

Advances and Contradictions in Organic Farm Policy in *Mato Grosso do Sul* State, Brazil

Avances y contradicciones en la política de agricultura orgánica en el estado de Mato Grosso do Sul, Brasil



Ana Maria de Souza Mello Bicalho

Universidade Federal do Rio de Janeiro
Brazil
anabicalho@igeo.ufrj.br



Ana Paula Correia de Araujo

Universidade Federal de Mato Grosso do Sul
Brazil
ana.araujo@ufms.br

Abstract

Three cases are presented which involve organic agriculture practiced in Mato Grosso do Sul, a state dominated by conventional productivist agribusiness. Organic cattle raising is undertaken by large ranchers in the *Pantanal* wetlands. Agroecological and organic cropping is practiced by small farmers in rural and urban settings on the *Cerrado* savanna plateau alongside conventional agribusiness. Ranchers and rural farmers each set up collective associations endogenously which engaged multi-scale actors with the express purpose of developing appropriate agroecological methods and accessing high-value quality markets. Recently, both associations have explored promising opportunities in carbon markets. The urban and peri-urban farmers were merely enlisted into a top-down project that transferred technology to passive coop members who did not participate in managing productive and marketing activities. They never became proactive and their coop eventually failed.

Keywords: agroecology, organic agriculture, farmer associations, Mato Grosso do Sul, Brazil.

Resumen

Se presentan tres casos que involucran la agricultura orgánica practicada en Mato Grosso do Sul, un estado dominado por el agronegocio convencional de carácter productivista. La cría orgánica de ganado es llevada a cabo por grandes estancieros en los humedales del Pantanal. La producción agroecológica y orgánica de cultivos es realizada por pequeños productores en ámbitos rurales y urbanos del altiplano de la sabana del Cerrado, junto al agronegocio convencional. Tanto los ganaderos como los agricultores rurales establecieron asociaciones colectivas de manera endógena, que involucraron actores a múltiples escalas con el objetivo expreso de desarrollar métodos agroecológicos adecuados y acceder a mercados de alta calidad y alto valor. Recientemente, ambas asociaciones han explorado oportunidades prometedoras en los mercados de carbono. Los agricultores urbanos y periurbanos, en cambio, fueron simplemente incorporados a un proyecto de tipo vertical que transfirió tecnología a miembros cooperativos pasivos, quienes no participaron en la gestión de las actividades productivas ni comerciales. Nunca llegaron a ser actores proactivos y su cooperativa finalmente fracasó.

Palabras Clave: agroecología, agricultura orgánica, asociaciones de productores, Mato Grosso do Sul, Brasil.

Introduction

This study critically analyzes governance and development of organic cropping and livestock production in Mato Grosso do Sul state, Brazil, focusing on farmer self-achievement and on organic farm policy. The state is a major agribusiness export commodity producer in Brazil and for decades has received subsidies underwriting productivist methods.

Researching organic farming in a region dominated by agribusiness might seem strange but there have been experiments with alternative systems in the state since the 1990s. At that time, a government plan was implemented for introducing organic veal production as a showcase of stock raising sustainability, which became the basis for developing organic livestock production in the state. More or less at the same time, some small farmers, who did not have the ranchers' political visibility but participated in the emerging organic movement in Brazil, started planting organic coffee and later expanded into other organic food crops. In a state where farm policy privileges agribusiness, there are nevertheless a large number of family farmers with diversified food production, who are encountered mainly in land reform settlements.

Organic agriculture, also known by other names depending on the country, represented a pioneering experience in proposing alternative agricultural systems opposed to modern, productivist agriculture of the Green Revolution. This alternative system stems from a holistic view of the interaction between agriculture and local ecosystems. It involves technical agroecosystems with practices that follow ecological principles integrated into the local knowledge of farmers and meet the food needs of producers and nearby consumers. Disseminating and deepening knowledge through interaction between producers and researchers, the organic movement, along with agricultural and ecological researchers, influenced the creation of Agroecology as an academic-scientific discipline (Gliessman, S., 2007). The social importance of Agroecology is highlighted by the United Nations in its definition of this kind of agriculture as a scientific branch of knowledge and technological alternatives, that presents both a conceptual connection and results related to the human right to food, especially vulnerable social groups (Petersen, P., 2013).

Agroecological systems involve the sustainable use of natural resources and the efficient planning and management of land and water use in order to integrate environmental services and socioeconomic benefits (FAO, 2007; 2014). Integrating environmental and socioeconomic services means ensuring sustainable production and consumption patterns that achieve food security and improved nutrition, which are considered to be the foundations of sustainable food systems. A sustainable agricultural system consists of alternative proposals for production, distribution, and trade, with the aim of providing, in an integrated way, environmental quality, agronomic sustainability, socioeconomic viability, quality food, production and consumption, and other non-food agricultural products. In Brazil, the National Policy of Agroecological and Organic Production stresses social justice in the agroecological transition:

Agroecological-based production seeks to optimize the integration between productive capacity, use and conservation of biodiversity and other natural resources, ecological balance, economic efficiency, and social justice [...]. Agroecological transitions are a gradual process of changing practices and management of traditional or conventional agroecosystems, through the transformation of the productive and social bases of land use and natural resources, leading to agricultural systems that incorporate ecologically based principles and technologies (Brasil, 2012, Art. 2, III and IV, translated here).

Different paths are followed in the agroecological transition, being less of a common process for large producers, who use conventional agricultural systems that are intensive in land and capital use, than among less technically intensive producers whose agricultural practices are associated with knowledge of local ecological processes and have greater availability of labor (Romeiro,

A., 2014). Family farmers are thus more prone to transition to agroecosystems, in addition to benefiting from the social function of agroecology directly related to food security and increased agricultural income. However, some larger producers exist who employ technically extensive systems, dependent on and knowledgeable about local ecological conditions in their production systems. However, due to its socio-technical function, agroecology becomes a concept more associated with family farming, while the terminology of organic agriculture, due to regulatory certification requirements, is associated with commercial production. This distinction occurs in the cases discussed in the Mato Grosso do Sul.

