

*Full Length Research Paper*

# **Public policy on the family farming sector in Brazil: Towards a model of sustainable agriculture**

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**This study is based on a review of the literature that analyses the repercussions of the principal public policies established for the promotion of the family farming sector in Brazil. In this review, the processes that have contributed to the establishment of these policies are assessed critically, together with their mechanisms and the connections for the evaluation of their contributions to the promotion of sustainable production systems. The review was based on a wide range of sources, including books, journals, and other scientific papers, in particular those published by the principal authors in this field, in addition to the databases of Brazilian governmental institutions. The analysis focuses primarily on the National Program for Strengthening Family Farming (PRONAF), the baseline for all other policies, as well as the recently-established Technical Assistance and Rural Extension Policy (PNATER), and the government food purchasing programmes. Despite advances, a number of important limitations were found, in particular in relation to credit programmes and the Technical Assistance and Rural Extension, for the development of models of sustainable agriculture. Overall, many of the mechanisms found in the policies analyzed are oriented towards conventional production systems, which cause socio-environmental impacts that contradict the goals of sustainable rural development.**

**Key words:** Agro-ecology, rural development, agricultural policy.

## **INTRODUCTION**

From an agro-ecological perspective, the objective of sustainable farming is to generate long-lasting income for the farmer through the application of ecologically appropriate ecological management technologies (Altieri,

2004, 1989). The broader aim is to maintain agricultural productivity through the achievement of economic returns compatible with the reduction of poverty, in response to the social needs of rural populations, with the minimum

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possible environmental impact. Moura et al. (2017, n.p) understand agro-ecology as “a contemporary approach inserted in the construction of public policies that are concerned with rural development, food sovereignty, and the human right to adequate food”. However, Caporal and Petersen (2012) concluded that conservative values tend to persist and dominate societies and their governments, impeding the effective adoption of paradigmatic changes in official policies on farming and rural development. This has left the science of Agro-ecology at the margins of the decision-making process and, as a consequence, it plays only a minor role in the development of public policy on agricultural issues. As one of the principal perspectives of the Agro-ecological field is to promote change in the existing paradigm of development, it is important to re-evaluate the theoretical and practical guidelines that contribute to the establishment of official public policies (Claudino et al., 2012).

Weid (2006) concluded that the principal limitation of the capacity of the “agro-ecological field” to influence public policy is related to the institutional perspective and its approach to the implementation of these policies, which are characterized by considerable structural dispersion. Each policy is geared to its own intrinsic logic, creating specific, differentiated mechanisms that form barriers to efforts to support development, even from the policy makers themselves. The development of effective public policies based on agro-ecological principles and directed towards family-owned properties will require a revision of the technical framework, a new approach to rural extension, and incentives for the provision of rural credit, resulting in a differentiated set of policies directed specifically at the family farming sector (Carmo, 1998). This agro-ecological transition (as observed in the implantation of the Green Revolution) should be supported by adequate financial and technical resources, to guarantee the integration of family farming practices in this process (Caporal, 2008a).

The present study, based on a systematic review of the literature, provides a panorama of the principal public policies on family farming in Brazil established since the mid-1990s, and highlights their principal repercussions for the potential development of sustainable farming practices from an agro-ecological viewpoint. Based on this review, the principal questions involved in the establishment of these policies will be evaluated from a critical perspective, focusing on their mechanisms and links, with emphasis on their implications for the development of effective models of sustainable agriculture in the country.

## MATERIALS AND METHODS

The present study was based on a literature review (Silva, 2016), which provided the data for the systematic discussion of theoretical questions, focusing on the development and implementation of

Brazilian public policy in the sphere of the family farming sector, in particular actions that support sustainable rural development. A broad body of publications was consulted, including books, journals, papers published in periodicals, and other public documents, in particular those written by the principal authors working in this specific field of research. The compilation of data for the establishment of the theoretical basis of the present study was also supported by the consultation of the databases of the principal government institutions related to this theme, including the Brazilian Institute for Geography and Statistics (IBGE), the National Institute for Colonisation and Agrarian Reform (INCRA), the Ministry for Agricultural Development (MDA), and the Ministry of Social Development (MDS).

The concept of *public policy*, which is the central theme of this study, refers to any “programme of governmental action that proposes to coordinate the means available to the state with private activities, for the development of socially relevant and politically determined objectives” (Bucci, 2006).

