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**Development of a Measure of Food Citizenship: An application among  
Brazilian consumers**

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**DEVELOPMENT OF A MEASURE OF FOOD CITIZENSHIP: AN APPLICATION AMONG  
BRAZILIAN CONSUMERS**

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Alfinito

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## **Development of a Measure of Food Citizenship: An application among Brazilian consumers**

### **Abstract**

Consumers' mobilization to access healthy and quality foods can positively impact the planet. This mobilization aligns with the concept of food citizenship, which is the recognition and practice of rights and obligations related to access to healthy and sustainable food by conscious, collaborative, and politically active individuals. Those are known as food citizens. Despite the growing relevance of these groups of individuals, few studies focus on these consumers' profiles, seeking ways to understand them systematically. Besides, there is a lack of literature regarding food citizenship in the Brazilian context. In this scenario, the general objective of this study is the proposition of a food citizenship measurement. The items related to the scale were raised through literature analysis, comprising 51 items. They were refined after an experts' validation. Afterward, the food citizenship scale was tested through empirical application among Brazilian consumers (n=329) via an online survey. Validity evidence was verified through exploratory factor analysis (EFA), which allowed the identification of the dimensions of food citizenship. The results bring up a feasible measurement of food citizenship and the development of a scale in Portuguese, suitable to explore food citizenship nuances in the Brazilian cultural context. After specific cross-cultural procedures and adaptation, applying the scale in other cultural contexts is encouraged and would allow further understanding of the food citizenship phenomenon in different countries. From a managerial perspective, this understanding can contribute to the definition of marketing and consumer relationship strategies by global and local food organizations. Besides, government actors would take advantage of this understanding to develop public policies, including educational regulations, responsible production, and conscious consumption. Moreover, food movements can benefit from the results to mobilize more consumers around their purposes, favoring the food citizenship promotion

**Keywords:** food citizenship, consumer awareness, alternative food networks, exploratory factorial analysis

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## **LIST OF ACRONYMS AND ABBREVIATIONS**

CSA - Community-Supported Agriculture

EFA - Exploratory factor analysis

CFA - Confirmatory factor analysis



## SUMMARY

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## 1. INTRODUCTION

### 1.1 Context

Food is the constituent and fundamental social fact of every society. Humans employ an important part of their economic resources and time in procuring, preparing, and consuming food (Gómez-Benito & Lozano, 2014). Because of that, fair and organic food production, food safety practices, the ecological footprint, and the kind of things we eat matter to citizens (De Tavernier, 2010).

This study is willing to understand the food citizenship behavior phenomenon and the emergence of consumers that perform individual mobilization to access quality and healthy food (Gómez-Benito & Lozano, 2014). These consumers can be known as food citizens. For them, not only food production practices matter, but also the impact of what they eat on who they are and the ecological footprint of their foodstuff (De Tavernier, 2010).

While the food choices of regular consumers are automatic, habitual, and subconscious (Furst, Connors, Bisogni, Sobal, & Falk, 1996), food citizens are concerned about the environmental impact of what they are eating (De Tavernier, 2010). As Kokodey (2012) presents, motivations such as time-saving and pursuit of organoleptic novelty, coupled with incomplete product information and its effects on human health (such additives, dyes, preservatives, and chemicals) leads to an overconsumption of products that are not known to be good for the environment and health.

Besides the lack of information and the motivations above, part of the world population is still changing its food behavior. Renting et al. (2012) present that multiple countries, such as France, Italy, and Australia were developing initiatives regarding access to healthier and sustainable food. Those citizen-consumers, in collaboration with 'citizen-producers', reshape their relations with the food system and start revaluing the meanings of food (Renting et al., 2012).

One increasingly popular alternative, that includes citizen-consumers and citizen-producers, is community-supported agriculture, or CSA (Schnell, 2010). At the CSA, local people invest in a farm or crop in advance and, in return, get a share of the harvest, often a vegetable box but it could also be fruit, eggs, or meat (Cox et al., 2008). Therefore, CSA is one of a broader set of alternative agricultural movements that attempt to remake our food system into one that is more economically and socially just, locally-based, and environmentally sustainable (Schnell, 2010).

The estimative is that in 2017 there were 12,617 CSA farms in the USA, a number that

has been growing in the last decades (Samoggia et al., 2019). In Europe, there were 2,776 CSA farms in 2015, the vast majority situated in France, followed by Belgium and Italy (Samoggia et al., 2019). In Brazil, there were 100 CSA in 2018 (Meireles, 2018). Besides, other alternatives gaining strength are Community Gardens (Baker, 2010) and Farmers Markets (Lyson, 2014).

It is possible to analyze that those numbers above are relevant, but small when thinking about the world population. Therefore, this project aims to define a measurement instrument of consumer behavior on food citizenship.

## 1.2 Research Problem

Despite the growing relevance of these groups of individuals, there are still few studies focusing on the profile of these consumers and seeking ways to understand them systematically. Therefore, there is an absence of a food citizenship measure instrument. In addition, there is a lack of literature regarding the concept of food citizenship in the Brazilian context.

Because of that, the question this research aims to answer is how can we measure food citizenship at the consumer level?

## 1.3 General Objective

The general objective of this study is the proposition of a food citizenship measurement scale.

## 1.4 Specific Objectives

The specific objectives are:

(SO1) understand food citizenship in a systematic way, and,

(SO2) propose one instrument to measure food citizenship.

## 2. THEORETICAL FRAMEWORK

This topic is organized into two parts: (1) Food citizenship, (2) Integrative Analysis of Food Citizenship.

### 2.1 Food Citizenship

Consumer behavior is presented first, to understand the importance of studying food consumer behavior.

Consumer behavior is the study of individuals, groups, or organizations and the processes they use to select, secure, use, and dispose of products, services, experiences, or ideas to satisfy needs (Puiu, Budica, & Budica, 2010). When studying food consumer behavior, to focus is to understand how the behavior just described happens in practice when related to food.

Many factors are involved in food choice, such as taste, health, social status, and cost. Besides, the food choice process incorporates not only decisions based on conscious reflection but also those that are automatic, habitual, and subconscious (Furst et al., 1996). Those consumers that make decisions consciously, thinking ethically, are motivated for organic food and fair trade, but also on production methods and less-than-standard working conditions (Tavernier, 2010) might be food citizens.

Food citizenship is characterized by the integration of a wide variety of social actors committed to the environmental and social sustainability of food systems (Lozano-Cabedo & Gómez-Benito, 2017). It eschews the passive and confining roles of “consumer” or “producer” or “worker” (Hassanein, 2003), it is not only about the consumption sphere, but also through the defense of the common good and the participation in collective actions and the public sphere (Lozano-Cabedo & Gómez-Benito, 2017).

The outcomes of collective action are the product of strategic interactions between movements and their targets, a product of movement actors’ negotiations with one another and their integration of aims, beliefs, and strategic decisions (Hassanein, 2003).

This project wants to study how to promote food citizenship and its practices. Moreover, it proposes a way to measure possible changes in individuals’ behavior towards food citizenship.

### 2.2 Integrative Analysis of Food Citizenship

This subitem aims at conceptualizing food citizenship to finally answer, by an integrative approach, to the first condition of the project. After a general introduction, the review was conducted following these procedures:

- Search in the literature and articles selection according to *Methodi Ordinatio* (Pagani, Kovaleski, & Resende, 2015);
- An integrative review of the aspects of interest in food citizenship available in the articles; and,
- Identification of a knowledge gap.

Firstly, to enlarge the understandings related to food citizenship, some other important terms are citizen-consumers, food justice, food democracy, food security, and food sovereignty. The first, citizen-consumer, consists of those people who perceive that they have a buying power that can develop transformation in social and political areas (Tavernier, 2012a). Food justice, according to Gómez-Benito and Lozano (2014), emphasizes the inequalities in the distributions of the food system, while food democracy considers that citizen participation is the key to reorient the food system. Lastly, food security consists of a multidimensional concept that fights against hunger and in favor of balanced nutrition, while food sovereignty is a new and broader concept based on the concurrence of all efforts to satisfy food needs (Food and Agriculture Organization, 2013).

The importance of food citizenship is related to its potential to sustain alternatives to the current food system model (Escajedo San-Epifanio, 2015). This food supply scenario should be more adequate and based on a systemic arrangement that involves corporate responsibility, improvement of market rules, and empowerment of agents throughout the food chain (Carolan, 2014). Also, it is relevant to evaluate if the consumer's scenario favors responsible choices, as lower-income households, for example, may face real challenges in accessing nutritious and affordable food (Carolan, 2014), regardless of their level of consciousness.

In general, consumers engage in alternative food systems for individual interests (nutritional benefits, superior taste, and avoidance of synthetic pesticides) and collective motives (environmental and economic concerns) (Schrank & Running, 2016). But food citizens go beyond, and practice consumption aiming for the greater good (Chaudhury & Albinsson, 2015), which includes contributing to humanitarian and prosocial objectives. More specifically, they may renounce individual wishes for the benefit of fairness, equity, sustainability, socio-economic development, the protection of cultural diversity, and the guarantee of a decent life for everyone (Escajedo San-Epifanio, 2015). This is because food citizens are aware that they

have not only rights but also responsibilities with the society, other consumers and producers, the environment and, animals' welfare (Gómez-Benito & Lozano, 2014).

As an example, a North American qualitative study evaluated aspects related to the citizen's practices of food consumption based on the Slow Food movement (Chaudhury & Albinsson, 2015). The authors propose a framework that shows that consumers get dissatisfied with the mainstream lifestyle and current food system due to their life history influences (e.g., social relations and media). That is understood as “tensions in everyday naturalistic foodways” (Chaudhury & Albinsson, 2015), and individuals make efforts at diminishing those tensions through awareness and some conscious practices (as growing their “own” food, buying sustainable food, participating in shared practices and diffusing knowledge) (Chaudhury & Albinsson, 2015).

To understand the phenomenon of food citizenship and to answer some inquiries, the literature was consulted via an integrative review. The terms "food citizenship" and "food citizen" were looked for in selected publishers' bases – Springer, Science Direct (Elsevier), Wiley, Scielo, Taylor & Francis, Sage and Web of Science (Thomson Reuters) –, without temporal delimitation. There were 79 different articles in the results by the end of February 2019.

Using reference management software, it was sought for articles that specifically discussed the concept of food citizenship. Subsequently, repeated articles and articles that only superficially referred to the term were removed from the sample, and 16 articles remained.

Before disregarding the articles that only referred to food citizenship, the main studies cited were verified, as part of a “snowball strategy”, as used by Haßler, Major, and Hennessy (2016). This allowed the identification of four other relevant studies that were not in the original 79 articles, but were searched to compose the sample.

The relevance of the 20 articles was also calculated by the InOrdinatio method and two of them, which had a negative index, were disregarded, as shown in table 1. The InOrdinatio or Methodi Ordinatio is a methodology that orientates the selection and ranking of scientific articles by an index that considers the impact factor, number of citations, and year of publication (Pagani et al., 2015). According to this method, a systematic reading may be recommended on the papers that present positive InOrdinatio, because a negative index is an indication that the article in question may be of little relevance for being, at the same time, not very recent, not very much cited, and from a magazine with a low impact factor (Pagani et al., 2015).