Organic farming can be a way for improving land productivity, aggregating quality value to products, increasing income and at the same time be environmentally benign. Organic methods can thus be used by both groups of rural producers in Mato Grosso do Sul, large ranches and family farmers, but they had different historical trajectories. What they do have in common is the fact that both initiatives started with the rise of producer associations that through collective action achieved their objectives and gained access to external support.

The general objective that guided the research was to investigate and evaluate the role of farmer networks in implementing organic production and achieving sustainable rural development through bottom-up initiatives. The central questions of this work are: 1) how were organic cropping and livestock raising implemented and could they develop in such an adverse productivist rural context, 2) what was the role of associations as collective social actors in overcoming challenges and strengthening producers in the pursuit of their objectives and 3) whether small organic farmers are contemplated by agrarian policy which depends on overcoming unequal political power relationships vis-à-vis agribusiness.

The interpretative framework

The interpretative framework is based on actor-network analysis of organic associations and local governance focusing on intra- and inter-relationships involving strategic innovation that mobilizes local human and social capital on an inter-territorial plane which constitutes the greater economic and political-administrative context. With this framework we can understand how local and endogenous development takes place along actor-networks within organic farmer associations and we trace these forms of governance back to their roots in social movements connecting local, state and national agents.

Organic agriculture involving farmer associations in participatory management is an alternative way to implement innovative production systems, to form socio-economic alliances and to include new and different kinds of producers within creative economies. Therefore, the investigation involves two levels of analysis, one focusing on producer and collective participatory associations situated at the local level and on farmer representation and potential for change at the regional level. Local collective and external stimuli are thus central for the investigation so highlighting strategic innovation, local human and social capital at an intra-territorial level as well as the greater economic and political-administrative context at an inter-territorial level.

Alternative development brings together ideas that emerged and were refined in critiques of development that focused narrowly on economic issues that had proven to be ineffective in overcoming poverty in many developing countries. Subsequently, the meaning of development was expanded to accommodate environmental criticism and so the concept embraced simultaneously social and ecological proposals.

Alternative development approaches involve learning and social mobilization, full participation in all collective decisions and building trust in individual and collective capacities for change. Social organizations are at the foundation of collective participation, facilitating access to information,

knowledge, skill development and fund raising (Friedmann, J., 1987, 1992). Ordinary people are involved in both the decision-making process and the implementation of actions, which means breaking the monopoly of power held by a single class, gender, social strata or bureaucratic elite (Kaufmann, M., 1997). Participation has to bring about change in power networks, displacing long-standing socioeconomic dominance of rural elites and corporations. These are replaced by new alliances involving social and political networks that are heterogeneous in origin and scale and result in multi-level governance (Murdoch, J., 2006; Goodwin, M., 1998).

According to Ray (2006), partnerships and forms of cooperation, articulated at subnational and supranational levels, arise from the mobilization of physical and human resources with an emphasis on the needs, capacities, and perspectives of local people. These usually differ from nationally standardized and a-spatial policies decoupled from social policies. New partnerships and forms of cooperation relate to spatially and territorially differentiated neo-endogenous processes that operate simultaneously on three levels: intra-territorial, inter-territorial and vertical articulation with the formal regional and national political administration and even with supranational entities. However, the basis of the entire neo-endogenous rural development mechanism depends on dialogue, decision-making and acting together with a politically mobilized population.

This literature revolves around the basic question of monopolistic power exercised by economic elites over poor populations and marginalized groups, particularly addressing issues of disparities and social inclusion. In the empirical case under analysis here, this line of enquiry is applied to small producers and family farmers who adopt alternative organic and agroecological farming systems in order to achieve socio-political inclusion and to improve quality of life.

With regard to organic ranchers, we evaluate their need to establish new networks of actors and alliances in the alternative production chain and their search for visibility and political support, considering intense competition from conventional agribusiness productivist livestock systems. Of crucial importance is the role of associations for both kinds of rural producer in the implementation and development of organic production systems, maintaining an endogenous yet open process involving partnerships with trans-local actors. Therefore, this work focusses on farmer organic associations as social organizations and three different types of organic producers are presented who were found to be the main organic farmers groups in Mato Grosso do Sul state located in the two main biomes of the state.

The state has two very different predominant biomes: the *Cerrado*, savanna bushlands located on a plateau, and the *Pantanal*, low-lying wetlands situated in the Paraguay river basin. The survey included examples from both landscapes: organic beef ranchers located in the *Pantanal* wetlands who are organized in the ABPO Association (the Brazilian Organic Rancher Association) and family farmers who plant organic crops on the *Cerrado* plateau and are organized in the APOMS Association (the Organic Production Association of Mato Grosso do Sul). Both associations have an endogenous origin in which farmers and ranchers respectively came together on their own initiative in order to pursue collective interests. A third case studied was the urban and peri-urban farmers located in or near the state capital Campo Grande, which is also situated on the *Cerrado* plateau. In this case, the rise of organic farming was not an endogenous undertaking but rather was undertaken by a municipal government project. Farmers who participated were grouped together by the ORGANOCOOP (the Organic Family Farmers Cooperative of Campo Grande), which is now defunct.

Research procedures included analyzing data in national and state statistical archives, consulting legislation on organic agriculture, undertaking interviews with association representatives and consulting association data and webpages. The procedures followed a longitudinal line of research

with organic ranchers and farmers as well as with political-administrative personnel, i.e. we followed the process over time in restudies going back to farmers, association representatives and government officials and technicians or to ones who succeeded them.

Landmarks in the development of organic agriculture and farm policy in Brazil

The Brazilian organic movement developed in three phases involving increasing expansion in market scale and spatial reach, passing from small-scale localized farmer-consumer social movements to the implementation of regional and national productive and market regulation. First farmers had to learn from scratch through experimentation how to produce food organically. Since the beginning farmers pressured for recognition and quality product certification adapted to their needs that set them off from conventional agriculture. Later they had to adapt to increasing outside regulation and resist attempts by large firms to force them to contract expensive third-party auditing.