## RESULTS AND DISCUSSION

The first step in this review was to revisit the three historical events that characterize the trajectory of public policies on family farming in Brazil, based on Grisa and Schneider (2014), followed by an overview of the National Program for Strengthening Family Farming (PRONAF: *Programa Nacional de Fortalecimento da Agricultura Familiar*), which is considered to be the principal initiative on the part of the Brazilian government in support of family farming, and the fundamental event that brought visibility to this sector in the eyes of both the State and Brazilian society in general. The next step in the review is to explain the National Policy on Technical Assistance and Rural Extension (PNATER: *Política Nacional de Technical assistance and Extensão Rural*), followed by comments on the two principal government purchasing programmes related to the family farming sector, the Food Acquisition Programme (PAA: *Programa de Aquisição de Alimentos*) and the National School Meals Programme (PNAE: *Programa Nacional de Alimentação Escolar*). The review highlights specific points related to the development of policies that support sustainable agriculture, based on questions raised by the principal actors that have contributed to the compilation of this complex sociopolitical sphere.

### Three generations of Brazilian public policy on family farming

Based on the Agricultural Census 2006 (IBGE, 2017), it is worth mentioning that family agriculture accounts for 84.4% of all real estate in the agricultural sector and occupies only 24.3% of the total area allocated to the agricultural sector in the country. However, the family farmer is responsible for 38% of gross value of production and accounts for 74.4% of the employed staff in the agricultural sector. Regarding the importance of family farming in Brazil, about 70% of the food consumed

by the Brazilian people is made by family farmers. Family farming produces 87% of manioc, 70% of beans, 46% of corn and 38% of coffee in Brazil. Family farming also stands out in the livestock sector, accounting for 60% of milk production, and accounts for 59% of pork production and 50% of poultry in the country. There is an interest in supporting family farming so that it becomes more competitive sector, as a strategy for poverty reduction, food security and economic growth (Medina et al., 2015); for this the construction and implementation of public policies is indispensable.

Grisa and Schneider (2014) defined three generations of Brazilian public policy in the family farming sector, in distinct periods and contexts. The first generation was initiated in 1994, with the creation of the PRONAF, the National Program for Strengthening Family Farming, which established specific policies on rural credit, and guarantees of pricing and production, and also refers to the creation of projects of agrarian reform and rural settlement. In the second generation, the focus was once again on social and assistentialist measures, which were increasingly prioritised in the family farming agenda from 1997–98 onwards. Initiatives during this period included the PRONAF Infrastructure and Municipal Services, the Guaranteed Harvest, the National Rural Housing Programme (PNHR: *Programa Nacional de Habitação Rural*), and the School Grant Programme.

The third generation is marked by the implementation of an increasing diversity of public policy on family farming, culminating in the establishment of a new market focused on food security and sustainability. While the rural social movements had been proposing measures of this type since the beginning of the 1990s, it was only after a shift of policy, in 2003, that any real, institutional changes were implemented. The principal measures that combined the questions of food security and sustainability were the creation of the Food Acquisition Programme (PAA) and a change in the National School Meals Programme (PNAE), which was obliged to reserve a minimum percentage of its resources for the purchase of the produce of family farms (Grisa and Schneider, 2014).

### **Brazilian national programme for the strengthening of family farming (pronaf)**

Up until the mid 1990s, there was no specific national policy in Brazil that provided financial support for the family farming sector (Aquino and Schneider, 2015). Prior to this period, the high costs and lack of credit were seen as the principal problems facing Brazilian farmers, and in particular, family-based operations (Guanziroli, 2007).

In 1996, the Brazilian government established the National Program for Strengthening Family Farming (PRONAF) through decree 1446 of June 28th. This programme was the country's first public policy directed specifically at the family farming sector, and was the result of consolidated pressures from social movements

and rural workers' unions (Denardi, 2001). The establishment of the PRONAF represents a fundamental event in the intervention of the Brazilian State in the national agricultural sector, through the effective incorporation of family farming in rural policies (Gazolla and Schneider, 2013).

Between 2001 and 2009, PRONAF contributed to an increase in Brazilian *per capita* income and a reduction in economic inequalities, as measured by the Gini coefficient. Mattei (2006) identified a certain consensus in the analyses of the PRONAF with regard to the conclusion that, given the fundamental vulnerability of the family farming sector, its social and economic conditions would be even more precarious if the PRONAF had not existed. The principal criticisms of the programme include the focus on certain activities for the concession of credit, in particular, the production of grain and commodities, such as soybean, corn, and wheat (Grisa et al., 2014).

