

# Familiar Agriculture Institutional Purchasing Programs: A Study Focused on Criciúma County, Brazil

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**Abstracts:** throughout Brazil, the Familiar Agriculture Institutional Purchasing Programs for foods have brought a re-insertion in the market for the farmers and their families and the National Food for the Schools Program (PNAE) is its most significant example. It is, by far, the longest non-stop public policy in the country in this regard (since 1955); even though in 2009 new targets have been introduced, with a mandatory minimum purchase of 30% from the Familiar Agriculture (AF). The main objective of this study is to evaluate the challenges of implementing the PNAE, right after the changes occurred in 2009, over at Criciúma County, in Santa Catarina State, Brazil, starting in 2010 until 2015. From the Federal resources sent, 33% have been used to buy foods from the AF Program, though. As for the meals served in schools (menus), the majority is just inappropriate, with a high level of refined sugar been added, up to a level of 67% overall. It has been noted some factors that make things difficult for the Cooperatives to join the PNAE, even though the granted selling system has shown a fundamental element for granting a continuous income to the farmers. In the Criciúma County, the PNAE needs a bigger commitment from the public sector and a better interaction among the other involved parties, in order to contribute to the strength of the Food and Nutritional Safety Program (SAN).

**Key words:** familiar agriculture; institutional purchases; school food programs; school menus; food; nutritional safety program

**JEL codes:** Q180

## 1. Introduction

The alternate food chains, in comparison to the current hegemonic system, are widely spread and actuates in the short-term selling method, such as familiar agricultural trade fairs, supportive and agro-ecological economies, direct and institutional sales, among other methods of direct sales. Such circuit, or short chain, is characterized by the fact that the product reaches the end consumer with data that enables to identify the producer, the place where it has been produced and the production system employed.

With such a method, it is possible to re-connect the production to the consumer chains, with sustainable patterns, the boost of local markets and the revaluation of products with a differential in quality, such as the products coming from the AF (Mardsen, Banks & Bristow, 2000).

One of the main AF issues in Brazil is the insertion of its production into local producing chains and markets,

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particularly in the governance of such. Several studies demonstrate how important is this challenge, involving mutual efforts from different sectors of the Government. Furthermore, the public policies for rural development established by the Federal Government might constitute very important tools for the consolidation of this segment of the Brazilian agriculture (Dos Anjos & Becker, 2014).

The trading of the AF products towards the institutional market, having the collective consumer as target (schools, social welfare, and hospitals), is in constant growth and it is considered as a direct sale by the Government. In this regard, through institutional programs, the foods are purchased directly from the farmers and/or their cooperatives, reaching the public schools without any brokerages.

The PNAE program fits into the public policies, geared into the SAN program and for that purpose, the organic products receives a 30% increase in prices, if compared to the same products from the conventional agriculture, which prizes the nutritional quality and the remaining socio-environmental aspects involved (Darolt et al., 2016).

The PNAE is the oldest food and nutrition continuous existing program in Brazil, originated way back when, in 1940, with its milestone set in the 50s. Throughout such a historical trajectory, the PNAE has shown significant improvements in relation to its goals, management, execution, coverage, and articulation with other sectors, other than the educational one (Brasil, 2010). Along with the decentralization, which officially started in 1994, the PNAE financial resources started to interfere directly in the local economy of several Brazilian counties, thus opening a dialogue opportunity between the program itself and the possibility of contributing for the local development (Dos Santos et al., 2012).

An important milestone in the trajectory of this program was the revision of its legal base, with the approval of the Law no. 11.947/2009. Among the improvements of such a law, the highlight has to be made to the unanimous support to the sustainable development programs, through articulations with the AF and the restriction and prohibition of non-healthy food (Brasil, 2009).

One of the guidelines representing this law — for the discussion to be proposed — is the legal demand that at least 30% of the received funds from the FNDE to the PNAE, should be used for a direct purchase from the AF of quality and healthy foods, in order to improve the quality of the meals for the students and participants of the program (Brasil, 2015).

In 2010, PNAE's overall budget was of approximately US\$ 644 million and benefited 45.6 million students from basic schools, as well as youngsters and adults. From this amount, R\$ 150,397,052.68 have been directed to the purchasing of provisions for the AF. In Brazil, 47.4% of the counties have purchased foods from the AF, in order to feed the PNAE and the average purchasing percentage among these counties was of 22.7% (Saraiva et al., 2013). In 2014, 65% of the Project Executing Agencies (EE) did accomplish the minimum purchasing percentage, whereas 25% purchased less than 30% and 10% did not purchase at all. AF's overall purchases were of US\$ 175,916,530.62.