Organic farming in Brazil started as a grass roots organic movement in the 1970s and 1980s but by the 1990s several farmer associations were created that bridged different state-level organic groups, mostly in the South and Southeast of Brazil. A process of structuring and regulating the organic sector began as production and demand expanded (Alves, A. *et al.*, 2012). The common objective was to develop alternative farming methods and to create marketing channels. A bottom-up process was involved that required building social capital among localized farmer groups that constructed communitarian and social networks (Bicalho, A. M. S. M. & Feres, A. M., 2014).

During the 1990s norms and regulations for organic produce were debated, but legal structures and organization was only forthcoming in the following decade. In 2002 a legal brief for editing a law for registering certifiers and producers was circulated but was eventually rejected by the organic movement because it did not include different forms of recognizing organic produce (Alves, A. *et al.*, 2012).

The year 2003 was important because the National Organic Agriculture Law was enacted that legally recognized organic agriculture and opened the possibility of different ways of certifying organic products within the whole organic chain from farming systems to processing and to marketing (Brasil, 2003). Forms of validating organic quality were recognized and regulated by Decree no. 6.323 of 2007, which implemented Law no. 10.831 of 2003, and set up the Brazilian System for Evaluating Organic Conformity. Within this system third-party auditing and participatory forms of guaranteeing organic quality were specifically recognized and both received a Brazilian organic seal of authenticity. Direct sale by family farmers to local consumers did not require a seal if they participated in an organization of group control which attested technical conformity (Alves, A. *et al.*, 2012, Bicalho, A. M. S. M. & Feres, A. M., 2014, Brasil, 2003; 2007).

The implementation of the 2012 directive National Policy on Agroecology and Organic Production (Brasil, 2012), was crucial for consolidating and expanding organic production. The directive regulates agroecological transition and organic and agroecological-based production, through a philosophy of socio-biodiversity that places great value on local practices and knowledge, rights to dignified incomes and quality of life as well as the preservation of specific environments. The directive specifies different forms of socio-biodiversity and allows for variation in situations which best fits the wide range of rural producers present in a large country as well as different combinations of socioeconomic productive conditions and environmental interests. This is radically different from conventional productivist systems that involve transfer of capital-intensive technical package and favor agribusiness.

Mato Grosso do Sul adhered to organic production late in this process, during the 2000s, when norms and organic scenarios were already well advanced in Brazil and organic systems had started to expand into other regions of the country. In the early 2000s the ABPO Association (the Brazilian Organic Ranchers Association) was formed as well as the APOMS Association (the Organic Production Association of Mato Grosso do Sul). Both started by forming a network of producers who experimented with organic methods appropriate for their *Pantanal* and *Cerrado* biomes respectively and sought out partnerships to form a production-marketing chain suitable to their products.

National policies encouraged the rise of organic production but in Mato Grosso do Sul policy for organics was absent and only recently has begun to be implemented in a way that basically follows federal requirements. To expedite organic policy, a new National Plan for Agroecology and Organic Production 2016-2019 included the requirement that all states must create Organic Production Commissions within their administrative structures (MAPA, 2015; MDA, 2016). Mato Grosso do Sul followed this directive and finally elaborated an organic policy (MS, 2018; 2020)

Transition to organic production in Mato Grosso do Sul

***Pantanal* organic beef ranchers**

Pantanal is a flooded depression located in the Paraguay River basin where extensive areas of permanent swamp and seasonal wetlands predominate. The adverse environmental conditions for most agricultural activities in the *Pantanal* has long limited land use to extensive cattle ranching practiced in a relatively wild landscape. Once important for beef production in Brazil, today the *Pantanal* has a secondary role in production vis-à-vis regional agribusiness. Against this, agroecological ranching constitutes a promising way to aggregate value by producing quality beef with regional identity of origin based on environmental conservation and a distinctive ranching culture. (Bicalho, A. M. S. M. & Araujo, A. P. C., 2021).

Developing an alternative production system, whether organic or agroecological, that ensures productivity and quality is not a simple process, even for historic *Pantanal* ranchers who have considerable local knowledge concerning the potential of their biome. Cattle handling and the use of natural resources must comply with official technical requirements that maintain a conservationist approach to long-term natural resource use, including the restoration of degraded or severely altered areas, while also meeting economic objectives for earning income. Marketing also plays a role, as does the demand for organic meat and animals raised in a “natural environment”, which involves free grazing in native pasture, animal care, and well-being, versus stabled and feedlot practices of many conventional productivist cattle ranchers of the Central-West region. Consequently, cattle raising in the *Pantanal* has to compete with conventional cattle raising undertaken in the more favorable savanna environments of the *Cerrado*.

To overcome ecological constraints and regional competition, a small group of *Pantanal* cattle ranchers came together to create the necessary conditions for developing an organic livestock system as a strategy for adding value to their activity by entering high-value, differentiated-quality markets. With the creation of the Brazilian Organic Livestock Association (ABPO) in 2001, connectivities were created with research sectors and with processing and marketing firms that gave rise to a network of specialized actors representing farm research, phytosanitary, meatpacking and marketing sectors.

To develop a new production system based on organic stock raising, the *Pantanal* ranchers had to learn how to raise cattle using a production system with which they were unfamiliar that required free grazing only in native pasture and the substitution of allopathic drugs with homeopathic

treatments. Hence adopting the system entailed uncertain outcomes and considerable risk. How would only using native pasture affect productivity levels vis-à-vis competition from intensive conventional cattle raising? What was the carrying capacity of local native grasses for ensuring fast animal growth? And were homeopathic drugs really effective in treating cattle? Animal well-being requirements meant that a brutal mentality of manhandling animals had to change to more gentle care.

