



A profile of organic farming and markets in Brazil

Perfil da agricultura e dos mercados de orgânicos no Brasil

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ABSTRACT: This article presents a both qualitative and quantitative analysis of official statistical data on organic farming in Brazil, relating them to consumption trends to explain changes occurred in Brazilian organic food markets in recent years. To this end, a survey was carried out based on data from the 2017 Agricultural Census, added to time-series data from the National Registry of Organic Producers. In addition, information on organic markets in the country was collected, and research literature relevant to the analysis of organics' both production and consumption dynamics was reviewed. Census data analysis showed that agricultural establishments that perform organic farming correspond to 1.28% of total farms in the country, comprising a prevailing profile of farms with an area of up to 20 hectares. Organic farmers are mostly family farmers who own their land and count on little technical support. Data analysis shows a growth in the number of both certified farmers and organic markets. It also reveals heterogeneity in organic farming and a complex dynamics of the markets, which cannot be fully understood by analyzing just the data currently available in the country. Therefore, a need for enhancing the information on organic farming by IBGE was identified, in view of a possible inaccuracy of the relevance of organic production and markets in the country.

Keywords: organic markets; agroecology; 2017 Agricultural Census; National Registry of Organic Producers; family farming.

RESUMO: O objetivo deste artigo é analisar quali-quantitativamente os dados estatísticos oficiais sobre a produção orgânica no Brasil e relacioná-los com tendências de consumo, de forma a explicitar mudanças ocorridas nos mercados alimentares de orgânicos brasileiros nos últimos anos. Para tanto, foi realizado um levantamento a partir dos dados do Censo Agropecuário 2017, complementado por séries históricas do Cadastro Nacional de Produtores Orgânicos. Além disso, foram levantadas informações sobre os mercados de orgânicos no

país, bem como pesquisas que pudessem contribuir para a análise da dinâmica tanto da produção quanto do consumo de orgânicos. A análise dos dados do Censo apontou que os estabelecimentos com agricultura orgânica correspondem a 1,28% do total no país, compondo um perfil preponderante de estabelecimentos com área até 20 hectares. Os produtores orgânicos são, em sua maioria, agricultores familiares, proprietários de terras, com pouca orientação técnica. A análise dos dados evidencia um crescimento tanto do número de produtores certificados quanto dos mercados de orgânicos, uma heterogeneidade da agricultura orgânica e uma complexidade nas dinâmicas dos mercados que os dados analisados e disponíveis no país não permitem entender por completo. Aponta-se, a partir disso, para a necessidade de amplificação das informações sobre produção orgânica pelo IBGE, tendo em vista uma possível imprecisão da relevância da produção e dos mercados orgânicos no país.

Palavras-chave: mercados orgânicos; agroecologia; Censo Agropecuário 2017; Cadastro Nacional de Produtores Orgânicos; agricultura familiar.

1. Introduction

According to the International Federation of Organic Agriculture Movements (IFOAM), world organic production has been increasingly expanding. Its latter report points that, in the last 20 years, world organic agriculture has expanded from 11 million to 74.9 million hectares, and from 200 thousand to 3.4 million farmers in 2020. In 2019 alone, there was an increase of 300 thousand farmers and 2.6 million hectares of cultivated area (IFOAM/FIBL, 2022).

As to the organics market, in 2020 it represented a total of 106.4 billion euros, an increase of 9.7 billion in relation to the previous year. In this context, Brazil stands out as the largest market for organic products (food and beverages) in Latin America, with an estimated turnover of 778 million euros in 2016, out of which the exports share totals 126.5 million euros. Brazil has also the largest number of organic beehives (approximately 630 thousand) and the second largest area with organic coffee production in the world (4,500 hectares).

However, while standing out in terms of area with organic production (12th in the world ranking, with 1,319,454 hectares), showing a growth of 92% in the last ten years, Brazil is one of the last countries in the world ranking regarding organics proportion of total production areas: 0.6% . These data highlight the importance of in-depth studies on the topic of organics in Brazil, besides raising questions about possible room for expansion of these production systems and markets in the country.

Despite IFOAM's data being based on the official statistics, an in-depth analysis can provide more accurate elements of the dynamics of organic agriculture and its markets in Brazil. Considering this, the following questions arise: how many and who are the organic farmers in Brazil and what are their socioeconomic characteristics? What are their conditions for organizing and attaining technical guidance? What do they produce and how do they sell it? Taking these questions as a starting point, this article is intended to contribute to understanding this reality, by analyzing both qualitatively and quantitatively the official statistical data on organic

production and certification¹ in Brazil and relating it to consumption trends.

To this end, information was systematized based primarily on secondary data available in the Brazilian Institute of Geography and Statistics (IBGE) derived from the 2017 Agricultural Census. The information was obtained through the Automatic Recovery System (SIDRA) and the analysis was focused on all available tables referred to organic agriculture, which were systematized using Microsoft Excel software.

The Agricultural Census has been carried out in Brazil since the 1920s and has been undergoing methodological changes, seeking to better understand transformations that occurred in the national agricultural context (IBGE, 2019). The IBGE's is the widest database available in terms of organic agriculture since this information was added to the last two Agricultural Censuses (2006 and 2017) covering all Brazilian municipalities. However, if hastily compared, the data point to a drastic reduction in the number of farms that carry out organic production, due to methodological changes in these data surveys.

The changes that led to this reduction are particularly related to five methodological aspects made in the 2017 Census: a) the reference period for data collection was set again as the agricultural year (October 1, 2016 to September 30, 2017); b) non-continuous production areas cultivated by same farmer were computed as equivalent to a single farm; c) agricultural establishments under bailment were considered as distinct for each area

occupied by a different heir; d) cultivation and/or livestock production by rural employees within an establishment is no longer counted as "producers" nor their cultivated areas are accounted for as separate establishments; e) the classification of establishments in the category of family farming, complying with Decree No. 9.064 of May 31, 2017 (IBGE, 2019), excluded from that category both establishments whose income is mostly originated from activities outside the farm (farmer families who live on non-agricultural incomes) and those that rely increasingly on hired labor (Del Grossi *et al.*, 2019).

Regarding the quantification of establishments that perform organic farming in Brazil, besides the aforementioned methodological changes, there were specific changes in the application of the survey questionnaire. In the 2006 Agricultural Census, the question "make use of organic agriculture" was applied to all agricultural establishments. In 2017, the question about organic agriculture and/or livestock was only applied if two conditions were observed in the census:² a) a negative answer regarding the use of pesticides and/or chemical fertilization; b) the farmer fitted within the following categories: producers with land (land owner; settler whose certificate of title was pending; leaseholder; farming partner; bailee; squatter) and producers without an area (only in the categories "producer who farmed on leased land, farmed in partnership or occupied land, but who was not using it" at the time of data collection and "another situation"). On the other hand, producers without area who fitted in the

¹ Although we use the expression "organic certification" here, the most accurate way of referring to a farming system that conforms to the Organic Farming Legislation is stating that the products have "organic quality guarantee", as recommended in Normative Instruction no. 19/2009.