Based on this perspective, Aquino and Schneider (2015) concluded that the intimate relationship between the PRONAF and the conventional model of production and traditional market forces restricted considerably its capacity to contribute to real changes in the sector. In this case, the model of family farming actually benefitted by the PRONAF credit policy is not the model that prioritises the diversification of productive activities and sources of income, but rather the "small family business" model, specialised in the production of export commodities.

Caporal and Petersen (2012); Grisa et al. (2014); Sambuichi et al. (2012) and Weid (2006) have criticized this feature of the PRONAF, and its limitations with regard to the development of models of sustainable agriculture. Despite this, subsidised credit is the principal economic mechanism currently available to the agro-environmental sector (Sambuichi et al., 2012), and a number of lines of credit have been created specifically to support more sustainable farming practices, including the PRONAF Forests, Semi-arid, Agro-ecology, and Eco agendas. Together, these lines of credit form the "Green PRONAF" (Sambuichi, 2012) and are described in Table 1.

Sambuichi et al. (2012) found that only 0.7% of the credit conceded by the PRONAF for the harvests between 2004–2005 and 2010–2011 was applied to the Green Programme, representing only 0.5% of the total number of PRONAF contracts emitted during this period (including only costing and investments, without the special lines of credit). In other words, the conventional production systems continued to receive a much larger proportion of the available PRONAF resources than the agro-ecological, organic, agroforestry, and other more sustainable systems (Sambuichi and Oliveira, 2011).

While the creation of the Green PRONAF lines of credit represents an important advance, then, these innovative financial mechanisms, designed specifically to provide incentives for the agro-ecological transition, have been used only rarely (Weid, 2006). The limited scope of these lines of credit does in fact restrict their applicability for

**Table 1.** Lines and objectives of the "Green Pronaf".

CREDIT LINE	OBJECTIVES
<b>Pronaf Agro-ecology</b> <i>Pronaf Agroecologia</i>	Line for the financing of investments of the production systems of agroecological or organic products, including the costs of implantation and maintenance of the systems.
<b>Pronaf Eco</b>	It is the financing of investments that minimizes the impact of rural activity on the environment and that is more favorable to the conviviality with the biome that its property is inserted.
<b>Pronaf Forests</b> <i>Pronaf Floresta</i>	Financing investments in agroforestry systems projects; ecologically sustainable extractive exploitation, forest management plan, restoration and maintenance of permanent preservation areas and legal reserve and degraded areas.
<b>Pronaf Semi-arid</b> <i>Pronaf Semiárido</i>	Line for the financing of investments in projects related to the semi-arid region, focusing on the sustainability of agroecosystems, prioritizing water infrastructure and the implantation, expansion, recovery or modernization of other infrastructures, including those related to agricultural and non-agricultural production and services projects, according to the reality of families

Fonte: MDA/Brasil (2016).

ecologically-oriented producers or those interested in initiating an agro-ecological approach in their production systems. In addition to these considerations, considerable difficulties are also encountered for the implementation of this credit (Weid, 2006).

Caporal and Petersen (2012) are critical of the Green PRONAF initiatives (PRONAF Agro-ecology, Forests, Semi-arid and Eco) due to the lack of specific resources, which results in the marginal status of these lines of credit, which has persisted since their creation. In addition, some of the measures adopted by the ministries for Agricultural Development (MDA), and Agriculture and Provisioning (MAPA) as incentives for the development of organic agriculture have been implemented following a conventional perspective. Furthermore, Caporal and Petersen (2012) point out that these measures are generally restricted to the technical-agronomical sphere, impeding significant changes in the use of inputs, such as artificial fertilisers and pesticides, which limits any consistent advances towards sustainability.

Sambuichi et al. (2012) concluded that the Agro-ecological line of credit is the least effective of the Green PRONAF initiatives, with a negligible number of contracts being signed each harvest. A number of factors contribute to this situation, including the difficulty of obtaining credit from banking institutions, the lack of knowledge on the part of the farmers with regard to the characteristics of this line of credit, and the lack of the technical assistance necessary for the preparation of projects. Ferrari and Abraão (2008) and Weid (2006) recommend greater flexibility in the current requirements of the PRONAF Agro-ecology programme in order to guarantee that more farmers have access to this support.

These authors also highlight limiting factors, such as the general lack of information on the opportunities available to the farmers, and the reduced capacity of support institutions to facilitate the access of these farmers to this line of credit.