According to the existing records, the year 2015 shows that more than 80% of the EE's have purchased foods directly from the AF's, whereas 45% have reached and/or surpassed the minimum required percentage of 30% though. Highlight has to be made to the previous commitments assumed by the FNDE, in the scope of the National Food and Nutritional Safety Plan (PLANSAN), which means that until 2019, 30% of the entire funds to the PNAE towards the EE's should be directed to the purchasing of foods, straight from the AF (Caisan, 2016).

The PNAE overall structure is coordinated by the FNDE, which aims throughout all States and the Federal District and all counties, to transfer the necessary funds for partially supplying the nutritional needs of the students. It is considered one of the most advanced scholar food programs in the world, being the only one with universal reach. The menus are prepared based on the incoming funds from the FNDE, then re-passed to the counties in ten

monthly installments and calculated by the number of enrolled students over at the public school network, for the supplying of a healthy meal, in compliance to the pre-defined patterns by such a program, on different levels. The per capita value varies, according to the age of the beneficiaries, as well as their time spent at school (Brasil, 2013).

According to the FNDE Resolution no. 38/2009, the nutritional daily allowances increased to a minimum of 20%, being 70% for full-time students though. In order to comply with these new referential figures shown, the program created suggestions and recommendations regarding the consumption of foods and/or meals (Brasil, 2009).

It is, therefore, the responsibility of the PNAE nutritionists the planning, elaboration, follow up and the evaluation of the scholar menus, according to the food culture, the epidemiological profile of the covered population and also the agricultural vocation of the different regions (Brasil, 2013). Some of its mandatory attributions are defined in the Resolution of the Federal Council of Nutritionists (CFN), no. 465, from 2010 (Brasil, 2010).

According to Magalhães (2014), the upcoming of Non-Transmissible Chronic Diseases (DCNT) is growing in general, including kids and teenagers. Data from the Familiar Budget Researches (POF) between years 2008-2009, shows a considerable weight increase of Brazilian children, teenagers, and adults, in comparison to the World Health Organization (OMS). The Southern States are the most affected ones by the excess of weight and obesity in Brazil (IBGE, 2010). For that reason, the menus shall stimulate the consumption of fruits, greens, and vegetables, which are purchased directly from the farmers (AF), with priority to the agro-ecological products. Furthermore, it must be considered, in the preparation of the menus, foods that help to reduce the risks of the DCNT's (Peixinho, 2011).

According to Ramos (2011), the increase in the number of failing students, their learning abilities, changes and lack of attention, nutritional specific lacks or caused by the excess of foods, are the main consequences for improper meals at school. It is, therefore, of utmost importance to supply good quality foods, in proper quantities, well balanced, with good acceptance by the students, being necessary to incorporate to the scholar curriculum some educational activities related to nutrition and healthcare (Oliveira & Vassimon, 2012).

In Brazil, the school meals are considered as a right to the students, for a healthy meal and also considered one of the SAN strategies, though. The Human Rights for an Adequate Meal (DHAA) consists of physical and economic access to all the people and their resources, such as job or land, in order to grant continuous access. Such right includes the water itself and the various ways to access it. When is said that a meal must be adequate, it means that it must be adequate to the context and to the cultural, social, economic, climatic and ecologic conditions of every citizen, culture ethnical or social group (Consea, 2014).

However, some changes have been made in the PNAE in 2009, in order to strength the acquisition of locally produced foods from AF and to improve the SAN into the public schools' network. It must be highlighted that the PNAE is a worldwide recognized case of success as a sustainable school food program, with some international agreements with the Food and Agriculture Organization (FAO) and the World Food Program (PMA), aiming to support the development of sustainable school food programs, under the principles of the SAN and the DHAA. The country has innovated again by creating an institutional environment capable of strengthening the AF, combined with a strategy of the SAN, which would not be possible to accomplish through the traditional trading channels though. Even with the institutional support from the Government, there are still several obstacles to materialize the purchasing of the scholar food directly from the AF (Triches & Baccarin, 2016).

In the other hand, different actors perform the negotiations of projects between farmer organizations and public sectors, banking system or cooperatives, all leading to asymmetry or lack of information, competence, etc., which means power. In this process, it is worth noting the familiar farmers, public employees and technical staff, such as the nutritionists. Each and every one of these players acts differently when purchasing foods from the AF (Sauborion,

2005), even though these different practices are interconnected and, many times, depends on one another.

Based on the above, the target of this whole article is, therefore, to identify the asymmetries between the public sector, the family farmer cooperatives, and nutritionists, over at the county school, in order to verify the perception of each and every one of these agents, for the implementation of the program.

