



## PROCUREMENT OF FOOD FROM FAMILY FARMING FOR SCHOOL FEEDING IN THE STATE OF SANTA CATARINA FROM 2015 TO 2017

Received: 12/02/2019

Accepted: 02/16/2023

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### Abstract

The National School Feeding Program (PNAE), based on Article 14 of Law nº 11.947/2009, now requires that a minimum of 30% of the federal funds passed on to municipalities be used to purchase food from family farming. The study aimed to know the level of compliance with Article 14 of Law nº 11.947/2009, characterize indicators of publication and compliance with the legislation of PNAE on public notices for the purchase of food from family farming and examine the degree of food processing in the public notices published from 2015 to 2017 by municipalities in Santa Catarina. This is a quantitative analytical-descriptive documentary research. A total of 661 public notices were analyzed, finding a slight increase in the number of municipalities that complied with Article 14. It was observed that 48.2% (n=319) of the public notices requested decentralized deliveries and 45.7% (n=302) did not present information about the frequency of deliveries; 96% (n=634) of them contained price information. It was found a predominance (67.9%; n=148) of raw and minimally processed foods in the public notices. The lack of information in the public notices represents a barrier for farmers to participate in PNAE. Qualifying the synergy with family farming is essential for PNAE to consolidate itself as a structuring public policy that promotes local and regional development.

**Keywords:** Local development. Nutrition and food programs and policies. Food and nutrition security.

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## Introduction

The National School Feeding Program (PNAE, as per its Portuguese acronym) is the longest-running food and nutrition security (SAN, as per its Portuguese acronym) public policy in Brazil. Since its establishment, it has undergone several transformations, but it was in 2009, with the enactment of Law nº 11.947, that the program presented one of the most important advances in its history. Article 14 of this law determines that, of the funds passed on by the Federal Government to the Executing Entities (municipalities, states, federal district and federal schools), through the National Education Development Fund of the Ministry of Education (FNDE/MEC, as per its Portuguese acronym), at least 30% must be used to purchase foods from family farming (BRASIL, 2009).

PNAE, by enabling the participation of family farming as a supplier of school meals, provides students with more diversified foods, which respects the local culture and food tradition, based on sustainability and the agricultural vocation of the region. At the same time, it promotes local development, contributing towards the improvement of the income of family farmers (BRASIL, 2013; BRASIL, 2016).

At this point, it should be noted that development is a construct that presupposes social inclusion (SILVEIRA, 2010). It is about considering it as a dynamic process, overcoming approaches restricted to economic aspects and integrating other dimensions, such as environmental, social, health, cultural and political (JARA, 1998; OLIVEIRA, 2023). Therefore, promoting development is a process that is based on the enhancement of resources, assets, opportunities and capabilities, through the synergic action of different social actors, mobilized by shared objectives (PIRES, 2010). In this sense, strengthening family farming through its articulation with PNAE means recognizing the program as a structuring public policy capable of producing favorable repercussions on local and regional development, taken in a perspective of richly articulated totality.

This articulation, with a strength to constitute a vector of development, is mediated, especially, by two PNAE guidelines. The first refers to the use of healthy and adequate food, comprising the use of varied and safe food respecting the culture and healthy eating habits. The second guideline indicates the support for sustainable development, with incentives for the procurement of diversified foodstuffs, produced locally and, preferably, by family farming, with priority given to suppliers of

organic or agroecological foodstuffs (BRASIL, 2009; BRASIL, 2013; BRASIL, 2016).

Accordingly, it is important to strengthen the insertion of family farmers as preferred suppliers of PNAE. Moreover, in order to facilitate the access of these producers to the Program, it was instituted, among other measures, the exemption of bidding in the institutional purchase of products from this segment for school feeding, allowing the procurement to be done by public call. This modality aims to meet the specificities of family farming and contribute to the fulfillment of the guidelines of PNAE, prioritizing locally produced goods with a view to strengthening healthy eating habits (BRASIL, 2013; BRASIL, 2015).

However, it is perceived that the municipalities, even if they are adapting to comply with the law, still have some weaknesses that prevent better results from being achieved. One way to identify these weaknesses is to analyze the public calls, available on the websites of the municipalities. In these documents, it is possible to assess the quality with which the information reaches family farmers (BACCARIN *et al.*, 2017).

The public calls must contain enough information for farmers to correctly formulate their sales projects. These documents must contain data on product prices, food types, quantities, delivery schedules, including the frequency and places of delivery (BRASIL, 2015). Accordingly, some studies that proposed to analyze the public calls pointed out irregularities, mainly related to the absence of delivery schedules, periodicity of delivery and lack of price information (TRICHES; BARBOSA; SILVESTRI, 2016; BACCARIN *et al.*, 2017; FERIGOLLO *et al.*, 2017; AGUIAR; CALIL, 2018; TRICHES *et al.*, 2018; TRICHES; SILVESTRI, 2018; TEO *et al.*, 2019). Such information is essential for the planning and decision making on the part of family farmers as to how to sell their products, since, for example, the condition of weekly and centralized delivery favors logistics and cost reduction for these workers (BACCARIN *et al.*, 2017).