To stimulate the demand for credit from the Green PRONAF, a number of specific advantages were added to these specific lines of credit, in comparison with the general PRONAF, especially in recent years (Sambuichi et al., 2012). In addition to the advantages in terms of the interest charged on loans, deadlines, and credit limits, however, a number of changes are still necessary to guarantee an effective increase in the implementation of the Green PRONAF lines of credit, such as changes in the banking mechanisms responsible for the concession of credit, and the provision of technical assistance more appropriate for sustainable farming systems. Other forms of support, in particular credit for investments, will be important to guarantee the transition to more sustainable models of farming (Weid, 2006). As mentioned previously by a number of authors, the credit available for investment is still restricted to a small portion of family farmers. Even in the small number of cases that the farmer obtains this type of credit, the qualitative aspects are debatable, from an agro-ecological perspective.

#### **Technical assistance and rural extension (ATER) service in Brazil and the changes necessary for the development of measures consistent with the agro-ecological perspective**

Following the establishment of the first credit programme

aimed specifically at family farmers (the PRONAF), in 1996, the perspectives for the development of effective government policies for the family farming sector expanded considerably. In particular, the consolidation of the PRONAF intensified the demands from social movements for a more effective public Technical Assistance and Rural Extension (ATER: *Assistência Técnica e Extensão Rural*) service for family farmers (Dias, 2008; Peixoto, 2009).

In 2003, the ATER service came under the control of the Ministry of Agricultural Development (MDA). In this same year, with the aim of establishing a new Technical Assistance and Rural Extension Policy (PNATER: *Política de Technical assistance and Extensão Rural*), the government conducted a thorough public consultation, based on seminars, meetings, and hearings, which involved non-governmental ATER organisations and the general public, with the extensive participation of representatives of the family farming sector, social movements, and the entities that work in the ATER services. These debates resulted in a number of important consensuses and a set of agreements that were summarised in the PNATER. It is important to note here, that this policy is supervised by the National Programme of Technical Assistance and Rural Extension (PRONATER: *Programa Nacional de Assistência Técnica e Extensão Rural*) and that its implementation established a range of categories and activities contemplated by the Brazilian family farming sector, which take a number of questions into account, including gender, ethnicity, and generation, as well as the role of the non-governmental organizations (Caporal, 2005; Brasil, 2015).

Pettan (2010) points out that the PNATER also resulted from a process of reconsideration of the consequences of the Green Revolution, which matured over the course of the 1990s. While there have been considerable efforts to implement this proposal, the process has been marked by intense disputes on the character of the ATER and its institutional format (Diesel et al., 2015). Contradicting the strategies adopted for the modernization of Brazilian agriculture, underpinned by the principles of the so-called Green Revolution, the PNATER designated rural families (and other beneficiaries of the MDA/SAF programmes) as the only sector to be benefitted by the ATER services. In this case, the operational strategies of the ATER were directed specifically at the needs and idiosyncrasies of the family farming sector, providing a new perspective on rural development, underpinned by agro-ecological principles.

As Caporal (2011) explains, the PNATER was the first federal public policy in Brazil to include an agro-ecological perspective, integrated with the recommendations on the measures necessary to support rural and agricultural development on a national scale. In 2009, however, new discussions on the ATER format, with a reduced involvement of the general public, culminated in the approval of federal law 12,188, which

was sanctioned in 2010. This law established the PNATER and, in contrast with the document published in 2004, it did not mention the word *agro-ecology*, and no longer referred to the principles of this field of knowledge as a basis for the development of the measures contemplated by this policy. The law only mentions that the principles of this public policy should include the “adoption of the principles of ecology-oriented agriculture as the preferential focus for the development of sustainable production systems” (Brasil, 2015).

Caporal and Petersen (2012) concluded that the methodological proposals included in the ATER legislation of 2010 are fundamentally opposed to the basic principles of the agro-ecological perspective, in particular by reinforcing the diffusionist approach in the activities of its technicians. The lack of involvement of the sectors most interested in the reformulation of this policy led to the dilution of the demands defined previously as priorities, by a faction of social actors (Caporal and Petersen, 2012).

The debates and reflections that occurred during the 1st National Conference of Technical Assistance and Rural Extension (CNATER), in 2012, which involved an ample range of representatives of the family farming and agrarian reform sectors, recognized the advances attained by the restructuring of the public ATER, initiated in 2003, and the institutionalisation of the PNATER and PRONATER through federal law 12,188 of 2010. A number of challenges to the achievement of sustainable rural development by the ATER were also highlighted. In particular, while the PNATER would no longer necessarily adopt agro-ecological principles in the development of its measures, the Conference highlighted questions on the defense of actions taken by the ATER, based on methods and practices derived from agro-ecological themes, in addition to the training of ATER professionals to consolidate their capacity to implement these agro-ecological principles.

