulate its actions through the promotion of national policies, especially in the form of investments of public resources, the intensive and degrading appropriation of land and natural resources, and legislative and tax flexibility strategies.

In Brazil, the relationship between the elite and land ownership is the product of a historical process that dates back to the colonial period. In the country, it is common to refer to the agrarian elite by referring to the size of the property they own. The agrarian elite owns large properties. Owners of medium-sized areas may not be members of the agrarian elite, but they are land owners with significant economic power. People who access small properties, in turn, are not necessarily landowners. The way in which small plots of land are used varies between owners, tenants, sharecroppers, agrarian reform settlers, among others. Therefore, when we refer to the size of the land, we are referring to social categories that exploit these establishments, which from the end of the 1990s onwards, became known as *agribusiness* (large and medium properties) and *family farming* (small properties). The country is marked by significant land concentration: in Brazil’s last agricultural census (IBGE, 2017), family farming corresponded to 3.84 million establishments, 76.8% of the total number of agricultural establishments, occupying only 23% of the total area. As for agribusiness, 1.17 million agricultural establishments, 23.2% of the total number, occupied 77% of the country’s total agricultural area.

In terms of modernization – to improve technology and productivity – agribusiness is known for having more access to technology, agricultural machinery, and inputs for production and harvesting. Family farming has also modernized its production but with less access to technologies. In terms of food production, according to the last census, family farming produces 70% of the food consumed in the domestic market. In contrast, agribusiness produces most commodities, such as soy, corn, and coffee, while exporting almost 90% of its production (IBGE, 2017).

The plantation, a model established in the colonial period and strictly linked to British interests in Brazilian territory, was the first model of economic exploitation. Since then, even after the country's independence, agricultural exploitation has guided the economy as a deliberate state policy that perpetuated the sector's emphasis on generating wealth. The apparent agro-export "vocation," so-called in the national and international context, far from being a natural tendency, reveals itself as a conscious and recurring choice by government bodies.

The modernizing discourse was the backdrop to this orientation, associated with the adoption of advanced technologies, intensive production practices and large production scales as a way to increase agricultural efficiency and productivity. The modernizing approach, influenced by the Green Revolution propagated by the United States in the 1940s, contributed to the perpetuation of monoculture production models and agricultural practices aimed at maximizing production for export in the short term without considering the social and environmental impacts in the long term. This discourse of modernization is based on an apologetic discourse put into practice through ideologies that spread and begin to guide action and intervention (Porto, 2014).

In this sense, Technical Assistance and Rural Extension (ATER, acronym in Portuguese for *Assistência Técnica e Extensão Rural*)¹ has historically been one of the main means of promoting knowledge and disseminating new agricultural technologies and practices. It was seen as a means of propagating modernization techniques that gradually replaced the traditional practices promoted by the peasantry – many of them ecologically and socially adapted to the context in which they were inserted – with agricultural practices that aimed at improving agricultural productivity.

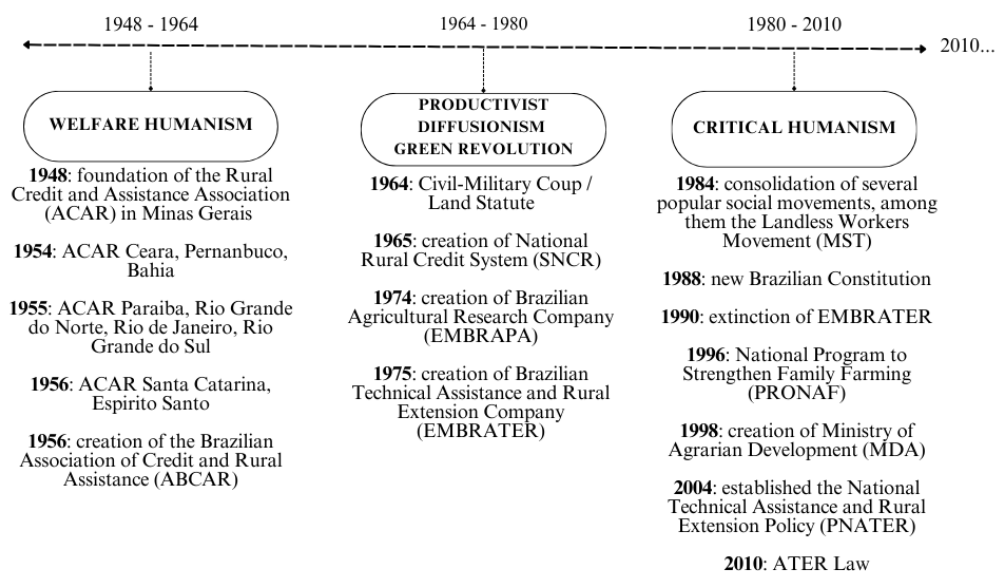
Thus, we note that government policies shaped not only the agrarian structure but also the way rural producers interacted with their practices to the detriment of the diversity and heterogeneity of family farmers' ways of life (Ploeg, 2008). We see a productivity-oriented model taking shape that was alien to the reality of family farming traditions that corresponded to production to meet family needs and contribute to the internal supply. However, if, at the beginning of ATER, the objective was to "adapt" the family farming to new agriculture, the medium and large landowners who could produce goods

1. ATER practices were implemented more systematically during the 20th century, but since the 19th century there have been organized teaching initiatives to train professional agronomists (SILVA-MAZON, 2016). More precisely, in 1859 the Imperial Institutes of Agriculture were founded, the aim of which was to solve problems of labor, capital, and technological delay in relation to Brazilian agricultural production. Thus, from 1910 onwards, agronomic education was created and regulated at primary, secondary, and higher levels, and from then on, there was a proliferation of decrees for the creation of Experimental Farms and Demonstration Fields (PEIXOTO, 2008). In the 1920s, the beginning of the formation of a network of public and private higher education institutions in the area of agricultural sciences was observed (SILVA-MAZON, 2016).

for export soon became the primary beneficiaries of these initiatives, rather than the peasants who did not have the ability to respond to the investments.