In view of these considerations, it is argued that the quality of the public call notices can directly interfere in the extent to which the Executing Entities manage to meet the guidelines, principles and objectives of PNAE, which certainly has repercussions on the supply of a more – or less – healthy school diet. Thus, this paper had as objectives a) to know the level of compliance with Article 14 of Law nº 11.947/2009, b) to characterize indicators of publication and adequacy to the legislation of

PNAE on public call notices and c) to examine the degree of food processing present in these notices published by municipalities in the state of Santa Catarina in the period from 2015 to 2017.

## Methodology

This is a documental study with a quantitative and analytical-descriptive approach. In order to know the level of compliance with Article 14 of Law nº 11.947/2009, annual reports were used on the proportion of resources applied in the procurement of food from family farming for school meals in the municipalities of the state of Santa Catarina in the period from 2015 to 2017, available in unrestricted public access on the website of FNDE (FNDE 2015; 2016; 2017). From these data, the municipalities were classified into two levels of compliance: no compliance with Article 14 (application <30%); compliance with Article 14 (application ≥30%).

Additionally, using data available on the website of the Brazilian Institute of Geography and Statistics (IBGE, 2018), municipalities were classified according to their population size into: small size (<20 thousand inhabitants); medium size (from 20 thousand to 100 thousand inhabitants); large size (>100 thousand inhabitants) (MACHADO *et al.*, 2018).

The association between the level of compliance with Article 14 and the size of the municipalities was tested using the Pearson chi-square, adopting a significance level of 5% ( $p \leq 0.05$ ), with a confidence interval of 95%. The Statistical Package for the Social Sciences (SPSS), version 24.0, was used for the analysis.

Complementing the documentary basis of the study, a search was made for the public call notices in the Observatory database of the food procurement from family farming for school feeding in Santa Catarina, which conducts research regarding the publications of public calls for school feeding in the 295 municipalities of the state since the year 2012.

From the selected public calls, data were collected regarding the following variables: frequency and number of delivery points (or receiving units), presence/absence of information on procurement prices and food item (name of the food).

The data collected were coded and stored in a database built as electronic spreadsheets in the Microsoft Excel® program. After analyzing the coherence and consistency of the database, it was proceeded to the analysis by means of descriptive statistics (frequency analysis) in the same program.

During the process of data collection, treatment and analysis, the following parameters were adopted:

I – Frequency of delivery: two to five times a week, once a week, once or twice a month, other (some times a year) or information not listed (BACCARIN *et al.*, 2017).

II – Number of receiving units (RU): centralized delivery (one RU), slightly decentralized delivery (two to ten RU), decentralized delivery (11 to 50 RU), highly decentralized delivery (more than 50 RU) or information not listed (BACCARIN *et al.*, 2017).

III – Degree of food processing: raw, minimally processed, processed culinary ingredients, processed and ultra-processed (BRASIL, 2014).

In order to perform the classification of foods as to the degree of processing, a consensus was reached in partnership with a collegiate of 11 nutritionists who work in PNAE in municipalities of Santa Catarina, using the Brazilian Population Food Guide as a theoretical reference (BRASIL, 2014).

It should be underlined that the variables with which this study worked are not mutually exclusive, i.e., the same procurement notice may require different deadlines in the delivery schedule: weekly, twice a week or even biweekly/monthly. Accordingly, it is justified that the totals presented in the data analysis usually exceed the number of analyzed public notices.

Furthermore, it is clarified that the results were summarized and presented by Mesoregion of the state: *Vale do Itajaí*, *Grande Florianópolis*, *Sul Catarinense*, *Norte Catarinense*, *Serrana* and *Oeste Catarinense*.

This research was approved by the Research Ethics Committee, under opinion 2.744.298/2018, respecting all ethical principles, according to Resolution nº 466/2012 (BRASIL, 2012).

### **Characterization of the study context**

The state of Santa Catarina has an area of 95.7 thousand km<sup>2</sup> and ranks the 20<sup>th</sup> position when compared to the other states in Brazil. In terms of population, the state ranks 11<sup>th</sup> in the country, with an estimated population of 7,075,494 (IBGE, 2019).

Geographically, the state is divided into six mesoregions – *Vale do Itajaí* (54 municipalities), *Grande Florianópolis* (21 municipalities), *Sul Catarinense* (46 municipalities), *Norte Catarinense* (26 municipalities), *Serrana* (30 municipalities) and *Oeste Catarinense* (118 municipalities) – totaling 295

municipalities, of which 77.3% (n=228) have populations of less than 20,000 inhabitants and are, therefore, classified as small size.