² Source: e-mail contact with a technician from IBGE.

categories: a) honey producer, b) forest gatherer, c) raiser of animals at roadsides, d) farmer who cultivates riverbeds during ebb, itinerant swiddens or roadsides, and who did not occupy the area were not taken into account.³

Still regarding data collection methodology, it is important to note that, unlike the 2006 Agricultural Census, the 2017 Census based the classification as organic farming on Law No. 10.831/2003 (IBGE, 2017b). Accordingly, an organic farming system is:

The one that adopts specific techniques, which optimize the use of available natural and socioeconomic resources and respect the cultural integrity of rural communities, aiming at economic and ecological sustainability, maximization of social benefits, minimization of dependence on non-renewable energy by employing, whenever possible, cultural, biological and mechanical methods, as opposed to the use of synthetic materials, elimination of the use of genetically modified organisms and ionizing radiation at any stage of production, processing, storage, distribution and marketing, and protection of the environment (Brasil, 2007, p. 1).

In light of that, the identification of organic farming practices in the 2017 Census considered

only the cases provided for in the aforementioned Law;⁴ only farmers who had guaranteed quality of organic products at the time of data collection were considered organic producers. Therefore, this means that only farmers who were registered with the Ministry of Agriculture, Livestock and Supply (MAPA)⁵ had their establishments accounted for as organic production.

In brief, there were several methodological changes in the 2017 Agricultural Census that affected the quantification of agricultural establishments that carry out organic farming. Such changes and the fact that the algorithm for equating the 2006 and 2017 censuses has not yet been implemented by IBGE, it is not possible to make a reliable comparison between the surveys.

In view of such analytical constraints of IBGE data, the present analysis was supplemented with a second database: the National Registry of Organic Producers (CNPO) produced by MAPA. CNPO's data were retrieved from MAPA's website and also by means of direct contact with Ministry technicians, aiming at building a time-series of certifications. It is worth noting that CNPO's data was not used for the purpose of comparing the two

³ Due to such established practice in the application of the questionnaire, the sum of answers referring to organic agriculture does not match the sum of agricultural establishments. Therefore, the difference between the total number of agricultural establishments and the sum of establishments that responded to the item on organic agriculture should be considered as a category "not applicable" (which corresponds to those interviewees who did not answer the question about the use of pesticides, prior to the question on organic agriculture) and will become more evident in the analysis of the data in the next sections.

⁴ Farming systems that "despite not using chemical fertilizers and pesticides, did not follow the standards required by the certifying institutions of organic products" (IBGE, 2017a, p. 71) were not deemed organic. Therefore, many non-certified farmers (who had their income based on gathering activity without certification; or agricultural production with organic characteristics, though informal); or even those who were under "agroecological transition" (Caporal & Costabeber, 2004) were left out of this category, what has concealed a large group of farmers.

⁵ Normative Act No. 19 of 2009 defines three mechanisms of control and information regarding organic quality in Brazil: Organic Conformity Assessment Body (OAC), which can be a third-party certifier (issues certification by Audit), or Participatory Conformity Assessment Body (OPAC, which issues certification via the Participatory Organic Quality Assurance System). The third mechanism only allows direct sales to consumer (at fairs or government purchases) but does not grant the right to the Organic seal. In this case, credibility is generated by a Social Control Organization (OCS). Regardless of which credibility mechanism is activated, in all three cases these producers will be registered in MAPA's National Registry of Organic Producers (CNPO).

databases, which are completely different – IBGE registers agricultural establishments, while MAPA's data refers to farmers. The analysis of this latter database was intended to understand the evolution of organic farmers registrations over the years, so as to more precisely describe the historical trajectory of certifications in the country.

Information regarding organic consumption, published by the Association for Organics Promotion (Organis) and by the Support Service for Micro and Small Enterprises (SEBRAE), was also analyzed. These last two data sets were used as a source for interpretation of the consumption dynamics, allowing for a more complete analysis of the context of organic products in the country. Thus, here we can refer to organic markets, since data for both Brazilian organic food production (supply) and consumption (demand) are analyzed.

Furthermore, research that could support data interpretation was reviewed. To this end, the following sources were also explored: a) data published by the Agroecological National Articulation (ANA) referring to agroecology, forest gathering activities and organics production networks; b) data related to exports of organic products to the USA.

In addition to this introduction and to concluding remarks, the article is organized into four sections. Initially, IBGE statistics are analyzed, seeking to build an overview of organic agriculture in the country. Then, data on the dynamics of organic registrations are analyzed and, in the third section, information about consumption of organic products is presented. Finally, some reflections are drawn from the compiled information, resorting to the literature to outline the dynamics, complexity and trends of organic markets in Brazil.

2. Socio-economic and production overview of organic farming

The 2017 Agricultural Census identified 64,690 farms that declared organic agriculture in Brazil, which represents 1.28% of the total number of registered agricultural establishments (see Table 1). The southeastern region shows the largest proportion of organic farms, holding 30.4% (19,666) of all establishments with organic farming in the country. In terms of the major regions, Southeast and Center-West stand out with 2% of total agricultural establishments with organic farming, followed by the South (1.6%) and Northeast (0.7%).

Among agricultural establishments that perform organic farming, vegetable organic production predominates as compared with others (Figure 1). While 36,689 establishments (57%) are exclusively dedicated to vegetable organic production, 17,612 (27%) produce exclusively organic livestock, and a much smaller part of 10,389 farms (16%) produce both organic vegetables and animals. Within these three categories, the southeastern region stands out both in terms of exclusive vegetable organic production (29.3% of the total category) and of exclusive animal organic production (37.2%), while the Northeast is prominent in animal and vegetable organic production (41.2%).

Of the total universe of farms that perform organic agriculture in Brazil, 76.3% (49,330) fall into the category of family farming (*Agricultura Familiar* - AF), (see Table 2), a proportion quite close to the 76.8% of family farms within the universe of agricultural establishments identified by the 2017 Agricultural Census. This proportion remains similar in all regions, standing out in the North (83.5%)

TABLE 1 - Distribution of establishments that perform organic farming in Brazil and Macroregions.