To promote the debate and discuss the results that may echo in this and other public policies, turned to the development and the strengthening of the AF, with constant and bigger contributions for the safety, the autonomy and the nutritional and food sovereignty. For that matter, the objective of this text is to evaluate the challenges for the implementation of the PNAE, to bring the food purchasing percentage from the AF, after the changes occurred in 2009 and also to evaluate the contents of the scholar menus over at the public school network, in a case study of Criciuma County -SC-Brazil, with a timeline between the years 2010-2015.

## 2. Methodology

The methodological procedure utilized in this research was a case study, with a qualitative approach in which a study was made, based upon primary and secondary sources, in a time frame between 2010-2015.

All information was obtained through seven individual interviews, with people directly involved in the PNAE program, the balance sheet done by the Criciuma County City Hall (PMC), the scholar menus available offered and also by official data available for public consultation in the Accounting Report Management System (SiGPC), which is found at the National Fund for Education Development (FNDE), from the Ministry of Education, where the online accounts can be accessed. Since 2011, the FNDE make available for public consultation, all data regarding the purchasing numbers of the AF for the scholar meals. All accounting entries of the SiGPC are done by public agents of the county and the state as well, being both responsible for the local execution of the PNAE, for accounting and balancing purposes (FNDE, 2016).

Regarding to the scholar menus that were made available, a total of 15 have been analyzed, between the years 2010-2015, all being partial shifts ( $n = 15$ ), which contemplates intermediate meals only (morning and afternoon snacks), through an established method by the Qualitative Evaluation in Preparing the Menu (AQPC), developed by Veiros e Martinelli (2012).

For the evaluation of the menu structure, two categories were defined: recommended and controlled foods. The authors suggest that the controlled food category should have a lesser possible percentage, as they include foods with high quantities of salt, sugar, and fatness. Such criteria show a percentage equal or bigger than 20% ( $\geq 20\%$ ), pointing out the need for revision of the menus. The PNAE recommendations were used, for suitability checking purposes, in compliance with the Law no. 11.947/2009, resolutions CD/FNDE no. 38/2009 and CD/FNDE no. 26/2013 (FNDE, 2016).

The quantitative and qualitative data from the documental analysis of the menus were made using the Microsoft Excel 2013 software, with individual spreadsheets for every single aspect analyzed.

It took 300 days in total, which corresponds to the 15 menus partially evaluated and each one of them represents 04 weeks, with a 20 school days span. Categories used were: natural fruits, salads, non-starchy vegetables, cereals, breads, pastas and starchy vegetables, whole foods, meats and eggs, leguminous plants, milk and dairy products, some sugar added and products with sugar, sausages or industrialized meat-based products, ready or semi-ready industrialized products, canned products, concentrated industrialized foods, in powder or dehydrated, early morning grains, biscuits and cakes, low nutritional value beverages, greasy meats and sauces.

As for the data analysis itself, the type of foods included in the menus have been identified and duly classified into the two available categories of the method. At the end of the evaluation of the daily meals, a detailed checking has been made in all weekly meals during the month. Finally, there was scoring for determining the number of times that each item appeared during the week (n), in order to calculate the percentage (%), based in the number of days analyzed.

Some interviews were carried out, with 01 members of the PMC, 03 nutritionists, which are the technical responsible for the scholar meals in the county, plus 03 general managers of the food supplying cooperatives for the program. All data from the interviews were converted through the audio transcription software (Dictanote). All the answers were described, interpreted and analyzed under a qualitative perspective, in order to explore the entire package of opinions and social representations about the process of the purchasing and supplying of meals, coming from the AF to the PNAE for the Criciúma County though.

Apart from the interviews, other information was used, from technical reports, documents from the Secretary of Education of Criciúma (SEDC) and minutes from the Scholar Food Council (CAE) in the County. Secondary sources were obtained through the online web site of the FNDE.

This case study was submitted to the Research and Ethics Committee (CEP) and has been approved under protocol no. 57779016.2.0000.0119, out of the Certificate of Presentation for Ethical Appreciation (CAAE).

### 3. Results

Criciúma County is located in the Southern State of Santa Catarina, with a territorial area of 235,701 km<sup>2</sup> and a population of 206,918 inhabitants, being 99% of its population living in urban areas (IBGE, 2015).

The Human Development Index (IDH) in Criciúma in 2010 was of 0.79, occupying the 76th position in Brazil and the 14th position on Santa Catarina State ranking (IBGE, 2016). The County has 634 rural properties, with an average area ranging from 12 to 15 hectare and the county's agriculture is based on a familiar structure, though.