The organic rancher association thus sought out new alternative practices. For technical help ranchers and the ABPO contacted local and regional research and regulatory institutions, such as the EMBRAPA (the Brazilian Agricultural Research Corporation), researchers based in public universities and state and federal sanitary regulatory agencies. This was facilitated by the fact that *Pantanal* cattle ranchers were part of a social elite that also included state politicians and agribusiness owners which helped them get through the organic transition stages.

The same can be said for accessing and reconfiguring marketing networks. Their social prestige facilitated communication with researchers and state officials as well as help negotiating specific arrangements with meat packing plants required for slaughter and packing organically raised steers. Processing and marketing procedures used in largescale conventional beef packing methods which were not suitable so that other requirements for organic meat packing had to be followed. The ABPO only represented 23 ranchers who had relatively few organic steers to sell when compared to the large herds of conventional beef producers. Considerable cultural capital was thus mobilized to convince slaughterhouses to sporadically interrupt the conventional mass production line in order to adapt to organic processing norms. To some extent, the packers mediate wholesale and retail markets and meat is sold with considerable markup to upscale butcher shops, restaurants and hotels for a minority of rich consumers in the Southeast and South of Brazil. Some products were also exported abroad, mainly to Europe (Bicalho, A. M. S. M. & Araujo, A. P. C., 2021).

Completing and paralleling this entire process, *Pantanal* cattle ranchers devised their own protocol for guaranteeing product quality. In addition to seeking an organic label, ranchers created a *Pantanal*-identity brand, claiming that free grazing cattle in native pasture contributed to conservation of a biome noted for nature areas alongside historical ranching. Combining the principles and requirements of agroecology with regional identity, the ABPO Sustainable Beef Program attested quality and distinctiveness of origin, associated to the ranching identity of the *Pantanal*. This specificity was made official by formal adherence to the 2014 Normative Instructions of the Brazilian Ministry of Agriculture and Livestock concerning organic farming (ABPO, 2017). Therefore, since inception, technical experiments, research alliances and other initiatives within the ABPO network of stakeholders directly and indirectly contributed to the development of the protocol and the brand of sustainable meat from the *Pantanal*. Overtime, a distinction gradually arose between organic and sustainable meat. This was formally recognized in 2021 when the ABPO revised its regulations. The ABPO acronym was retained but the association was renamed the Association of Organic and Sustainable Livestock Producers. Organic quality certification in Brazil is quite demanding and many ranchers ended up following nearly all but not all of the organic requirements and so entered the market for sustainable meat. Revision of the protocol created norms separating organic and sustainable meat. Ranchers are certified for one or the other type and are audited by different accredited regulatory agencies. With the collaboration of EMBRAPA, the ABPO Sustainable Meat Protocol was formally registered with the Brazilian Confederation of Agriculture and Livestock Raising (CNA, 2024) and most ranchers raise animals for sustainable meat.

Mato Grosso do Sul only started to directly implement measures for organic agriculture in 2019 in order to fulfill requirements of the National Plan for Agroecology and Organic Production 2016-

2019. One positive measure was an exemption of 67% from state ICMS value-added taxes for ranchers affiliated to the *Pantanal* Sustainable Meat program. According to Cruzetta, in an interview on the Giro do Boi channel (2023), this immediately caused an increase in ABPO membership from 60 members in 2021 to 120 in 2022. The new members were predominately small and medium-sized ranchers with the sale of 200 to 300 certified steers per year (while large holders sell about 800 or more certified steers per year).

In contemporary global debates concerning climate change, sustainable farming systems have a key role in reducing carbon emissions. ABPO ranchers are aware these debates and want to benefit from it. The CNA represents Brazil in discussions concerning integrating alternative agricultural and livestock systems into carbon reduction and climate change measures. Together with EMBRAPA, which works to validate zero-carbon and carbon-reducing farming methods, a Low Carbon Meat Protocol was created. The Protocol includes organic and sustainable livestock systems and so offers considerable opportunity for Brazilian livestock producers like ABPO ranchers who can benefit from agreements reached in international forums on climate change (EMBRAPA, 2024 a, 2024 b).

APOMS small organic family farmers

The case of small family farmers of the Associação de Produtores Orgânicos de Mato Grosso do Sul (APOMS) took a different trajectory. Degraded soils and low income were their main problems so that organic farming was viewed as a way to recover soil fertility and provide better income for small farmers who grow multiple crops and raise small animals. Farmers needed a new production system that would be capable of reversing local soil degradation, involved quality value-added crops and improved farm productivity in general. Initially, organic production was used in coffee growing as a commercial crop planted within an agroforestry system. But soon organics were extended to other agroecological systems and included all multiple cropping.

Like all farmers who start with organic production systems, these farmers lacked the specific technical knowledge, which they sought through contact with other producers in neighboring states, especially in the South, which was one of the pioneering regions for alternative farming and organic systems in Brazil. In the spirit of farmer-led extension (cf. Scarborough, V., Killough, S., Johnson, D. A. & Farrington, S., 1997), technical innovations depended on the farmers' own experimentation because collaboration with formal research sectors was difficult, either due to a lack of interest from researchers involved in modernization of agriculture strategies or due to the low social status of poor farmers.

However, a few university researchers investigated alternative and conservationist agricultural practices adapted to local environments. One outstanding researcher was Ana Maria Primavesi, who was a pioneer of agroecology in southern Brazil. Advocates of agroecology in the mid-20th Century opposed the process of agricultural modernization that dominated national farm policy because it caused environmental degradation and induced the spatial expansion of large-scale farming operations throughout the country.

The organic farmer association APOMS was founded in 2000 by twenty-four small producers and in only two years fourteen coffee growers based in the municipality of Gloria de Dourados obtained market certification by a third-party auditing firm. In the past a severe frost had killed off their coffee trees and for years farmers tried unsuccessfully to replace their groves. Then, they came together to discuss their problems and to search for common solutions. In the late 1990s, they started to experiment with organic coffee production which produced positive results. APOMS was then founded, membership increased over time and new initiatives were taken on (Komori, O. M., 2022).