Then, at the end of the process, 18 articles were selected for analysis. It is worth mentioning that the relatively small number of articles may be an indication of the theme's innovativeness.

An integrative review of the literature can be conducted for a better understanding of the phenomenon's state of the art. It works as a bridge between knowledge available in different areas (Pinard, Byker Shanks, Harden, & Yaroch, 2016), which is the case of selected articles on food citizenship. The mean used in the present study to perform the integrative review was raising nine general questions regarding food citizenship and the inquiries directed the search for information on all selected articles.

**Table 1**

*The rank of selected articles on food citizenship after the application of Methodi Ordinatio*

| Articles [author, year (a), title, journal]   | 2017 SJR Impact Factor (b) | Google Citations (c) | InOrdinatio [b/1000 + 10*(10-2019-a) + c] |
|---|----------------------------|----------------------|---|
| Baker, L.E. 2010. Tending Cultural Landscapes and Food Citizenship in Toronto's Community Gardens. <i>Geographical Review</i>   | 0,24                       | 325                  | 335                                       |
| Phillips, L. 2006. Food and Globalization. <i>Annual Review of Anthropology</i>   | 1,66                       | 286                  | 256                                       |
| Renting, H., Schermer, M., and Rossi, A. 2012. Building Food Democracy: Exploring Civic Food Networks and Newly Emerging Forms of Food Citizenship. <i>International Journal of Sociology of Agriculture and Food</i> | 0,24                       | 198                  | 228                                       |
| Lockie, S. 2009. Responsibility and agency within alternative food networks: Assembling the "citizen consumer". <i>Agriculture and Human Values</i>   | 1                          | 172                  | 172                                       |
| de Bakker, E., and Dagevos, H. 2012. Reducing Meat Consumption in Today's Consumer Society: Questioning the Citizen-Consumer Gap. <i>Journal of Agricultural and Environmental Ethics</i>                             | 0,75                       | 133                  | 163                                       |
| Wilkins, J.L. 2005. Eating right here: Moving from consumer to food citizen. <i>Agriculture and Human Values</i>  | 1                          | 196                  | 156                                       |
| Campbell, M.C. 2004. Building a common table: The role for planning in community food systems. <i>Journal of Planning Education and Research</i>  | 0,94                       | 196                  | 146                                       |
| Sage, C. 2014. The transition movement and food sovereignty: From local resilience to global engagement in food system transformation. <i>Journal of Consumer Culture</i>   | 0,99                       | 86                   | 136                                       |
| Lyson, T.A. 2005. Civic Agriculture and Community Problem Solving. <i>Culture &amp; Agriculture</i>   | 0,27                       | 166                  | 126                                       |
| Sonnino, R., Marsden, T., and Moragues-Faus, A. 2016. Relationalities and convergences in food security narratives: towards a place-based approach. <i>Transactions of the Institute of British Geographers</i>       | 2,79                       | 33                   | 103                                       |
| Carolan, M. 2017. More-than-Active Food Citizens: A Longitudinal and Comparative Study of Alternative and Conventional Eaters. <i>Rural Sociology</i>   | 1,1                        | 22                   | 102                                       |

|  |      |     |    |
|--|------|-----|----|
| Lozano-Cabedo, C., and Gómez-Benito, C. 2017. A Theoretical Model of Food Citizenship for the Analysis of Social Praxis. <i>Journal of Agricultural and Environmental Ethics</i>                                       | 0,75 | 4   | 84 |
| O'Kane, G. 2016. A moveable feast: Exploring barriers and enablers to food citizenship. <i>Appetite</i>  | 1,44 | 6   | 76 |
| Gómez-Benito, C., and Lozano, C. 2014. Constructing Food Citizenship: Theoretical Premises and Social Practices. <i>Italian Sociological Review</i>  | 0,23 | 23  | 73 |
| Escajedo San-Epifanio, L. 2015. Challenging Food Governance Models: Analyzing the Food Citizen and the Emerging Food Constitutionalism from an EU Perspective. <i>Journal of Agricultural and Environmental Ethics</i> | 0,75 | 4   | 64 |
| de Tavernier, J. 2012. Food Citizenship: Is There a Duty for Responsible Consumption?. <i>Journal of Agricultural and Environmental Ethics</i>   | 0,75 | 33  | 63 |
| Hassanein, N. 2008. Locating food democracy: Theoretical and practical ingredients. <i>Journal of Hunger and Environmental Nutrition</i>   | 0,29 | 56  | 46 |
| Welsh, J. and MacRae, R. 1998. Food Citizenship and Community Food Security: Lessons from Toronto, Canada. <i>Canadian Journal of Development Studies/Revue canadienne d'études du développement</i>                   | 0,44 | 136 | 26 |

The questions defined by the authors that guided the review were:

- What is food citizenship?
- What are the characteristics of food citizenship?
- What are the loci where food citizenship happens?
- Who and how are the food citizens?
- What are the motives for carrying out behavior towards food citizenship?
- What are the internal determinants of the behavior towards food citizenship?
- What can be done to motivate this behavior?
- What are the barriers to food citizenship?
- What are the consequences of food citizenship?

The selected articles allowed the identification of responses to these questions related to food citizenship, as it will be further elaborated below.

#### *What is food citizenship?*

The first question of interest of the present integrative review was related to the concept of food citizenship itself. The intention was to observe what food citizenship is and what practices it brings, i.e., what events are cited by the articles that deal with the concept of food citizenship. The content of the articles reveals that the concept of food citizenship is broad and



complex. There are many aspects related to health and sustainability, mainly, that, together, configure this phenomenon.

Food citizenship can be understood as the reinvention of identities and practices as consumers of food, developing behaviors that are considered different from the mainstream (Lockie, 2009). This means that, instead of buying common foods in traditional supermarkets, it is observed the purchase and consumption of organic, locally sourced and available in farmers markets (Campbell, 2004; T. A. Lyson, 2005; O’Kane, 2016; Phillips, 2006; Renting et al., 2012). In food citizenship, the purchase of specialty food producers and small-scale processors (T. A. Lyson, 2005) is also undertaken as an alternative to more traditional foods and products processed by large food companies.

Regarding people's participation, food citizenship involves the support of social movements (Phillips, 2006) and engagement in alternative mechanisms for food marketing and social arrangements (Lockie, 2009; T. A. Lyson, 2005; Phillips, 2006).

Going beyond this, food citizenship also corresponds to the participation of individuals and groups, even urban, in rural production, which includes the global movement named Community-Supported Agriculture (CSA) (Baker, 2010; Campbell, 2004; Hassanein, 2008; T. A. Lyson, 2005; O’Kane, 2016; Renting et al., 2012; Sage, 2014).

In terms of citizenship, the phenomenon includes political participation (Escajedo San-Epifanio, 2015) and also an expression of global or cosmopolitan concerns, which means that the preoccupations are not just at the local sphere, but includes the claim for civil rights and international solidarity (Lockie, 2009; Lozano-Cabedo & Gómez-Benito, 2017; Sage, 2014). To contribute to this global vision, the following reflection may be suggested: does the fact that some consumers from a developed country prioritize the local purchase prove, for itself, that they are food citizens? Maybe not, because, e.g., “the level of interdependence in the food market is now so high” that the export of food determines “the very survival of large parts of the population for the developing countries” (Bergesen, 1995).

*What are the characteristics of food citizenship?*

The identification of the characteristics of food citizenship focused on the qualitative aspects of this phenomenon, in search of relevant adjectives and descriptors.

*What are the loci where food citizenship happens?*

It was searched what were the loci of analysis that the study considered to deal with the term food citizenship. Each locus suggests which are the environments or contexts in which the

phenomenon of food citizenship can happen. The identified loci were, or could be, the object of study in the field of food citizenship.

The main identified loci were: community gardens (Baker, 2010; M. C. Lyson, 2014; O’Kane, 2016), civic food networks (Renting et al., 2012), alternative food systems (Campbell, 2004), civic agriculture (T. A. Lyson, 2005), community-supported agriculture (CSA) (Carolan, 2017; Hassanein, 2008; T. A. Lyson, 2005; O’Kane, 2016), farmers’ markets (Carolan, 2017; T. A. Lyson, 2005; O’Kane, 2016) and food banks (Hassanein, 2008). Some of these loci are complementary, correlated or correspond to a wider concept. For example, civic food network is a broader concept, referring to the relationship between the productive system and the food citizen, which goes through the aspects of promoting (agro-)ecology, favoring local and seasonal foods, offering fair remuneration to the food system, and providing access to quality food (Renting et al., 2012).

*Who and how are the food citizens?*

Food citizenship is formed by food citizens, proposed here as individuals who possess characteristics and practice behaviors that make them different from the regular consumer, being understood as a fundamental small piece in this process.

*What are the motives for carrying out behavior towards food citizenship?*

Above, it was deepened on what is food citizenship, its characteristics, where it occurs, and who is the food citizen. But what are the reasons that lead an individual to perform behaviors related to food citizenship? Different aspects were found in the articles selected, with the majority focused on more systemic aspects - and not on individual interest situations.

In general, food citizenship is guided by the senses of justice, equality, and fairness (Lozano-Cabedo & Gómez-Benito, 2017), in which individuals take care of their bodies and the Planet (Johan de Tavernier, 2012a). Food citizen-oriented behaviors happen to provide access to healthy and fair-priced foods, promoting transformations in the pattern of consumption (de Bakker & Dagevos, 2012).

Through food citizenship, it is also aimed at building a policy and coalitions around food (Phillips, 2006). This involves broadening the debate on the rights and duties of citizens regarding food and encouraging the participation of all actors in the governance of the agri-food system (Lozano-Cabedo & Gómez-Benito, 2017), that is, promoting forums (T. A. Lyson, 2005).

Another aspect is one that relates food citizenship to providing local answers to global problems (Renting et al., 2012). It is of interest, for example, to combat the reduction of fossil fuel stocks and climate change (Sage, 2014). Besides, it involves fostering the development of the local economy in a way that maintains the diversity and quality of the products (T. A. Lyson, 2005).

*What are the internal determinants of food citizen behavior?*

The motivations presented above are quite broad, but it is important to assess what factors, internal to individuals or groups, determine the behaviors of food citizens.

Regarding individuals, as shown before, one important internal determinant is reflexivity (Phillips, 2006), which includes thinking about the impact that the way we eat causes in the food system (Wilkins, 2005). They have autonomy and know their right to reliable, enough, and understandable information (Lozano-Cabedo & Gómez-Benito, 2017). Thus, individuals become familiar with food and the food system (Hassanein, 2008) and, based on the information they process, food citizens recognize their responsibilities towards other human beings, other living beings, other actors in the agri-food system and the Planet (Lozano-Cabedo & Gómez-Benito, 2017). In this context, they also recognize the right of people to have enough, healthy and quality food (Lozano-Cabedo & Gómez-Benito, 2017) and, in addition to thinking, they take actions to change reality (Hassanein, 2008; Wilkins, 2005).