The *Vale do Itajaí* is the mesoregion with the largest population, corresponding to 24.1% of the total inhabitants of this state. The *Oeste Catarinense* is the mesoregion with the largest rural population, representing 34% of the entire state. In territorial terms, the *Oeste Catarinense* also stands out, occupying 26.31 thousand/km<sup>2</sup>.

In the 2017 Agricultural Census, 78% of agricultural establishments in the state were classified as being family farmers (IBGE, 2017). As a characteristic, family farming in Santa Catarina stands out for its productive diversification, combining vegetal products with animal husbandry. Among the agricultural production of family farming, pigs, cows and chickens should be highlighted, besides being responsible for 87% of the milk production (MATTEI, 2011; MIOR *et al.*, 2014).

## Results and Discussion

### Compliance with Article 14 of Law nº 11947/2009 in Santa Catarina

It was observed that, in 2015, 2016 and 2017, respectively, 295 (100%), 289 (97.9%) and 286 (96.9%) municipalities rendered accounts about the resources applied in the procurement of food from family farming. Of these municipalities, 76.3% (n=225) in 2015, 76.8% (n=222) in 2016 and 86.4% (n=247) in 2017 reached or exceeded the cutoff point of the 30% stipulated in Article 14 of Law nº 11.947/2009 (Table 1). When analyzing the average percentage of the compliance with Article 14 of the municipalities in the state, the results were 42.9% in 2015, 46.4% in 2016 and 50.76% in 2017.

In a previous study, also conducted in Santa Catarina, Teo *et al.* (2019) found that, in the years 2012, 2013 and 2014, respectively, 60.1% (n=175), 67.6% (n=198) and 72.2% (n=213) of the surveyed municipalities complied with Article 14. In addition, the authors reported that the averages of the percentages of purchase of the municipalities in Santa Catarina that rendered accounts to FNDE in the years 2012 (98.6%; n=291), 2013 (99%; n=293) and 2014 (100%; n=295) were, respectively, 32.6%, 39.6% and 42.2%. From this set of observations, in comparison to the findings of the present study, it is noticed a trend, among the municipalities that reported to FNDE, of an increase in the proportion of those that complied with Article 14 and also in the achieved average compliance.

**Table 1** – Frequency of municipalities according to the level of compliance with Article 14 of Law nº 11.947/2009 by mesoregion, Santa Catarina, Brazil, 2015 to 2017.

Mesoregion	2015					2016					2017				
	<30%			≥ 30%		<30%			≥ 30%		<30%			≥ 30%	
	N <sup>a</sup>	N <sup>b</sup>	%	N <sup>b</sup>	%	N <sup>a</sup>	N <sup>b</sup>	%	N <sup>b</sup>	%	N <sup>a</sup>	N <sup>b</sup>	%	N <sup>b</sup>	%
Vale do Itajaí	54	15	27.8	39	72.2	54	16	29.6	38	70.3	52	9	17.3	43	82.7
Grande Florianópolis	21	12	57.1	9	42.9	19	6	31.6	13	68.4	19	6	31.6	13	68.4
Sul Catarinense	46	10	21.7	36	78.3	45	10	22.2	35	77.8	45	5	11.1	40	88.9
Norte Catarinense	26	4	15.4	22	84.6	26	11	42.3	15	57.7	26	4	15.4	22	84.6
Serrana	30	13	43.3	17	57.7	29	7	24.1	22	75.9	28	7	25	21	75
Oeste Catarinense	118	16	13.4	102	86.4	116	17	14.7	99	85.3	116	8	6.9	108	93.1
Santa Catarina	295	70	23.7	225	76.3	289	67	23.2	222	76.8	286	39	13.6	247	86.4

Source: designed by the authors (2019) based on FNDE (2015; 2016; 2017).

<sup>a</sup> Number of municipalities that rendered accounts, by mesoregion and year of publication, according to data available on the website of FNDE (it is observed that, in the years 2016 and 2017, 6 and 9 municipalities were not listed, respectively).

<sup>b</sup> Number of municipalities by mesoregion in each level of compliance.

The municipalities of the Mesoregion *Oeste Catarinense* stood out in terms of complying with Article 14 of the law in the average of the three years of study (88.3%), and the Mesoregion *Grande Florianópolis* was the one that, proportionally, had the smallest number of municipalities that complied with the law (59.9%) (Table 1). It is argued that this finding can be explained by the fact that the Mesoregion *Oeste Catarinense* has the largest number of family farming establishments (42.9%; n=61,317), while *Grande Florianópolis* has the smallest (5.2%; n=7,466), according to the 2017 Agricultural Census (IBGE, 2017). It is noteworthy that *Vale do Itajaí* ranked fourth in the number of municipalities in the mesoregion in which the law was complied with, but it is the second mesoregion in number of family farming establishments (15.1%; n=21,666) (IBGE, 2017). This fact can be explained by the lesser articulation of farmers in *Vale do Itajaí* in cooperatives and associations, as pointed out by Elias *et al.* (2019) in a study that investigated the socioeconomic impacts of direct purchases from family farming for PNAE in the state of Santa Catarina. This articulation can facilitate access to institutional markets, such as school feeding (ELIAS *et al.*, 2019).