The challenges presented at the 1st CNATER indicated that certain social actors involved in rural development opted for an ATER consistent with agro-ecological principles, and support this perspective. A process of rural extension based on an agro-ecological perspective should reinforce the potential for endogenous development through the maximization of the use of the available resources, within the different spheres, including the historical, cultural, social, and political spheres, as well as existing economic mechanisms, which are considered to be essential for the sustainable use of local natural resources (Caporal and Costabeber, 2004).

Caporal (2008b), in turn, emphasizes that any shift in the extensionist paradigm must be accompanied by institutional changes, followed by a revised structure, and new management strategies. In this context, it is important to emphasize changes in the pyramidal model of supervision, which existed previously in the structure of the ATER, and is common in the strategies of the Green

Revolution, but is incompatible with participative management mechanisms. This author emphasizes the need for models that stimulate the dialogue between the different social actors and institutions involved in the sphere of action of the ATER, in order to consolidate cooperative and democratic forms of management that are reflected in the planning, monitoring, and evaluation of the measures implemented.

Brazil has invested in the training of professionals expected to follow the precepts of the Green Revolution, as part of a general strategy for the modernisation of its agricultural sector. To guarantee sustainability, however, it will be necessary to invest heavily in the training of the ATER agents, to guarantee the capacity of these professionals to develop new technological and human approaches for the intensification of the country's agricultural sector (Sambuichi et al., 2012).

### **The institutional market for the produce of family farming and incentives for sustainability: The food acquisition programme and the national school meals programme**

The "institutional market" is defined here, as in Grisa (2010), where it refers to:

A specific configuration of the market in which the network of exchange has a particular structure, determined by predefined norms and convention negotiated by a set of actors and organisations, where [sic] the State generally assumes a central role, in particular through public buying. (Grisa, 2010: 103)

In Brazil, the sale of the products of family farming in the institutional market is a relatively recent phenomenon, which began through initiatives of state and municipal governments, interested in stimulating family farming and the local production of foodstuffs, but they tended to be restricted in scope and mostly intermittent. In 2003, the creation of the Food Acquisition Programme (PAA: *Programa de Aquisição de Alimentos*), resulted in a series of important changes in this field (Schmitt and Guimarães, 2008).

The PAA was established through federal law number 10,696 of July 10th, 2003, and regulated by decree number 7775 of July 4th, 2012 (Brasil, 2012). This important programme was established through the efforts of the National Council for Food and Nutritional Security (CONSEA), which, together with the federal government, stimulated debates on the creation of effective strategies for the resolution of the problems of poverty and hunger, leading to the establishment of the PAA as one of the principal structural components of the Zero Hunger Programme (*Programa Fome Zero*).

Grisa et al. (2011) conclude that, since the 1990s, with the establishment of the dialogue between the different spheres of criticism of the hegemonic models of

agricultural and rural development in Brazil, as well as the establishment of a broader understanding of food security, not restricted to the simple access to food, it was possible to integrate the need to transform the productive matrix of family farming with the process that gave rise to the PAA. Mattei (2006) suggests that this contributed to the development of mechanisms that benefitted not only the family farmer, but also the consumer, by integrating policies supporting food and nutritional security with the policies that aimed to support the family farming sector.

The exemption of the PAA from the public bidding process required by law reduces bureaucracy and facilitates the access of farmers, and is one of the principal innovative advances in the programme. While experiencing some setbacks, this exemption is a key factor for the effective socio-productive inclusion of family farmers on a national scale. One other characteristic that differentiates the PAA, as public policy, is its double fundamental objective, that is, to both support family farming and guarantee access to food, which allows it to benefit not only farming families, but also other populations in a position of social vulnerability, marked by risks to their food and nutritional security (MDA, 2012).

These objectives are achieved through the purchase of the produce of family farmers, who are exempted from the public bidding process, and the distribution of this produce to the population at risk of nutritional insecurity, as well as to entities of social assistance and through public food and nutrition organisations. The programme also aims to contribute to the formation of public food stocks derived from family farming (MDA, 2012), which permit the farmers to stockpile their produce until it can be sold for a fair price (Souza-Esquerdo and Bergamasco, 2014).

The impacts of the PAA can be best understood through the comprehension of its implicit objectives, as defined by Becker and Anjos (2010), which include the redistribution of income, the circulation of financial resources in local economies, the more logical exploitation of rural environments, the promotion of agrobiodiversity, and the preservation of regional culinary traditions. The PAA represents a new phase in the development of policies directed at the strengthening of the family farming sector, in particular through the establishment of specific, differentiated market mechanisms for this social stratum, by guaranteeing the purchase of its produce by the State. The guarantee of the purchase of a fixed quota of the produce of this sector provides family farmers with new incentives, allowing them to exploit their specific, local practices and values to negotiate with a range of public purchasers (Grisa et al., 2011).