In 2015, Criciúma had a total of 74 county schools, for a total of 29,456 students coverage. According to the rendering accounts issued by the PMC, these schools served a total of 11.598.800 meals, coming from the PNAE, with an average cost of 0.36 cents. The PMC carries out the PNAE only for the county schools network. State schools are not covered by the PMC, but by the State Education Secretary instead. The county is responsible for managing the program funds and supplying the meals throughout the schools' network. In this sense, the management of the scholar feeding in the county occurs on a centralized basis.

In general and according to the available data, there are three cooperatives from the AF that supplies food to the PNAE of the PMC. The foods supplied by these entities are of a wide variety, between non-processed foods, like fruits, greens and vegetables, chicken eggs and beef; some minimally processed, such as peeled cassava, white and parboiled rice, black beans, corn flour, natural fruit flesh; the processed ones, such as buttered biscuits and cheese and the ultra-processed foods, such as strawberry dairy drink. Out of the financial resources originated from the FNDE for the purchasing of foods, the county had to do some adjustments, in order to uphold the law, even though it could not reach the targets in the years 2010 and 2012, according to the Table 1 below.

**Table 1 Funds Invested for Purchasing Foods from the AF by the PMC - 2010 until 2015**

Year	Transferred Amounts / FNDE (US)	Purchasing amounts of the AF through the PMC (US)	Percentage (%)
2010	784,965.67	47,097.65	6,00
2011	793,834.12	238,463.79	30,04
2012	943,298.60	254,778.04	27,01
2013	1,221,079.69	473,195.61	38,75
2014	910,469.44	347,223.28	38,14
2015	1,231,271.55	534,910.80	43,44
<b>TOTAL</b>	<b>5,884,919.07</b>	<b>1,895,669.17</b>	<b>32,21</b>

Sources: based on available data by the AF/SIGPC – FNDE (2016) and SEDC (2016).

According to the transferred values from the FNDE to the county's PNAE between 2010-2015, the gross amount was US\$ 5,884,919.07, being 32.21% (US\$ 1,895,669.17) used to purchase foods from the AF. This average value is a bit higher than 30%, which is the minimum required by the law; however, in 2010 it reached only 6%, while in 2017 it was 27.01%, also lower than the minimum required though. In the other hand, in 2011 the percentage was of 30.04%, in 2013, 38.75%, in 2014 38,14% and in 2015 the percentage reached 43.44%.

Furthermore, the counterpart average during the years 2010-2015 was of 11.90% (US\$ 470,136,03) only, which was in fact, a very low investment made by the PMC, as to complement the federal funds sent, in order to grant appropriate meals to all the people covered by the program. According to Peixinho (2011), the nature of being a complimentary transferring, it is expected that the Counties, States and the Federal District do their share, in order to offer healthy meals and to grant a satisfactory execution of the program.

Among the main factors that inhibit the expansion of the cooperatives to join the PNAE program of the PMC and based on interviews, we can then summarize it this way: the asymmetry of information between management staff, nutritionists and cooperatives; pre-determined prices without including logistics and delivery costs in the schools; payment delays; the lack of a mechanism to adjust the prices during the validity of the contracts; organic products with the same price as conventional ones; the lack of a proper suitability for the menus, due to production seasonality; ordering products out of their normal season and products not suited to the regions climate.

It is important to highlight that there were quite a few organic products purchased by the PMC; only bananas, parsley, and chives, lettuce and carrots. Other products, such as eggs, rice, beans, fruits, vegetables, fruit flesh, corn flour, beef, and milk, were also purchased from the AF to the schools.

It would be a whole lot easier for the cooperatives if they could deliver the foods directly at the PMC Supplying Center because such logistic has generated high costs, which is not added to the price of the products. With the current distribution logistics, which means the delivery of foods in every one of the 74 schools of the county, the cooperative has faced some serious difficulties.

This situation is quite similar to the one of Conrad (2013), where research has been made in Rio Grande do Sul State and logistics were the most discussed subject, with a strong relationship with the obstacles to be surpassed, in order to increase the market share in this segment, which means the need of a discussion to expand the role of the State for supporting these organizations, though.

In spite of the difficulties mentioned above, the cooperative presidents were unanimous about the importance of selling to the PNAE. Supposing that there were no trading possibilities at all, 60 families out from the 03 cooperatives would have abandoned the field, as they are fully dependent on the Program for their own survival.

Through the financial resources, cooperatives and families were able to organize better themselves, increasing the foods production, to the point that some families have just abandoned the production of tobacco and became food producers though. The sons of the farmers are now returning to the farms, rather than just abandoning them. The sale guarantee only provides income stability, enabling technical and organizational improvements of their activities and increasing their investment capacity, besides the production diversification.