Family farmers in the state of Santa Catarina have sought out cooperation networks, especially those organized in the form of decentralized cooperatives (in which each cooperative member is the owner and responsible for production and distribution, and the cooperative serves as a legal and intermediary



support for commercialization) (BIALOSKORSKI NETO, 2002; ESTEVAM; SALVARO; BUSARELLO, 2015). This organization of family farmers in the cooperative system has helped diversify production and, consequently, has provided the permanence of these farmers in the field, due to the improvement in income that happens with the appreciation of their products (ESTEVAM; SALVARO; BUSARELLO, 2015).

Some studies have also shown positive results in the purchase of family farming products for school feeding in other states, such as Paraná. In this context, Triches, Barbosa and Silvestri (2016), in research that aimed to examine the public calls and the rendering of accounts of 26 municipalities regarding compliance with the legislation, pointed out that 54% of the analyzed municipalities bought more than 30% from family farming in the years 2013 and 2014.

In the same direction, in 2014, Ferigollo *et al.* (2017), when studying the adequacy of 52 municipalities in Rio Grande do Sul regarding the procurement of food from family farming by PNAE, observed that 71.2% (n=37) of them reached 30% or more of resource application.

The results of the present study pointed out that there is no association ( $p>0.05$ ) between the size of the municipalities and the level of care in relation to compliance with Article 14 of Law nº 11.947/2009. Nevertheless, as observed in the year 2017, there was a trend towards association ( $p=0.06$ ) (Table 2).

**Table 2** – Association between the level of compliance with Article 14 of Law nº 11.947/2009 and the size of the municipalities, Santa Catarina, Brazil, 2015 to 2017.

Year	Level of compliance <sup>a</sup>	Municipalities by size <sup>b</sup>	p
2015	<30%	SS 54	p=0.93
		MS 14	
		LS 3	
	≥30%	SS 174	
		MS 40	
		LS 10	
2016 <sup>c</sup>	<30%	SS 49	p=0.34
		MS 14	
		LS 5	
	≥30%	SS 174	
		MS 39	
		LS 8	
2017 <sup>c</sup>	<30%	SS 25	p=0.06
		MS 10	
		LS 4	
	≥30%	SS 195	
		MS 43	
		LS 9	

Source: designed by the authors (2019).

<sup>a</sup> Level of compliance: <30% no compliance; ≥30% compliance.

<sup>b</sup> Number of municipalities by population size: Small size (SS) <20 thousand inhabitants (inhab.); Medium size (MS) from 20 to 100 thousand inhab.; Large size (LS) >100 thousand inhab.

<sup>c</sup> In the accountability report issued by FNDE, in 2016 and 2017, 6 and 9 municipalities are not listed, respectively.



Triches *et al.* (2019), in a qualitative study in which they analyzed the difficulties and factors that determine the procurement of family farming products for school feeding from the perspective of different social actors, in eight municipalities in Paraná, in the period from 2011 to 2015, identified that there were differences between municipalities of different sizes in terms of achieving the 30% stipulated in the law. In the study, the medium and small-sized municipalities found it easier to comply with Article 14. Probably, according to the authors, it is because of the greater possibility of approximation between the managers and the family farmers.

It is pointed out that the findings of Triches *et al.* (2019) reinforce the assumption, presented in the current study, i.e., there is a trend of association between the size of municipalities and the level of compliance with Article 14 of Law nº 11.947/2009, which may not have been identified in this opportunity, but which could be better clarified from further investigations.

### **Characterization of the publication of the public call notices**

It was found that, in the years 2015, 2016 and 2017, a total of 661 public call notices were published for the purchase of food from family farming for PNAE. When stratifying this data, it was observed that, of the 295 municipalities in the state of Santa Catarina, in 2015, 52.54% (n=155) published public calls; in 2016, there were 58.30% (n=172) and, in 2017, there were 63.7% (n=188). Therefore, there was an increase in the proportion of municipalities that published calls in the period under evaluation. Nevertheless, even so, the number of municipalities that published public calls on their websites was lower than the number of municipalities that reported to FNDE about the resources used to purchase food from family farming. Accordingly, it is assumed that not all municipalities are disclosing the notices as provided in Resolution CD/FNDE nº 26/2013 (complemented by Resolution CD/FNDE nº 04/2015) (BRASIL, 2013; BRASIL, 2015).