Brazil and Major Regions	Total	Use of organic crops and/or livestock			
		Yes	%	No	%
Brazil	5,073,324	64,690	1.3	2,689,934	53.0
North	580,613	7,935	1.4	391,959	67.5
Northeast	2,322,719	16,710	0.7	1,499,336	64.6
Southeast	969,415	19,666	2.0	422,600	43.6
South	853,314	13,553	1.6	183,604	21.5
Center-West	347,263	6,826	2.0	192,435	55.4

SOURCE: IBGE, 2017 Agricultural Census (IBGE/SIDRA, 2019).⁶

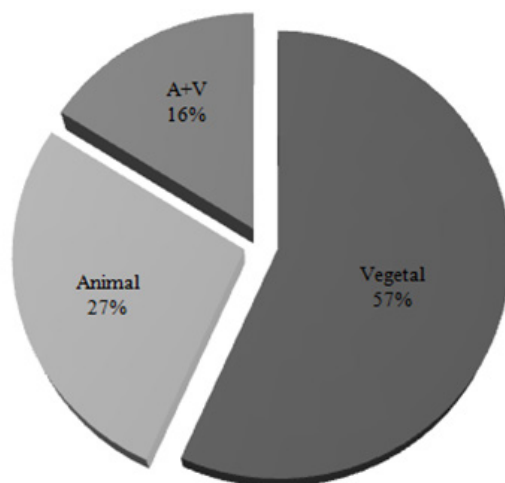


FIGURE 1 - Relative distribution of organic vegetable and animal production among organic farms in Brazil.

SOURCE: IBGE, 2017 Agricultural Census (IBGE/SIDRA, 2019).

⁶ It is important to point out that the sum of establishments that claimed to perform organic agriculture (64,690) and those that claimed not to perform it (2,689,934) does not correspond to the total number of agricultural establishments in the country (5,073,324). There is, therefore, a gap of 2,318,700 establishments, whose adopted farming practices are unclear. This methodological mistake affects all other estimates, entailing an imprecise quantification in terms of organic agriculture for the year 2017, which involves over two million establishments in the country.

TABLE 2 – Conformity of organic agricultural establishments to the National Program of Family Farming (PRONAF).

Brazil and Major Regions	Family farming			
	No	%	Yes	%
Brazil	15,360	23.7	49,330	76.3
North	1,310	16.5	6,625	83.5
Northeast	3,325	19.9	13,385	80.1
Southeast	5,497	28.0	14,169	72.0
South	3,323	24.5	10,230	75.5
Center-West	1,905	27.9	4,921	72.1

SOURCE: IBGE, 2017 Sgrocultural Census (IBGE/SIDRA, 2019).

and Northeast (80.1%). These data reveal that family farmers are also the protagonists of Brazilian organic agriculture. However, further data would be necessary to affirm that family farmers are the main responsible for the development of the sector in terms of production, although many empirical studies suggest this relation (Brandenburg, 2002; Moraes & Oliveira, 2017; Coletto *et al.*, 2021).

The 2017 Agricultural Census also categorizes family farming into three groups: Pronaf B, Pronaf V (variable) and non-conforming, based on annual gross income criteria.⁷ Figure 2 shows that, among the 49,330 establishments with organic farming that conform to Pronaf’s criteria most can be included in Group B (70.1%) and the second largest part falls into the variable group (29.4%). On the other hand, farmers that do not conform to Pronaf represent only 0.5% of family farmers with organic production. This proportionality is similar to the broader Census data on family farming groups.

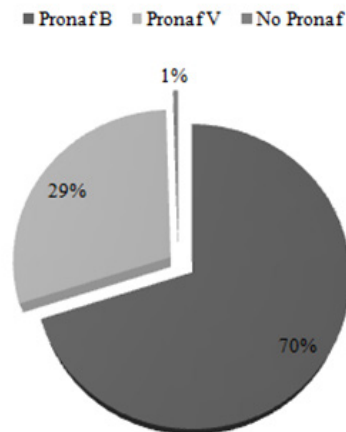


FIGURE 2 - Proportion of farms with organic production registered as family farms according to Pronaf’s criteria.

SOURCE: IBGE, 2017 Agricultural Census (IBGE/SIDRA, 2019).

These data also show that family farmers in the lowest stratum of gross annual income (34,565 families) comprise the vast majority of organic farmers in the country (a share of 53.4%). However, in

⁷ Family farmers in Pronaf B were those with a gross annual family income of up to R\$20,000. Those in group V are farmers who fall into the so-called variable income. However, such variation must fall into the range of gross annual income of R\$20,000 to R\$360,000 and those with gross annual family income over R\$360,000 in 2017 do not conform to Pronaf’s inclusion criteria (IBGE, 2019).

order to analyze more precisely the participation of this group of farms in total produce of organic food, IBGE should collect further data regarding produce and/or marketing of organic products.

The analysis of land tenure situation in the context of organic farming is very similar to the broader Brazilian reality, while revealing a great diversity in terms of total area groups (Figure 3). Data show that 69.3% (44,851) of organic farms in Brazil have up to 20 hectares (ha) of total area. Within this group, areas from five to less than ten hectares (2,278, corresponding to 14.3% of the total) and from ten to less than 20 ha (2,514, corresponding to 15.1%) are predominant. However, there is a significant proportion of farms with area size of 20 to less than 50 ha (10,029, corresponding to 15.5%).

Regarding access to land, among organic farmers the condition of landowner prevails (81.9%), a share quite similar to that of total agricultural

establishments (80.8%). Concessionaires or settlers occupy 6.8% of the total organic farms, followed by bailees (3.6%), tenants (2.8%), squatters (2.6%) and partners (2%). The prevalence of landowners occurs in all regions of the country, each showing similar shares of 80% of total organic farms (Table 3).

It is worth highlighting that producers without area account for 0.3% of organic agricultural establishments in the country, a proportion that is similar in all regions. Consequently, these data are supposed to virtually hide a significant number of informal organic producers, since the group of producers without area includes forest gatherers, farmers who cultivate riverbeds during ebb, itinerant honey producers, among others (as mentioned in the introduction). Even though this proportion is below the percentage in total agricultural establishments (0.7%), this reveals some level of difficulty in accessing land among organic farmers as well.

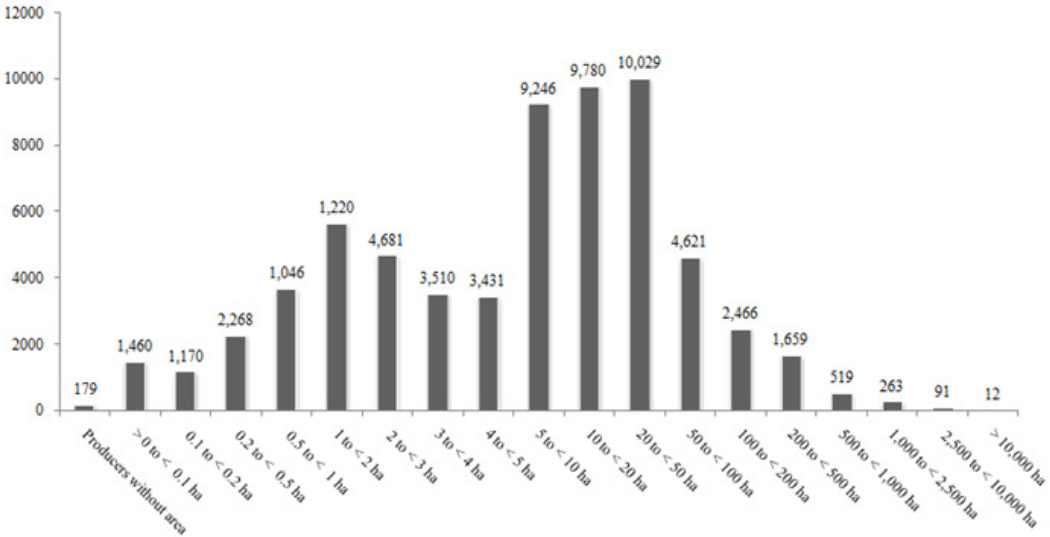


FIGURE 3 - Distribution of organic farming establishments by total area group in Brazil
SOURCE: IBGE, 2017 Agricultural Census (IBGE/SIDRA, 2019).