One such initiative was setting up the Rede APOMS in 2005, an internal network meant to increase and strengthen connectivity between members and to provide them with better technical services. Technical research combined the practical experience of farmers with the help of some researchers from the local campus of the State University of Mato Grosso do Sul. This partnership grew into a new technical degree course in Agroecology being offered by the university starting in 2010 and 70% of students were from family farming operations (DouradosAgora, 2009). Two year later 47 graduates from the course were working throughout the state (Komori, O. M., 2022).

In 2018, with resources obtained from PRONAF (The National Family Farmer Program), APOMS created a Training and Technological Support Center for Family Farming (CEFAT). Farmers and extension agents are trained and research is undertaken in agroecology. The center provides technical support to both association members and non-members and so fills a gap for this kind of farm extension agent in the state (Komori, O.M., 2022). The center is unique because it is the only institution in the state that has a primary objective of developing sustainable agricultural technology for small-scale production (APOMS, 2022).

However, funding from PRONAF is insufficient to meet the needs of the large number of family farmers in Brazil. This forces farmer associations to seek funding from a variety of public and private competitive bidding schemes which are offered irregularly. As a result, funding ends up being dispersed and sporadic. In this process, contacts with organic movement groups prove to be useful for bringing projects of interest to their attention and several APOMS initiatives have been funded this way. In 2013 the association was awarded a grant from the oil-consortium Petrobrás through its Program for Development and Citizenship. This grant was crucial for consolidating and improving the APOMS network. To better serve its 125 members, who are located over discontinuous areas in ten different municipalities, farmers were organized into cluster groups. Another grant was awarded by the Ecoforte Networks Project of the Banco do Brasil Foundation (FBB) in 2014/2015, which provided funds for expanding agroecology over a larger area and for further strengthening the APOMS Network (FBB, 2014).

Marketing has always been a concern since the beginning of APOMS. The first form of organic certification was through contracting a third-party certification firm from 2000 to 2004. This kind of certification proved to be too limited in scope, merely providing a label without any feedback on how to improve methods or correct flaws. This led farmers to switch over to participatory certification systems.

In 2002, the association's board of directors had first hand contact with the participatory certification system used by the Eco Vida Agroecologia Network in the state of Rio Grande do Sul as well as with other organizations that had consolidated Participatory Guarantee Systems (SPG). The association directors came back with a highly positive impression and APOMS began organizing itself to implement this kind of certification. The association also actively participated in discussions within the larger Brazilian organic movement at regulatory and legislative forums, including participation in work groups at the Ministry of Agriculture and Livestock (MAPA) in 2010 and participation in the Brazilian SPG Forum in 2013. In that year APOMS was formally accredited to set up its own Participatory Conformity Assessment Board (OPAC), so becoming the 14th participatory organic product certifier in Brazil.

However, at about the same time, some APOMS farmers started to question the need for full organic labelling. It was understood that organic labelling is only necessary for selling in impersonal distant markets and for selling produce to public institutional buyers. From these internal discussions only a part of the farmers decided to fully adopt organic labelling or enter a transition to it, but all members had to follow at the least agroecological conformity. Today APOMS attests quality conformity for both organic and agroecological farming (Komori, O.M., 2022). In

the case of organic cattle ranching above we saw a similar compromise reached in their meat protocol which distinguished organic beef from sustainable beef.

The COOPERAPOMS cooperative was founded in 2018. A warehouse was built to improve marketing logistics for selling in bulk and for opening retail marketing channels to private and institutional clients. The warehouse was located in the medium-sized city of Dourados, which is centrally located in the southern part of state region and provides easy access for all of the ten APOMS productive clusters. The cooperative has also taken on other functions, such as managing funds for the APOMS network and even in other measures that serve other farmers of the state. The cooperative also managed funds of the MS Smart-Climate Institute Program for the *Cerrado* in 2022 which brought together farmers, universities, research stations and local rural extension agencies (Interview, 2024).

More recently, APOMS attracted the support of two banks which permit funding small farming on a more permanent and continuous basis. In 2015 a CRESOL Cooperative Bank branch was set up in Glória de Dourados. This institution is a rural solidarity credit union which tries to address the issues of credit scarcity for small farmers by providing loans that are tailored to the needs and financial capacities of family operations. In just four years, CRESOL has provided credit to more than 1,200 farmers from 45 municipalities in the state, which is well beyond the reach of APOMS. CRESOL offers microcredit at low interest rates and draws on funding from large public and private financial institutions as well as from government programs for family farming (APOMS, 2022).

APOMS has thus assumed a position of centrality in a complex network that reaches a regional scope so enhancing both internal relationships between members as well as external relationships with institutions that have common interests in investing in social and environmental objectives in partnerships with family farmers. Emblematic of this role is APOMS's collaboration with the Rabo Bank Foundation through its Integrated Agriculture for Climate Program that is supported by the United Nations. With the Alimi Impact Venture advising the Rabo Foundation, APOMS was selected for a partnership involving long-term impact investments. In 2018 the first inter-institutional initiative was signed: a Network Formation Proposal involving technical assistance, small farmer credit and agroforestry funds from the Acorn-Rabobank Project. Managed by COOPERAPOMS, approximately 3,000 people were trained in managing family businesses, cooperatives, associations and agribusiness (Interview, 2024). A subsequent action made at the request of APOMS and with technical cooperation from CRESOL, resulted in the Systemic Credit Program, a local innovation that alters the logic of rural credit, which is usually associated to single-product chains. Instead of this, credit is adapted to the needs of local family farmers and follows an agroecological logic targeting product diversity as well as commercial and consumer needs (Interview, 2024; Komori, O.M. & Prata, V. G., 2024).