Regarding the nutritionist duties to perform the Program, they are responsible to define the products to be purchased, by the Food and Nutritional Education (EAN), to create the menus and the number of foods to be distributed throughout the schools. To accomplish such duties, they have support from other professionals, such as storekeepers and a coordinator. Questioned about the difficulties to the effectiveness of the PNAE, it was mentioned the need to enhance the information between the PMC and the cooperatives. This issue has been considered as essential for a good performance and the expansion of the program, by all the interviewers involved.

The cooperatives do not participate directly in the preparation of the menus; they are just asked to inform the products seasonality and what products they can offer. Furthermore, the nutritionists highlight the need for training of the lunch ladies, teachers, students, and the cooperative staff, as well as an improvement of the scholar structure, in order to be adequate to the products coming from the AF, due to the difficulty of storage for the schools. The physical structure in the schools for preparing and storing the foods are far from appropriate; the number of employees is not enough to do the tasks involved in preparing the foods, as they are raw and natural ones. However, it is important to highlight the need to expand the actions of the EAN over the county scholar network. Food meals in schools must be considered as a part of a politic-pedagogical project, in order to involve and to raise awareness of the management, teachers and the scholar community as well.

The number of nutritionists (03) operating the program, is far below the minimum required by the law, being difficult to fulfill the tasks defined by the CFN and the targets of the PNAE. In short, 25 professionals would be necessary, according to the pre-defined parameters, though. Aroucha (2012) states that nutritionists must promote a healthy school through educational activities, helping the development of the scholar meals, by interacting with the other professionals acting in the school. However, the reality is that the States does not comply with the Resolution no. 465/2010 and the same happens in several county bureaus, mainly in provincial counties, where the number of professionals is far less than the minimum required.

Three hundred days have been spent to evaluate the menus and in 201 days (67%), a high level of sugar has been added, apart of sugar-based products, in a higher quantity than the recommended by the law, which is 10% maximum (Brasil, 2013). Regarding the group of industrialized foods, powder concentrated or dehydrated ones, these have been present in 105 days (35%), a higher percentage recommended by the AQPC. The most frequent product used was powder milk, followed by milk and chocolate mix. Some other products have been offered, such as chocolate cream (brigadeiro) and vanilla cream, both not compliant ones. The excessive consumption of sugar entails several diseases, such as infections, caries, osteoporosis, atherosclerosis, low immunity, periodontitis, raise of glycemia and triglyceride levels and even cancer (Vigitel, 2017).

The group of fried foods, fat meats, and greasy sauces have been present in 24.6% (n = 74) of the menus, with the frequent use of margarine, served in bread in 48x of the days. Margarine has a hypercholesterolaemic action, as it contains trans fatty acids and was the most served food in the group. The lipid percentage of scholar food must range between 15-30%, being 10% out of saturated fat and 1% of the total energy coming from trans fat (Brasil, 2013). According to Martin et al (2010), the excessive consumption of saturated and trans fats may cause several diseases, such as cancer, mellitus diabetes type 2, obesity, cardiovascular and brain strokes diseases.

The minimum mandatory offer of 3 portions of fruits or greens per week was not present (200 g/school/week) (Brasil, 2013). The daily average of natural fruits was 46.6% (n = 140). In 2010, only 6.66% (n = 1) of the menus served three portions of fruits per week. The salads, apart of being served for a very few times, were present in 6% (n = 18) of the analyzed days and also shown a low variety and were found in the menus only chayote, beetroot, and cabbage. The consumption of natural foods, according to the Food Guide for the Brazilian Population (GABP) must be stimulated, as they are the base for a proper and balanced nutritional feed (Brasil, 2014).

Regarding the cereals, bread, pasta, and starchy vegetables group, they were present in basically all days, with an average of 73.3% (n = 220). The bread is served 2x/week in all menus and reached the higher frequency (120x) in this group, being served with margarine, milk jam, fruit jellies, cheese, and sausages. The presence of whole foods was very shy and appeared only twice (n = 2) (0.6%), during all days of the research, being the whole bread the product included in this group. The GAPB recommends daily consumption of six portions of tubers, roots, and cereals, being the whole grains the priority (Brasil, 2014).

