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## Purchase and sale of organic foods for school feeding: difficulties and strategies to overcome

### *Compra e venda de alimentos orgânicos para a alimentação escolar: dificuldades e estratégias de superação*

#### Abstract

**Objective:** To evaluate the difficulties in the process of buying/selling organic products from family farming for school meals in 21 municipalities in southern Brazil and to take actions to overcome them. **Methods:** This is a qualitative and quantitative study through semi-structured interviews with 111 key informants involved in school meals. The interviewees were asked about the difficulties of buying/selling organic food for school meals and about the actions developed and/or in planning to overcome these problems. Descriptive analysis of closed questions was performed based on frequency distribution and content analysis with coding and categorization of open questions. **Results:** Most municipalities (n = 19) did not buy organic food from family farming. The limited availability of the supplier market and the low production of organic foods were the most reported difficulties. On the other hand, the high costs of the products and the lack of interest by the public management in the acquisition of organic foods were difficulties little mentioned. Respondents highlighted that buying/selling could increase with the strengthening of participatory certification processes and if those involved had more information about the benefits and risks of productive models. **Conclusions:** The strengthening of technical assistance and rural extension, development of regulations and incentives for organic certification, support and investment for participatory certification, and technical guidelines were necessary strategies to encourage the production and consumption of organic human food.

**Keywords:** School meals. Organic food. Organic agriculture. Public policy.

#### Resumo

**Objetivo:** Foram avaliadas as dificuldades no processo de compra /venda de produtos orgânicos da agricultura familiar para a alimentação escolar em 21 municípios do Sul do Brasil e identificadas as ações para superá-las. **Métodos:** Estudo quali-quantitativo realizado mediante entrevistas semiestruturadas com 111 informantes-chave envolvidos na alimentação escolar. Os entrevistados foram arguidos sobre as dificuldades da compra / venda de alimentos orgânicos para a alimentação escolar e sobre as ações que estão sendo desenvolvidas e/ou em planejamento para superação dessas problemáticas. Realizou-se análise descritiva das perguntas fechadas com base na distribuição da frequência e análise de conteúdo com codificação e categorização das questões abertas. **Resultados:** A maioria dos municípios (n=19) não comprava alimentos orgânicos provenientes da agricultura familiar. A pouca disponibilidade de mercado fornecedor e a baixa produção de alimentos orgânicos foram as dificuldades

mais relatadas. Em contrapartida, os custos elevados dos produtos e a ausência de interesse da gestão pública na aquisição de alimentos orgânicos foram dificuldades pouco citadas. Os entrevistados apontaram que a compra/venda poderia aumentar com o fortalecimento dos processos de certificação participativa e se os envolvidos tivessem maiores informações sobre os benefícios e riscos dos modelos produtivos. **Conclusões:** Evidenciaram-se o fortalecimento da assistência técnica e extensão rural, desenvolvimento das regulamentações e incentivos para a certificação orgânica, apoio e investimento para a certificação participativa e orientações técnicas são estratégias necessárias para o incentivo da produção e consumo de alimentos orgânicos na alimentação humana.

**Palavras-chave:** Alimentação escolar. Alimentos orgânicos. Agricultura orgânica. Política Pública.

## INTRODUCTION

The growing use of pesticides is a worldwide concern given the associated acute and chronic diseases and environmental impacts.<sup>1,2</sup> Exposure to pesticide residues from food consumption increases food insecurity<sup>3</sup> since 23% of foods consumed in the Brazilian daily diet have pesticide residues with concentrations equal to or greater than the maximum acceptable limits.<sup>4</sup> Also, the risk of exposure becomes greater as pesticide residues are found in different foods consumed daily.<sup>3</sup> A combined exposure of pesticides through food and other ways of penetrating the body (cutaneous and/or respiratory) is associated with acute and chronic effects from nausea/vomiting,<sup>3</sup> and even the development of several types of cancer.<sup>5-7</sup> Diseases affect mainly children and adolescents as they have lower levels of detoxifying enzymes than adults.<sup>8</sup> Thus, they suffer more from the neurotoxic effects of pesticides since the nervous system in this age group is gradually developing.<sup>9</sup>

To face this problem, the incentive to the production and consumption of organic foods brings benefits both to the environment and to the health of the population. Therefore, the inclusion of organic and agroecological foods in the diet should be encouraged, promoting healthy and adequate food and preserving the health of children and adolescents.<sup>9-11</sup>