As part of a group, food citizens may share ideas about the food system with others (Hassanein, 2008) and practice communication, lobbying, and political activism (Renting et al., 2012). When a collective action is taking place, they perform solidary and coordinated movements (Lockie, 2009) and deeply engage themselves (O’Kane, 2016), aiming for cooperation (de Bakker & Dagevos, 2012; T. A. Lyson, 2005), partnerships (de Bakker & Dagevos, 2012) and alliances (Phillips, 2006). These actions are strongly marked by a sense of commitment (Carolan, 2017; de Bakker & Dagevos, 2012; Lozano-Cabedo & Gómez-Benito, 2017; T. A. Lyson, 2005; Phillips, 2006), without which food citizenship does not evolve.

*What can be done to motivate this behavior?*

By looking at food citizenship from the perspective of behaviors that are carried out by individuals, different things can be done to make these behaviors happen. Thus, practical examples of actions that could foster food citizenship were searched for within the selected studies.

In a broader approach, it was mentioned the importance of conducting a transformation of food system governance (Escajedo San-Epifanio, 2015) and of developing synergies at higher policy-making levels (Campbell, 2004). Another example in this sense was the relevance of standardizing and rationalizing the production and transaction costs along the food chain (T. A. Lyson, 2005). In general, for these authors, structural changes are relevant and even necessary for food citizenship to take place.

Among the more specific examples that can contribute to food citizenship were the improvement of food labeling (Johan de Tavernier, 2012a; Escajedo San-Epifanio, 2015; O’Kane, 2016) and the creation of global social movements (Sage, 2014). Among possible global movements, it was suggested the conduction of campaigns that favor the consumption of "ugly" fruits and vegetables (O’Kane, 2016) and the carrying out of actions that obtain consumers attentions in direction to healthier and sustainable consumption in a gradual way (de Bakker & Dagevos, 2012).

#### *What are the barriers to food citizenship?*

If food citizenship can be motivated, possible barriers to its existence may also be found. Although not a point widely discussed in the selected articles, some examples of barriers could be identified.

One of the main barriers cited was the food system itself, including food and agriculture policies and the culture of some key actors in the process (Wilkins, 2005), who do not necessarily want to change the industry’s status quo.

Another factor cited was the globalized food system, which disconnects consumers from where, how, and by whom food is grown (O’Kane, 2016). Further in this line, other barriers were the corporate control of the food system (formed by vertical and horizontal integration), the insufficient information available to consumers about the products, the actions that supermarkets take to increase sales, and the proliferation of convenience foods (Welsh & MacRae, 1998b).

At last, it was cited that the narrow and stereotypical constructions of the more responsible consumer (Lockie, 2009), that is, unrealistically treating this type of consumer, can be harmful to the behaviors related to food citizenship.

#### *What are the consequences of food citizenship?*

Finally, different consequences of food citizenship were observed in the articles considered. The objective was to understand what happens from the phenomenon of food citizenship and to perceive benefits derived from it.

Food citizenship results in a renewal of the local food system (de Bakker & Dagevos, 2012), sustaining a just, equitable, and environmentally regenerative food system (Campbell, 2004; Wilkins, 2005). It favors projects focused on productions that respond to food problems (Phillips, 2006), transforming the existing food system (Sage, 2014). Food citizenship also shapes public opinion, culture, institutions, and policies (Renting et al., 2012), build international solidarity in defense of food sovereignty (Sage, 2014), and allows for political awakening (Welsh & MacRae, 1998b). All this, ultimately, moralizes the food economy (Renting et al., 2012).

This review was necessary to discover the gap that this research aims to fill, the lack of a measure instrument of food citizenship. In addition, it allowed the identification of items that define the behavior of these consumers, as well as their motivations and priorities. Therefore, these points will be discussed below.

### 3. METHOD

#### 3.1 Participants

In this study, there were 329 participants. To be able to participate of the research, the food consumer had to be responsible or co-responsible for buying food for their homes, over 18 years old and understand the concept of food system that was presented. It was considered a minimum of five respondents per item (Hair et al., 2005). Choi & Lotz (2016), e.g., collected data from 332 customers to refine a scale with 14 items and examine their psychometric properties.

The participants were invited to participate through convenient and non-probabilistic snowball sampling (Eldesouky, Pulido, & Mesias, 2015), using email lists of universities, research groups, social networks, and personal databases. In the scope of this study, snowball sampling took place in social networks, in which a consumer could publicize the survey to other people who could also access it and participate. Social networks sampling is reasonable (Rife, Cate, Kosinski, & Stillwell, 2016), allowing results similar to those reached by other snowball sampling ways. Also, a non-probability sample was considered appropriate for this type of research (Eldesouky et al., 2015; Kinnear & Taylor, 1993).

Consumers answered their sex and gender according to the two-step strategy (Reisner et al., 2014). Firstly, they provided their sex assignment (at birth) and then were redirected to a section of the questionnaire that will not be analyzed in this study. Secondly, they informed their gender identity. As shown in Table 2, 59.3% of the participants were women (and female), while 36.3% were men (and male) and 4.6% were other/rather not answer – this last one considers those who did not inform and those who were men that identified themselves as females, or the opposite.

The age ranges were distributed according to a generational classification (Dimock, 2019). The largest group (38.5%) was of the consumers that had from 26 to 40 years old. The most representative Brazilian region was the Midwest (53.1%). As for the familiar income, 25.5% receive over R\$ 15.676 (around U\$ 2.845) and most part (33.6%) has Master's or doctorate completed.

Regarding the political orientation, when asked about political identification with the President of Brazil, Jair Bolsonaro, 84.9% demonstrated that they identify from 0 to 50. Besides, 84.3% demonstrated to agree with distance/social isolation amid the pandemic.

**Table 2***Respondents' socioeconomic status (SES)*

| Variables SES  |   | N   | %     |
|--|---|-----|-------|
| Sex/Gender   | Man/Male                                    | 119 | 36.2% |
|  | Woman/Female                                | 195 | 59.3% |
|  | Other/Rather not answer                     | 15  | 4.6%  |
| Age group  | (Z) Up to 25 years                          | 80  | 24.5% |
|  | (Y) From 26 to 40 years                     | 126 | 38.5% |
|  | (Xennials) From 41 to 55 years              | 81  | 24.8% |
|  | (Baby boomers) 56 or more years             | 40  | 12.2% |
| Brazilian region   | South / Southeast                           | 118 | 36.9% |
|  | Midwest                                     | 170 | 53.1% |
|  | North/Northeast                             | 32  | 10.0% |
| Type of city   | Capital                                     | 252 | 76.6% |
|  | Up-country                                  | 77  | 23.4% |
| Familiar income group  | Up to R\$ 3.135                             | 43  | 13.9% |
|  | From R\$ 3.136 to R\$ 6.270                 | 53  | 17.1% |
|  | From R\$ 6.271 to R\$ 10.450                | 68  | 21.9% |
|  | From R\$ 10.451 to R\$ 15.675               | 66  | 21.3% |
|  | Over R\$ 15.676                             | 80  | 25.8% |
| Complete schooling   | Up to High School                           | 61  | 18.7% |
|  | University Education                        | 88  | 26.9% |
|  | Post-graduation (Specialization lato sensu) | 68  | 20.8% |
| Degree of distance / social isolation amid the pandemic (from 0 to 100).         | Master's or Doctorate                       | 110 | 33.6% |
|  | 0-50  | 51  | 15.7% |
| Degree of political identification with the President of Brazil (from 0 to 100). | 51-100                                      | 274 | 84.3% |
|  | 0-50  | 259 | 84.9% |
|  | 51-100                                      | 46  | 15.1% |

### 3.2 Instrument

#### 3.2.1 Development of the Instrument

For the development of the measurement instrument, a combination of the steps Choi and Lotz (2016) used to develop an instrument regarding customer citizenship behavior in services and the ones proposed by Costa (2011) were followed.

The first step of Choi and Lotz's (2016) research was to develop an open-ended questionnaire to collect data through a web-based self-administrated survey, while Costa (2011) proposed a systemic literature review to define the scale items.

In this work, the 73 initial items were defined through a systemic literature review, in English, as shown in Table 3.