In 2022 APOMS began a Carbon Credit Program integrated into its Agroforestry sector, which was developed together with researchers from the Federal University of Grande Dourados (UFDG). This first experiment involves 42 APOMS famers. The program fulfills one of the main objectives of the Rabo Foundation and Acorn Rabobank for integrating small farmers into carbon-free agriculture and carbon markets. The project will eventually include the whole state of Mato Grosso do Sul, is coordinated by COOPERAPOMS, is funded by CRESOL and represents a formal commitment to support a policy at the state-level under the auspices of SEMADESC, which oversees technical assistance in Mato Grosso do Sul (Interview, 2024, Komori, O. M. & Pereira, Z. V., 2024). With these measures the APOMS network has turned into a complex agroecology actor-network and hub of territorial innovation that goes well beyond its membership.

Urban and peri-urban organic family farmers

Urban and peri-urban organic farmers of the state capital Campo Grande are situated in or near a large urban market with 896,100 inhabitants (IBGE, 2022). Their case started out as a promising organic farming cooperative which had ready access to urban consumers and city marketing structures. In 2008 urban farmers were enlisted in a Sustainable Integrated Agricultural Project managed by the Brazilian Service of Support for Micro and Small Enterprises (SEBRAE), that was financed by the Banco do Brasil Foundation and had the support of the municipal government as part of its urban policies. The project was supposed to follow federal policy of the Social Development Ministry (MDS) for promoting organic agriculture on poor farms, mainly those in land reform projects, and so associated with PRONAF.

Campo Grande is located on the Central Plateau in the *Cerrado* savanna biome where agribusiness is concentrated, which has prevented the creation of a green belt around the urban area. In fact, farms have always existed on the outskirts of Campo Grande but production was focused on self-consumption. The strongest reasons for promoting urban agriculture today is Campo Grande's significant socio-spatial inequality which could be mitigated by income earned from producing for the local urban market. In a context of urban poverty, urban agriculture was promoted as a way of curbing hunger, providing jobs, increasing income and diversifying family economic activities. However, limiting factors exist, such as disputes over land use, the growth of the city and the presence of commodity agriculture within the city limits that impede and compete with areas of urban agriculture (Bicalho, A. M. S. M. & Araujo, A. P. C., 2025).

The SEBRAE Project involved transferring an idealized technological organic package to small farmers who had at least half a hectare of land, was low cost and was believed to be adapted to the environmental conditions of Campo Grande. At the same time, the municipality created an Organic Pole involving fifteen farmers placed in a peri-urban area to function as part of a horticultural green belt that also served as a buffer protecting the city from industrial air pollution. The project received financial support for the installing vegetable gardens and working capital for undertaking cropping as well as some technical assistance that would be provided by state-level farm extension agencies. An organic street market was created to better link producers to consumers. Farmers were organized in the cooperative ORGANOCOOP in 2009 which was responsible for collectively buying inputs and selling produce through direct marketing to customers in street markets and to institutional buyers. The coop was meant to facilitate SEBRAE management and farmers receiving technical assistance. In addition to production subsidies, 70% of the cost of receiving third-party organic auditing was paid by SEBRAE (Faria, M. R. 2013; Nadai, K. B. L., 2017).

Despite great expectations, the results did not unfold according to the top-down plan. Interest in organic products decreased overtime and the number of affiliated farmers fell from 63 members when the coop was created to 28 still remaining in 2017 (Nadai, K. B. L., 2017). Dwindling membership together with cooperative management problems caused the ORGANOCOOP to be closed in 2019. Organic street markets were affected. In 2019 there were 35 stalls in the main street market, which dropped to only 2 to 5 stalls in 2023. Farmers interviewed complained about irregular technical assistance, lack of farmer union and cooperative management problems, alongside the fact that many producers got out of farming all together.

Even if individualistic farmer behavior can be blamed, the weak and fragile cooperative and the top-down character of project planning centered all decision-making in a patronizing way. This inhibited the development of collective social capital and individual capabilities. The collapse of the cooperative and the drastic fall of affiliated farmers coincided with the end of the SEBRAE financed project in 2019. The cooperative was totally dependent on SEBRAE, farmers did not

develop leadership capabilities or a sense of collective responsibility. The urban farmers simply did not develop the degree of autonomy necessary to become pro-active. In 2020, the municipal government tried to form a new association to revive urban farming but was unsuccessful and only a few urban farmers joined (Interview, 2023). Under pressure from its commitments to the federal government, the state government also tried to promote organic and urban agriculture but with little success. Public policy for urban agriculture is often mainly politically motivated and short lasting so that it ends up being insufficient for the effective direct or indirect promotion of urban agriculture in the municipality.

In addition to government sponsored urban organic farming, other ventures exist that are independent of direct public action. These were created with the support of philanthropic organizations and voluntary extension efforts undertaken by educational institutions. However, these urban farmers are vulnerable producers who also remain dependent on the institutions that support them. Comparing the three cases treated here, in contrast to the ABPO ranchers and APOMS farmers, associative consolidation never happened in urban organic agriculture and the farmers were unable to make the transition to organic agriculture (Table 1).

Table 1. The three experiences compared.

Main organic activity	Rural organic beef ranching	Rural basic food & horticulture cropping	Urban & peri-urban horticulture cropping
Type of producer	experienced medium & large full-time rancher	experienced small rural full-time farmer	inexperienced urban & peri-urban micro, pluri-active/part-time farmer
Initial motivation for organic transition	compete with conventional stock raisers of Cerrado savanna lands by aggregating value	overcome climatic & economic crises in conventional cropping by aggregating value	create city horticultural belt, guarantee nutritional security, create income for poor
Collective organization	endogenous rancher association	endogenous farmer association & cooperative	induced farmer cooperative
Technical knowledge	historical cattle raising methods adapted to Pantanal wetlands, improve methods through interaction with agronomic research institutions	prior experience in food cropping, improve methods through interaction with agronomic research institutions, develop own research & training center	transfer of external technical package suitable for very small farmers
Marketing strategy	access high income consumer niche in distant rich metro areas	combination of self-provisioning and local direct sales in town street markets, consumer delivery & institutional buyers	local direct sales in city street markets, consumer delivery & institutional buyers
Temporal continuity	consolidated association and expanding network	consolidated association & cooperative and rapidly expanding network	failure & dissolution of cooperative, lack of internal unity, external dependency on sporadic projects & changing policy

Source: the authors

The urban farmers did not have proper prior experience in farming and they only passively received the transfer of an external technical package. They are part-time farmers. The founding of their cooperative was externally induced. The urban farmers also depended on others creating organic marketing structures in the city. As they are dependent on external actors, sporadic projects and changing public policy the farmers rarely demonstrate proactivity. This sharply contrasts with the experience of the other two cases which involved endogenous development and the successful transition to organic agriculture.