TABLE 3 – Distribution of organic farms by farmers' condition regarding land tenure, Brazil

Farmer's condition regarding land tenure	Use of organic farming	%
Land owner	52,969	81.9
Concessionaire or settler with pending certificate of title	4,429	6.8
Tenant	1,834	2.8
Partner	1,263	2.0
Bailee	2,305	3.6
Squatter	1,711	2.6
Producers without area	179	0.3

SOURCE: IBGE, 2017 Agricultural Census (IBGE/SIDRA, 2019).

As to gender balance regarding who runs the organic agricultural establishment, a strong male predominance is still observed (Table 4). At the national level, women are responsible for only 20.7% of organic farms, a slightly higher value as compared to data on whole universe of Agricultural Census (18.7%). This proportion remains nearly similar in all regions, with Northeast standing out for the highest percentage of women in charge of organic agricultural establishments (24%).

Some possible explanations on the slightly greater participation of women as heads of organic farms may be based on the activist role women have played with regard to promoting this production system. Attaining greater autonomy for women,

as well as equal access to production resources (land, credit, technical training) and public policies are goals that have been core to various social movements, particularly those closely related to agroecology⁸ (Ipea, 2013; Siliprandi, 2009). Several studies that analyze agroecological transition and/or conversion to organic farming processes⁹ revealed that, in most cases, women were the main responsible for the initiative or decision-making towards the transition to organic agriculture (Karam, 2004; Okuyama *et al.*, 2012). Although such dynamic does not necessarily reflect on the legal responsibility of women over the establishments (that is, as owners), studies show the role of women farmers in broader dimensions, such as marketing (Said & Moreira,

⁸ Organic farming and agroecology are seen as synonymous only in light of the norms that govern organic farming. Yet, both from a conceptual perspective and from a social movement standpoint they represent different contexts, which, however, may have intersections, particularly after the enactment of Law 1083. They can be said to materialize different “styles of agriculture” and “have their foundations in different paradigms” (Abreu *et al.*, 2012, p. 144), or even to have assumed “multiple identities” (Schmitt *et al.*, 2017).

⁹ A theoretical discussion about conceptual differences between agroecological transition and organic conversion is beyond the scope of this article. But the authors' reading, in this context, is that organic conversion is related to adjustments and adaptations of the production system as recommended by the organic legislation. Agroecological transition, conversely, is a much broader process (which goes beyond production aspects) that is not necessarily framed in the norms of organic production. This is one reason why, in the introduction to this article, we mention the concealment of a group of farmers who conduct their production systems according to agroecological principles, although differently from an organic production system (therefore, being considered “non-conforming to organic production”).

TABLE 4 - Gender distribution of who runs the organic farm

Brazil and Major Region	Gender of who runs the organic farm			
	Man	%	Woman	%
Brazil	50,996	79.3	13,326	20.7
North	6,323	79.9	1,593	20.1
Northeast	12,664	76.0	3,998	24.0
Southeast	15,847	81.4	3,631	18.6
South	10,661	79.1	2,809	20.9
Center-West	5,501	80.9	1,295	19.1

SOURCE: IBGE, 2017 Agricultural Census (IBGE/SIDRA, 2019).

2015), management of agro-processing units (Lopes & Porto, 2020) and participation in public spheres or representational spaces such as associations and unions (Silva, 2016).

In terms of age profile of organic farmers, the distribution in age groups is quite similar to Census data for the whole universe of agricultural establishments. In the context of organic farming (Figure 4), the most prevalent age range that of 55 to 65 years old (25.3%), followed by the group from 45 to less than 55 years old (24.2%). Farmers under 35 years old represent only 9.9% of organic farmers, a trend that is evident in all regions, with the North and Northeast having the largest numbers of young organic farmers (16.4% and 12.3%, respectively). According to Castro *et al.* (2017), although the decrease in this population represents a limitation, organic and agroecological farming constitute important production systems that have been considered by rural youth. Therefore, although in the context of organic farming there are also problems of family succession, this production sys-

tem seems to represent an important alternative for young people to stay in the countryside, particularly in terms of autonomy.

Regarding agricultural extension services (AES), data show that the vast majority of organic farming establishments do not have access to such services (75.8%), a share that is similar to that in the universe of agricultural establishments in the country (79.8%). In turn, among the 15,679 (24.2%) organic farms that receive AES technical support, governmental services (7,753) and private services (4,929) stand out.¹⁰ In regional terms, all macro-regions show the same pattern as the universe of agricultural establishments, with the South leading with the highest proportion of access to AES (34.6%) (Table 5).

In view of this, Diesel and Dias (2016) argue that although the National Policy for Technical Assistance and Agricultural Extension (PNATER) implemented in 2004 defended incentive and support for agroecological transition processes, in practice it showed several weaknesses due, particularly, to

¹⁰ As many farmers use more than one type of technical guidance (AES), the distribution percentages are not suitable for use in comparative analysis.

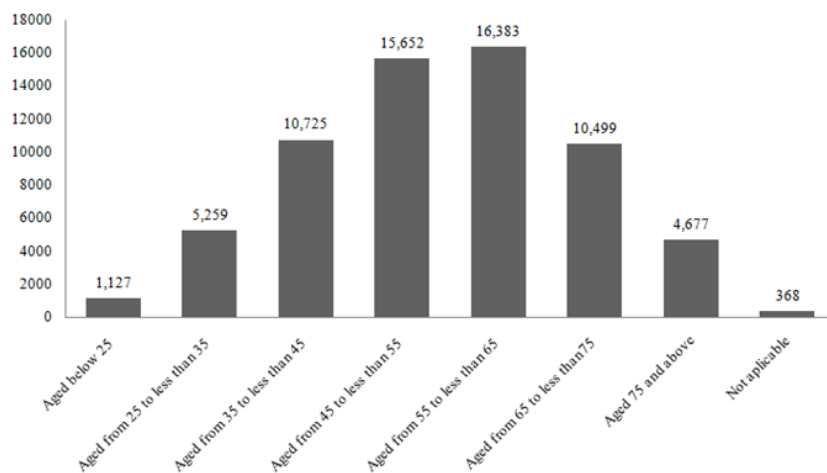


FIGURE 4 – Distribution of organic farms in Brazil by age group of the managing farmer.
SOURCE: IBGE, 2017 Agricultural Census (IBGE/SIDRA, 2019).