**Table 3**

*Food Citizen-related behavior items*

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Sentences and references

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- I reinvent identities and practices as a food consumer, developing behaviors that are considered different from the mainstream (Lockie, 2009)
  - Instead of buying common foods in traditional supermarkets, I purchase and consume food that is organic, locally sourced, and available in farmers markets (Campbell, 2004; T. A. Lyson, 2005; O'Kane, 2016; Phillips, 2006; Renting et al., 2012)
  - I purchase from specialty food producers and small-scale processors (T. A. Lyson, 2005)
  - I support social movements (Phillips, 2006)
  - I engage in alternative mechanisms for food marketing and social arrangements (Lockie, 2009; T. A. Lyson, 2005; Phillips, 2006)
  - I somehow directly participate in rural production (Baker, 2004; Campbell, 2004; Hassanein, 2008; T. A. Lyson, 2005; O'Kane, 2016; Renting et al., 2012; Sage, 2014)
  - I perform political participation (Escajedo San-Epifanio, 2015)
  - I claim for civil rights and international solidarity (Lockie, 2009; Lozano-Cabedo & Gómez-Benito, 2017; Sage, 2014)
  - I introduce innovative ways of consumption (de Bakker & Dagevos, 2012)
  - I make small decisions in a consistent and insistent way (Wilkins, 2005)
  - I have a sense of my rights to produce and consume food and I exercise these acquired rights (Sonnino, Marsden, & Moragues-Faus, 2016)
  - I have a sense of my duties to participate in the governance of the food system (Lozano-Cabedo & Gómez-Benito, 2017)
  - I engage in community gardens (Baker, 2004; M. C. Lyson, 2014; O'Kane, 2016)
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- I engage in civic food networks (Renting et al., 2012)
  - I engage in alternative food systems (Campbell, 2004)
  - I engage in civic agriculture (T. A. Lyson, 2005)
  - I engage in community-supported agriculture (CSA) (Carolan, 2017; Hassanein, 2008; T. A. Lyson, 2005; O’Kane, 2016)
  - I buy from farmers’ markets (Carolan, 2017; T. A. Lyson, 2005; O’Kane, 2016)
  - I support food banks (Hassanein, 2008)
  - I promote ecology and/or agroecology (Renting et al., 2012).
  - I favor local and seasonal foods (Renting et al., 2012).
  - I have a passion for food and plants (de Bakker & Dagevos, 2012)
  - I considered myself connected to the planet and other people (O’Kane, 2016)
  - I have a high degree of empathy for the other (Carolan, 2017)
  - I carry values of care for the community and the environment (de Bakker & Dagevos, 2012)
  - I act in a reflexive and proactive way (Lockie, 2009)
  - I behave as guided by my preferences, interests, and concerns (Gómez-Benito & Lozano, 2014)
  - I have coherent behaviors in relation to food choices, food habits, and food advocacy among the government (Gómez-Benito & Lozano, 2014)
  - I renounce an individual interest in favor of a collective one (Escajedo San-Epifanio, 2015)
  - I have an orientation towards the community good (Hassanein, 2008)
  - Authentic relationships are important to me (Welsh & MacRae, 1998a).
  - I am guided by the senses of justice, equality, and fairness (Lozano-Cabedo & Gómez-Benito, 2017)
  - I take care of my own body and the Planet (Johan de Tavernier, 2012b)
  - I am concerned about the access to healthy and fair-priced foods, aiming at promoting transformations in the pattern of consumption (de Bakker & Dagevos, 2012)
  - I consider it important to build policies and coalitions around food (Phillips, 2006)
  - I consider it important to broaden the debate on the rights and duties of citizens regarding food and to encourage the participation of all actors in the governance of the agri-food system (Lozano-Cabedo & Gómez-Benito, 2017)
  - I consider it important to promote forums around food (T. A. Lyson, 2005).
  - I consider it important to provide local answers to global problems (Renting et al., 2012)
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- I consider it important to combat the reduction of fossil fuel stocks and climate change (Sage, 2014)
  - I consider it important to develop the local economy in a way that maintains the diversity and quality of the products (T. A. Lyson, 2005)
  - I think about the impact that the way I eat causes on the food system (Wilkins, 2005)
  - I have autonomy and know my right to reliable, enough, and understandable information (Lozano-Cabedo & Gómez-Benito, 2017)
  - I am familiar with food and the food system (Hassanein, 2008)
  - I recognize my responsibility towards other human beings, other living beings, other actors in the agri-food system and the Planet (Lozano-Cabedo & Gómez-Benito, 2017)
  - I recognize the right of people to have enough, healthy and quality food (Lozano-Cabedo & Gómez-Benito, 2017)
  - I take action to change a food-related reality (Hassanein, 2008; Wilkins, 2005).
  - I share ideas about the food system with others (Hassanein, 2008)
  - I practice communication, lobbying, and political activism around food (Renting et al., 2012)
  - I perform solidary and coordinated movements around food (Lockie, 2009)
  - I deeply engage themselves in food movements (O’Kane, 2016)
  - I cooperate in food movements (de Bakker & Dagevos, 2012; T. A. Lyson, 2005)
  - I partnership in food movements (de Bakker & Dagevos, 2012)
  - I make alliances in food movements (Phillips, 2006)
  - I have a strong sense of commitment regarding food movements (Carolan, 2017; de Bakker & Dagevos, 2012; Lozano-Cabedo & Gómez-Benito, 2017; T. A. Lyson, 2005; Phillips, 2006)
  - I believe it is important to conduct a transformation of food system governance (Escajedo San-Epifanio, 2015)
  - I believe it is important to conduct develop synergies at higher policy-making levels regarding food (Campbell, 2004)
  - I believe it is important to conduct standardize and rationalize the production and transaction costs along the food chain (T. A. Lyson, 2005)
  - I believe it is important to improve the food labeling (Johan de Tavernier, 2012b; Escajedo San-Epifanio, 2015; O’Kane, 2016)
  - I believe it is important to create global social movements around food (Sage, 2014)
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- I believe it is important to perform campaigns that favor the consumption of "ugly" fruits and vegetables (O’Kane, 2016)
  - I believe it is important to carry out actions that obtain consumers attentions in the direction of healthier and sustainable consumption in a gradual way (de Bakker & Dagevos, 2012)
  - I believe that the food and agriculture policies and the culture of some actors are unfavorable to the food system (Wilkins, 2005)
  - I believe that the globalized food chains, which disconnects consumers from where, how, and by whom food is grown, is unfavorable to the food system (O’Kane, 2016)
  - The corporate control of the food system (formed by vertical and horizontal integration), the insufficient information available to consumers about the products, the actions that supermarkets take to increase sales, and the proliferation of convenience foods are unfavorable to the food system (Welsh & MacRae, 1998a).
  - The narrow and stereotypical constructions of the more responsible consumer, that is, treating this type of consumer in an unrealistic way is unfavorable to the food system (Lockie, 2009)
  - I look forward to a renewal of the local food system (de Bakker & Dagevos, 2012)
  - I look forward to sustaining a just, equitable, and environmentally regenerative food system (Campbell, 2004; Wilkins, 2005)
  - I look forward to projects focused on productions that respond to food problems (Phillips, 2006)
  - I look forward to projects aiming at transforming the existing food system (Sage, 2014)
  - I look forward to shaping public opinion, culture, institutions, and policies (Renting et al., 2012)
  - I look forward to building international solidarity in defense of food sovereignty (Sage, 2014)
  - I look forward to a political awakening (Welsh & MacRae, 1998a)
  - I look forward to a moralized food economy (Renting et al., 2012)
- 

As the instrument was accessed by Brazilian consumers, two researchers fluent in English and with Portuguese as their first language, translated all items above and evaluated them independently. Each researcher translated the items into Portuguese and signaled suggestions for improvement in order to simplify the scale, given the possible presence of redundant items. After a discussion together, we obtained 51 items (Table 4). A reverse translation was not done in this study, because the researchers did not start from a scale in English to be translated, but from themes in English to be considered for the construction of a scale in Portuguese.

Choi & Lotz (2016) had in their study an initial list of 92 items for customer citizenship behavior in services. Five trained judges sorted them into categories of similar items. The same was performed in this study: the items shown in Table 4 were submitted to five judges' analysis. This allows the scale purification by the evaluation of how well each item represents food citizenship and by the incorporation of redundant items.

The proposed items were statements that involved the importance of prioritizing various food-related projects; indignation about food issues; empathy and awareness of the theme; and planning for engagement in selected practices. The judges study consumer behavior and were briefed on the concept of food citizenship through images of a dialogue between a mother and her daughter, where the daughter explained to her mom what food citizenship is (Appendix A).

After understanding the concept, the judges gave scores from 1 to 5 to all items, with 1 being "very bad" and 5 "very good", analyzing two factors. The first one was to validate the content, related to how adequate each item is. In other words, how relevant and representative they were to food citizenship. The second one was a face validation, referring to how practical and clear was each item. Besides, they also could provide comments to each item. The scores are in Table 3.

**Table 4**

*Initial proposed items for the scale*

| Item | Description in Portuguese  | Free Translation to English  | Criteria | Average | Median |
|------|--|--|----------|---------|--------|
| 1    | Projetos focados em soluções para os problemas alimentares deveriam ser uma prioridade.        | Projects focused on solutions to food problems should be a priority.                         | Adequacy | 5       | 5      |
|      |  |  | Clarity  | 4       | 4      |
| 2    | Projetos que visam transformar esse atual sistema deveriam ser uma prioridade                  | Projects that aim to transform the current system should be a priority                       | Adequacy | 5       | 5      |
|      |  |  | Clarity  | 3       | 3      |
| 3    | A transformação da governança do sistema alimentar deveria ser uma prioridade                  | Transforming the food system governance should be a priority                                 | Adequacy | 5       | 5      |
|      |  |  | Clarity  | 3       | 3      |
| 4    | Movimentos sociais globais sobre as questões alimentares deveriam ser uma prioridade           | Global social movements on food issues should be a priority                                  | Adequacy | 5       | 5      |
|      |  |  | Clarity  | 5       | 5      |
| 5    | É inaceitável que pessoas tenham mais acesso a alimentos em alguns países do que em outros     | It is unacceptable that people have more access to food in some countries than in others     | Adequacy | 5       | 5      |
|      |  |  | Clarity  | 5       | 5      |
| 6    | A melhoria da rotulagem dos alimentos deveria ser uma prioridade                               | Improving food labeling should be a priority   | Adequacy | 5       | 5      |
|      |  |  | Clarity  | 5       | 5      |
| 7    | É inaceitável que o sistema alimentar seja prejudicado pela cultura de alguns atores da cadeia | It is unacceptable that the food system is harmed by the culture of some actors in the chain | Adequacy | 5       | 5      |
|      |  |  | Clarity  | 4       | 4      |

|    |  |  |          |      |     |
|----|--|--|----------|------|-----|
| 8  | É inaceitável que o crescimento da oferta de alimentos processados impacte negativamente o sistema alimentar | It is unacceptable that the growth in the supply of processed foods negatively impacts the food system | Adequacy | 5    | 5   |
|    |  |  | Clarity  | 3    | 3   |
| 9  | É inaceitável que o sistema alimentar seja prejudicado pela forma de operação das cadeias globalizadas       | It is unacceptable that the food system is hampered by the way globalized chains operate               | Adequacy | 5    | 5   |
|    |  |  | Clarity  | 3    | 3   |
| 10 | É inaceitável que o sistema alimentar seja prejudicado pelo controle corporativo                             | It is unacceptable that the food system is undermined by corporate control                             | Adequacy | 5    | 5   |
|    |  |  | Clarity  | 5    | 5   |
| 11 | A renovação do sistema alimentar local deveria ser uma prioridade  | Renovating the local food system should be a priority  | Adequacy | 5    | 5   |
|    |  |  | Clarity  | 5    | 5   |
| 12 | Campanhas que combatam o desperdício de alimentos pelo consumidor deveriam ser uma prioridade para todos     | Campaigns that fight against food waste by consumers should be a priority for everyone                 | Adequacy | 5    | 5   |
|    |  |  | Clarity  | 5    | 5   |
| 13 | A sustentação de um sistema alimentar justo e ambientalmente equilibrado deveria ser uma prioridade          | Sustaining a fair and environmentally balanced food system should be a priority                        | Adequacy | 5    | 5   |
|    |  |  | Clarity  | 4,2  | 5   |
| 14 | A união de esforços para a elaboração de políticas públicas sobre alimentos deveria ser uma prioridade       | Joining efforts to develop public food policies should be a priority                                   | Adequacy | 5    | 5   |
|    |  |  | Clarity  | 4.4  | 5   |
| 15 | Eu me solidarizo com problemas internacionais relacionadas aos alimentos                                     | I sympathize with international food-related problems  | Adequacy | 4.8  | 5   |
|    |  |  | Clarity  | 4.4  | 5   |
| 16 | É inaceitável que algumas pessoas consigam acessar menos alimentos do que outras                             | It is unacceptable that some people are able to access less food than others                           | Adequacy | 4.4  | 5   |
|    |  |  | Clarity  | 4.4  | 5   |
| 17 | É inaceitável que algumas pessoas precisem pagar mais por alimentos do que outras                            | It is unacceptable that some people need to pay more for food than others                              | Adequacy | 4.4  | 5   |
|    |  |  | Clarity  | 5    | 5   |
| 18 | É inaceitável que algumas pessoas consigam acessar menos alimentos saudáveis do que outras                   | It is unacceptable that some people are able to access less healthy food than others                   | Adequacy | 5    | 5   |
|    |  |  | Clarity  | 4.5  | 5   |
| 19 | Eu conheço os direitos civis relacionados a alimentos  | I know the civil rights related to food  | Adequacy | 5    | 5   |
|    |  |  | Clarity  | 4.6  | 5   |
| 20 | Eu conheço meus direitos e deveres enquanto ator do sistema de alimentos                                     | I know my rights and duties as an actor in the food system   | Adequacy | 5    | 5   |
|    |  |  | Clarity  | 4.2  | 4   |
| 21 | É inaceitável que algumas pessoas tenham mais acesso a informações sobre alimentos do que outras             | It is unacceptable that some people have more access to information about food than others             | Adequacy | 5    | 5   |
|    |  |  | Clarity  | 4.8  | 5   |
| 22 | Eu conheço sobre o funcionamento do sistema alimentar  | I know about the functioning of the food system  | Adequacy | 4.8  | 5   |
|    |  |  | Clarity  | 4.5  | 4.5 |
| 23 | Eu conheço sobre os alimentos de uma forma geral   | I know about food in general   | Adequacy | 3.8  | 3   |
|    |  |  | Clarity  | 4.25 | 4.5 |
| 24 | Políticas em torno dos alimentos deveriam ser uma prioridade   | Food policies should be a priority   | Adequacy | 5    | 5   |
|    |  |  | Clarity  | 4.6  | 5   |
| 25 |  |  | Adequacy | 5    | 5   |