Conclusion

Organic farming in Mato Grosso do Sul only developed in a lasting way when it was undertaken through collective organization achieved by the producers themselves, as we saw in the cases of proactive ABPO ranchers and APOMS farmers. The key to their success was proactivity created by building endogenous networks in associations and cooperatives. These in turn created intra- and inter-connectivity in order to improve technical knowledge, to adapt marketing strategies that aggregate value and to guarantee temporal continuity. Urban and peri-urban farmers on the other hand lacked internal unity between themselves and external connectivity as well due to constant interruption of mixed public-private solidarity projects and frequently changing public policy.

In this general process, very little help came from state government, even if extension agents were occasionally present in some cases. Neglect continued when federal laws delegated responsibilities to states and municipalities to provide the conditions necessary for developing organic agriculture especially for family farmers and in urban agriculture. As a major Brazilian commodity exporter, the state government usually ignores small-scale food production. Organic ranchers were benefitted in a limited way by some state policies meant to subsidize agribusiness because they are part of the historic regional elites who exercise local economic and political power. However, state government only took an interest in their organic systems after they had successfully made the risky organic transition and when national and international funding became available for sustainable agriculture that promotes environmental conservation and mitigation of climate change.

In the case of small organic and urban family farmers, municipalities were more helpful in creating marketing structures, purchasing produce for school meals and other institutional public buyers. However, municipalities have fewer financial and technical resources and are dependent on state government for the provision of technical assistance for farmers on a regular basis. For this to happen, though, farmers must react positively to municipal programs and effectively participate in collective actions. This did not occur with organic urban and peri-urban farmers of Campo Grande who did not participate in the top-down decision-making process involving all phases of production and marketing.

The opposite happened with APOMS organic farmers who did not receive direct government funding but rather received official approval of APOMS initiatives and projects that were funded by multiple blended sources. Instead of passively receiving a technical package of dubious adequacy, APOMS sought out appropriate technical training from local universities and set up its own research center to create organic farming methods that were tailored to the needs of small farmers. The association and its cooperative are always attentive and compete regularly for grants and funding schemes for family farming.

The main lesson for adaptive transferability to be learned from the cases is the overriding importance of collective unity toward common goals, which are similar to those of other organic farmers in Brazil. The endogenous origin of ABPO and APOMS was already a sign of the connectivity that existed within their membership, gave the associations durability that lasted

over the years and accompanied internal and external changes of their network relationship with an ever-widening array of partners. Brazilian organic farmers are usually small rural producers who were not previously fully engaged in corporate productivist agricultural. Hence, small producers are not locked into conventional input and output dependency chains. They use family labor, market crops locally, meet needs for self and community food security and not distant markets like in conventional agriculture. This facilitated engaging in collective alternative networks which have been fundamental for practicing organic agriculture in Brazil.

The relationship between sustainable agroecological systems and carbon-free agriculture for mitigation of climate change appears to offer promise for the future. However, it is still unclear whether agroecological systems will reach the majority of low-income family farmers, will reduce social disparities and will promote an agricultural transition in any significant way.

Acknowledgements

Research supported by the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq).

References

- ABPO (Associação Brasileira de Produtores Orgânicos). (2017). *Memorial descritivo do Protocolo Carne Sustentável da Associação Brasileira de Produtores Orgânicos*. Campo Grande: ABPO.
- ABPO (Associação Brasileira de Produtores Orgânicos). (2022). *Rede APOMS: um processo em construção*. https://agroecologiaemrede.org.br/wp-content/uploads/2022/12/frm_experiencia_zt-qbu-k918i-037f770f-b6f7-4f3b-80df-3b6db43827f4.pdf
- Alves, A. C. O., Santos, A. L. S., & Azevedo, R. M. M. C. (2012). Organic agriculture in Brazil: A path for the compulsory certification. *Revista Brasileira de Agroecologia*, 7(2), 19–27.
- Bicalho, A. M. S. M., & Araujo, A. P. C. (2021). Alternative agro-ecological stock-raising in the Pantanal wetlands of western Brazil. *Belgeo*, 2/2021, 1–26. <https://doi.org/10.4000/belgeo.48485>
- Bicalho, A. M. S. M., & Araujo, A. P. C. (2025). Agroecologia e sustentabilidade no território: Agricultura urbana de Campo Grande, Mato Grosso do Sul. *Campo-Território: Revista de Geografia Agrária*, 20(58), 97–121.
- Bicalho, A. M. S. M., & Feres, A. M. (2014). Participatory guarantee systems as a tool for the empowerment of small organic farmers in Brazil. En A. M. S. M. Bicalho & L. Laurens (Eds.), *The changing face of the contemporary countryside* (pp. 67–87). PPGG-UFRJ/CSRS-IGU.
- Brasil. (2003). *Lei nº 10.831, de 23 de dezembro de 2003, que dispõe sobre a agricultura orgânica*. Diário Oficial da União.
- Brasil. (2007). *Decreto nº 6.323, de 27 de dezembro de 2007*. Diário Oficial da União.
- Brasil. (2012). *Decreto nº 7.794, de 20 de agosto de 2012*. Diário Oficial da União.
- CNA (Confederação da Agricultura e Pecuária do Brasil). (2024). *Protocolo carne sustentável da ABPO*. <https://cnabrasil.org.br/protocolo-carne-sustentavel-da-abpo>
- DouradosAgora. (2009, julio 30). *UEMS/Glória oferece curso superior de tecnologia em Agroecologia*. <http://douradosagora.com.br/2009/07/30/uems-gloria-oferece-curso-superior-de-tecnologia-em-agroecologia>