Technical assistance and rural extension services were also unevenly distributed across the country, contributing to regional disparities in adopting agricultural technologies and practices that benefited medium and large properties in regions where agriculture was more integrated into the international market, while others were neglected. Therefore, ATER practices in Brazil symbolically and politically disseminated a set of codes of behavior and world views shaped mainly by the discourse of modernization.

FIGURE 1
Timeline of the Rural Extension Service in Brazil



Source: prepared by the authors.

In this article, our objective is to present the social, political, and economic contexts as well as the motivations, general characteristics, and consequences of the Technical Assistance and Rural Extension Service in Brazil during the 20th century. To this end, we carried out an interdisciplinary bibliographical review on the topic, considering research works in the areas of agronomy, history, education, sociology, economics, and rural extension, the latter of which provided us with broad access to first-hand information by extension workers who experienced different periods of service in the country.

In addition to this introduction, the first section of the article deals with the beginnings of rural extension and institutionalization from welfare humanism, portraying ATER services from 1940 to 1960. The second section, "From Productivist Diffusionism to

the Green Revolution,” deals with ATER from 1960 to 1980. Before the final considerations, we highlight the critical perspectives on the dominant ATER services in the section “Other possibilities for Rural Extension through Critical Humanism.” The figure below shows the sessions, divided into the Rural Extension Service phases and the main events, which will be clarified and commented on throughout the text.

It is essential to highlight that the different phases of the Rural Extension Service in Brazil are commonly identified by researchers based on the official philosophical and pedagogical perspectives and/or adopted in each period. Such division into phases, as we have done in the sections of the article, is not intended to be a faithful expression of reality because, as Rodrigues (1997: 121) states, “these are not exclusive and exhaustive categories that had a linear and homogeneous procedural development in all regions of the country.”

2. BEGINNINGS OF RURAL EXTENSION AND INSTITUTIONALIZATION FROM WELFARE HUMANISM

The official milestone of the creation of rural extension in Brazil was the foundation of the Rural Credit and Assistance Association (ACAR, acronym in Portuguese for Associação de Crédito e Assistência Rural) in the state of Minas Gerais in 1948 through a partnership between the state government and the AIA², represented by the figure of Nelson Rockefeller (Peixoto, 2008; Pinto, 2008). The institutional orientation of the Brazilian Rural Extension Service was, therefore, deeply anchored in the North American experience and, in a certain way, guided by its interests. In order to understand the Brazilian rural extension, we must quickly highlight some aspects of the service as it was developed and articulated in the United States.

At the end of the 19th century, signs of wear and disruption of the North American rural environment were observed due to industrialization (Rios, 1979). This context prompted religious institutions, especially Protestants with government support, to conduct the first more systematized social studies on the rural environment. Soon after, President Theodore Roosevelt created the Commission on Rural Life, which published a

2. The American International Association for Economic and Social Development (AIA) was a philanthropic association founded by Rockefeller in 1946 to promote agricultural technical assistance in Latin America, especially Venezuela and Brazil. Historian Claiton Marcio da SILVA (2013) states that the initial objective was to raise funds and invest in philanthropic activities, but that US legislation forced the AIA to give rise to other agencies: the International Basic Economy Corporation (IBEC) to manage business in general or to be the profitable branch of the entity (QUIDÁ & CABRAL FILHO, 2019; TOTA, 2017) and the IBEC Research Institute, focused on scientific research in agriculture.

report with recommendations to “solve the *problems*” identified in the field in 1909. The three fundamental suggestions were to promote a thorough study of all the conditions surrounding the business of agriculture and the people living in the country; to expand and nationalize the extension service; and to carry out campaigns for rural progress (Bayley, 1909). In 1914, the Smith-Lever Act was enacted, establishing a system of information services for the rural population on agricultural development, home economics, and public policy, with the support of universities. Thus, the diffusionist pedagogical approach, the basis of which is classical communication theory, was defined with a uni-directional sense (from source to receiver) and a vertical and authoritarian relationship (Mussoi, 2011). Extension services were oriented towards productivist projects but declared the objective of “improving farmers’ quality of life” (Timmer, 1954). In the assessment of Maria Isaura Pereira de Queiroz (1969: 7, our translation), the North American trend would be “focused on immediate practice, which seeks to control an aspect of social reality that is considered outdated and unsatisfactory, in order to promote a more rapid change in the direction of modernization.”

In the 1940s, during Second World War, the United States government was concerned about the influence of the Axis on other countries (Silva-Mazon, 2015). In Brazil, this concern was due to commercial transactions between Brazil and Germany, and Getúlio Vargas’ fascist tendencies. Therefore, four agreements in the agricultural sphere were signed between public Brazilian and North American agencies in 1942 to ward off the “German threat” and ensure Brazilian support. Namely: the creation of the Brazilian-American Commission on Oils (signed by the director of the Institute of Inter-American Affairs at the time, Nelson Rockefeller, and the Minister of Agriculture); the creation of the Food Supply Program in Brazil to maximize Brazilian food production; the creation of the Brazilian-American Commission on Foodstuffs Production to implement a vocational training program for rural workers in the north and northeast of the country; and an agreement between the Agricultural Information Service and the Foreign Office to finance the translation, print, and distribution of American agricultural publications in order to disseminate methods and techniques for increasing productivity (Mendonça, 2010). While US agricultural and industrial activities were aimed at contributing to the war effort, these projects demonstrated the government’s interest in obtaining cheap foreign products to alleviate concern about a possible internal food shortage in the US territory. In addition, there was an incentive to produce some items in Brazil aimed at direct support for war activities, such as vegetable oils and rubber.