The PNAE recommends the meals to have a proper protein uptake, for different age levels, which can be difficult with the low incidence found in foods rich in proteins in the menus researched. The group of beef and eggs, proteins with a high biological value, were present in 19% (n = 57) and among these, chicken and bovine meat. Canned sardine was present in one menu (2010), being served 4x (1.33%) and no eggs have been served (0%), which means these values are below those recommended by the AQPC. According to Sartori & Amancio (2012), fish is a kind of food that stands out nutritionally, for the quantity and quality of its proteins, vitamins, and minerals and mainly for being a source of essential fatty acids, such as the omega 3 eicosapentaenoic (EPA) and docosahexaenoic (DHA).

The leguminous were found in a low variety and frequency in the menus, present in only 9.3% (n = 28) and during the total of days, only beans were offered. According to the GAPB, the alternation between different types of beans and other leguminous amplifies the incoming of nutrients and, more importantly, brings new flavors and diversity for the meals, apart of being optimal fiber sources and are recommended by several world guidelines (Brasil, 2014).

As for milk and dairies, it was present in 76 days (23.55%) of the period evaluated. It has been noted the presence of milk, associated with sugar-rich foods, such as milk and chocolate drink and sweetened early morning grains, with sugar in the preparation of dairy drinks and the addition of sugar in the banana and milk mix. In the other hand, it was not been offered during the week, which is inappropriate according to what is determined by the PNAE, which recommends a supplementation comprising calcium-sourced foods with a high bioavailability from 20-30% minimum, twice a week (Brasil, 2013).

#### **4. Conclusions**

The PMC fulfilled the requirements for a minimum purchasing of 30% from the AF, during the evaluated period (2010-2015). However, the study showed that the menus should be adjusted, in order to match the production of the cooperatives, which in turn will increase the purchases. Moreover, the PCM must provide the necessary support for the nutritionists, to enable them to plan and prepare the menus according to the rules and suitable to the reality of the AF. It's worth noting that this factor makes difficult the offer increase of foods from the AF. It is also necessary to promote the integration between the social players (managers, nutritionists lunch ladies, and farmers), which will enable the offering expansion of the AF in the schools. Despite some difficulties found in the execution



of the PNAE program, the purchasing of products from the AF has proven to be relevant for the generation of employment and income for the farmers in the county and surrounding areas.

Out from the menus evaluated, the majority needs to be adequate in regards to the frequency of some foods, such as fruits and vegetables. It has been detected a high consumption level of foods highly processed, rather than whole products, which are rich in proteins and fibers and natural foods, which justifies the need to restrain the consumption of sugar and to adjust the menus accordingly, in order to promote healthy eating habits, though. By doing so, there will be a purchasing increase of foods from the AF, thus contributing in an effective way to promote health care and strengthen the EAN and SAN actions. This way, we can say that the execution of the PNAE program, in Criciúma County, needs a bigger commitment from the public counterparts of the County. The challenges to perform the PNAE program depends on joint actions, articulations, and capacitation of the social parts involved.

Despite of the challenges in the execution of the program, the cooperative representatives highlighted the importance of the PNAE for their affiliates and affirmed that if it was not for the sale of their products to the institutional market, several affiliates would have left their farms and that this program has a strong impact on the socio-economical development of the region. In order to avoid obstacles, the cooperatives have invested in the purchasing of vehicles to deliver the foods in the schools, buying cold storage equipment to keep and maintain the foods, and to adjust their production schedule to the type and quantity of foods necessary to supply the PNAE program in the county.