The mesoregion that published the most public calls in the study period was *Oeste Catarinense*, with a total of 320 (48.4%) notices. This observation is justified because it is the mesoregion of Santa Catarina with the largest number of municipalities (118), representing 40% of the state. The Mesoregion *Vale do Itajaí* had 115 (17.4%) notices published, the *Norte Catarinense* had 80 (12.1%), the *Serrana* had 59 (8.9%), the *Sul Catarinense* had 53 (8%) and the *Grande Florianópolis* had 34 (5.2%).

Regarding the receiving units, it was observed that, of the total public calls, 48.2% (319)

of them requested some form of decentralized delivery (Table 3), which can become very costly for farmers by impacting on the increase in transportation costs, especially for those who work individually (BACCARIN *et al.*, 2017). In this perspective, the municipal governments that prioritize, in their notices, the centralized delivery of food favor family farming more than those that determine very decentralized deliveries (BACCARIN *et al.*, 2017).

Triches, Barbosa and Silvestri (2016) evaluated public calls in the state of Paraná and found that 77% of the municipalities had decentralized delivery. In this sense, the authors reinforced the idea that the information contained in the public call notices is important for the better organization of farmers, so as not to hinder the supply of food (TRICHES; BARBOSA; SILVESTRI, 2016).

**Table 3** – Frequency of public calls regarding the number of receiving units (RU), periodicity of deliveries and price information, Santa Catarina, Brazil, 2015-2017.

		2015	2016	2017	Total	%
Santa Catarina	Number of Calls	209	237	215	661	100
	1	56	77	64	197	29.8
	2 to 10	51	69	70	190	28.7
	11 to 50	48	37	31	116	17.5
	More than 50	5	3	5	13	2
Number of RU	Not listed	49	51	45	145	21.9
	2-5/week	3	4	2	9	1.4
	1/week	90	120	107	317	47.9
	1-2/month	50	74	60	184	27.8
Periodicity <sup>a</sup>	Not listed	109	98	95	302	45.7
	Listed	200	220	214	634	96
	Not listed	9	17	1	27	4
	Price information					

Source: designed by the authors (2019).

<sup>a</sup> The same public call may request different deadlines in the delivery schedule.

Elias *et al.* (2019), in a study on the socioeconomic impacts of PNAE on family farming, in Santa Catarina, pointed out that logistics, although a sensitive point in the operationalization of the Program, no longer represented an obstacle in the municipalities that operated, at the time of the study, for more than four years with the PAA and/or PNAE. In this case, the authors considered that problems that were challenging at the beginning of the institutional purchasing process were overcome as a result of the organization on the part of farmers (paying employees to make the deliveries or dividing the tasks among the cooperative members), as well as the support of the

Executing Entities that made available centralized locations for the delivery of the family farmers and took responsibility for the point-to-point delivery in the schools (ELIAS *et al.*, 2019).

Similarly, it is possible to evaluate the periodicity, considering that increasing the number of weekly deliveries harms the participation of the farmer (BACCARIN *et al.*, 2017). Nonetheless, when analyzing the public calls under this aspect, in this study, it was noticed that the schedules provided by most municipalities, in Santa Catarina, in the research period, prioritized weekly, biweekly and monthly deliveries (Table 3). It was also identified that approximately half of the public notices (45.7%; n=302) did not contain information about the frequency of delivery, which may constitute an important obstacle for the decision of family farmers to supply their products to PNAE. Ferigollo *et al.* (2017), in a similar study of public calls from 52 municipalities in Rio Grande do Sul, identified that the notices provided for weekly (47.4%) and biweekly and/or monthly (37.7%) deliveries, favoring, to some extent, the work of the farmer by contributing to the planning and execution of deliveries.

As for the price information in the public notices, most public calls (96%; n=634) analyzed in this study contained this information, which is relevant, since, with this data, the farmer can decide whether it is advantageous for him/her, from an economic point of view, to participate in the process, as Baccarin *et al.* (2017) and Triches and Silvestri (2018) suggest.

In a study also conducted in Santa Catarina, from 2012 to 2014 (TEO *et al.*, 2019), it was found that 11% (n=33) of the public notices did not contain price information, which shows, in comparison with the findings of the present study, that there was a reduction in the proportion of notices without this information.

### **Degree of processing of the foods present in the public calls**

As for the degree of processing (Table 4), it is evident that, predominantly, raw and minimally processed products were requested by the municipalities (67.9%). In the same direction, a study that analyzed the degree of the processing of food present in the public calls in the state of Santa Catarina, in the period from 2012 to 2014 (TEO *et al.*, 2019), evidenced the predominance of raw and minimally processed foods (67.38%). Therefore, it can be seen that there was no considerable change regarding the request for raw and minimally processed food from family farming between the periods 2012-2014 and 2015-2017.

**Table 4** – Frequency of food items in public calls, according to the degree of processing by state mesoregion, Santa Catarina, Brazil, 2015 to 2017.