TABLE 5 - Distribution of organic farming establishments by technical support received.

Technical support received	Brazil and Major Region					
	Brazil	North	Northeast	Southeast	South	Center-West
Receives	15,679	1,090	2,909	5,368	4,692	1,620
Government (federal, state or municipal)	7,753	759	1,520	2,517	2,202	755
Hired private services or the farmer's own technical expertise	4,929	212	879	2,043	1,193	602
Cooperatives	2,296	105	271	611	1,088	221
Integrating companies	823	15	84	196	482	46
Planning consultant companies	189	10	25	57	83	14
Non Governmental Organizations (NGO)	486	27	161	88	161	49
The "S" system	308	20	81	120	34	53
Other	762	34	137	308	231	52
Does not receive	49,011	6,845	13,801	14,298	8,861	5,206

SOURCE: IBGE, 2017 Agricultural Census (IBGE/SIDRA, 2019).

the complexity and heterogeneity of the farmers served, but also to the failure to adjust strategies for the scale up of organic/agroecological production. This reveals a limitation for organic farming and can explain the low proportion of access by organic farm to the agricultural extension support, as indicated in the 2017 Census data.

Regarding participation in collective organizations, data reveal that there is also a limited access for organic farmers (Table 6). In Brazil only 37% of organic agricultural establishments are associated with some organization, a figure slightly lower than the proportion of the total agricultural establishments surveyed by the 2017 Census (39.4%). All major regions present similar proportions, with Northeast standing out in social participation (44.4%). As to the 23,963 organic farms that are associated with an organization, most of them are members of unions (9,759), followed by members of associations or farmers movements (7,887).

With regard to certification, particularly in the case of Participatory Organic Conformity Assessment Bodies (OPACs), “social participation is key for reducing the effects of exclusion and other negative effects that regulation could impose on the organic farming network” (Alves *et al.*, 2012, p. 26). Accordingly, the low adherence to social participation by organic farmers represents another challenge for the expansion and strengthening of organic production in Brazil.

TABLE 6 - Distribution of organic farming establishments by association with a cooperative or professional associations.¹¹

Farmer's membership in a cooperative and/or an association	Brazil and Major Region					
	Brazil	North	Northeast	Southeast	South	Center-West
Is a member of	23,963	2,983	7,413	6,883	4,750	1,934
Cooperative	7,345	410	571	2,493	3,192	679
Union/Professional association	9,759	1,476	3,504	2,350	1,787	642
Association/farmers movement	7,887	1,262	2,768	2,496	726	635
Residents' association	4,566	424	2,525	1,144	220	253
Is not member of any organization	40,727	4,952	9,297	12,783	8,803	4,892

SOURCE: IBGE, 2017 Agricultural Census (IBGE/SIDRA, 2019).

¹¹ As in the case of AES, several farms associate with more than one organization, thus the distribution percentages are not suitable for use in comparative analysis.

3. The dynamics of organic registrations by the Ministry of Agriculture, Livestock and Supply (MAPA)

While the 2017 Agricultural Census enabled outlining a socioeconomic profile of organic farms existing in the country in 2017, these data, on the other hand, do not allow to analyze the dynamics and evolution of the sector. Conversely, data from MAPA's National Registry of Organic Producers (CNPO) allow to construct a historical series of organic registrations in the country, which corroborates the hypothesis that organic production has been growing in recent years. Although data from both the CNPO and the 2017 Agricultural Census refer to certified organic production, they cannot be mutually compared, as they have distinct natures. While the first comprises an official registry by the federal government, the second is part of a census survey of all agricultural establishments in

the national territory. Registration with MAPA is mandatory for organic farming and indicates the number of registrations (instead of the number of establishments), while Census data is self-reporting and do not require any type of evidence. A third aspect is the distinct time frame that defines each of these databases. The 2017 Census data refer to an agricultural year, while CNPO database represents a snapshot of a particular month of the year.

Considering the same time frame of 2017, MAPA's data show that the number of organic farms registrations increased from 14,294 to 17,062, which represents an increase of 19% in the period of one year (Figure 5).

Further expanding the historical series, it is possible to notice an increase of 10,739 organic farming registrations between January 2017 and January 2022, which represents an increase of 75% in four years. Figure 6 illustrates this increase, showing a fairly similar growing pattern for

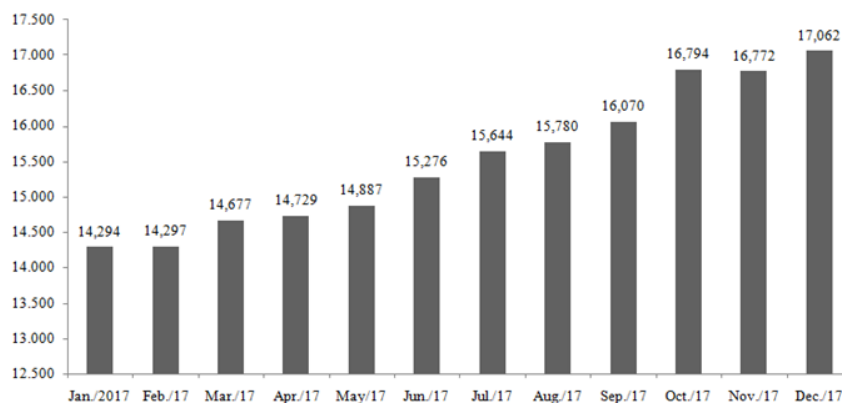


FIGURE 5 – Evolution of organic farming registrations with MAPA throughout 2017

SOURCE: Elaborated from CNPO's data – January to December 2017 (MAPA, 2021).¹²

¹² Historical series made available by MAPA by request.

the three accreditation categories, although among these accreditation via OPAC (Participatory Accreditation) shows a greater growth rate, reaching 145% between 2017 and 2022 (from 3,613 to 8,841 accreditations).

The most recent data from CNPO (MAPA, 2022) show that, in regional terms, the South leads with 9,627 registrations, followed by the Northeast with 7,944. On the other hand, the North shows the lowest number, with 2,559 registrations. Considering the states context, Rio Grande do Sul is the one with the highest number of registrations (3,996), followed by Paraná (3,899) and São Paulo (2,054). Santa Catarina ranks fourth (1,732 registrations) and Pará fifth, with 1,631. The state with the lowest number of registrations is Tocantins, with only eight.