After Second World War, the discourse on “development” arose and consolidated in the economic and political fields, becoming a style of domination, structuring, and appropriation of countries classified as underdeveloped or Third World (Mendonça, 2010). Thus, under the auspices of aid to promote social and economic development,

countries considered developed established partnerships with “underdeveloped” countries to provide them with technical guidance and financial investments to follow in their footsteps and, consequently, develop³. Within the context of what would become the Cold War, the mission was not based on a legitimate humanistic objective but was, on the one hand, an instrument to prevent the expansion of communist influence in the world and, on the other, an opportunity to obtain cheap raw materials while expanding the consumer market for industrialized products (Silva-Mazon, 2015; Leite de Oliveira Martins & Campos Ferreira, 2021). As we know, many industry sectors developed with a focus on the conflict during the Second World War. However, the physical structure and accumulated knowledge were reoriented to other, more profitable economic activities in the new scenario after the war. In this context, the development discourse, and in the specific case of this analysis, that of rural development, was built and offered as help to other countries.

During this period, Brazil, classified as an underdeveloped country and needing “help” to overcome this condition, established several new bilateral cooperation agreements between US public and private agencies to implement some development projects. Initially, the projects and actions sought to collect data and produce knowledge and opinions about the people and their ways of life, which would be used by professionals specialized in development and planning to establish concrete actions in the future (Mendonça, 2010). An example of this phase of data collection is the Brazilian American Mixed Commission for Economic Studies (CBAEE, acronym in Portuguese) or Abbink Mission, which in 1948 made a general analysis of economic and financial problems, the international balance of payments and internal economic stability (Ribeiro, 2011). As a result, “The Abbink Report [...] diagnosed an imbalance between the country’s agricultural and industrial development. Nelson Rockefeller then proposed a program of technical assistance and supervised credit similar to that used in the United States to contain the effects of the 1929 Crisis on American farmers” (Pinheiro, 2016: 62, our translation).

According to Glauco Olinger (2020), extensionist and founder of ACAR in the southern state of Santa Catarina in 1956, the cooperation of most significant interest to the Americans would be with the state of São Paulo, probably because of the development of the region around coffee crops. However, Nelson Rockefeller’s offer of technical and financial assistance to the state governor at the time, Ademar de Barros, to implement the first Rural Extension Service in the country was refused. According to Olinger (2020), the

3. Several Latin American countries have had a similar development process, including implementing the Rural Extension Service based on North American influence and the model established by that country. As indicated by OTERO and SELIS (2016), the Rural Extension Service was created in Peru in 1943; Venezuela in 1946; Bolivia in 1948; Nicaragua in 1949, Honduras and Paraguay in 1951; Ecuador in 1952; Colombia in 1954; Guatemala in 1955; and Argentina in 1956.

conditions for its implementation prevented the agreement: following the directives of the North American Extension Service, partisan political proselytism would be prohibited, so the governor could not appoint leaders. In addition, the direction would be guided by an American co-director. As the conditions did not please the governor, Rockefeller went to his second-best option: the state of Minas Gerais, where he established a partnership with Governor Milton Campos.

However, another version of the facts indicates that Nelson Rockefeller believed that the state of Minas Gerais presented the most concrete possibility of repeating the success of the North American agricultural revolution (Tota, 2014). According to historian Antonio Pedro Tota, Rockefeller perceived the reforms of the government of Minas Gerais as a “small New Deal,” so he felt comfortable there and perceived the opportunities that could arise from the partnership. Another characteristic of the state of Minas Gerais that probably attracted the partnership was the land structure itself. Unlike other Brazilian regions, mostly made up of large properties, Minas Gerais presented many small and medium-sized properties. The latter was considered, at that time, the ideal size to generate the best economic and social development results.

Therefore, in this context, the partnership for creating the first ACAR was established in 1948 and *de facto* implemented in 1949⁴. The Association’s primary goal was to run a Rural Extension Service aimed at “raising the standard of living of rural families” through technical, social, and economic assistance. Before moving on to technical and social assistance, we must note the specificity of financial “aid,” which would come as supervised credit. That is, this modality was defined because it was believed that farmers would not be able to make suitable investments on their own and, therefore, it would be necessary for extension agents to protect their use and ensure their “proper” destination. Thus, a significant part of the technicians’ work was to identify the productive and reproductive needs of the families, prepare the financing projects (*e.g.*, agricultural inputs, appliances, or small works for improving the infrastructure, as we will see below), and then supervise the implementation of the projects by the beneficiaries.

Unlike previous experiences⁵, the service would be free of charge, financed with resources from the state government and the AIA, and would have the rural family as

4. Harry Truman assumed the presidency of the United States earlier that year. In his inaugural address, Truman announced the four points that would guide his policy, the fourth point being intended for underdeveloped countries, especially the neighbors of Latin America, thus becoming known as Program Point IV. At that time, it was indicated that proposals would be actions “[...] involving the application of what were considered to be the vital forces of Western civilization: technology and capital, in the poor areas of the world” (MENDONÇA, 2009: 146, our translation).

5. In 1948, also in Minas Gerais, a dairy cattle project was carried out under the responsibility of agronomist Marcos Pereira. This project successfully established the most significant dairy pro-

its work unit. In this sense, family members were included in actions based on their gender. Men, the only members of the family recognized as farmers, were targeted for actions aimed at technical and economic development, while women, called housewives or farmers' wives (*i.e.*, not considered farmers), were targeted for actions for social development, at that time was defined as the "increase in family well-being." This gender division was based on the binary that relates men to productive work and women to reproductive (domestic and care) work⁶. The work teams consisted of two extension agents: a male agronomist or veterinarian and a female domestic economist, who went to the field in Jeeps to visit families and to perform the tasks based on this gender division. The agronomist was responsible for guiding farmers to improve production conditions and increase productivity by adopting new techniques and inputs, many of which did not exist in the territory until that moment. On the other hand, the domestic economist developed actions with rural women concerning health, hygiene, education, and morality.