Mesoregion	Food items	Fresh or minimally processed		Processed		Ultra-processed		Processed cooking ingredients	
		N <sup>1</sup>	N <sup>2</sup>	%	N <sup>2</sup>	%	N <sup>2</sup>	%	N <sup>2</sup>
Vale do Itajaí	116	94	81	13	11.2	6	5.2	3	2.6
Grande Florianópolis	81	71	87.7	8	9.9	1	1.2	1	1.2
Sul Catarinense	81	65	80.2	11	13.6	3	3.7	2	2.5
Norte Catarinense	127	104	81.9	14	11	5	3.9	4	3.2
Serrana	148	116	78.3	27	18.2	3	2	2	1.5
Oeste Catarinense	169	111	65.7	47	27.8	8	4.7	3	1.8
Total SC	218	148	67.9	53	24.3	12	5.5	5	2.3

Source: designed by the authors (2019).

<sup>1</sup> Total different food items by mesoregion in the three years of observation (2015 to 2017).

<sup>2</sup> Total food items by degree of processing by mesoregion in the three years of observation (2015 to 2017).

It was also found that ultra-processed foods were less frequent in the public calls than foods from the other groups (Table 4). It is considered that this finding is because ultra-processed foods are usually produced by large industries, involving several stages and highly specialized processing techniques, which would prevent the supply of these foods by family farmers.

Family farming in the state of Santa Catarina has, in its tradition and culture, the processing of handmade food products. Historically, since their arrival in Santa Catarina in the XIX century, family farmers (of German, Italian, Polish ethnicity, *etc.*) produced food for their own consumption and sold it to other family farmers. Among the foods produced on their properties, there were cheese, butter, pork sausages, lard, brown sugar, *chimia*<sup>5</sup> of fruits, wine, bread and homemade cookies. Accordingly, food processing is seen as part of the very logic of family farming. In addition, the processing of family farming food currently aims to add exchange value in the marketing of such products (MIOR *et al.*, 2014).

In this sense, one of the new forms of insertion of family farming in the market is the production of family agribusinesses, which, according to Mior (2005), is a mode of organization in which the rural family produces, processes and/or transforms part of its agricultural and/or livestock production. In this study, it was observed that the mesoregion that presented the most processed and ultra-processed foods was *Oeste Catarinense* (Table 4), which is the one where the family agribusiness is

<sup>5</sup> Pasty jam similar to jelly.

more expressive, representing 45.5% (n=862) of the establishments in the state (MIOR *et al.*, 2014).

Elias *et al.* (2019), when investigating the socioeconomic impacts of PNAE on family farming in 31 municipalities in Santa Catarina, pointed out that, in more than 80% of these municipalities, the purchases by means of PNAE promoted incentives for productive diversification, allowing the sale of foods with higher added value, such as juices, breads, cookies and sweets. There has also been a stimulus to the creation of family agribusinesses and the production of foods that are often undervalued by producers, such as fruit and vegetables (ELIAS *et al.*, 2019).

In this perspective, there may also be other ways to encourage family farmers to market their products, with a view to adding value, as is the case of sanitized food (peeled and sanitized vegetables). This demand could represent a niche market for family agribusinesses, while facilitating the work in school kitchens, which are known to have insufficient structure for more elaborate preparations, such as those required by menus that prioritize raw and minimally processed foods (FERNANDES; SCHNEIDER; TRICHES, 2016). In addition, the procurement of previously sanitized food for school meals, due to the added value, could favor the managers of PNAE in terms of the compliance of the 30% required by law, discouraging the purchase of ultra-processed foods that, admittedly, are sold at higher prices than those *in natura* (raw).

Nevertheless, it should be noted that this type of measure presented here as an example of an alternative to add value to family farming products would represent more than just a channel for farmers to access PNAE and, consequently, some income increase, perhaps limited and temporary. This measure would mainly constitute an opportunity for the development of capabilities and skills of family farmers, which, once available, would become part of their repertoire of personal resources and could be accessed in the future to make choices and achieve more satisfactory living conditions (SEN, 2010), including by favoring access to other markets and marketing channels. Therefore, it is essential that the different actors and sectors involved with the direct purchase of family farming products for PNAE are committed not only to the procurement of products in proportion to compliance with the legislation, but also – and mainly – to the development of these capabilities and skills, because they are the ones that can provide favorable structural changes for the communities, with the generation of new social opportunities for all, resulting in local development (TEO *et al.*, 2020).

Next, the foods listed in the public calls analyzed in this study are presented, according to the degree of processing and the food group (Chart 1).

**Chart 1** – Foods present in the public calls, according to the degree of processing by food group, Santa Catarina, Brazil, 2015 to 2017.