|    |  |   |                     |            |        |
|----|--|---|---------------------|------------|--------|
|    | A garantia da diversidade dos alimentos deveria ser uma prioridade   | Ensuring food diversity should be a priority  | Clarity             | 4.6        | 5      |
| 26 | A garantia da qualidade dos alimentos deveria ser uma prioridade   | Ensuring food quality should be a priority  | Adequacy<br>Clarity | 5<br>4.6   | 5<br>5 |
| 27 | Eu pretendo participar de fóruns de discussão sobre alimentos nos próximos seis meses  | I plan to participate in food discussion forums in the next six months  | Adequacy<br>Clarity | 4.8<br>4.8 | 5<br>5 |
| 28 | Eu pretendo acessar alimentos de produtores de pequeno porte nos próximos seis meses   | I plan to access food from small farmers in the next six months   | Adequacy<br>Clarity | 5<br>4.8   | 5<br>5 |
| 29 | Eu pretendo acessar alimentos disponíveis em feiras dos produtores nos próximos seis meses   | I plan to access food available at farmers' fairs in the next six months  | Adequacy<br>Clarity | 5<br>4.8   | 5<br>5 |
| 30 | Eu pretendo acessar alimentos fornecidos localmente nos próximos seis meses  | I plan to access locally sourced food in the next six months  | Adequacy<br>Clarity | 5<br>4.4   | 5<br>5 |
| 31 | Eu pretendo acessar alimentos orgânicos nos próximos seis meses  | I plan to access organic food in the next six months  | Adequacy<br>Clarity | 5<br>4.8   | 5<br>5 |
| 32 | Eu pretendo acessar alimentos sazonais (da época) nos próximos seis meses  | I plan to access seasonal (seasonal) food in the next six months  | Adequacy<br>Clarity | 5<br>4.8   | 5<br>5 |
| 33 | Eu pretendo me envolver em ações políticas que visem mudar uma realidade relacionada aos alimentos nos próximos seis meses   | I intend to get involved in political actions that aim to change a reality related to food in the next six months   | Adequacy<br>Clarity | 5<br>5     | 5<br>5 |
| 34 | Eu pretendo realizar alianças e parcerias em torno de movimentos alimentares nos próximos seis meses   | I intend to form alliances and partnerships around food movements in the next six months  | Adequacy<br>Clarity | 5<br>4.8   | 5<br>5 |
| 35 | Arranjos sociais de alimentos são comunidades que garantem determinados alimentos para seus membros. Eu pretendo participar de um arranjo desse tipo nos próximos seis meses | Social food arrangements are communities that guarantee certain foods for their members. I plan to participate in such an arrangement in the next six months              | Adequacy<br>Clarity | 5<br>5     | 5<br>5 |
| 36 | Eu pretendo participar de horta(s) comunitária(s) nos próximos seis meses  | I plan to participate in community garden (s) in the next six months  | Adequacy<br>Clarity | 5<br>5     | 5<br>5 |
| 37 | Ao invés de comprar apenas em comércio convencional, eu pretendo participar de mecanismos alternativos para acessar alimentos nos próximos seis meses                        | Instead of buying only in conventional stores, I intend to participate in alternative mechanisms to access food in the next six months                                    | Adequacy<br>Clarity | 5<br>4.8   | 5<br>5 |
| 38 | Na Comunidade que Sustenta a Agricultura (CSA), o consumidor financia e participa da produção de alimentos. Eu pretendo participar de uma CSA nos próximos seis meses        | In the Community that Supports Agriculture (CSA), the consumer finances and participates in the production of food. I plan to participate in a CSA in the next six months | Adequacy<br>Clarity | 5<br>5     | 5<br>5 |

|    |  |   |          |     |   |
|----|--|---|----------|-----|---|
| 39 | O Slow Food é um movimento que defende a alimentação baseada em produtos locais, sustentáveis e de qualidade. Eu pretendo participar do Slow Food nos próximos seis meses      | Slow Food is a movement that advocates food based on local, sustainable and quality products. I plan to participate in Slow Food in the next six months | Adequacy | 5   | 5 |
|    |  |   | Clarity  | 5   | 5 |
| 40 | Eu favoreço um interesse coletivo em relação aos alimentos em detrimento de um interesse individual  | I favor a collective interest in relation to food over an individual interest   | Adequacy | 5   | 5 |
|    |  |   | Clarity  | 4   | 4 |
| 41 | Eu pretendo assumir compromissos com movimentos alimentares nos próximos seis meses  | I plan to make commitments to food movements in the next six months   | Adequacy | 5   | 5 |
|    |  |   | Clarity  | 4.4 | 5 |
| 42 | Eu atuo de maneira proativa para acessar alimentos, ou seja, não aguardo que outras pessoas ajam por mim ou que me solicitem   | I act proactively to access food, that is, I do not wait for other people to act for me or to ask me  | Adequacy | 4.8 | 5 |
|    |  |   | Clarity  | 3.6 | 4 |
| 43 | Eu atuo de maneira reflexiva em relação aos alimentos, pensando no meu impacto sobre o sistema alimentar   | I act reflexively in relation to food, thinking about my impact on the food system  | Adequacy | 5   | 5 |
|    |  |   | Clarity  | 4.8 | 5 |
| 44 | Eu comunico com outras pessoas sobre temas que podem mudar uma realidade relacionada aos alimentos   | I communicate with others on topics that can change a reality related to food   | Adequacy | 4.8 | 5 |
|    |  |   | Clarity  | 4.6 | 5 |
| 45 | Eu cuido do meu próprio corpo através das minhas escolhas alimentares  | I take care of my own body through my food choices  | Adequacy | 4.8 | 5 |
|    |  |   | Clarity  | 5   | 5 |
| 46 | Eu cuido do planeta através das minhas escolhas alimentares  | I care for the planet through my food choices   | Adequacy | 5   | 5 |
|    |  |   | Clarity  | 5   | 5 |
| 47 | Existem movimentos para comprar deliberadamente de empresas de alimentos que agem com responsabilidade. Eu pretendo me juntar a esse tipo de movimento nos próximos seis meses | There are moves to buy deliberately from food companies that act responsibly. I plan to join this kind of movement in the next six months               | Adequacy | 5   | 5 |
|    |  |   | Clarity  | 5   | 5 |
| 48 | Existem movimentos para boicotar empresas de alimentos que agem de forma irresponsável. Eu pretendo me juntar a esse tipo de movimento nos próximos seis meses                 | There are moves to boycott food companies that act irresponsibly. I plan to join this kind of movement in the next six months                           | Adequacy | 4.6 | 5 |
|    |  |   | Clarity  | 5   | 5 |
| 49 | Eu me solidarizo com a possibilidade de mudar uma realidade relacionada aos alimentos  | I sympathize with the possibility of changing a reality related to food   | Adequacy | 4.8 | 5 |
|    |  |   | Clarity  | 4.2 | 5 |
| 50 | Eu realizo comportamentos relacionados a alimentos coerentes com minhas preferências, interesses e preocupações  | I perform food-related behaviors consistent with my preferences, interests and concerns   | Adequacy | 4.4 | 5 |
|    |  |   | Clarity  | 4.2 | 4 |
| 51 | Eu tomo pequenas decisões relacionadas a alimentos de forma consistente  | I consistently make small food-related decisions  | Adequacy | 4.8 | 5 |
|    |  |   | Clarity  | 3.4 | 3 |

As proposed by Costa (Costa, 2011), 5 sentences with an average or median below 3 were excluded (2, 3, 9, 23 and 51). In addition, comments were also taken into account for deleting or rewriting items. Therefore, after the first analysis of the judges grades and comments, six items were excluded.

The 45 remaining items were dismembered by the researchers in two strands: 30 items related to the attitude of food citizenship, and 15 related to food citizenship behavior (declared or intention). As the present study focuses attitude, these 15 items will not be taken in consideration for the results and discussion. After this separation, those items were resent for two of the judges so that they could assess, once more, the adequacy and clarity. According to their grades, comments, and the researchers' opinion, three items were deleted and two were merged and adjusted. Therefore, out of the 30 attitudinal items, there were 25 final items for the instrument, shown in Table 5.

**Table 5**

*Final items for instrument*

| Item | Description in Portuguese  | Free Translation to English  | Original Item  |
|------|--|--|--|
| 1    | Projetos focados em soluções para os problemas alimentares deveriam ser uma prioridade para todos                                      | Projects focused on solutions to food problems should be a priority for everyone   | Projects focused on solutions to food problems should be a priority for everyone             |
| 2    | Movimentos sociais globais sobre as questões alimentares deveriam ser uma prioridade para todos  | Global social movements on food issues should be a priority for all  | Global social movements on food issues should be a priority                                  |
| 3    | É inaceitável que pessoas tenham mais acesso a alimentos em alguns países do que em outros   | It is unacceptable that people have more access to food in some countries than in others   | It is unacceptable that people have more access to food in some countries than in others     |
| 4    | A melhoria da rotulagem dos alimentos deveria ser uma prioridade para todos  | Improving food labeling should be a priority for all   | Improving food labeling should be a priority   |
| 5    | É inaceitável que a cultura (tradições, crenças e costumes) de alguns dos atores da cadeia de alimentos prejudique o sistema alimentar | It is unacceptable that the culture (traditions, beliefs, and customs) of some of the actors in the food chain harms the food system | It is unacceptable that the food system is harmed by the culture of some actors in the chain |
| 6    | É inaceitável que o sistema alimentar seja prejudicado pelo controle corporativo (das grandes empresas sobre os mercados)              | It is unacceptable that the food system is undermined by corporate control (of large companies over markets)                         | It is unacceptable that people have more access to food in some countries than in others     |
| 7    | A melhoria do sistema alimentar local deveria ser uma prioridade para todos  | Improving the local food system should be a priority for all   | Renovating the local food system should be a priority for all                                |