Currently, the PAA operates through six different schemes: Direct Purchasing, Purchasing with Simultaneous Donation, Support for the Formation of Stocks, PAA-Milk (Support for the Production and

Consumption of Milk), Institutional Purchasing, and the Acquisition of Seed (Brasil, 2016). Hespanhol (2013) points out that government purchasing programmes, such as the PAA, not only support the production of food by family farms, but also contribute to the strengthening of social assistance networks on local or even regional scales, as well as promoting local culture and values, supporting cooperatives, and contributing to the self-esteem of producers. The establishment of new marketing mechanisms can also contribute to the improvement of the conditions of social reproduction for the family farmers.

However, Schmitt and Guimarães (2008) recognise a number of operational limitations that are yet to be resolved by the government organs responsible for the PAA, such as the delays in the implementation of financial resources, the bureaucracy faced by the farmers, and the lack of integration of the different mechanisms of public policy that support the programme. These authors also mention that the fragility of the organisation and management structure must be overcome by the local entities that implement these measures, to guarantee the more effective monitoring of the supply chain and the qualification of the mechanisms of access of the beneficiaries to the food. It would also be important to reinforce the access of producers to alternative sales channels, in order to reduce their dependence on the institutional market.

Hespanhol (2013) found that, while there was a nationwide increase in the volume of resources made available, and the numbers of both producers and persons receiving the produce, between 2003 and 2011, the scope of the PAA is still limited at the macro-regional and state levels. In addition to these limitations, the programme suffers from a lack of articulation among the different mechanisms, such as access to rural credit (PRONAF) and technical assistance. The National School Meals Programme (PNAE), also known simply as “School Meals”, is managed by the Ministry of Education, and aims primarily to “supplement the diet of the students, contribute to school attendance, and guarantee the performance of the students and the development of healthy eating habits” (Brasil, 2010: 6).

The National Fund for Education Development (FNDE: *Fundo Nacional de Desenvolvimento da Educação*) is responsible for the transfer of PNAE funding to creches, kindergartens, federal schools, municipal councils, and the education secretariats of the states and the federal district. These institutions and organs are responsible for the implementation of the programme through the purchase of the produce for the preparation of the school meals, as well as accounting, which is overseen by the School Meals Council, the CAE (Brasil, 2010).

The origin of the PNAE can be found in the 1950s, when the National Food Commission (CNA: *Comissão Nacional de Alimentação*) was created. The CNA was linked to the Public Health sector of the Ministry of

Health. It was originally called the National School Meals Programme, and was intended to reduce nutritional deficiencies in needy Brazilian schoolchildren. The Campaign for School Meals (CME: *Campanha de Merenda Escolar*) was established by federal decree 37,106, which came into effect on March 31st, 1955, under the control of the Ministry of Education. This programme was initially linked to international food subsidy organisations created following World War II and, while it originally had a specific focus, this perspective was amplified progressively. The PNAE was consolidated primarily by the Constitution of 1988, which established school meals as a guaranteed right of the citizens (Triches and Grisa, 2015). The PNAE is the world’s largest and oldest school meals programme, although it was only integrated with family farming policies in 2009, with federal law 11,947, published on June the 16th. This law aligned the school meals programme with the development of family farming by determining that: At least 30% (thirty percent) of the financial resources provided to the PNAE by the FNDE must be used for the acquisition of foodstuffs directly from family farming and rural family operations or their cooperatives, prioritising agrarian reform settlements, and traditional indigenous and quilombola communities (Brasil, 2009).

Prior to this law, all purchases made by the PNAE were obliged to adhere to the principles of isonomy and competition. The new law meant that producers from family farms were no longer required to participate in the public bidding process (Triches and Grisa, 2015). The PNAE originally had close links to the food industry, when the distribution of processed, ready-to-eat foods was prioritised, although the change in policy contributed to the establishment of the institutional markets for the produce of family farming and, simultaneously, the promotion of food and nutritional security throughout Brazil (Triches and Grisa, 2015; Schmitt and Grisa, 2013). Mossmann et al. (2017) conclude that public policies as PNAE can provide benefits for farmers and the students, with positive effects in both rural and urban settings in relation to food and nutritional security. One year after the implementation of federal law 11,947, which obliged educational authorities to purchase produce from family farms, Saraiva et al. (2013) found that only 47.4% of Brazilian municipalities were purchasing the produce of family farms for school meals, with these municipalities devoting an average of 22.7% of their spending on this item to family farm produce. The Brazilian Southern region presented the highest rates of adherence to the policy, whereas the Midwest returned the lowest percentage. Saraiva et al. (2013) found that the principal reason given by the municipalities for not adopting the official PNAE quotas was the incapacity of family farmers to provide constant and regular supplies of their produce.