Organic foods do not use inputs such as synthetic pesticides, chemical fertilizers, preservatives, additives, irradiation, and genetically modified organism.<sup>12</sup> The production process conserves natural resources and guarantees the quality of the food.<sup>12</sup> Although there is no scientific consensus on the nutritional superiority of organic foods compared to conventional ones,<sup>13</sup> several studies have shown that organic foods have higher concentrations of vitamin C, antioxidants, fatty acids<sup>14</sup> and mineral salts.<sup>15-17</sup> Although there is an increasing number of observational researches indicating the health benefits of consuming organic foods, we still need scientific studies in this area.<sup>18</sup>

To make feasible the increase in the consumption of organic foods, the role of the State in promoting Food and Nutritional Security (FNS) of the population and in sustainable regional development through public policies is highlighted. Brazilian public policies that meet FNS requirements such as the National Policy for Agroecology and Organic Production (PNAPO, in its Portuguese initials) stand out.<sup>19</sup> Its guidelines recommend food security through the offer of organic and agroecological products, free from contaminants that endanger the health of the individual.<sup>19</sup> PNAPO also highlights that agroecology is the application of ecological concepts and principles in the design and management of sustainable agroecosystems.<sup>20</sup>

The National School Feeding Program (PNAE, in its Portuguese initials) has also become one of the State's instruments for guaranteeing FNS, prioritizing the acquisition of organic and/or agroecological foods. Since 2009, the Program indicates that at least 30% of the total resources transferred to the municipalities by the National Education Development Fund (FNDE, in its Portuguese initials) should be used to buy food from family farming.<sup>21</sup> In this context, family farmers are considered producers aimed to meet their subsistence and society's demand for food and other goods and services, and who reside in the establishment of a location close to it.<sup>22</sup> Thus, the PNAE can be a strategy of social transformation and building a new pattern of food production and consumption, particularly by including basic and local foods on the school menu.<sup>23</sup>

These policies enabled to guarantee the sale of foodstuffs produced by family farmers and they are strategies to encourage organic production. They also contribute to improving quality and increasing food variability and acceptance and consumption by students.<sup>24</sup>

Even encouraged by the legislation, Brazilian municipalities have difficulties in acquiring organic food to supply the demand for school meals.<sup>25</sup> The insufficient variety, the lack of certification,<sup>25</sup> the high cost,<sup>26</sup> the distribution problems, and the low quality<sup>27</sup> are possible limitations for the acquisition of organic food in school

meals. Production becomes limited due to difficulties in controlling pests and diseases, climatic adversities, shortages of labor and technical assistance, difficult access to finance<sup>25</sup> and inputs, and the proximity of organic farming land with conventional cultivation.<sup>28</sup>

The current Brazilian literature already shows data on the frequency of purchase of organic food for school meals in Brazilian municipalities and the difficulties they faced.<sup>24-26</sup> However, little is known about the strategies that the municipalities have adopted to overcome these adversities in the process. In addition to what we see in the literature, this study sought to analyze the difficulties in the process of buying and selling organic products from family farming for school meals in municipalities in the southern region of Brazil, based on the reports of different actors. Concomitantly, we seek to identify the actions developed in the municipalities to overcome the difficulties in the process of buying and selling organic food from family farming.

## Methodology

This is a cross-sectional study with a qualitative and quantitative approach, conducted through interviews with key informants involved in school feeding in 21 municipalities in the Southern Region of Brazil.

We considered the mesoregions of the southern states of Brazil for the selection of municipalities, aiming to cover places with different socioeconomic, geographical, and cultural characteristics. Thus, we tried to identify a municipality in each of the 23 mesoregions to compose the sample.

The inclusion criteria were having between 20 and 70 thousand inhabitants and having a nutritionist as the technician responsible for school meals. The selection of the municipality participating in the research was randomly drawn among the municipalities of each mesoregion with a population between 20 and 70 thousand inhabitants ( $n = 179$ ). Then, we made telephone contact with the Education Departments of each municipality to verify whether the municipality fit the other inclusion criteria. In the case of a positive answer, we included the municipality in the study; and in the case of a negative answer, a new draw was carried out. This process was carried out until reaching the sample of one municipality per mesoregion. Two of the total mesoregions in the South Region in the state of Paraná were excluded from the study as no municipalities were found that fit the inclusion criteria or accepted to participate in the research.