|    |  |  |  |
|----|--|--|--|
| 8  | Campanhas que combatam o desperdício de alimentos pelo consumidor deveriam ser uma prioridade para todos   | Campaigns to combat food waste by consumers should be a priority for everyone  | Campaigns that fight against food waste by consumers should be a priority for everyone               |
| 9  | A sustentação de um sistema alimentar justo e ambientalmente equilibrado deveria ser uma prioridade para todos   | Sustaining a fair and environmentally balanced food system should be a priority for all  | Sustaining a fair and environmentally balanced food system should be a priority                      |
| 10 | A união de esforços para a elaboração de políticas públicas sobre alimentos deveria ser uma prioridade para todos  | Joining efforts to develop public food policies should be a priority for all   | Joining efforts to develop public food policies should be a priority                                 |
| 11 | Eu me solidarizo com problemas internacionais relacionados aos alimentos, tendo ou não contato direto com estes  | I sympathize with international food-related problems, whether or not I have direct contact with them  | I sympathize with international food-related problems  |
| 12 | É inaceitável que algumas pessoas tenham menos acesso a uma alimentação adequada do que outras   | It is unacceptable that some people have less access to adequate food than others  | It is unacceptable that some people are able to access less food than others                         |
| 13 | Eu conheço os direitos civis relacionados à alimentação  | I know the civil rights related to food  | I know the civil rights related to food  |
| 14 | Eu conheço meus direitos e deveres enquanto ator do sistema alimentar  | I know my rights and duties as an actor in the food system   | I know my rights and duties as an actor in the food system   |
| 15 | É inaceitável que algumas pessoas tenham mais acesso a informações sobre alimentos do que outras   | It is unacceptable that some people have more access to information about food than others   | It is unacceptable that some people have more access to information about food than others           |
| 16 | Eu conheço sobre o funcionamento do sistema alimentar, que envolve materiais, processos e infraestruturas desde a agricultura até o consumo de alimentos | I know about the functioning of the food system, which involves materials, processes and infrastructure from agriculture to food consumption | I know about the functioning of the food system  |
| 17 | Políticas públicas acerca de alimentos deveriam ser uma prioridade do governo  | Public food policies should be a government priority   | Food policies should be a priority   |
| 18 | A garantia da oferta de alimentos de qualidade deveria ser uma prioridade para todos   | Ensuring the supply of quality food should be a priority for all   | Ensuring food quality should be a priority   |
| 19 | Eu tomo decisões que favorecem um interesse coletivo, abrindo mão, se necessário, de um interesse individual   | I make decisions that favor a collective interest, giving up, if necessary, an individual interest   | I favor a collective interest in relation to food over an individual interest                        |
| 20 | Eu não aguardo que outras pessoas acessem alimentos por mim, ou que me solicitem para acessá-los, pois atuo de maneira proativa                          | I do not wait for other people to access food for me, or to ask me to access it, as I act proactively  | I act proactively to access food, that is, I do not wait for other people to act for me or to ask me |

|    |  |   |   |
|----|--|---|---|
| 21 | Eu converso com outras pessoas sobre temas que podem mudar a realidade relacionada aos alimentos             | I talk to other people about topics that can change the reality related to food       | I communicate with others on topics that can change a reality related to food           |
| 22 | Eu cuido do meu próprio corpo por meio das minhas escolhas alimentares                                       | I take care of my own body through my food choices                                    | I take care of my own body through my food choices                                      |
| 23 | Eu cuido do planeta por meio das minhas escolhas alimentares   | I take care of the planet through my food choices                                     | I care for the planet through my food choices   |
| 24 | Eu me solidarizo com a possibilidade de mudar práticas insustentáveis relacionadas aos alimentos             | I sympathize with the possibility of changing unsustainable practices related to food | I sympathize with the possibility of changing a reality related to food                 |
| 25 | Com relação a alimentos, meu comportamento está de acordo com minhas preferências, interesses e preocupações | Regarding to food, my behavior is in line with my preferences, interests and concerns | I perform food-related behaviors consistent with my preferences, interests and concerns |

### 3.2.2 Data collection

The food citizenship scale was tested through empirical application among Brazilian consumers, via an online survey, using a non-probabilistic and convenience sample, considering a minimum of five respondents per item. All the 329 Brazilian interviewees responded to a structured online questionnaire (Attachment 1), designed in an online survey software, Alchemer (formerly SurveyGizmo), in Portuguese and divided into five sections. The instrument was available from May 05, 2020, to June 06, 2020. Consumers were invited to participate via e-mail and social networks by the researchers involved.

In the first section, consumers had to understand the concept of the food system (the food system involves all the processes related to food - from the production, processing and distribution of food, to its preparation and consumption). Therefore, they were presented with an image that explains the food system in a visual way (Appendix B), but also a text saying that this system involves all the processes related to food - from the production, processing, and distribution of food, to its preparation and consumption. After that, they had to answer if the concept was clear to them, they could answer “yes”, “no” or “I don’t know”.

In the second section, the respondents were presented with the 25 items and were informed that they had to answer their level of agreement with each sentence, following the Likert Scale. Therefore, they had a scale from 1 (“strongly disagree”) to 5 (“strongly agree”), and a sixth option (“I don’t know”) was also available.

The third section addressed SES questions: sex, gender (with “other” and “rather not tell” options) (Reisner et al., 2014), age, Brazilian region they live in, type of city (capital or up-country), home income, complete schooling, degree of distance / social isolation amid the

pandemic (from 0 to 100) and degree of political identification with the President of Brazil.

### 3.3 Analysis procedures

This study used exploratory factorial analysis to define a measure of food citizenship. Exploratory factor analysis (EFA) is a statistical tool often used to explore the psychometric properties of an instrument or scale (Osborne et al., 2011). Therefore, it was the data analysis procedures for defining a measure in this study.

First, it is important to evaluate Bartlett's index and the Kaiser–Meyer–Olkin test (KMO) (Hair et al., 2005), followed by the parallel estimation (López-Cepero et al., 2018). After that, it is possible to proceed with the EFA itself. To refine the items, more than one round of EFA was carried out, removing the items with loadings  $<0.45$ , and the with communalities  $<0.5$  (Hair et al., 2005). Those procedures retained retain the most relevant items to measure food citizenship.

All data analysis was conducted through the software Factor, as it enables appropriate and robust methodological choices (Ferrando & Lorenzo-Seva, 2018). The results are presented next.

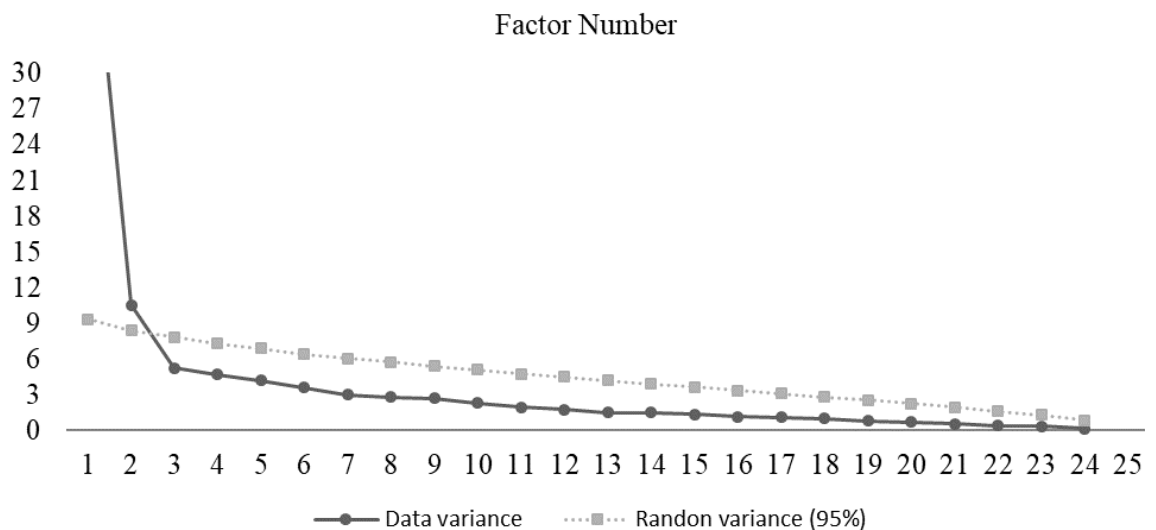
#### 4. RESULTS

The exploratory factor analysis (EFA) allowed the identification of the dimensions of food citizenship. This data presented a Kaiser–Meyer–Olkin test (KMO) equal to 0.82691, showing a suitable fit for the factorial analysis (Hair et al., 2005). The Bartlett’s index is 2887.8 ( $df = 300$ ;  $P < 0.0001$ ), also representing an adequate criteria (López-Cepero et al., 2018).

The objective of the parallel estimation method, or parallel analysis, is to determine the number of recommended factors (López-Cepero et al., 2018) and is among the most recommended methods for assessment of the number of factors in empirical practice (Timmerman & Lorenzo-Seva, 2011). In this study, the parallel analysis suggested two dimensions for factor analysis (Image 1).

**Image 1**

*Parallel Analysis*



The EFA was conducted three times. In the first one, the two dimensions did not retain four items (5, 19, 22, and 25) as they had loadings  $< 0.45$  (Hair et al., 2005) (Appendix C). Without those four items, the EFA was conducted for the second time. This time, six items with low communality (values  $< 0.5$ ) (3, 6, 11, 15, 21, and 23) were excluded (Hair et al., 2005) (Appendix D).

The EFA was submitted for analysis for the third time, including only the 15 remaining items. The results showed that the first factor has eleven items (Cronbach’s alpha = 0.907) while the second one has four (Cronbach’s alpha = 0.771). The overview of the results is below, in Table 6. It is worthy to mention that Cronbach’s alpha for the second factor is better with item

12 (0.771) than without it (0.696). The same happened with item 18, the overall result is more adequate with it. Therefore, removing any of those items would weaken the second factor.

**Table 6**

*Results from the exploratory factor analysis*

|    | Description in Portuguese   | Free Translation to English  | F1 Beliefs   | F2 Individually | Communality |
|----|---|--|--------------|-----------------|-------------|
| 1  | Movimentos sociais globais sobre as questões alimentares deveriam ser uma prioridade para todos                   | Global social movements on food issues should be a priority for all                        | <b>0.832</b> | 0.024           | 0.717       |
| 2  | É inaceitável que algumas pessoas tenham menos acesso a uma alimentação adequada do que outras                    | It is unacceptable that some people have less access to adequate food than others          | <b>0.873</b> | -0.238          | 0.575       |
| 4  | Projetos focados em soluções para os problemas alimentares deveriam ser uma prioridade para todos                 | Projects focused on solutions to food problems should be a priority for everyone           | <b>0.830</b> | 0.070           | 0.762       |
| 7  | A melhoria do sistema alimentar local deveria ser uma prioridade para todos                                       | Improving the local food system should be a priority for all                               | <b>0.797</b> | 0.074           | 0.711       |
| 8  | Campanhas que combatam o desperdício de alimentos pelo consumidor deveriam ser uma prioridade para todos          | Campaigns to combat food waste by consumers should be a priority for everyone              | <b>0.787</b> | 0.032           | 0.651       |
| 9  | A sustentação de um sistema alimentar justo e ambientalmente equilibrado deveria ser uma prioridade para todos    | Sustaining a fair and environmentally balanced food system should be a priority for all    | <b>0.838</b> | 0.071           | 0.777       |
| 10 | A união de esforços para a elaboração de políticas públicas sobre alimentos deveria ser uma prioridade para todos | Joining efforts to develop public food policies should be a priority for all               | <b>0.845</b> | 0.037           | 0.751       |
| 12 | Eu conheço os direitos civis relacionados à alimentação   | I know the civil rights related to food  | -0.425       | <b>1.057</b>    | 0.769       |
| 13 | Eu conheço meus direitos e deveres enquanto ator do sistema alimentar   | I know my rights and duties as an actor in the food system                                 | -0.266       | <b>0.908</b>    | 0.610       |
| 14 | É inaceitável que algumas pessoas tenham mais acesso a informações sobre alimentos do que outras                  | It is unacceptable that some people have more access to information about food than others | <b>0.731</b> | -0.007          | 0.528       |
| 16 | Políticas públicas acerca de alimentos deveriam ser uma prioridade do governo                                     | Public food policies should be a government priority                                       | <b>0.755</b> | -0.028          | 0.546       |

|                  |  |  |              |              |       |
|------------------|--|--|--------------|--------------|-------|
| 17               | A garantia da oferta de alimentos de qualidade deveria ser uma prioridade para todos                         | Ensuring the supply of quality food should be a priority for all                                   | <b>0.854</b> | -0.102       | 0.637 |
| 18               | Eu tomo decisões que favorecem um interesse coletivo, abrindo mão, se necessário, de um interesse individual | I make decisions that favor a collective interest, giving up, if necessary, an individual interest | 0.264        | <b>0.517</b> | 0.498 |
| 20               | Eu atuo de maneira consciente em relação aos alimentos, pensando no meu impacto sobre o sistema alimentar    | I act consciously in relation to food, thinking about my impact on the food system                 | 0.162        | <b>0.648</b> | 0.570 |
| 24               | Eu me solidarizo com a possibilidade de mudar práticas insustentáveis relacionadas aos alimentos             | I sympathize with the possibility of changing unsustainable practices related to food              | <b>0.647</b> | 0.136        | 0.541 |
| Cronbach's alpha |  |  | 0.907        | 0.771        |       |