## References

- Aroucha E. P. T. L. (2012). "Agricultura familiar na alimentação escolar: Estudo de oportunidades e de desafios", Universidade do Estado da Bahia, Paulo Afonso: dissertação, p. 182.
- Brasil (2009). Ministério da Educação. Fundo Nacional de Desenvolvimento da Educação. Resolução/CD/FNDE nº 38, de 16 de julho de 2009, Dispõe sobre o atendimento da alimentação escolar aos alunos da educação básica no Programa Nacional de Alimentação Escolar — Pnae, Diário Oficial da União, available online at: [http://www.planalto.gov.br/ccivil\\_03/\\_ato2007-2010/2009/lei/111947.htm](http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2009/lei/111947.htm).
- Brasil (2010). Conselho Federal De Nutricionistas. Resolução nº 465, de 23 de agosto de 2010. Dispõe sobre as atribuições do nutricionista, estabelece parâmetros numéricos mínimos de referência no âmbito do Programa de Alimentação Escolar – PAE e dá outras providências. Diário Oficial da União, available online at: <http://www.cfn.org.br/novosite/arquivos/Resol-CFN-465-atribuicao-nutricionista-PAE.pdf>.
- Brasil (2013). Resolução nº 26, de 17 de junho de 2013. Dispõe sobre o atendimento da alimentação escolar aos alunos da educação básica no âmbito do Programa Nacional de Alimentação Escolar - PNAE. Brasília: Fundo Nacional de Desenvolvimento da Educação, available online at: <http://www.fnde.gov.br/fnde/legislacao/resolucoes/item/4620-resolu%C3%A7%C3%A3o-cd-fnde-n%C2%BA-26,-de-17-de-junho-de-2013>.
- Brasil (2014). *Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Guia alimentar para a população brasileira* (2nd ed.), Brasília, p. 156, available online at: [http://189.28.128.100/dab/docs/portaldab/publicacoes/guia\\_alimentar\\_populacao\\_brasileira.pdf](http://189.28.128.100/dab/docs/portaldab/publicacoes/guia_alimentar_populacao_brasileira.pdf).
- Brasil (2015). *Ministério da Educação. Fundo Nacional de Desenvolvimento da Educação. Aquisição de produtos da agricultura familiar para a alimentação escolar* (2nd ed.), versão atualizada com a Resolução Cd/Fnde nº 04/2015. Brasília (DF).
- Darolt M. R. et al. (2016). "Alternative food networks and new producer-consumer relations in France and in Brazil", *Ambiente & Sociedade*, Vol. XIX, No. 2, pp. 1-22, available online at: <http://dx.doi.org/10.1590/1809-4422ASOC121132V1922016>.
- Caisan (2017). *Plano Nacional de Segurança Alimentar e Nutricional - PLANSAN 2016-2019*, Brasília, p. 73, available online at: [https://www.mds.gov.br/webarquivos/arquivo/seguranca\\_alimentar/caisan/plansan\\_2016\\_19.pdf](https://www.mds.gov.br/webarquivos/arquivo/seguranca_alimentar/caisan/plansan_2016_19.pdf).
- Consea (2014). Direito humano à alimentação adequada e soberania alimentar. Brasília, Conselho Nacional de Segurança Alimentar e Nutricional (Brasil), available online at: <http://www4.planalto.gov.br/consea/comunicacao/artigos/2014-1/direito-humano-a-alimentacao-adequada-e-soberania-alimentar>.