We excluded municipalities with less than 20 thousand inhabitants from the sample because they have more simplified service structures and to the common absence of a full-time nutritionist in school meals. We excluded the municipalities with more than 70 thousand inhabitants due to their complex structures and logistics, which could mean greater difficulties in articulating family farming and school meals, and not having, in this population group, representative municipalities for all mesoregions. The 21 municipalities included in the study had, on average 22 school units each, assisting together approximately 78 thousand students.

Participants in this study were managers and employees linked to school feeding, managers and employees of agriculture, representatives of cooperatives and farmers, all key informants who were involved in the process of buying and selling food from family farming for school meals in the municipalities. The interviewees were divided into four groups: responsible for the purchase of food for school meals, represented by nutritionists (group A,  $n = 21$ ); farmers (group B,  $n = 42$ ), technical assistance, formed by agronomists or agricultural technicians, municipal secretary of agriculture and representatives of rural extension (group C,  $n = 25$ ); and representatives of farmers' organizations, such as cooperatives, unions or associations (group D,  $n = 23$ ). The number of respondents in each group of participants was defined at the time of data collection, requiring at least one representative from each group per municipality.

For data collection, we used a questionnaire prepared by the project team based on previous experiences, with the collaboration of experts on the subject, and tested in a pilot study. The questionnaire contained 16 closed questions and three open questions that dealt with: purchase of organic foods; difficulties in the acquisition, offer, production, and credit for the production of organic food; and actions in planning or development to overcome difficulties. Chart 1 shows the variables and indicators of the questionnaire and which groups answered each questionnaire. The questions addressed in the questionnaire were adapted to the activities/experiences of each group of respondents (agricultural production/purchase planning).

**Chart 1.** Variables addressed in interviews with key school food informants in southern Brazil, 2015.

Variables		Indicator	Groups
Mode of purchase of organic food	Through Public Call	Yes/No	A
	Through Bidding	Yes/No	
Difficulty in acquiring organic food	The limited availability of the supplier market	Yes/No	A
	The little variety of organic products		
	The absence of certification		
	The high cost		
	Absence of interest from public management		
	Little management willingness to pay higher prices for organic food	Yes/No/I do not know	
Difficulties for production/organic food supply	Lack of technical assistance to offer organic products for school meals	Yes/No	A/D
	Insufficient Production		
	Low value paid for products		
	Few certified organic products		
	Absence of certified products		
	Credit availability for organic production		
	Lack of municipal incentive		
	Other difficulties	Open question	
Difficulties for production/organic food supply	Difficulty related to organic production	Yes/No	B/C/D
	Credit difficulty for organic production		
	Actions developed or planned to overcome the difficulty of organic production	Open question	
	Actions developed or planned to overcome credit difficulties for organic production		

Source: Prepared by the authors.

The interviewers directly typed the answers to the closed questions at the time of data collection on portable computers (tablets), using a digital form created in the Epicollect software. The database was generated in electronic spreadsheets, and the municipalities and groups of key informants were separated for further analysis. The audios of the interviews were also recorded.

Trained nutritionist researchers conducted the interviews between March and November 2015, during a field visit at the interviewees' workplace. Before the interviews, participants received information about the study and were guaranteed anonymity. Participants signed an Informed Consent Form, and the study was approved by the Research Ethics Committee of the Federal University of Santa Catarina (opinion 1,002,956). The study is part of a research project financed by CNPq through the Edital Universal MCTI/CNPq n. 14/2012; process 483184/2012-8.

A descriptive analysis of the quantitative data was performed based on the frequency distribution (absolute and relative) using the Stata program (Stata Corporation College Station, USA) version 11.0. The variables related to the offer of organic products were stratified by a group of respondents, nutritionists (group A), and representatives of the cooperatives (group D).

To identify whether the perceived difficulty regarding organic production and the credit for organic production were different among the interviewees (group B, C, and D), we applied the Fisher's Exact statistical test. Also, we applied the statistical test to identify whether the perceived difficulties regarding the supply of organic foods were different between groups A and D. A p-value less than 0.05 was considered statistically significant.

We transcribed the qualitative data in verbatim and imported into the software (Nvivo) for content analysis.<sup>29</sup> After repeated readings to familiarize with the content, the text fragments (words or phrases) with the same meaning were encoded, and the categories were established by grouping codes. We performed coding and categorization by two different researchers to ensure data reliability, followed by a discussion with the other authors until consensus.