Despite their legal obligation, then, less than half of Brazilian municipalities have applied PNAE resources to

the purchase of the produce of family farmers, given the many practical limitations, which have only been overcome effectively in some areas (Real and Schneider, 2011). In this case, one of the principal challenges that must be overcome is the structure of the public purchasing mechanisms that supply the programme, which have, historically, been under the control of the food sector's principal companies.

Souza-Esquerdo and Bergamasco (2014) noted that, in the municipalities of the region of the Brazilian State of São Paulo known as the "Fruit Circuit" (*Circuito das Frutas*), the purchase of the produce of family farming for school meals has increased gradually, although the majority of the municipalities surveyed were yet to apply the full quota of FDE resources defined by the programme. This is despite the predominance of family farming in this region of São Paulo. It is important to note here, that this new model of public purchasing is still at the trial stage, which is also related to the barriers that have always existed in the participation of family farming operations in formal markets (Triches and Grisa, 2015).

While environmental conservation is not a central concern of the PAA, the federal government has used this purchasing mechanism to stimulate more sustainable practices by family producers, a perspective now included in the PNAE (Sambuichi et al., 2014). Caporal (2008b) believes that government purchasing programmes, such as the PAA and PNAE, should focus exclusively on farming based on ecological principles, and the acquisition of foodstuffs produced without the application of pesticides. While these programmes have not yet adopted a strict policy on this question, they are supporting incentives for the use of more sustainable practices by their suppliers.

When discussing the ampler effects of the policies associated with the institutional market, Schmitt (2010) mentions that the initiatives of the PAA and the School Meals Law may contribute to the development of the principles of sustainability, not only through regulatory measures, but also by implementing incentives for a more sustainable lifestyle. The efforts of the institutional market to promote sustainable food production can also be seen in the incentives to ecologically-based farming practices incorporated into the PAA and the PNAE. This can be observed, for example, in federal decree number 7775, of July 4th 2012, which regulates the law that established the PAA, and determines that the objectives of this programme are to "promote and valorize biodiversity, and the organic and agro-ecological production of food, and provide incentives for the adoption of healthy eating habits at local and regional levels" (Brasil, 2012).

In the specific case of the PNAE, priority is given to the "suppliers of foodstuffs certified as organic or agro-ecological, according to federal law 10,831, of December 23rd, 2003" (Brasil, 2015). These government initiatives are also intended to support the production of healthier

foods and the sustainable exploitation of agro-ecosystems, established by judicial mechanisms, which reveal that "the government can use market forces as an incentive for the development of more socially and environmentally sustainable strategies of production, as observed in the case of these two programmes" (Sambuichi et al., 2014: 99).

A number of studies have referred to the stimuli provided by the PAA and PNAE for ecologically-based production, including the fact that they permit an increase of up to 30% in the purchase price of products derived from organic farms or agro-ecological production systems (Grisa et al., 2011; Sambuich et al., 2012; Triches and Grisa, 2015; Sambuich et al., 2014; Schmitt and Grisa, 2013). Sambuichi et al. (2012) highlight the incentives of the PAA and PNAE for organic production, given this explicit priority (differentiated pricing) for the acquisition of this type of food. Their analysis of the data provided by National Supply Company (CONAB: *Companhia Nacional de Abastecimento*) revealed the evolution of the purchase of this type of produce between 2009 and 2011 through the PAA. Overall, however, only a relatively small amount of resources is allocated to the acquisition of these foods, reflecting the many difficulties of this type of agriculture, in particular in certain specific regions (Sambuichi et al., 2012).

Santos et al. (2014) analysed the use of organic foods in the school meals of the rural municipalities of the state of Rio Grande do Sul, and found that the inclusion of these foodstuffs in the school menu does not depend solely on the motivation and commitment of the municipal administrators of the PNAE to this objective, but also on a range of other factors, including local production, certification, and costs. This reinforces the need for more effective incentives and support for the farming operations to ensure an increase in the proportion of organic products included in the school meals programme.