All items have significant factor scores, with the lowest score being 0.517 (18), demonstrating that they all have a good correlation with the factors. The first factor (F1) includes mostly items related to beliefs, both individually and publicly. As for the second factor (F2), it includes items more related to personal knowledge and actions, such as knowledge of duties and rights and acting consciously when related to food.

## 5. DISCUSSION

This study developed the first instrument to measure food citizenship. The data collected through a survey with food consumers' was submitted to exploratory factorial analysis and, after refining the scale, two factors were defined, with fifteen items. The first factor has items related mainly to three topics. The first is beliefs, including priorities to food citizens, such as social movements, projects on food problems and waste. The second, what is unacceptable for these consumers, such some people having more access to food than others. The third is empathy, englobing solidarity to the possibility of changing current food practices. In this study, this factor is denominated as Beliefs.

The second factor includes items specific to each individual, covering general knowledge about civil rights, rights and duties related to food, focus on collective interest and thinking about their impact on the food system. This factor is denominated as Individually.

Having in mind that food citizenship is about political participation (Escajedo San-Epifanio, 2015), the consumption sphere, the claim for civil rights, international solidarity actions to the defense of the common good, and participation in collective (Lockie, 2009; Lozano-Cabedo & Gómez-Benito, 2017; Sage, 2014), the measure is well represented by those two dimensions.

From all items, the “it is unacceptable that some people have less access to adequate food than others” is the one with the most votes in “5” (210), which is related to the senses of justice, equality, and fairness that guides food citizenship (Lozano-Cabedo & Gómez-Benito, 2017). Therefore, food citizens should have confidence that it is unacceptable that some people have less access to adequate food (Carolan, 2014) and information about food (Welsh & MacRae, 1998b) than others.

Besides the priority mentioned above, according to the instrument, food citizens believe it should also be prioritized, among others, projects that find solutions to food problems (Phillips, 2006), improving the local food system (Sage, 2014), and campaigns to combat food waste (Pearson, Friel, & Lawrence, 2014).

Therefore, to make those changes possible, the instrument demonstrates that food citizens join efforts to develop public food policies. As in alternative buying possibilities the consumer directly interacts with all the stakeholders, the results are more information exchange, strong relationships, and more trust between buyer and producer (Kushwah et al., 2019). As a result, when all those actors join efforts, they can exponentially reduce the barriers to consume organic food.

Besides, being food citizens has established in members and producers a commitment to the food system and advancing sustainability (Hatanaka, 2020). Therefore, the instrument presents that they have a duty to perform empathy as they sympathize with the possibility of changing unsustainable practices related to food (de Bakker & Dagevos, 2012). Consequently, the provision of information about the environmental impact of food production could be a starting point to create awareness in consumers (Funk, Sütterlin, & Siegrist, 2021).

The literature also presents that it is difficult to practice food citizenship in a context that is dominated by the large agro food corporations and in an unsustainable, oligopolistic framework that generates deep injustices (Gómez-Benito & Lozano, 2014). In agreement, the instrument demonstrates that food citizens believe that joining efforts to develop public food policies should be a priority for all. In addition, that public food policies should be a government priority. Both items are necessary to change how the food system works.

The second factor, Individually, shows that food citizens must know about the civil rights related to food. It is important to notice that ethically minded consumer behavior takes place in social and cultural environments governed by complex and different sets laws, policies, rules and regulations, values, and norms (Scholtens & Dam, 2007). Therefore, the knowledge of food rights is important to take action to claim for those civil rights (Lockie, 2009; Lozano-Cabedo & Gómez-Benito, 2017; Sage, 2014). It is significant to notice that this item (12) was the one with the higher number of “I don’t know” answers, showing that it might be interesting to rewrite it in a next study.

Besides, Individually presents that food citizens must know their rights and duties as actors in the food system, due to the responsibilities with the society, other consumers and producers, the environment, and animals’ welfare (Gómez-Benito & Lozano, 2014). However, the availability and layout of this information together form an obstacle that the consumer must overcome (Calderon-Monge et al., 2020).

Those responsibilities with the community also make it important for food citizens to make decisions that favor a collective interest, giving up, if necessary, an individual interest, especially because they aim for the greater good (Chaudhury & Albinsson, 2015). Therefore, they act consciously concerning food, thinking about the impact of their choices on the food system, especially because in expressing their values and political commitments through what they purchase, consumers can generate change (Hatanaka, 2020).

The most important contribution of this study is the development of the scale to measure food citizenship at the individual level. The understanding of which issues are priorities for food citizens, general knowledge they need to have, what they consider intolerable and points about



their behavior is favorable for several actors in the food system. However, considering it is the first attempt at developing a food citizenship scale, further research should be conducted to confirm its validity.

## 6. CONCLUSION

Since there is no instrument to measure food citizenship at the individual (consumer) level, the general objective of this study was to propose a food citizenship measurement through exploratory factorial analysis.

The objective was fulfilled through a survey with 329 Brazilian consumers, who evaluated, according to the Likert Scale, how much they agreed with the items that were presented. These items were defined through an integrative analysis of food citizenship and then filtered and refined according to the analysis of judges.

The consumers' responses were submitted to exploratory factorial analysis and, after refining the scale, two factors were defined, with fifteen items. The first factor, Beliefs, has items related priorities, what is unacceptable and empathy.

The second factor, Individually, covers general knowledge about civil rights, rights and duties related to food, focus on collective interest and thinking about their impact on the food system.

Considering the limitations of this study, some ideas for future researches can be presented. Even though the survey was conducted with great sample, the study uses a convenient sample. Therefore, it does not represent the Brazilian population. Besides, the proportion of the respondents with high schooling and high family income was not representative of the Brazilian reality. Therefore, we can anticipate that if the scale is applied to a different audience, there may be some difficulty in understanding some items, such as "I know the civil rights related to food" (12), that was the one with highest number of "I don't know". This does not detract from the merit of the work, which was the first effort in this regard and had the validation of judges in two phases. Nevertheless, we suggest that the instrument may need to be adapted to a more popular language form to reach the Brazilian population more equally at its different levels of SES.

In addition, it is recommended the instrument to be confirmed in confirmatory factor analysis (CFA) and different cultures, after specific cross-cultural procedures and idiom adaptation. Besides, future analysis could introduce a dependent variable to analyze how it will influence food citizenship, and multivariate analyzes, in general, can be performed.

As an academic contribution, the present study add to the literature by proposing the first instrument to measure food citizenship at the individual level. This is an important step towards obtaining a robust measure that can be used to define marketing and consumer relationship strategies by global and local food organizations. After future applications of the scale, government actors would take advantage of this understanding to develop public policies,

including educational regulations and actions related to responsible production and conscious consumption. Moreover, food movements will be able to benefit from the results to mobilize more consumers around their purposes, favoring the promotion of food citizenship.

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## APPENDICES

### Appendix A – Message to Judges

#### **Prezado(a),**

Gostaríamos de convidá-lo a colaborar com o desenvolvimento de um estudo sobre cidadania alimentar que faz parte da iniciação científica da Camilla Zorzi e do doutorado da Mayra Viana, sob orientação da Profa. Dra. Solange Alfinito (UnB).

A proposta é criar uma escala que mensure a cidadania alimentar. Tenha em mente a seguinte definição: “cidadania alimentar é o reconhecimento e a prática de direitos e deveres relacionados ao acesso a alimentos saudáveis e sustentáveis por parte de indivíduos conscientes, colaborativos e politicamente ativos”.

Veja, ainda, uma discussão lúdica sobre esse conceito:







A geração de itens para a escala se deu a partir da literatura internacional de cidadania alimentar. Os itens propostos são afirmações que incluem: priorização de questões/projetos, indignação com questões, empatia/consciência e engajamento (dentro de 6 meses). Posteriormente, serão avaliados por respondentes em uma escala Likert, ou seja, conforme o grau de concordância. Na presente etapa, solicitamos sua avaliação em relação à validade de conteúdo e de face dos itens da escala.

A validação de conteúdo relaciona-se ao grau em que os itens são adequados, ou seja, relevantes e representativos da cidadania alimentar. A validação de face refere-se ao grau de praticidade e clareza do enunciado de cada item.

A avaliação dos itens deverá ser realizada de acordo com os critérios abaixo:

| Adequação do item (à definição de cidadania alimentar) |                    |              |                  |                        |
|--|--------------------|--------------|------------------|------------------------|
| 1 - Inadequado   | 2 – Pouco Adequado | 3 - Adequado | 4 - Bem Adequado | 5 – Adequação Perfeita |
| Clareza do enunciado                                   |                    |              |                  |                        |
| 1- Muito Ruim  | 2 - Ruim           | 3 - Razoável | 4 - Boa          | 5 – Muito Boa          |

As suas sugestões serão analisadas juntamente com as dos demais juízes, visando garantir que o instrumento final seja o mais simples e objetivo possível. Tenha em mente que os itens precisarão ser compreendidos pela população em geral (não acadêmica).

Agradecemos a sua valiosa colaboração, se possível, até 13/12/19.

Ao final, contamos com a sua colaboração para deletar o instrumento de seu computador e reforçamos a necessidade de total sigilo dos itens avaliados.

Sinceros agradecimentos,

**Mayra Viana**

E-mail para contato e devolução do arquivo: [mayraviana2@gmail.com](mailto:mayraviana2@gmail.com)

## Appendix B – Formulated questionnaire

### **Pesquisa com Consumidores de Alimentos**

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Prezado(a) \_\_\_\_\_ participante,  
O questionário a seguir faz parte de um estudo sobre a atitude de cidadãos em relação aos alimentos, da Universidade de Brasília (UnB). Espera-se que esta pesquisa possa contribuir para a compreensão de comportamentos e aspectos importantes sobre os alimentos para as pessoas, inclusive em meio ao novo coronavírus. A estimativa é que este questionário online leve 10 minutos para ser respondido. O presente Termo de Consentimento Livre e Esclarecido (simplificado) visa assegurar que sua participação é voluntária e anônima (seu nome não será divulgado). Você é livre para recusar-se a participar ou interromper sua participação a qualquer momento. Você pode também se recusar a responder qualquer questão que lhe traga constrangimento.