Degree of processing	Foods present in the public calls by food group
Raw or minimally processed (148 foods)	<p><b>Fruits:</b> avocado, pineapple, acerola, plum, blackberry, araçá, banana, raisin banana, bergamot, khaki, carambola, grated coconut, fig, custard apple, white guava, red guava, jabuticaba, kiwi, orange, lime, lemon, apple, papaya, mango, passion fruit, watermelon, melon, blueberry, strawberry, nectarine, pear, peach, physalis, fruit pulp, poncã tangerine and common grape;</p> <p><b>Vegetables:</b> cabotiá squash, butternut squash, neck squash, Italian zucchini, saffron, chard, watercress, rosemary, lettuce, garlic, leek, chicory, eggplant, beetroot, broccoli, onion, scallion, carrot, green smell, chicory, chayote, coriander, cauliflower, butter cabbage, spinach, orapronobis flour, mint, basil, marjoram, mustard, turnip, orapronobis, oregano, cucumber, pepper, yellow pepper, green bell pepper, red pepper, pine nut, okra, radish, radicci, white cabbage, purple cabbage, arugula, parsley, celery, tomato and string bean (pod);</p> <p><b>Tubers and roots:</b> cassava, sweet potato, Irish potato, parsley potato, yakon potato, cará, cassava flour, tapioca flour, tupinambor flour, ginger, yam, sweet polvilho, taiá, tapioca and tupinambor;</p> <p><b>Nuts and chestnuts:</b> peanut;</p> <p><b>Cereals:</b> corn starch, white rice, brown rice, parboiled rice, oat flakes, canjica, wheat bran, rice flour, rye flour, corn flour, wheat flour, whole wheat flour, sesame, linseed, homemade egg noodles, whole homemade egg noodles, popcorn corn, green corn, pamonha, quinoa, quirera and tatarca;</p> <p><b>Meats and eggs:</b> beef, chicken, tilapia, shark, pork, quail egg and chicken egg;</p> <p><b>Beans:</b> dried peas, fresh peas, fava bean, white bean, carioca bean, black bean, red bean, chickpea and lentil;</p> <p><b>Milk, cheeses and yogurts:</b> skim cow milk, whole cow milk, semi-skim cow milk and cream;</p> <p><b>Oils, fats, sugars and sweets:</b> bee honey and sugar cane molasses;</p> <p><b>Juices and sweetened beverages:</b> sugar cane juice and whole fruit juice (various flavors).</p>
Processed (53 foods)	<p><b>Fruits:</b> Fruit in jam syrup;</p> <p><b>Vegetables:</b> canned vegetables, canned cucumber, tomato extract and tomato sauce;</p> <p><b>Tubers and roots:</b> potato gnocchi;</p> <p><b>Cereals:</b> beef agnoline, chicken agnoline, homemade sweet cookie, homemade whole sweet cookie, homemade salty cookie, homemade cake, homemade whole cake, salty cake, calzone, chineque, homemade filled cuca, homemade cuca without filling, chicken pot pie, beef sfiha, chicken sfiha, fried sweet grostoli, fried salty grostoli, homemade meat lasagna, homemade chicken lasagna, homemade lasagna dough, homemade pastry dough, homemade pizza dough, homemade bread, homemade sweet bread, homemade whole bread, baked meat pastry, baked chicken pastry, natural sandwich, baked doughnut, salty pie, homemade pumpkin pie and 31;</p> <p><b>Meats and eggs:</b> fish cake and breaded fish;</p> <p><b>Oils, fats, sugars and sweets:</b> sugar cane jam, fruit jam, dietary fruit jam, milk jam, fruit jelly, diet fruit jelly, paçoca de pinhão, pé de moleque, rapadura;</p> <p><b>Milk, cheeses and yogurts:</b> white cheese, colonial cheese, mozzarella cheese, plate-shaped cheese and ricotta.</p>

Ultra-processed (12 foods)	<b>Milk, cheeses and yogurts:</b> milk drink, whole fruit yogurt and cream cheese; <b>Cereals:</b> pizza; <b>Meats and eggs:</b> seasoned fish broth, mixed sausage, pork sausage, ham, salami and fish soup; <b>Oils, fats, sugars and sweets:</b> chocolate drink powder; <b>Juices and sweetened beverages:</b> grape nectar;
Processed culinary ingredients (5 foods)	<b>Oils, fats, sugars and sweets:</b> brown sugar, caster sugar, lard, butter and iodized salt.

Source: designed by the authors (2019).

Among the food items present in the public calls, it is observed a great variety of foods, especially fruits and vegetables. The variety of foods is the basis for a nutritionally balanced diet, especially if composed of raw or minimally processed foods and predominantly of vegetal origin (BRASIL, 2014).