At the beginning of the activities, many North American professionals went to Brazil to work from their technical specializations and to train new technicians in agriculture and the domestic economy. Camila Fernandes Pinheiro (2017) analyzed the curriculum of a training program for domestic economists of the time and identified a latent objective of instilling what she calls "bourgeois values," especially the constitution of the family through marriage. It is worth mentioning that marriage was a condition for accessing the credit lines offered through ACAR. Domestic economic training added new responsibilities to rural women's already overloaded daily lives, teaching them to feed, clothe, and take care of their families according to new needs and standards defined by North American experts. Modern appliances could be purchased, and home improvements could be made through credit to help with this change or "improvement of life."

Regarding the extension service for rural women in this period, something that seems contradictory at first glance is that despite the emphasis on the female role in reproductive activities, there was also a latent incentive for generating some income. However, extrapolating female activities from the reproductive to the productive sphere was acceptable only if they did not compete with the activities traditionally led by men and, of course, did not interfere with women's dedication to the home. Thus, the extensionists stimulated

duction in the country, having been funded by stakeholders in the dairy industry, such as Nestlé. According to OLINGER (2020), Marco Pereira was the pioneer in the Rural Extension Service in the country, having completed his own training in North America and employing educational methods of the United States Rural Extension Service in the transmission of technical knowledge to the agents he trained.

6. For young people, the 4H clubs were created, in which the activities conducted were also marked by gender divisions. We will not go into depth about youth clubs in this text. Still, their goals and methods were aimed at forming a new generation of farmers who could be more easily attracted by the ideology of modernization at the next phase.

horticulture, small animal husbandry, and the homemade food industry among women, such as “the production of fruit jams and preserves, the manufacture of salami, sausages, smoked meats, the making of sweets, crackers, bread” (Olinger, 2020: 22, our translation). That is, it was expected and encouraged that women perform activities primarily aimed at the sustenance and well-being of the family, which could, with extra *effort* and *will*, generate surpluses with exchange value.

As for the technicians in agronomy, in addition to the North Americans, Brazilians also participated in exchanges to the United States promoted by the Institute of Inter-American Affairs⁷ (IIAA) in the mid-1940s. The agronomist Eudes de Souza Leão Pinto participated in the first delegation between 1944 and 1945 and explained that:

The fundamental objective of the Brazilian mission was to seek to grasp to the maximum the entire structural organization and work operation of the powerful “Land Grant College” system, responsible for the perfect integration of Education, Research, and Extension, with emphasis on the decisive influence exerted by Extension on rural well-being, responsible for increasing quality production and at low cost (Pinto, 2008: 38, our translation).

His first-person account suggests this exchange was not an exchange of ideas, theories, and practices but a program for disseminating the North American productivist pattern. According to the agronomist, “The general comment of those who benefited from the magnificent opportunity granted by the American government for us to employ in our countries the most advanced scientism and technology in the world was that there could be no negligence, under any hypothesis, in matters of rural extension” (Pinto, 2008: 39, our translation).

Without a doubt, this “magnificent opportunity” referred to by Pinto (2008) favored the dissemination and adherence to the North American model of rural extension among agronomists and decision makers in the initial period of extension. Subsequently, the expansion of ACAR Minas Gerais’ experience was intensified and extrapolated to other Brazilian states from new investments in relations between Brazil and the United States, this time with the technical and financial support of the Technical Office of Agriculture (ETA, acronym in Portuguese for Escritório Técnico de Agricultura), created in Brazil in 1954 with resources from the Point IV Program. In 1956, to expand the experience all over Brazil (Tota, 2014) and bring together all the ACARs through a centralized and vertical model, President Juscelino Kubitschek ostensibly supported the creation of the Brazilian Association of Credit and Rural Assistance (ABCAR, acronym in Portuguese

7. The IIAA (formerly Office for the Coordination of Commercial and Cultural Relations between the American Republics, under the leadership of Rockefeller) dates back to the 1930s (MENDONÇA, 2010).

for Associação Brasileira de Crédito e Assistência Rural), an entity linked to the Ministry of Agriculture (Castro & Pereira, 2017; Mussoi, 1985). To clarify the role played by the ETA in this period, we mention a publication of the *Revista Informação Agrícola*⁸ from the early 1960s:

ETA is an intergovernmental body with an agricultural improvement program that has been fruitfully operating for nearly six years as an instrument of the Ministry of Agriculture. Channeling the technical and financial assistance provided by Point IV, its objective is to collaborate with the Ministry and other government bodies to *aid education programs for the rural masses* and their orientation towards *rational and productive agriculture*. The ETA has signed 58 agreements with 80 entities since 1954, eleven from the Ministry of Agriculture (Mendonça, 2010: 158, emphasis added, our translation).

As the historian Sônia Regina Mendonça (2010) observes, the projects emphasized the education of rural populations, but in the sense that education should serve as an instrument that maximized labor productivity. In addition, the goals in the first phase of rural extension were to identify the family farmers most capable and open to innovations and achieve a minimum educational level to implement new technologies. These objectives are evident in the publication *Planejamento do trabalho em extensão agrícola* (Agricultural Extension Work Planning), by Willy J. Timmer (1954), FAO Agricultural Extension specialist and executor of the technical assistance mission to Brazil in the early 1950s. In this work, still presented today in the rural extension courses⁹, the author states that:

If they do not persuade the rural populations to employ a production method and if we do not give them the means indicated, education will be only instruction, and there is still the likelihood that young people will stray from the agricultural units of their parents [...]. Education must raise the needs of rural populations so the promotion finds an environment for its means and methods. As a consequence, the extension worker, in his function as a rural educator, must know what initial needs should be stimulated to raise the standard of living of these populations to better guide them in this objective [...] and direct his activities to elevate the constantly rising level of needs [...] (Timmer, 1954: 22-23, our translation).

8. During this period, a network of dissemination and propaganda agencies of the Rural Extension Service was established through agreements between agencies of the Ministry of Agriculture. Among these, the Agricultural Information Service (SIA, in Portuguese) published the *Revista de Informação Agrícola*, dedicated mainly to the activities of the ETA in the country (MENDONÇA, 2009).