## RESULTS

### Quantitative analysis of the organic food purchase/sale process

Only 9.5% (n = 2) of the 21 municipalities purchased organic food for school meals in 2015, with one municipality in the state of Santa Catarina and another in Rio Grande do Sul. The purchase of organic food in one of these municipalities did not carry out exclusively by family farming.

Table 1 shows the difficulties related to the offer of organic food from the perspective of nutritionists and representatives of farmers' organizations (groups A and D). We did not identify significant differences between the opinion of the informants in each group.

**Table 1.** Difficulties related to the supply of organic food from the perspective of nutritionists and representatives of cooperatives in Southern Brazil, 2015.

Difficulties	Nutritionists		Cooperative Representatives		Total		p**
	n	%	N	%	n	%	
Low production	17	80.9	11	47.8	28	63.6	0.60
Certification difficulties	11	52.3	9	39.1	20	45.4	0.67
Lack of technical assistance	9	42.8	11	47.8	20	45.4	0.19
Few certified products	11	52.3	8	34.7	19	43.1	0.18
Little incentive from public management	6	28.5	11	47.8	17	38.6	0.63
Low amount paid	5	23.8	6	26	11	25.0	0.55
Lack of farmer information*	7	33.3	3	13	10	22.7	0.24
Credit availability	2	9.5	6	26.0	8	18.1	0.50
Large-scale production preference*	5	23.8	2	8.6	7	15.9	0.06
Logistics*	0	0	3	13	3	6.8	<sup>a</sup>
Lack of manpower*	1	4.7	0	0	1	4.5	<sup>a</sup>
High production cost*	1	4.7	0	0	1	2.2	<sup>a</sup>
Lack of supervision*	0	0	1	4.3	1	2.2	<sup>a</sup>
Acceptance of organic products*	0	0	1	4.3	1	2.2	<sup>a</sup>
Lack of interest from the farmer*	0	0	1	4.3	1	2.2	<sup>a</sup>

Source: Prepared by the authors.

\*Difficulties pointed out in the "Other" answer option.

\*\*Fisher's exact statistical test. Impossibility of applying the test

Regarding the purchase of organic food in school meals, nutritionists specifically highlighted the following difficulties: low availability of the organic supply market (100%, n = 21); little variety of organic products (57.1%, n = 12); absence of certification (57.1%, n = 12); high cost (47.6%, n = 10); absence of interest from public management in the acquisition of organic food (14.2%, n = 3). Most interviewed nutritionists (52.3%, n = 11) were unaware of the public sector's difficulty in paying higher amounts for organic food compared to conventional food.

The opinions of key informants were also consulted regarding the existence of difficulties for organic production and credit for production. According to 78.8% (n = 71) of farmers (group B), agronomists (group C) and representatives of cooperatives (group D), there were difficulties in organic production; 17.7% (n = 16) reported difficulties in the credit for organic production. There were no significant differences in the answers of farmers (group B) and the technical team (group C + group D) regarding the variables of difficulty in organic production ( $p = 0.08$ ) and credit for organic production ( $p = 0.21$ ).

### Qualitative analysis of the organic food purchase/sale process

We identified four categories to describe the opinions of key informants on actions and/or strategies needed to overcome difficulties related to the supply of organic food: actions in the stages of the production chain; valorization of organic foods; incentive to the farmer; certification and marketing process. Chart 2 shows the categories and codes.

**Chart 2.** Actions/strategies considered necessary to overcome the difficulty of organic production in Southern Brazil, 2015

Difficulties	Actions and strategies to overcome difficulties
<b>Actions in the stages of the production chain</b>	
Rural exodus and reduced family size Lack of technical assistance Financial difficulties	Incentive to expand the workforce. Increased availability of organic inputs. Expansion of specific technical assistance for organic production. Increase in credit availability. Reduction of production costs.
<b>Valorization of organic food</b>	
Market value of organic product similar to conventional Absence of public support for the purchase	Payment adequate to the organic product. Greater appreciation of the final consumer. Dissemination of the benefits of organic foods. Public awareness actions on the quality of organic food.
<b>Incentives for farmers</b>	
Lack of interest in organic production	Lectures and training for farmers on the importance of organic production. Raising the farmer's awareness of the advantages of organic production. Incentives in production and cost reduction
<b>Certification and marketing process</b>	
Proximity to conventional production Bureaucracy to receive the seal and institutional marketing	Facilitating the certification process. Reducing the institutional sale process. Dissemination of organic certification through participatory certification. Delimitation of land area for pesticide production

Source: Prepared by the authors.