Most of the total registrations of organic farming correspond to accreditations via Accredited Certification Bodies (OOC) (11,103 farmers, representing 45% of the total). Participatory accreditations (via OPAC) comprise 8,841 farmers (35.3%), while registrations via Social Control Organizations (OCS) account for 5,042 farmers (20.1%). The ranking of certifying entities with the highest amounts of registrations can be seen in Figure 7. More specifically, the Associação Ecovida de Certificação Participativa is the largest in the country among all OPACs, with 5,329 registrations of farmers, followed by Rede Povos da Mata (850) and by the Associação de Agricultores Biológicos do Estado do Rio de Janeiro (ABIO) (390). In terms of Accredited Certification Bodies, the leader in the ranking is IBD (6,245 registrations), followed by Ecocert Brasil Certificadora (2,509) and by Instituto

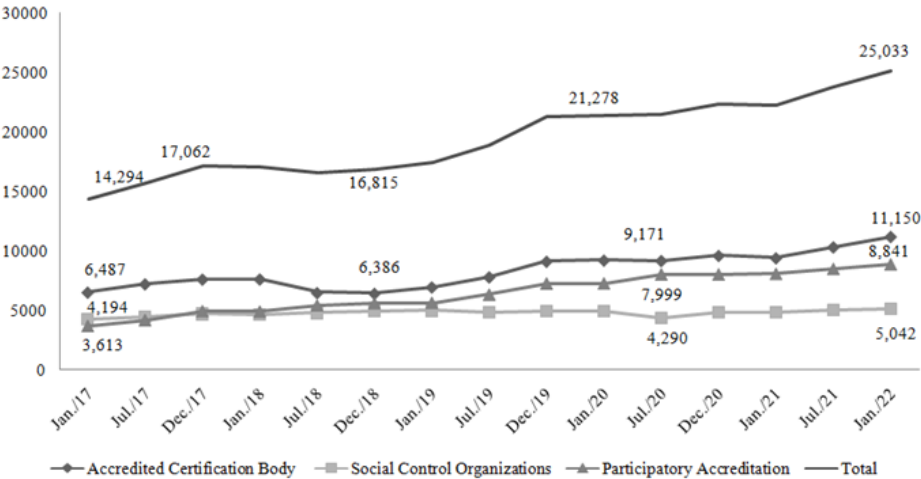


FIGURE 6 – Evolution of organic farming registrations with MAPA between 2017 and 2021.

SOURCE: Elaborated based on CNPO’s data – Jan. 2017 to July 2021 (MAPA, 2021¹³).

¹³ Historical series made available by MAPA by request.

de Tecnologia do Paraná (TECPAR) (865). Finally, among the OCS, the entity with the highest number of registrations is the Associação dos Produtores Rurais de Carauari (ASPROC) (131 registrations), followed by the Cooperativa das Associações dos Agricultores e Pecuáristas Familiares of Mirandiba (COOAFAM), with 125 registrations of organic farming, in addition to the Associação dos Agricultores e Agricultoras Agroecológicos do Departamento da Borborema (114).¹⁴

Unlike the Census data, the analysis of CNPO data does not allow for building a socioeconomic profile of organic farmers in Brazil. Nor does it enable to understand their production systems (production characteristics and planted area). However, it allows us to infer about the dynamics of accreditations over time and space. The analysis of most recent data makes it clear that most organic certifications are granted by Accredited Certification

Bodies, though their proportion is quite close to accreditations via OPACs.

The analysis of the historical series, in turn, allows us to infer that the accreditations by OOCs and OPACs have undergone significant expansion in recent years, particularly the OPACs. At the same time, accreditations via OCS are much less frequent, given the slight increase of 20% since 2017. A possible explanation for this scenario is that organic certification via OCS does not allow the use of the Brazilian Conformity Assessment System's seal (does not entitle to the organic seal), it only allows direct marketing (restricted to farmers markets and institutional purchases). This can lead many farmers to choose accreditation to the detriment of Social Control. Even so, it is worth noting that in many states such as Roraima, Sergipe, Rio Grande do Norte and Paraíba, the social control mechanism for direct sales prevails (MAPA, 2022). A possible

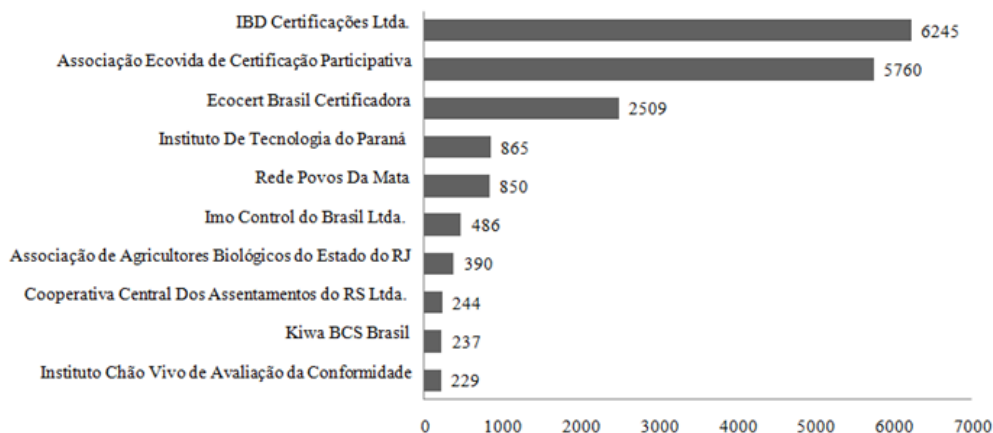


FIGURE 7 - Ranking of entities by number of organic farming accreditation in MAPA's registry

SOURCE: Elaborated based on CNPO's data – Jan. 2022 (MAPA, 2022).

¹⁴ It is worth noting that the regulation for organic production was recently updated (Portaria No. 52, of March 15, 2021), which may change the dynamics of registrations. This deserves future analytical efforts that seek to understand this new context.

explanation is that, in these cases, it constitutes an important means of accessing marketing channels for farmers who face greater difficulty accessing accreditation mechanisms (or even other forms of markets).

4. Trends in consumption of organic food and products

Unlike data collection on organic production, which have been carried out over the last two Agricultural Censuses, there are no official statistics on organic consumption at the national level.¹⁵ Considering this, a possible approximation to the organic consumption panorama in Brazil was carried out by Associação de Promoção dos Orgânicos (Organis) in the years 2017, 2019 and 2021. For the 2021 survey, questionnaires were applied in all regions, in the following capitals: São Paulo, Rio de Janeiro, Belo Horizonte, Salvador, Recife, Fortaleza, Porto Alegre, Florianópolis, Curitiba, Manaus, Goiânia and Brasília. A total of 987 people over 18 years old who were responsible for the purchase of household items were interviewed. Sampling was based on proportion of each city population (probability proportional to size method).