- Dos Anjos F. S. and Becker C. (2014). “Agricultura familiar e mercados institucionais: o desenvolvimento como liberdade”, *Revista Economia*, Vol. 45, No. 2, available online at: [http://edi.bnb.gov.br/content/aplicacao/publicacoes/renumeros\\_publicados/docs/ren\\_2014\\_8\\_flavio\\_v2.pdf](http://edi.bnb.gov.br/content/aplicacao/publicacoes/renumeros_publicados/docs/ren_2014_8_flavio_v2.pdf).
- Dos Santos F. D., Evangelista A. L. and De Oliveira A. J. M. (2012). “Oportunidades e desafios do Programa Nacional da Alimentação Escolar (PNAE) para a agricultura familiar do Estado de Minas Gerais”, in: *III Congresso em Desenvolvimento Social (Des)igualdades sociais e Desenvolvimento da Universidade Estadual de Montes Claros*, Unimontes, Brasil, available online at: [http://www.congressods.com.br/terceiro/images/trabalhos/GT1/pdfs/fabio\\_dias.pdf](http://www.congressods.com.br/terceiro/images/trabalhos/GT1/pdfs/fabio_dias.pdf).
- FNDE (2016). “Alimentação Escolar. SGPC (Sistema de Gestão de Prestação de Contas)”, Brasília, Fundo Nacional de Desenvolvimento da Educação, Ministério da Educação, Brasil, available online at: <https://www.fnnde.gov.br/sigpcadm/sistema.pu?operation=localizar>.
- IBGE (2010). “Pesquisa de orçamentos familiares 2008-2009: despesas, rendimentos e condições de vida”, Rio de Janeiro: Instituto Brasileiro de Geografia e Estatística, available online at: <http://biblioteca.ibge.gov.br/visualizacao/livros/liv45419.pdf>.
- IBGE (2016). *Cidades@Criciúma*. Rio de Janeiro: IBGE.
- Magalhães R. (2014). “Avaliação de políticas e iniciativas públicas de segurança alimentar e nutricional: Dilemas e perspectivas metodológicas”, *Revista Ciências Saúde Coletiva*, Vol. 19, No. 5, pp. 1339-1346, available online at: <http://dx.doi.org/10.1590/1413-81232014195.12202013>.
- Martin C. K. et al. (2010). “Children in school cafeterias select foods containing more saturated fat and energy than the Institute of Medicine Recommendations”, *Journal of Nutrition*, Vol. 140, No. 9, pp. 1653-1660, available online at: <http://jn.nutrition.org/content/early/2010/07/28/jn.109.119131.short>.
- Marsden T., Banks J. and Bristow G. (2000). “Food supply chain approaches: Exploring their Role in rural development”, *Sociologia Ruralis*, Vol. 40, pp. 424-438. doi:10.1111/1467-9523.00158.
- Oliveira M. C. and Vassimon H. S. (2012). “Programa nacional de alimentação escolar e sua aceitação pelos alunos: Uma revisão sistemática”, *Revista Investigaçã*, Vol. 12, pp. 4-10.
- Peixinho A., Balaban D., Rimkus L., Schwartzman F. and Galante A. P. (2011). “Alimentação escolar no Brasil e nos estados Unidos”, *Revista Mundo Saúde*, Vol. 35, No. 2, pp. 128-36, available online at: [http://www.saocamilo-sp.br/pdf/mundo\\_saude/84/128-136.pdf](http://www.saocamilo-sp.br/pdf/mundo_saude/84/128-136.pdf).
- Ramos M. O. (2011). “As crianças estão se sentindo importantes: Avanços na alimentação escolar a partir da Lei 11947/2009 e da compra da agricultura familiar”, *Revista Trajetória Multicursos* (Esp.), pp. 4-29, available online at: <http://www.facos.edu.br/old/galeria/129072011032717.pdf>.
- Sabourin E. (2005). “Comercialização dos produtos agrícolas e reciprocidade no Brasil”, Estudos Sociedade e Agricultura. CPDA - Programa de Pós-graduação em Desenvolvimento, Agricultura e Sociedade. Universidade Federal Rural do Rio de Janeiro/ICHS/DDAS”, *Estud. Soc. e Agric., Rio de Janeiro*, Vol. 21, No. 1, pp. 5-33, available online at: [https://agritrop.cirad.fr/571026/1/document\\_571026.pdf](https://agritrop.cirad.fr/571026/1/document_571026.pdf).
- Sartori A. G. O. and Amancio R. D. (2012). “Pescado: importância nutricional e consumo no Brasil”, *Revista Segurança alimentar e nutricional*, Vol. 19, No. 2, pp. 83-93, available online at: [https://www.researchgate.net/profile/Alan\\_Sartori/publication/264231478\\_Pescado\\_importancia\\_nutricional\\_e\\_consumo\\_no\\_Brasil/links/53d28e2e0cf228d363e9488b.pdf](https://www.researchgate.net/profile/Alan_Sartori/publication/264231478_Pescado_importancia_nutricional_e_consumo_no_Brasil/links/53d28e2e0cf228d363e9488b.pdf).
- Schmitt C. J. and Grisa C. (2013). “Agroecologia, mercados e políticas públicas: Uma análise a partir dos instrumentos de ação governamental”, in: Niederle P., Almeida L. and Vezzani F. M. (Eds.), *Agroecologia: Práticas, Mercados e Políticas Para Uma Nova Agricultura*, Curitiba: Kairós, pp. 215-265.
- Triches R. M. and Baccarin J. G. (2016). “Interações entre alimentação escolar e agricultura familiar para o desenvolvimento local”, available online at: [https://scholar.google.com.br/scholar?q=+Intera%C3%A7%C3%B5es+entre+Alimenta%C3%A7%C3%A3o+Escolar+e+Agricultura+Familiar+para+o+Desenvolvimento+Local&btnG=&hl=pt-BR&lr=lang\\_pt&as\\_sdt=0%2C5](https://scholar.google.com.br/scholar?q=+Intera%C3%A7%C3%B5es+entre+Alimenta%C3%A7%C3%A3o+Escolar+e+Agricultura+Familiar+para+o+Desenvolvimento+Local&btnG=&hl=pt-BR&lr=lang_pt&as_sdt=0%2C5).
- Veiros M. B. and Martinelli S. S. (2012). “Avaliação qualitativa das preparações do cardápio escolar – AQPC Escola”, *Nutrição em Pauta*, Vol. 20, No. 114, pp. 3-12, available online at: <http://nuppre.ufsc.br/files/2014/04/2012-Veiros-e-Martinelli.pdf>.
- Vigitel (2017). *Brasil 2015 Saúde Suplementar: Vigilância de Fatores de Risco e Proteção Para Doenças Crônicas por Inquérito Telefônico/Agência Nacional de Saúde Suplementar*, Brasília: Ministério da Saúde, p. 170, available online at: [http://www.ans.gov.br/images/stories/Materiais\\_para\\_pesquisa/Materiais\\_por\\_assunto/2015\\_vigitel.pdf](http://www.ans.gov.br/images/stories/Materiais_para_pesquisa/Materiais_por_assunto/2015_vigitel.pdf).