The category of difficulty and actions in the stages of the production chain is mainly of government activities that minimize the difficulties they faced:

[...] The difficulty of labor on the properties today is do not say no, families are decreasing in the countryside, then it turns out that the producer has no interest. (Cooperative Representative).

[...] no professional encourages, who assists, how he does it, how it is, how it is that right. (Farmer).

The actions related to the organic product appreciation category are mainly related to the financial return obtained:

[...] valuation of the cost of the product, like this, in the market, the organic is better than the non-organic. The 30% more of the program does not match the market value [...] (Agricultural Technician).

[...] and the other does not deliver school meals because they do not pay the 30%. (Farmer).

As consumers do not value organic food, they are not in favor of paying higher prices for products that are not visually attractive:

And the consumer is not prepared for the organic product, they seek the appearance, beauty of the product. (Rural extension).

Actions to encourage organic producers such as awareness and lectures can help to reduce difficulties according to the interviewees:

[...] it is the family to have the profile of organic production. Is he aware that he cannot? That he is watching the animal eat there and that he will have to do an alternative control and cannot make the poison. Does he have this conscience? He has to have that awareness. (Rural extension).

Respondents also identified the need for actions to control areas where pesticides are used, so that this does not interfere with the certification process, and for strategies to facilitate the certification process:

[...] We held meetings to delimit the area that can pass poison, so many kilometers away from the city, like rural zoning. (Farmer).

[...] There is a commission through the councils and EMATER. Some producers claim to be organic but have not been certified. We are trying that through this commission, we can certify this producer, even to be a model for others. (Farmer).

## DISCUSSION

This study explored the difficulties of the process of buying and selling organic products from family farming for school meals in the Southern Region of Brazil and the potential strategies to overcome them, in the opinion of key informants. Most of the municipalities studied did not buy organic food for school meals. The limited availability of the organic supplier market was a difficulty reported in the opinion of all interviewed nutritionists. On the other hand, the cost and the lack of interest from public management in the acquisition of organic foods were difficulties they did not mention. The technical issues of the stages of food production, the resistance and insecurity of the farmer, and the bureaucracy in the process of certification and commercialization of organic foods stood out among the difficulties listed by the producers. Also, the low appreciation of organic food by buyers seems to hinder marketing. Therefore, the valorization of organic foods, institutional support, the strengthening of technical assistance services, and the increase in cooperation are strategies aimed at making changes in this scenario.

In Brazil, the purchase of organic food for school meals is encouraged by the PNAE legislation,<sup>21</sup> and also by the National Plan for Agroecology and Organic Production.<sup>19</sup> Even so, only two of the 21 municipalities evaluated in the study purchased organic food. Other studies also showed low percentages of purchase of organic food for school meals in the southern states of Brazil, not exceeding 18.9% in Rio Grande do Sul,<sup>30</sup> 17% in Paraná<sup>31</sup>, and 48% in Santa Catarina.<sup>25</sup> The low adherence of municipalities to this practice has been discussed in several surveys. However, it is important to highlight experiences such as the state of Santa Catarina, which increased 2.5 times the number of municipalities that purchased organic food between 2010/27 and 2011.<sup>25</sup>

We also observed experiences of buying organic food for school meals in other countries. In the city of Berlin, 40% of the amount spent on the production of school meals was spent on the purchase of organic food.<sup>32</sup> In addition to the mandatory use, a minimum percentage of 15% of organic ingredients in the production of school food, school canteens receive a score proportional to the increase in this percentage. This scoring system favors companies in the bidding process.<sup>32</sup> Finland used a program for the insertion of organic food in the public sector (Steps to Organic) that, encouraging consumption and also encourages local production.<sup>33</sup> On the other hand, the results of our study indicated the low appreciation of organic food by consumers and also little incentive for the production of organic food.

The main difficulty highlighted by nutritionists for the purchase of organics in our study was the low availability of the supplier market for school meals. In this sense, the production of organic food in Brazil is low than in conventional production. According to the 2017 Agricultural Census, establishments of organic producers represent 1.3% of the total of identified establishments. Of this total of establishments that produce organics, 76.3% are family farmers.<sup>34</sup> Currently, the municipalities studied have 7691 active family farmers and only 0.76% (n = 59) are registered in the National Register of Organic Producers.<sup>35</sup> Our results agree with a previous study<sup>27</sup> and highlight the need to increase the variety of organic foods produced.