9. One of the authors did a teaching internship in the rural extension course for Animal Science and Agronomy at the Universidade Federal de Santa Catarina, in 2018. Following the indicated curriculum, Timmer's book was presented as a reference for the first rural extension model implemented in Brazil.

In the first part of his book, Timmer addresses the essential principles of rural extension philosophy and what he calls “one of the most important principles of extension”: *help rural people learn to find in themselves the solutions to technical, economic, and social problems*. This idea catches our attention because this is precisely how rural communities lived before these rural extension services, seeking solutions to their daily problems themselves. However, Timmer states that a well-exercised extension service makes the farmer “build trust in agronomists, collaborate with them, and *start thinking according to its guidelines*” (1954: 50, emphasis added, our translation). As already mentioned, the guidelines aimed at expanding the consumer market by creating new needs for elements external to the unit in the productive (such as inputs and machines, among others, introduced by extension workers and veterinarians) and personal spheres (appliances and hygiene and health items, presented and introduced by domestic economists). In other words, the focus was on implementing a new rationality that broadened productive goals beyond self-consumption and community. For Timmer, “[...] it would be like creating a new class of farmers” (1954: 27, our translation).

For Eros Mussoi (1985), an extensionist since the 1970s, the extension service of welfare and paternalistic nature disseminated through Timmer’s “humanist” approach was based on a naive vision of reality and omitted the social relations that caused poverty and rural delay. Still, it prepared the ground for a change in the subsequent mode of production. In his words, “instead of the subject, man becomes the object of action” (1985: 44). For Rodrigues (1997), the extension practices of this period favored the legitimization of the state in rural areas. As we will see below, this state legitimization and domestication of farmers and identifying those most responsive to the guidelines were fundamental for the next stage of rural development and extension policies.

3. FROM PRODUCTIVIST DIFFUSIONISM TO THE GREEN REVOLUTION

In the early 1960s, the Brazilian government established guidelines to increase agricultural production and productivity with the direct support of technical assistance and rural extension institutions financed by the government (Quidá & Cabral Filho, 2019; Mussoi, 1985). This new orientation fits into the context of the Green Revolution, which was initiated in Mexico with the massive support of the Ford Foundation and the Rockefeller Foundation and later disseminated in other developing countries on the American, Asian, and African continents. In summary, agricultural transformations to increase productivity were justified by the need to produce more food and based on the adoption of technological packages composed of machinery and inputs mainly exported from developed countries.

With this new orientation, the education of the rural population in Brazil ceased to be one of the priorities of the Rural Extension Service, and educational responsibilities were assumed exclusively by the Ministry of Education from 1962. However, the most significant time frame of the structural and philosophical change of the Rural Extension Service was the civil-military coup in 1964¹⁰.

At the end of that same year, the Land Statute was enacted, a code that regulated Brazil's use, occupation, and land relations. As one of the first laws drafted by the military, the importance of the use of the land issue at that time was notable. Namely, the discussion of the problem of access to land and land concentration had been growing within the social movements that had called for agrarian reform before 1964, especially during the government of President João Goulart, deposed by the military. Among these movements, we recall the peasant leagues, peasant organizations linked to the Brazilian Communist Party.

In its first article, the Land Statute states its two great objectives: to carry out agrarian reform and to promote agricultural policy. In this sense, agrarian reform was defined as "the set of measures aimed at promoting better land distribution through changes in the regime of its possession and usage to meet the principles of social justice and increase productivity." The Agricultural Policy was presented as "the set of measures to protect land ownership, which are intended to guide agricultural activities in the interest of the rural economy, either in the sense of guaranteeing them full employment or harmonizing them with the country's industrialization" (Brasil, 1964, our translation).

Some scholars consider that including agrarian reform in the Statute was a strategic move intended to disorganize the social movements that had historically demanded it (Schmitz & Bittencourt, 2014). In other words, with the legal possibility to carry out agrarian reform, rural workers should redirect their actions: instead of attacking the *latifundia* (large properties), they would defend compliance with the Statute. This defense would be based on the definition of the "social function of the land" and the legal mechanisms for its redistribution when legal requirements were unmet. The innocuousness of the Land Statute concerning agrarian reform¹¹ reveals that the understanding of the

10. Brazil was under a military dictatorial regime between April 1964 and March 1985. Currently, we refer to the coup and the dictatorship that followed as "civil-military" because the military that began the period had the support of significant segments of society (large rural owners, part of the urban middle class, and the conservative sector of the Catholic Church) with the support of the United States government. The period was characterized by authoritarianism, nationalism, developmentalism, and anti-communism.

11. According to Arno SCHMITZ and Mauricio BITTENCOURT (2014), the land concentration increased in Brazil from the 1970s (especially in the north, northeast, and midwest regions) with the policy of tax incentives for large agricultural and extractive enterprises.

Brazilian agrarian problem was related to low productivity rather than land concentration (Pinheiro, 2016).

From this perspective, rural extension services began to be oriented primarily to farmers with more significant response potential, that is, medium and large producers with greater capital, instead of families in small properties, as in the previous period. In this context, aiming above all at increasing productivity and promoting economic activities of “national interest,” extension teams began to be composed mainly of agronomists, veterinarians, and agricultural technicians specialized in products, while the participation of domestic economy extension workers was reduced (Quidá & Cabral Filho, 2019; Rodrigues, 1997). Assistance to producers began to take place in a much more individualized way.