Findings point that 31% of respondents had consumed some organic product that month, while 8% had consumed organic products in the last 6 months. In previous surveys, these figures had been 15% and 19% (in 2017 and 2019, respectively). Among those who consumed in the last month, cen-

ter-western and southern regions showed the highest relative proportion (39%), while the North had the lowest (15%). The main motivations for organics consumption are based on health, followed by the best quality of food. The southern region is the major consumer of organic food, which is acquired in supermarkets (48%) followed by open-air and farmer markets (47%). The survey also showed that, among those who did not consume organic food in the last 30 days, the main motivation is the price of the products (59%), followed by the difficulty accessing (24%) (Organis, 2021a).

A similar survey – although less detailed and having a different profile of respondents – was carried out by Sebrae in 2018. The survey was carried out with the production chain of companies in the food sector and pointed out a division between those who buy organic food (47%) and those who do not buy (53%). According to the survey, the main barriers to purchasing organic food are higher prices, scant diversity of supply and the lack of regularity of deliveries (Sebrae, 2018).

Although a comparison between the two surveys is not possible, there is a clear trend towards more considerable sales volume through short chains (farmers markets and direct sales). The significance of this form of marketing becomes clear in a mapping of open-air markets in Brazil that has been carried out by the Brazilian Institute for Consumer Protection (Idec) since 2015. This mapping reveals an increase in the number of these markets throughout the country from 262 in January 2015 to 1,044 in 2022 (Idec, 2022), indicating an increase

¹⁵ In light of this, data from the Consumer Expenditure Survey (POF), also carried out by the IBGE, has potential to present information on consumption, but it still provides very incipient information about organic consumption by families. Although this detailing proves to be a huge challenge for larger-scale surveys, surveys as the POF have high future potential, if methodologically adjusted, for studies of organic consumption at the national level.

of almost 300%. It is not possible, however, to determine the real expansion of these markets during the referred period, since many of them already existed before the creation of the mapping platform. At the same time, it is possible to affirm that its creation gives visibility to this marketing channel and allows greater proximity between consumers and producers, besides enhancing the creation of new sales points for organic food.

The mapping also shows that organic/agroecological farmers markets exist in all regions and that the southeastern region stands out with the highest number (405), followed by the Northeast (244) and the South (268). The preponderance of the southeastern region in terms of sales points is in line with its prevalence in the number of organic farms as evidenced by the Agricultural Census. This seemingly direct connection between high proportion of organic farms (indicated in the Census) and high number of sales points (indicated by Idec) makes room for further investigation, since many sales initiatives are possibly not included in the survey and a more in-depth empirical investigation may be necessary.

In addition to establishing a cause-effect relationship between open-air markets and the existence of agricultural establishments (what is unfeasible with the available data), open-air markets indeed represent important spaces for organic products marketing. In this sense, beyond consumers' interest in these markets, Niederle (2017, p. 184) argues that many movements and organizations "propose the creation of territorialized markets, alternative networks that can favor the inclusion of less capitalized farmers and, at the same time, allow access to agroecological foods for consumers with lower purchasing power".

A noticeable aspect in common between the surveys by Organís and Sebrae concerns the little interest in electronic commerce (by both farmers and consumers). However, even though available statistics point to a low relevance of this market channel, such dynamics may have undergone significant change in the context of SARS-CoV-2, as some studies are suggesting.

A study on digital platforms for marketing family farming in Brazil in times of Covid-19 can be seen in Gazolla and Aquino (2021). The study surveyed and analyzed thirty-eight digital marketing initiatives for family farming, which were distributed over all regions of the country. Aside from regional heterogeneities, the authors showed that among the studied digital marketing platforms organic foods corresponded to 52.12% of total foods and products offered via digital platforms (including raw and agro-processed foods and beverages). A relevant finding of the study is that organic products have a quite significant participation within family farming digital marketing platforms today. The authors also conclude that the Covid-19 pandemic catalyzed organics marketing via digital platforms. This suggests that consumers started to buy more organic food on the internet and that this increased their organics consumption in the markets, what is in line with the growth indicators pointed out by Organís.

Regardless of the marketing channels, evidence points to a growth of organic markets in Brazil, driven by demand. The most recent data from Organís shows that organic markets quadrupled their sales between 2003 and 2017. While 2019 showed a 15% growth rate, in 2020 this rate reached a remarkable 30%. Estimates suggest that total sales of these markets reached around BRL

5.8 billion, even in the face of the pandemic challenges (Organis, 2021b). If a first analysis of these data points to a growth trend, further investigation is necessary to understand how, where and why this expansion takes place in different regions and types of markets.

5. Reflections and prospects on organic markets in Brazil

Seeking to answer the initial questions proposed in this article, the three previous sections have systematized and, as far as possible, outlined interpretations about the multiple dimensions that permeate the production and consumption of organic products in Brazil. Based on this, some reflections were outlined regarding data collection and availability and, particularly, regarding the limits for their interpretations.

The first relevant reflection concerns the quantification of organic farmers. Considering that CN-PO data are official statistics on organic production in Brazil, which are continuously updated by the federal government, it is possible to infer an inaccuracy in the estimation of organic farmers based on the Census data. This is because, as mentioned in previous sections, the information collected is self-reporting and requires interpretation of the questionnaire by both census takers and farmers, leaving room for quantitative inconsistencies in the context of organic agriculture. This implies that the Census data provide rather an approximation of the profile of organic farmers than their actual quantification.

Another aspect worth highlighting is that the data collected by IBGE represent a snapshot

of a given moment and not a dynamic process as organic farming and its specificities can be deemed (ecological, agroecological, biodynamic, natural, among others). This means that it is not possible to think of organic farming as something static, capable of being quantified separately (such as the farm's area or the age of the person responsible for the agricultural establishment) for enabling its interpretation. Organic farming initiatives are carried out by groups, families, communities or associations in a differentiated and multifaceted way, with different technological levels, forms of socio-productive organization and ways of life (Londres; Martins; Petersen, 2017; Schmitt *et al.*, 2020). Thus, there are quite heterogeneous issues that remain "hidden" in Census results and a mere superficial analysis of these results does not provide enough elements to understand the inherent complexity of organic production as a social process (Martins, 2020; Schmitt; Cortines, 2020).

In light of this, a relevant study on the heterogeneity of organic and agroecological farming is the recent survey, carried out by the Agroecological National Articulation (ANA), of 25 networks involving agroecology, forest gathering and organic farming at national level. These networks represent initiatives carried out by civil society organizations, which coordinate their actions in their territories so as to enhance public policies (Schmitt *et al.*, 2020). Although it seems to be a quite narrow segment and does not match the completeness and breadth of the Census, this survey represents a gauge of the conformation of organic and agroecological production in Brazil. The study shows, especially, the existence of a broad and varied process of configuration of the social actors involved in organic and agroecological production throughout the national territory.