- EMBRAPA (Empresa Brasileira de Pesquisa Agropecuária). (2024a). *Embrapa validates technical guidelines to produce low carbon beef (LCB)*. <https://www.embrapa.br/busca-de-noticias/-/noticia/87669187/embrapa-valida-diretrizes-tecnicas-para-producao-de-carne-baixo-carbono-cbc>
- EMBRAPA (Empresa Brasileira de Pesquisa Agropecuária). (2024b). *Protocolo CBC é apresentado em Instituto CNA*. <https://www.embrapa.br/en/busca-de-noticias/-/noticia/90617581/protocolo-cbc-e-apresentado-em-instituto-cna>
- Faria, M. R. (2013). *Caracterização socioeconômica dos produtores orgânicos e convencionais vinculados ao projeto PAIS em Campo Grande* (Tesis de maestría inédita). Universidade Anhanguera-Uniderp.
- FBB (Fundação Banco do Brasil). (2014). *Edital de seleção pública nº 2014/005 – Redes ECOFORTE*. <https://fbb.org.br/edital-publico/edital-de-selecao-publica-no-2014-005-redes-ecoforte>
- FAO (Food and Agriculture Organization). (2007). *The state of food and agriculture: Paying farmers for environmental services* (Agricultural Series No. 38). FAO.
- FAO (Food and Agriculture Organization). (2014). *Walking the nexus talk: Assessing the water-energy-food nexus* (Working Paper No. 58). <https://openknowledge.fao.org>
- Friedmann, J. (1987). *Planning in the public domain: From knowledge to action*. Princeton University Press.
- Friedmann, J. (1992). *Empowerment: The politics of alternative development*. Blackwell.
- GIRO DO BOI – Canal Rural. (2023, marzo 13). *Eduardo Cruzetta in Boi Orgânico e Sustentável* [Video]. <https://girodoboi.canalrural.com.br/pecuaria/boi-organico-e-sustentavel-area-cresce-55-no-Pantanal-e-numero-de-produtores-dobra>
- Gliessman, S. R. (2007). *Agroecology: The ecology of sustainable food systems*. CRC Press.
- Goodwin, M. (1998). The governance of rural areas: Some emerging research issues and agendas. *Journal of Rural Studies*, 14(1), 5–12.
- IBGE (Instituto Brasileiro de Geografia e Estatística). (2022). *Censo demográfico*. <https://basedosdados.org/dataset>
- Kaufmann, M. (1997). Community power, grassroots democracy and the transformation of social life. En M. Kaufman & H. D. Alfonso (Eds.), *Community power and grassroots democracy* (pp. 1–24). Zed Books.
- Komori, O. M. (2022). Sistemas participativos de garantias e a experiência da APOMS. En A. S. Menegat & E. R. Oliveira (Eds.), *Saberes e experiências com a produção orgânica e agroecológica*. UFGD. <https://omp.ufgd.edu.br>
- Komori, O. M., & Prata, V. G. (2024). Crédito sistêmico contribuindo com o redesenho de sistemas produtivos na rede APOMS no Mato Grosso do Sul. *Cadernos de Agroecologia*, 19(1).
- Komori, O. M., & Pereira, Z. V. (2024). Relato do processo de parcerias para construção do projeto Agroflorestar MS-carbono neutro. *Cadernos de Agroecologia*, 19(2).
- MDA (Ministério do Desenvolvimento Agrário). (2016). *Plano nacional de agroecologia e produção orgânica (PLANAPO 2016–2019)*.
- MAA (Ministério da Agricultura e do Abastecimento). (1999). *Instrução normativa nº 007 de maio de 1999*. Diário Oficial da União.
- MAPA (Ministério da Agricultura, Pecuária e Abastecimento). (2015). *Instrução normativa nº 13, de 28 de maio de 2015*. Diário Oficial da União.
- Murdoch, J. (2006). Networking rurality. En P. Cloke, T. Marsden & P. Mooney (Eds.), *Handbook of rural studies* (pp. 171–184). Sage.
- Nadai, K. B. L. (2017). *Caracterização da produção agroecológica e da mecanização agrícola em horticultura: Um estudo de caso* (Tesis de maestría inédita). Universidade Estadual de Maringá.

Petersen, P. (2013). Prefácio. En J. C. C. Gomes & W. S. Assis (Eds.), *Agroecologia: Princípios e reflexões conceituais* (pp. 10–15). Embrapa.

Ray, C. (2006). Neo-endogenous rural development in the EU. En P. Cloke, T. Marsden & P. Mooney (Eds.), *Handbook of rural studies* (pp. 278–291). Sage.

Romeiro, A. R. (2014). O agronegócio será ecológico. En A. M. Buainain & J. M. Silveira (Eds.), *O mundo rural no Brasil do século 21* (pp. 509–530). Embrapa.

Scarborough, V., Killough, S., Johnson, D. A., & Farrington, S. (Eds.). (1997). *Farmer-led extension*. Intermediate Technology Publications.

About the authors

Ana Maria de Souza Mello Bicalho, Ph.D. (University of London, UK), Full Professor, Postgraduate Program in Geography, Geosciences Institute, Federal University of Rio de Janeiro, Brazil.

First author

Ana Paula Correia de Araujo, Ph.D. (Federal University of Rio de Janeiro), Full Professor, Faculty of Engineering, Architecture and Urban Planning and Geography. Federal University of Mato Grosso do Sul, Brazil.

Second author