As is the case with PNAE, public food purchases aim to bring producers and consumers closer together, with a reduction in intermediaries in the process. Thus, food supply is carried out by short chains, a system that guarantees the interrelationships between the actors who are directly engaged in the production, transformation, distribution, and consumption of food.<sup>36</sup> This interaction is conducive to the establishment of a relationship of trust between farmers and the public sector.<sup>37</sup>

A previous study Positive reported this interaction.<sup>38</sup> Thus, the actions and strategies to overcome the difficulty related to the valorization of organic foods identified in our results can be strengthened through the effectiveness of this interaction. If the nutritionist does not interact with family farmers to prepare the

menu, knowing the agricultural vocation of the municipality and identifying the diversity of foodstuffs, it can reproduce the irregularity of food supply and limit the inclusion of farmers.<sup>39</sup>

The amount paid for the products was not identified as a difficulty for most participants. This result differs from previous studies,<sup>25,27</sup> which identified the low amount paid by the public sector to organic products as a difficulty for the introduction into school meals. This result may be due to the lack of experience of the participants in our study with the purchase of organic foods.

Also, the results of our research agree with other studies about the difficulties in organic production covering the entire production chain and affecting the food supply.<sup>40</sup> The lack of organic inputs, financial difficulties due to the lack of credit, little technical assistance, absence of labor, and the high cost of production discourages farmers from organic production.<sup>40</sup> The increase in the availability of organic food to consumers is linked to the need for institutional support for the conversion process from conventional production systems to organic production systems.<sup>41</sup> Associated with institutional support, the need to strengthen technical assistance and rural extension services and also cooperative is highlighted. These services are prepared to support, transfer technologies to promote rural development<sup>42</sup> and enable strategies to support production, visibility, and insertion in the market.<sup>42</sup> To guarantee Food and Nutritional Security (FNS), the implementation of public policies is necessary and sustainable and participatory food production, marketing and consumption strategies, respecting cultural characteristics.<sup>43</sup>

Bureaucracy for certification and commercialization are also possible limitations for organic production. The costs involved in this process can make product certification for the farmer unviable.<sup>44</sup> Therefore, the participatory guarantee certification process developed by institutions would be an alternative, as shown in the research results. Participatory warranty certification is a participatory network-generating credibility process. To prove the credibility, the system establishes ethics committees, composed of farmers, technicians, and consumers who prove the production process. In addition to presenting low costs, this certification generates knowledge for farmers and encourages organic farming as a lifestyle.<sup>44</sup> The construction and planning of social control bodies for participatory organic certification are described in scientific publications.<sup>45-47</sup> Cases report can contribute to solving the certification difficulties pointed out in our results.

When selling organic food for school meals, family farmers may receive a 30% increase in the price of the market value of conventional foods.<sup>48</sup> However, respondents reported that there is not always a guarantee of this increase in value and this prevents organic production for the farmer. As in a previous study,<sup>49</sup> this increase and the purchase priority for organics are not always respected in public purchases.

When interpreting these results, we observed that the change strategies are based on the valorization of organic foods. As a way of arousing interest and incentives, the disclosure of environmental,<sup>50</sup> nutritional and health benefits to the public authorities<sup>14</sup> generates greater knowledge and arouses the purchase and consumption of organic foods. Consequently, there is an increase in the demand for food and the valorization by public management (through the payment of values in line with the costs of organic production), increasing the supply. The greater availability of organic foods on the market makes them more accessible. Lower values attract more consumers.<sup>51</sup>

We can conclude that the study shows that the purchase of organic food for school meals is limited by the low availability of the market and the insufficient production of these foods. The strengthening of technical assistance and rural extension, development of regulations and incentives for organic certification, support and investment for participatory certification, and technical guidelines that collaborate with the valorization of organic products in the health, the environment, and the sustainability of the planet. They are necessary

strategies to encourage the production and consumption of organic food in human food. Regarding the ways of overcoming the key informants, the reports showed that many advances are needed to enhance the supply and demand for organic food. The advances are related to intersectoriality, support, trust, and dialogue.

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### Contributors

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