There was also a considerable change to the type of credit made available after 1960. Besides supervised credit, an oriented modality was created, and both were subsidized mainly by the federal government. In the modality of oriented credit, the projects were exclusively in the productive sphere and “oriented” to the investments in crops and specific products of greater economic value, especially in the international market or for industrial transformation, such as coffee, wheat, cocoa, and sugar cane. This type of credit was launched in 1960 and exceeded the number of supervised credit agreements signed in 1963. The National Rural Credit System (SNCR) was created in 1965, which was essential to support the modernization of the technical base of agriculture at negative real interest rates, especially in the 1970s (Rodrigues, 1997). From 1969, Mussoi (1985: 45, our translation) reiterates:

The introduction, encouragement, and diffusion of soybeans (in rotation with wheat), the diffusion of pork-type meat, industrial poultry farming, swine/poultry/tobacco integration, and temperate climate fruit growing are examples of the ‘new agriculture.’ State support is decisive, not only with research and technical assistance but also, as we mentioned, with subsidies, freight payments, interest, and a series of privileges.

The diffusionist model of rural extension was consolidated as hegemonic during the 1970s, counting on professionals who had studied rural extension in the faculties of Agricultural Sciences since the previous decade. According to Caporal and Costabeber (1994: 11, our translation), “an effective way of reproducing agricultural professionals was created to assume the diffusionist task carried out by the ACAR uncritically.” Caporal and Costabeber, both agronomists in training then, stated that the relationship between ACAR and Agricultural Science programs was so close that the curricula included modules on the current rural credit rules. Because of that, many graduates entered the extension companies without passing a public examination (the regular system in

Brazil to access public service). For Eros Mussoi (1985: 42, our translation), agricultural education in the period referred to “training professionals aimed at the ‘modernization’ and specialization of agriculture [...], training professionals modulated by ‘packages,’ legitimate ‘technology’ resellers.”

Embrapa (acronym in Portuguese for Brazilian Agricultural Research Company) was created in 1974 and was responsible for technological innovations. Embrater (acronym in Portuguese for Brazilian Technical Assistance and Rural Extension Company) was created the following year, a public company linked to the Ministry of Agriculture and integrated into Embrapa. Embrater was created to expand the Brazilian government’s sphere of influence and control over the ACAR and ABCAR. In other words, Embrater incorporated ABCAR, while ACARs, whose activity was state-owned, became known as Emater (acronym in Portuguese for State Companies for Technical Assistance and Rural Extension). The latter remained somewhat subordinate to Embrater’s control since they depended on its financial support (Castro & Pereira, 2017). In addition to these institutions, Silva (2013: 156, our translation) adds that: “The private sector was also involved in the ATER services, carried out by banks due to the significant expansion of rural credit and by cooperatives and companies through the purchase and sale of agricultural inputs, either machinery and equipment, seeds, fertilizers, and pesticides, or in production integration”.

In this new context, rural extension services were “closely linked to the ownership and power structure of the rural social system” (Silva, 2013: 155, our translation), effectively changing the configurations of the Brazilian rural environment through exclusion. For family farmers, exclusion occurred mainly due to poor access to credit and rural extension services. The mechanization of the production process in large and medium-sized properties in Brazil had a positive economic impact, resulting in increased productivity, as Hoffmann and Kageyama (1985) point out. However, the authors reinforce that mechanization was partial even in these large properties, having been adopted mainly in the soil preparation phases, while the harvest of most crops remained manual. For the rural workers of these farms, this new pattern led to the breakdown of traditional labor relations systems. It significantly increased temporary work at the expense of permanent work, reducing remuneration (which forced them to look for work in other regions in the interim harvest) and increasing income concentration. Consequently, the two critical categories in the Brazilian rural environment, family farmers and rural workers, both suffered a massive rural exodus.

Throughout this period, the objective of “ending hunger” initially publicized by the Green Revolution was gradually and openly replaced by the export agenda, consolidating Brazilian agribusiness. However, as stated by Caporal and Costabeber (1994) based on EMBRAPA studies, agricultural yields between 1964 and 1979 were different than

expected: “The productivity of the 15 primary crops in Brazil grew by only 16.8%. In the same period, the consumption of chemical fertilizers grew 124.3%, insecticides grew 233.6%, fungicides grew 584.5%, herbicides grew 5414.2%, and tractors grew 389.1%” (1994: 13, our translation). These components are highly dependent on oil, a commodity disputed worldwide, and access to them was impacted by crises in the following years.

The unsustainability of the developmental production model, not only at the economic level but also socially and environmentally (such as soil degradation, deforestation, contamination, energy demand, among many others), was probably previously made explicit to the extensionists, who were at the forefront of the process. Extension workers also played an essential role in supporting the nascent environmental movements based on alternative agriculture proposals in this decade (Peixoto, 2008), which have gained strength, especially since 1990.

4. OTHER POSSIBILITIES OF RURAL EXTENSION THROUGH CRITICAL HUMANISM

The political reopening and re-democratization of the country began in the 1980s. In this context, an “identity crisis” of the rural extension, as denominated by Caporal and Costabeber, occurred since “outside the process of accelerated modernization, for whose task it was prepared, it faces an impasse as to what to do” (1994: 8, our translation). Thus, professionals in this field articulated a movement called Rethinking Rural Extension, which sought to develop or improve participatory methodologies to prioritize farmers’ experience, knowledge, and culture.

In this decade of social reorganization around the new Constitution for the country, civil society also played an essential role in the elaboration of the new ATER policy, inspired by the constructivist proposals of Paulo Freire (Thomson *et al.*, 2018). Specifically for Rural Extension, these proposals were disseminated through the work *Extensão ou comunicação?*, published in 1969 during Freire’s exile in Chile¹².

To highlight the influence of Freirian thought on extension, we mention the 1985 article by Eros Mussoi, where the author proposes a contribution to *rethinking rural extension*. After analyzing rural extension’s paths in recent decades, Mussoi emphasizes some primary conditions for changes to occur and the philosophical principles that would guide this extension transformation into a critical humanist practice. He also reiterates the need for rural extension as an educational commitment:

12. Still, in the first year of the military dictatorship in Brazil, in 1964, Freire was accused of subversion and imprisoned for 72 days, which led to his subsequent exile in Chile. The work mentioned above was initially published under the title *Extensión o comunicación?*, by the Instituto de Capacitación e Investigación en Reforma Agraria in Santiago de Chile, where Freire worked for five years.