An interesting finding from the analysis of ANA's data is that the social groups that form these networks fit into "expanded" categorizations (in addition to those recommended in the Census). Thus, they point to the following social groups as involved in organic and agroecological farming and forest gathering: family farmers, peasants, agrarian reform settlers, rural workers, traditional peoples and communities (indigenous peoples, *quilombolas*, forest gatherers, artisanal fishermen, river ebb farmers, *caatingueiros* and grasslands communities). Obviously, in no way this debate invalidates the Census methodology, but it raises the issue that many social groups do not fit into the categories proposed by IBGE for outlining the profile of organic farming. As already pointed out by Brandenburg (2002, p. 14) "the ecological farmer does not constitute a homogeneous social category". Therefore, whether in terms of land tenure (since in some cases land management is community-based) or of family farming category itself, fitting the Census categories can be difficult.

The second dimension analyzed in this article refers to the evolution of organic farming over time. From this perspective, at least two important elements were found regarding both supply and demand for organic products: a) expansion of supply; b) an unclear mismatch between supply and growing demand for these foods in domestic markets.

Regarding the first finding, MAPA's historical data are quite accurate, indicating a growing number of organic farming registrations in recent years, which implies that there has been an expansion in supply of organic products in domestic markets. In addition, the very expansion of movements involv-

ing agroecology, local and digital markets, suggest an increase in supply of organic foods in the country.

Regarding the second finding, CNPO data also allow us to observe some dynamics related to organic farming. The first is that, as certifications are separated by scope of activity, many producers have more than one certification, as a result of a growing trend towards the processing of organic foods (which requires filing a new request of certification with MAPA). This adds another facet to the dynamics of organic agriculture: beyond the expansion of production areas, many production systems show a tendency (whose importance is not yet clear) to move towards agro-processing products. This allows both entry into other markets (Schmitt *et al.*, 2020) (as opposed to ultra-processed foods from the food industry) and adding even greater value to products by processing raw foods (Gazolla & Lima; Brignoni, 2018).

Finally, although data suggest an expansion of both supply and demand of organic products, the demand is apparently greater than supply (Agência Brasil, 2008; Sebrae, 2015). If, on the one hand, this encourages expansion of organic farming, on the other hand, it can create supply gaps when production is unable to meet the markets' demand. Some interpretations arise from this context. The first is that part of the production ends up being destined for the foreign market. As an example, there is a considerable number of organic farmers, not necessarily registered with MAPA, who hold international accreditation. Their products are exclusively certified by international entities and exported mostly to the United States and the European Union. There are currently 741 certified producers who trade exclusively via exports and are registered

with the United States Department of Agriculture (USDA).¹⁶ The main organic products exported to the USA are coffee, honey, açai and sugar.

Furthermore, there is also a considerable amount of organic products that are imported to supply the Brazilian market as domestic production does not meet the demand. The most recent data from CNPO (MAPA, 2022) indicate that there are 953 organic certifications for imported products, from 23 countries. Imported foods range from products from species characteristic of other countries (such as amaranth, quinoa, agave, apricots, olive oil, dates and colza) to foods commonly produced here (peanuts, rice, wheat, soybeans, wine, tomatoes, apples, corn and even beans).

Therefore, it becomes clear that some dynamics occur in the Brazilian organics market, which are not fully covered by official statistics. Considering that MAPA does not carry out specific surveys on organic foods exports and imports and that the last IBGE's survey stopped collecting data on planted area, yield and sold produce, values of production and sales of organic products, a huge gap is created in knowledge about organic markets (apart from the production characteristics), which hinders a full understanding of their dynamics. In this sense, there is a need to improve the national statistical bases, even to better manage public policies for organic markets and, while this does not occur, to develop empirical and comprehensive studies in Brazilian macro-regions.

6. *Final remarks*

This article aimed to contribute to understanding the reality of organic farming, looking into the socioeconomic characteristics of farmers, production and certification profiles, as well as the behavior of organic markets on both the supply and consumption sides. The gathered information was also intended to compile evidence to support the thesis that, as has been observed worldwide, organic production is increasing in the country, also accompanied by an increase in the consumption of these foods and products.

Emphasis was placed on the relevance of Agricultural Census to understand the rural, and especially of the recent surveys of agricultural establishments that perform organic farming, which opens new perspectives for studies on this dimension of Brazilian agricultural reality. On the other hand, considering major methodological limitations that hinder comparison between the last two Censuses (2006 and 2017), the dynamics of expansion or contraction of organic production in Brazil cannot be explained drawing on these data. They only allow us to build a comprehensive profile of this set without, however, capturing its heterogeneity or inherent complexity as a social process. In view of this, it is possible to affirm that the IBGE data, more than providing an interpretation of organic production dynamics in Brazil, open different analytical perspectives based on the identified gaps.

As to the National Registry of Organic Producers, it represents a valuable database for analyzing the variation over time and space in organics registrations. However, as highlighted, data from

¹⁶ See: <<https://organic.ams.usda.gov/integrity/>>. Consulted on Jan. 29, 2022.

this database cannot be rashly compared with those from the Census, because they differ completely in both content nature and method of gathering.

The analysis of these two databases allowed for building an average socioeconomic profile of organic farmers, whose main characteristics include fitting into the family farming category, with annual gross income of up to R\$ 20 thousand, and owned area of up to 20 ha. Most establishments are managed by men, generally between 35 and under 75 years old, and exclusively dedicated to vegetable farming. Among difficulties faced by organic farmers, it is possible to point out low access to technical guidance, limited social participation and lower incidence of women and young people as managers of the establishment. The analysis of MAPA's data points to a growing number of registrations since 2017, with emphasis on certification via OPAC, which showed the highest growth among the three forms of certification.

Regarding consumption, the article also noted a scarcity of data related to organic food and products demand, suggesting the need for official statistics such as the POF to incorporate such data. Nevertheless, available information reveals that organic consumption has been growing considerably, and other forms of sales such as at open-air markets and e-commerce have expanded. Furthermore, there are strong indications of a mismatch between supply and demand in the domestic organics market, which suggest that demand is possibly greater than supply. Hypotheses for explaining this imbalance are the high demand for organic food exports (particularly to the North American and European markets) and a possible diversion of farmers efforts towards aggregating value to their products to the detriment of expansion of areas.

Given this scenario, there is an urgent need for coherent and more structured data about organic markets, as it would allow for, besides highlighting the heterogeneity of these production systems, evaluating long-term trajectory and dynamics of organic production and consumption in the country. In addition, such data should highlight the complexity of the issue as a social process that requires more analytical depth by both the academic and the political communities. With regard to IBGE, particularly, it is suggested to expand the surveyed dimensions related to organic production, in addition to performing methodological adjustments to enable historical comparisons between consecutive censuses.

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