In many cases, while the produce supplied to the PAA (and the PNAE) is free of pesticides, it is not sold as organic (Siliprandi and Cintrão, 2011), due to either a lack of information or the bureaucratic difficulties of obtaining certification. Grisa et al. (2011) describe a number of challenges faced by the PAA for the stimulation of sustainable production by ecologically-sound farming operations, which also converge on the question of certification.

In this context, there is a clear need for the establishment of more flexible mechanisms of evaluation for the certification of the organic quality of farm produce, adapted to the specific characteristics of each Brazilian region. Marques et al. (2014) analysed the impacts of the PAA on rural settlements in the state of São Paulo, and observed that the programme contributes to the debate on the development of alternative models of agriculture, based on an agro-ecological transition, and the diversification of farming methods, in particular the



production of more healthy foods. The PAA has in fact encouraged family farmers to adopt models of production more closely aligned with the agro-ecological perspective.

One of the principal advantages of the PAA, revealed by the studies that have analysed in detail the impacts of this public policy, is the increase in the diversity of the produce grown by the family operations that participate in the programme (Gonzaga, 2015; Sambuich et al., 2014; Hespanhol, 2013; Schmitt and Grisa, 2013; Grisa et al., 2011). The programme's support for this process of diversification is an important strategy for the strengthening of family-based production systems, given that it provides greater security in terms of income, in addition to contributing to the conservation of the environment. This is a fundamental strategy to guarantee the environmental and economic sustainability of the family farming sector (Sambuichi et al., 2014).

Caporal (2008b) supports the strengthening of institutional purchasing and local markets through the establishment of programmes that contribute to the reduction of the distance between the areas in which the food is produced and consumed, as emphasized by the results of both the PAA and the PNAE. This reduction in the marketing cycle is one of the fundamental elements in the development of sustainable systems. The PAA and the PNAE also make the family-farming sector more viable by providing local markets, as well as providing incentives for the exploitation of other marketing strategies, such as the sale of produce in local farmer's markets, which reinforces the short cycle, and provides the family farmers with more equitable opportunities. The establishment of government purchasing programmes, such as the PAA and PNAE, which also promote family farming, has generated a number of opportunities for the improvement of the conditions for the socio-economic reproduction of this sector through marketing mechanisms that are more appropriate to the specific characteristics of the sector, and are more equitable, when compared with the conventional marketing system. This process has also contributed to the amplification of the perspectives for the sustainability of the family farming sector, which makes this type of market an important ally in the transition to more sustainable farming models. However, this transition to more sustainable production systems still faces a number of challenges, involving both programmes.

## FINAL CONSIDERATIONS

In recent years, sustainability has become an increasingly important aspect of the public policies established by the Brazilian government for the family farming sector. However, while the PRONAF, the government's principal programme in this sector, is supported by legislation that prioritises the sustainable development of the family-farming sector, it has continued to support primarily the more conventional production systems, perpetuating the

adoption of less sustainable models of production. Despite the fact that certain components of the programme are directed specifically at the promotion of sustainable agriculture, the results of these efforts have been negligible, up to now.

Contradicting its original 2004 proposal, the law that established the PNATER no longer bases its strategies of technical assistance and rural extension on agro-ecological principles, hampering the implementation of proposals that integrate the multiples dimensions of sustainability, which underpin the agro-ecological perspective. While the scope of the PNATER encompasses the promotion of sustainable rural development, it is yet to achieve more tangible results. For these objectives of this programme to be achieved, it will be imperative to increase the resources invested in personnel training and the agro-ecological scope of the ATER, to overcome the productive paradigm inherited from the Green Revolution. This will require changes that include the process of training the ATER agents, and the strengthening of the institutions involved in its activities.

From the current perspective of the PAA and the PNAE, the institutional market is an important ally for the production of healthier foods, and supports the transition towards more sustainable models of farming. This emphasizes the importance of these policies for the implementation and reproduction of ongoing advances within an agro-ecological framework. Given this, any further consolidation of these programmes will represent a commitment to both the family farming sector and sustainability. It is nevertheless important to emphasize the need for the inclusion of specific strategies to amplify the production and acquisition of the produce of the sustainable farming systems, which remains a challenge for both programmes.

While the present review has shown that the public policies implemented in recent years in support of the Brazilian family farming sector have achieved a number of important advances, it has also highlighted a number of limitations, in particular in the concession of credit and technical support (ATER) necessary for the promotion of sustainable models of farming. This is because many of the measures adopted by the programmes are aligned with the conventional systems of production adopted during the modernisation of Brazilian agriculture, which have socio-environmental impacts that contradict the goals of sustainable rural development.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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