It is indisputable that the rural environment requires a work of Communication, in the sense of communion of ideas given by FREIRE, in which extension workers, respecting (and valuing) the culture of the rural worker, problematize the situation (with its injustices and contradictions) along with him (in his group), seeking (always together and fully committed) alternative solutions to the problems highlighted (solutions that can be technical, political, economic, social, or cultural) (Mussoi, 1985: 47, original highlights, our translation).

In addition to agronomy professionals, agronomy students played a fundamental role beginning in the 1970s, especially in the 1980s, when they were already organized through the Federation of Agricultural Students of Brazil (FEAB, acronym in Portuguese). From this perspective, they proposed a critical understanding of the Brazilian agricultural system and the profile of the trained professionals. They advocated the engagement of universities with the real demands of workers and rural producers, especially those organized in popular movements. One of the pioneering proposals of this student articulation was the Experience Internship, held for the first time in 1989 in Mato Grosso do Sul¹³. In general terms, the Experience Internship is when students stay in rural communities, in farmers' homes, performing daily tasks. This experience not only provides agronomy students with an awareness of the reality of the rural environment but also favors the expansion of dialogue between academics and the public¹⁴.

However, despite the methodological – and critical – advances by rural extension professionals and agronomy students in this period, the diffusionist and technicist model of extension remained hegemonic in the country (Balem, 2015). Thus, any other perspectives were classified as “alternative”¹⁵. This situation is emphasized by Silveira (1993, no page, our translation) in his analysis of the adoption of Freire's ideas of communication

13. The internship proposal was awarded by UNESCO in 1992 for being a relevant initiative for Latin American youth (CARDOSO *et al.*, 2008).

14. The Experience Internship is a mandatory subject in the fourth semester of the Agronomy program at the university to which the authors of this work are linked, completing 30 years in the curriculum in 2023. In addition, student movements also organize the Interdisciplinary Experience Internship (EIV, in Portuguese) in partnership with peasant movements, such as the Landless Workers Movement (MST, in Portuguese), the Movement of Those Affected by Dams (MAB, in Portuguese), the Small Farmers Movement (MPA, in Portuguese), and the Peasant Women Movement (MMC, in Portuguese). This experience is open to students of all programs. It lasts 20 days (five days of study on the agrarian issue and popular movements, ten days of experience in any of the movements, and five days of evaluation of the experience). One of the authors had the opportunity to participate in one of these internships in January 2010, while the other author chairs the monitoring and evaluation committee of the Experience Internship of the Agronomy program at the University.

15. In Brazil, the style of agriculture developed in the period of Productivist Diffusionism was established as a “conventional” parameter. In contrast, it is typical for other forms of production to be qualified as “alternative agriculture,” for example, organic, agroecological, biodynamic, and natural agriculture.

by the Rethinking Rural Extension movement, in which he reflects that: “[...] the exercise of rethinking an institution that made the effort to adequate the administration to the political project of the military regime takes place precisely in the vacancies, in the spaces created by the removal of the existing relations of force in the state that is politically distended from a period of dictatorship to an incipient democracy”.

We can identify this effort to adequate it by the rhetorical support of Embrater for the changes in extensionist practice in 1985. That year, after the election of President Tancredo Neves (the first president after the military regime), progressive professionals were appointed to executive positions, among them the extensionist Romeu Padilha de Figueiredo for the presidency of Embrater. At his inauguration, Figueiredo stated that the extension would prioritize small and medium-sized producers. However, with the death of Tancredo Neves at the beginning of his term, Vice-President José Sarney took office and strongly stimulated export-oriented super-harvests to generate foreign exchange and address the economic imbalance. In the end, producing super-harvests did not improve the living conditions of rural workers or urban wage earners, as Caporal and Costabeber reiterated in 1994.

However, this historical context has led to some progress. According to Wanderley (2011), rural – and environmental – studies in this period made a great leap due to three factors: the deepening of the criticism of the productivist model due to its environmental, social, and economic effects; the consolidation of several popular social movements including the Landless Workers Movement (MST, acronym in Portuguese for *Movimento dos Trabalhadores Rurais Sem Terra*) in 1984; and what is usually called the “crisis of the great paradigms of the social sciences”. In this context, the issue of the struggle for land was one of the most recurrent research themes because of the overwhelming violence against family farmers.

This issue was also very present in the clashes during the Constituent Assembly¹⁶. Unfortunately, the 1988 Constitution (called “the Citizen Constitution”) did not fully commit to agrarian reform in the terms demanded by social movements. However, it began legally recognizing “new subjects” of law whose social identities were forged from humans’ relationship with nature and their historical trajectories. This change made possible an encounter between socio-cultural diversity and socio-environmental diversity, culminating in the recognition, at least formally, of actors who defend what makes them unique: the forest, the river, the land, and the way of life. This recognition was influential in the 1990s for elaborating new public policies focused on family farmers, such as the

16. The National Constituent Assembly was installed in the National Congress in February 1987 to draft a democratic constitution for Brazil after 21 years of military dictatorship. It closed in September 1988.

National Program to Strengthen Family Farming (Pronaf, acronym in Portuguese for Programa Nacional de Fortalecimento da Agricultura Familiar)¹⁷, established in 1996 and in effect to this day.

Unsurprisingly, there was a practical gap between the process of political openness (initiated in the 1980s), the Constitution's enactment in 1988, and the effective implementation of the new orientation. In other words, these regulations began coming into force only in 1993, and even then, very slowly since they had to be reconciled with the neoliberal project assumed by the government of President Fernando Henrique Cardoso, which lasted for two terms until 2002. From our perspective, we can observe some aspects related to the difficulty of conciliation and the consequent contradiction between the citizen Constitution and the government actions of the period concerning the Rural Extension Service.