In addition, Law nº 11.947/2009 determines that the school menu must be prepared based on the use of basic foodstuffs indispensable to the promotion of healthy eating (BRASIL, 2009). It is considered that the law leaves a gap by not clearly expressing the concept of basic food, although the incentive to use foods from family farming and that respect local culture and food traditions indicates the supply of healthy foods in school meals. Nevertheless, in practice, encouraging the use of foods from the local cultural repertoire can result in the supply of unhealthy foods, such as products like lard and salami (high in sodium and saturated fat), characteristic of the food culture in Southern Brazil (TEO; MONTEIRO, 2012). Corroborating the considerations of the cited authors, the foods listed in the public calls analyzed in this study demonstrate a significant influence of German and Italian cultures, present in the different mesoregions of the state of Santa Catarina, with a special emphasis on homemade cookies, *agnoline*<sup>6</sup>, *grostoli*<sup>7</sup>, homemade noodles (processed foods), lard (processed culinary ingredient) and salami (ultra-processed).

Similar results were pointed out by Teo *et al.* (2016) when they analyzed the products purchased from family farming for school feeding in municipalities from the Western Region of Santa Catarina in the period from 2010 to 2014. The authors identified typical foods of the local traditional culture, such as homemade cookies, *cuca*<sup>8</sup>, noodle, canjica, molasses, salami and lard. The authors argued that, even if the amount requested has not been significant, the supply of this

6 Filled salty dough of Italian origin, often used to prepare soup.

7 Fried ball of sweet dough of Italian origin, usually covered with sugar and cinnamon.

8 Kind of sweet cake of German origin.



type of food may go against the first guideline of Law nº 11.947/2009, which advocates the use of healthy and adequate foods, and that the school environment is a place for learning and building healthy practices (BRASIL, 2009; TEO; MONTEIRO, 2012; TEO *et al.*, 2016).

This context points to the compliance with the law regarding the use of healthy and adequate foods, being necessary to consider, in the selection of foods, their degree of processing, in addition to cultural issues. Thus, it is important that the foods present in the public calls are predominantly raw or minimally processed, integrating the local cultural repertoire.

In summary, it is reinforced that the results of this study, in a longitudinal perspective, point to the strengthening of the articulation between family farming and school feeding. In this direction, it is considered that a significant contribution of the study is precisely the consolidation of historical data on the topic, which serves, as recommended by Oliveira (2023), the purpose of science-based decision making.

The analysis presented on the topic at stake has the strength to guide decisions by public and private agents in order to address the identified gaps and encourage the generation of social opportunities for the collectivity, including family farmers and the community in general (teachers, students and their families, education workers, *etc.*). These decisions are based on the understanding of the connection between family farming and school feeding as a synergetic relationship, as a possibility to qualify people's capabilities and skills to conquer better welfare conditions, both individually and collectively, expanding their resources for emancipation and social participation, for the construction of better conditions of health, education, work, care for the environment in which they live, thus allowing these citizens to produce and take advantage of opportunities to improve their socioeconomic condition, linked or not to PNAE. Accordingly, this public policy can be a vector for local-regional development, within the multidimensionality of this construct.

## Final Considerations

It was found that, in some mesoregions of the state of Santa Catarina, in the analyzed period, there was a slight increase in the number of municipalities that met the legal determination of applying a minimum of 30% of the resources provided by FNDE to purchase foods from family farming for school meals. Regarding the public calls, there has been an increase in the number of

municipal governments that have published notices, although this still does not represent all the municipalities in the state, indicating that not all the governments are publishing the notices on their websites, as foreseen in the legislation.

It was also observed that the public call notices still have weaknesses, especially regarding the lack of some information, which can hinder the decision making of the family farmer about participating in the process of supplying foods to PNAE. In this sense, it is suggested that the Executing Entities pay attention to the qualification of the process related to the preparation of notices, so that they include elements necessary for better planning of family farmers and, consequently, a better fulfillment of the commitments made by them in relation to the Program. On the other hand, price information was included in almost all the analyzed notices, favoring the decision on the part of the farmer about his/her insertion (or not) in PNAE.

With respect to the foods present in the public calls, it was found a predominance of raw and minimally processed foods. This result reveals the synergy between PNAE and family farming, since, at one time, it guarantees income to farmers and presents itself as a strategy in terms of promoting healthy school feeding. Nonetheless, it was noticed that, by prioritizing the procurement of foods with cultural repertoire (which is expected within the scope of PNAE), it is still possible to incur the purchase of less healthy foods. Therefore, it is argued that, when developing school food menus, it is important to consider, in association with the local food tradition, the degree of food processing, prioritizing the raw and minimally processed foods.

It is considered that it is necessary to make the strengthening of family farming compatible with the provision of healthy and adequate food at school. To this end, it is important to align the dimensions of food demand and supply, which implies expanding the idea of family farming development beyond the aspects of income generation for the segment and including the notion of promoting the health of communities. In this logic, it is necessary to consider that the dimension of demand, if treated in a dialogic, participatory and inclusive perspective of the different involved actors, can induce the supply of foods that represent new opportunities for family farming. This can mean a qualitative leap in the articulation of family farming with school feeding, contributing more effectively to local and regional development.

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