On the one hand, the 1988 Constitution supported the proposal for political and financial decentralization, which made states and municipalities responsible for implementing part of public policies, including rural development. In rural extension, decentralization triggered a crisis in state rural extension agencies, many of which were closed due to a lack of financial resources, especially after the extinction of Embrater in 1990 (Silva, 2013). In turn, this situation favored the emergence of new actors in rural development, including non-governmental organizations (NGOs), trade unions, and farmers' organizations (Thomson *et al.*, 2018), which have mainly taken over rural extension, often guided by ecologically-based agricultural theories and practices.

The Ministry of Agrarian Development (MDA, acronym in Portuguese) was created in 1998 as a counterpoint to the Ministry of Agriculture, Livestock, and Supply (MAPA, acronym in Portuguese). The latter was historically linked to the neoliberal agribusiness project, and its support was directed primarily towards large property owners, while the MDA articulated actions to promote inclusive and sustainable rural development for the family farming category. During the initial years, the MDA did not receive sufficient human, material, or financial resources to allow consistent actions (Thomson *et al.*, 2018). Still, its already-built structure was important in the first term of President Luís Inácio Lula da Silva in 2003. That year, the federal government resumed direct support for ATER through the MDA, which fully assumed competence

17. *Family farming* is defined here as a conceptual umbrella that combines different identities and values in the social organization of small, but fundamental, agricultural production. As the basis for Pronaf, it allowed the inclusion of groups previously excluded from public credit and institutional support policies. We highlight that such public policies did not emphatically neglect small producers but had the same access rules for all types of producers so that large ones had many more advantages due to the productive scale, being, historically, the primary credit borrowers for agriculture (SCHNEIDER *et al.*, 2020).

over public rural extension. In 2004, this Ministry, together with civil society forums, established the National Technical Assistance and Rural Extension Policy (Pnater, acronym in Portuguese for *Política Nacional de Assistência Técnica e Extensão Rural*), aiming to encompass the diverse social fabric that constitutes family farming. According to Raimundo Pires Silva (2014: 156, our translation), “the current ATER policy, in its conception, seeks to assume a transversal character with the Ministry’s final policies, with objectives, strategies, methodologies, and practices compatible with changes in the scenario of family farming.”

In 2010, Law No. 12,188, known as the ATER Law, was passed to ensure that the rural extension policy was an assignment of the state (Diesel *et al.*, 2021). It defines technical assistance and rural extension as: “[...] non-formal education service of a continuous nature in rural areas, which promotes management, production, processing, and marketing processes of agricultural and non-agricultural activities and services, including agro-extractive, forestry, and artisanal activities” (Brasil, 2010, our translation).

According to Bracagioli Neto (2023), the implementation of this law highlights the differences between the “old” and the “new” rural extension models based on the theoretical bases, objectives, methodology, and agents’ roles. The principles that guided the new perspective included: a) sustainable rural development and emphasis on ecologically-based agricultural systems; b) the need for free, high-quality, and easily accessible services; c) the adoption of participatory methodologies with a multidisciplinary, interdisciplinary, and intercultural approach; d) equity in gender, generation, race, and ethnic relations; and e) contribution to food and nutrition security and sovereignty.

As can be seen, the ATER Law adopted the critical, environmentalist, and progressive perspective that had developed from the 1980s onwards. This perspective sought to promote the strengthening of socio-environmental diversity, prioritizing family farmers in public rural extension services¹⁸. Thus, the promulgation of the ATER Law was received with optimism, as theoretically, it should guarantee that the policy would not be abandoned due to changes in subsequent governments’ political and ideological orientations (Bracagioli Neto, 2023). However, an intense process of political dismantling began in Brazil in 2013, seriously impacting rural extension actions and services in the country¹⁹. It is necessary to highlight that the productivist perspective and the emphasis on agribusiness were not abandoned during this period but continued to be favored by

18. This should not significantly affect large properties focused on export production since they increasingly use many private technical assistance services provided by agricultural input companies. This contradiction says a lot about the ideological issue defended by the agrarian elites.

19. For information on dismantling rural and environmental public policies in Brazil from 2013 onwards, see NIEDERLE *et al.* (2022), and SABOURIN *et al.* (2020).

the consolidated political structure, especially concerning access to credit, since its significant income from agricultural exports places Brazil in a position high in the global economic scenario.

5. FINAL REMARKS

In this article, we intend to present the trajectory and characteristics of the Rural Extension Service in Brazil, choosing a linear temporal division. However, none of the phases of this service were radically interrupted by the establishment of another, and the characteristics of the service may even diverge drastically from one region to another. The continuities and discontinuities observed may be linked to the country's continental dimensions. However, public managers' personal and individual interests and ideologies concerning these processes at the federal and local levels seem no less considerable.

In addition, the international influence on the implementation (the 1940s) and the subsequent reorientation of the service (the 1960s) is evident, placing the Brazilian experience very close to others on the Latin American continent and in Africa and Asia. From an external perspective, these sites were defined as "underdeveloped" after Second World War and, therefore, in need of help to overcome their obstacles. This discourse and the resulting practices ensured the production of raw materials for export, the promotion of industrialized products, and the implementation of technological packages, among others. As consequences, we observe the loss of biological and cultural diversity, the dismantling of traditional social relations, the increase of socioeconomic inequalities, external indebtedness, the denial of the freedom of peoples to determine their agri-food priorities, and, thus, the denial of their right to defend food security and sovereignty. Specifically in Brazil, a fundamental aspect resulting from the institutionalization and development of rural extension services was the reaffirmation of the country as an agro-exporter and the consolidation of agribusiness as a political category, effectively acting at all levels of government.

ACKNOWLEDGEMENTS

This work results from our experiences in the undergraduate course in Agronomy at the Federal University of Santa Catarina, so we would like to thank our fellow professors and students with whom we exchanged references and shared ideas. We would also like to express our gratitude to the anonymous reviewers and the editorial team of the journal *Historia Agraria* for their comments and suggestions that were essential to improving the quality of this article.

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