Se tiver qualquer dúvida em relação à pesquisa, você pode contatar uma das pesquisadoras: graduanda Camilla Zorzi (camillaczorzi@gmail.com), doutoranda Mayra Viana (mayra.viana@aluno.unb.br) ou orientadora Profa. Dra. Solange Alfinito (salfinito@unb.br).

Você aceita participar da pesquisa?\*

Sim

Não

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Você é responsável ou co-responsável pela compra de alimentos na sua residência?\*

Sim

Não

---

Como apresentado na imagem abaixo, o sistema alimentar envolve todos os processos relacionados à alimentação - desde a produção, o processamento e a distribuição de um alimento, até sua preparação e consumo.



O conceito de sistema alimentar ficou claro para você?\*

- Sim  
 Não  
 Não sei

Avalie em uma escala de 1 a 5, sendo 1 "DISCORDO TOTALMENTE" e 5 "CONCORDO TOTALMENTE", o quanto você concorda com cada frase a seguir:

Movimentos sociais globais sobre questões alimentares deveriam ser uma prioridade para todos\*

Discordo totalmente  1     2     3     4     5     Não sei    Concordo totalmente

É inaceitável que algumas pessoas tenham menos acesso a uma alimentação adequada do que outras\*

Discordo totalmente  1     2     3     4     5     Não sei    Concordo totalmente

A melhoria da rotulagem dos alimentos deveria ser uma prioridade para todos\*

Discordo totalmente  1     2     3     4     5     Não sei    Concordo totalmente

Projetos focados em soluções para os problemas alimentares deveriam ser uma prioridade para todos\*

Discordo totalmente  1  2  3  4  5  Não sei  Concordo totalmente

É inaceitável que a cultura (tradições, crenças e costumes) de alguns dos atores da cadeia de alimentos prejudique o sistema alimentar\*

Discordo totalmente  1  2  3  4  5  Não sei  Concordo totalmente

É inaceitável que o sistema alimentar seja prejudicado pelo controle corporativo (das grandes empresas sobre os mercados)\*

Discordo totalmente  1  2  3  4  5  Não sei  Concordo totalmente

A melhoria do sistema alimentar local deveria ser uma prioridade para todos\*

Discordo totalmente  1  2  3  4  5  Não sei  Concordo totalmente

Campanhas que combatam o desperdício de alimentos pelo consumidor deveriam ser uma prioridade para todos\*

Discordo totalmente  1  2  3  4  5  Não sei  Concordo totalmente

A sustentação de um sistema alimentar justo e ambientalmente equilibrado deveria ser uma prioridade para todos\*

Discordo totalmente  1  2  3  4  5  Não sei  Concordo totalmente

A união de esforços para a elaboração de políticas públicas sobre alimentos deveria ser uma prioridade para todos\*

Discordo totalmente  1  2  3  4  5  Não sei  Concordo totalmente

Eu me solidarizo com problemas internacionais relacionados aos alimentos, tendo ou não contato direto com estes\*

Discordo totalmente  1  2  3  4  5  Não sei Concordo totalmente

Eu conheço os direitos civis relacionados à alimentação\*

Discordo totalmente  1  2  3  4  5  Não sei Concordo totalmente

Eu conheço meus direitos e deveres enquanto ator do sistema alimentar\*

Discordo totalmente  1  2  3  4  5  Não sei Concordo totalmente

É inaceitável que algumas pessoas tenham mais acesso a informações sobre alimentos do que outras\*

Discordo totalmente  1  2  3  4  5  Não sei Concordo totalmente

Eu conheço sobre o funcionamento do sistema alimentar\*

Discordo totalmente  1  2  3  4  5  Não sei Concordo totalmente

Políticas públicas acerca de alimentos deveriam ser uma prioridade do governo\*

Discordo totalmente  1  2  3  4  5  Não sei Concordo totalmente

A garantia da oferta de alimentos de qualidade deveria ser uma prioridade para todos\*

Discordo totalmente  1  2  3  4  5  Não sei Concordo totalmente

Eu tomo decisões que favorecem um interesse coletivo, abrindo mão, se necessário, de um interesse individual\*

Discordo totalmente  1  2  3  4  5  Não sei Concordo totalmente



Eu atuo de maneira proativa para obter alimentos, ou seja, não aguardo que outras pessoas obtenham alimentos por mim, ou que me solicitem isso.\*

Discordo totalmente ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) Não sei Concordo totalmente

Eu atuo de maneira consciente em relação aos alimentos, pensando no meu impacto sobre o sistema alimentar\*

Discordo totalmente ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) Não sei Concordo totalmente

Eu converso com outras pessoas sobre temas que podem mudar a realidade relacionada aos alimentos\*

Discordo totalmente ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) Não sei Concordo totalmente

Eu cuido do meu próprio corpo por meio das minhas escolhas alimentares\*

Discordo totalmente ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) Não sei Concordo totalmente

Eu cuido do planeta por meio das minhas escolhas alimentares\*

Discordo totalmente ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) Não sei Concordo totalmente

Eu me solidarizo com a possibilidade de mudar práticas insustentáveis relacionadas aos alimentos\*

Discordo totalmente ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) Não sei Concordo totalmente

Com relação a alimentos, meu comportamento está de acordo com minhas preferências, interesses e preocupações\*

Discordo totalmente ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) Não sei Concordo totalmente

---

### Dados demográficos

Por gentileza, nos forneça alguns dados sobre você.

Além de ser consumidor, você tem outra relação com o ramo de alimentos?\*

- Não, sou apenas consumidor de alimentos
- Sou funcionário de um negócio rural ou urbano de alimentos
- Sou produtor / dono / sócio de um negócio de alimentos
- Sou prestador de serviço / fornecedor do ramo de alimentos
- Sou estudante / pesquisador na área de alimentos
- Outro

Com qual gênero você se identifica?

- Feminino
- Masculino
- Outro
- Prefiro não informar

Qual a sua idade?\*

---

Você tem filho(s) que mora(m) com você?\*

- Sim
- Não
- Prefiro não informar

Contando com você, quantas pessoas moram em sua residência atualmente, considerando cada uma das faixas etárias a seguir?\*

|  |             |                    |                    |                     |
|--|-------------|--------------------|--------------------|---------------------|
|  | Até 12 anos | De 13 a 17<br>anos | De 18 a 59<br>anos | Acima de 60<br>anos |
|--|-------------|--------------------|--------------------|---------------------|

|                   |       |       |       |       |
|-------------------|-------|-------|-------|-------|
| Número de pessoas | _____ | _____ | _____ | _____ |
|-------------------|-------|-------|-------|-------|

Em qual UF você reside?\*

Resido fora do Brasil

AC

AL

AM

AP

BA

CE

DF

ES

GO

MA

MG

MS

MT

PA

PB

PE

PI

PR

RJ

RN

RO

RR

RS

SC

SE

SP

TO

Qual tipo de município você reside?\*

- Capital ou região metropolitana
- Interior

Qual a sua renda familiar mensal aproximada? (valores em faixas de salário mínimo)\*

- Até R\$ 2.090
- Entre R\$ 2.091 e R\$ 3.135
- Entre R\$ 3.136 e R\$ 6.270
- Entre R\$ 6.271 e R\$ 10.450
- Entre R\$ 10.451 e R\$ 15.675
- Entre R\$ 15.675 e R\$ 26.125
- Acima de R\$ 26.126
- Prefiro não responder

Qual o seu grau de escolaridade completo?\*

- Sem educação formal
- Ensino Fundamental
- Ensino Médio
- Ensino Superior
- Pós-graduação (Especialização lato sensu)
- Mestrado
- Doutorado
- Prefiro não responder

Indique, na barra deslizante, qual é o seu atual grau de distanciamento / isolamento social em meio à pandemia.\*

Mínimo \_\_\_\_\_ Máximo

Prefiro não informar

Indique, na barra deslizante, qual é o seu atual grau de identificação política com o Presidente do Brasil, Jair Bolsonaro.\*

Mínimo \_\_\_\_\_ Máximo

Prefiro não informar

Caso queira receber os resultados resumidos desta pesquisa, insira seu e-mail abaixo.

- *Seu contato não será fornecido para terceiros e suas respostas permanecerão anônimas.*
- 

Caso possa indicar outras pessoas para participarem de pesquisas deste projeto e do grupo de pesquisa, por favor indique os e-mails abaixo:

- *Os contatos não serão fornecidos para terceiros.*
- 

Por favor, clique abaixo em FINALIZAR para encerrar a pesquisa

- *Antes, se desejar, utilize o espaço abaixo para fazer outros comentários ou observações.*
- 

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Muito obrigada!

Agradecemos sua participação e o possível encaminhamento a seus amigos e familiares. Seu engajamento faz toda a diferença para a qualidade de pesquisas científicas brasileiras.

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## Appendix C - Rotated Loading Matrix, first AEF

| Item | Description in Portuguese  | Free Translation to English   | F1     | F2     |
|------|--|---|--------|--------|
| 1    | Movimentos sociais globais sobre as questões alimentares deveriam ser uma prioridade para todos  | Global social movements on food issues should be a priority for all   | -0.060 | 0.887  |
| 2    | É inaceitável que pessoas tenham mais acesso a alimentos em alguns países do que em outros   | It is unacceptable that people have more access to food in some countries than in others  | -0.206 | 0.858  |
| 3    | A melhoria da rotulagem dos alimentos deveria ser uma prioridade para todos  | Improving food labeling should be a priority for all  | 0.027  | 0.661  |
| 4    | Projetos focados em soluções para os problemas alimentares deveriam ser uma prioridade para todos                                      | Projects focused on solutions to food problems should be a priority for everyone  | 0.026  | 0.851  |
| 5    | É inaceitável que a cultura (tradições, crenças e costumes) de alguns dos atores da cadeia de alimentos prejudique o sistema alimentar | It is unacceptable that the culture (traditions, beliefs and customs) of some of the actors in the food chain harms the food system | 0.193  | 0.294  |
| 6    | É inaceitável que o sistema alimentar seja prejudicado pelo controle corporativo (das grandes empresas sobre os mercados)              | It is unacceptable that the food system is undermined by corporate control (of large companies over markets)                        | -0.021 | 0.679  |
| 7    | A melhoria do sistema alimentar local deveria ser uma prioridade para todos  | Improving the local food system should be a priority for all  | 0.069  | 0.804  |
| 8    | Campanhas que combatam o desperdício de alimentos pelo consumidor deveriam ser uma prioridade para todos                               | Campaigns to combat food waste by consumers should be a priority for everyone   | -0.028 | 0.827  |
| 9    | A sustentação de um sistema alimentar justo e ambientalmente equilibrado deveria ser uma prioridade para todos                         | Sustaining a fair and environmentally balanced food system should be a priority for all   | 0.019  | 0.856  |
| 10   | A união de esforços para a elaboração de políticas públicas sobre alimentos deveria ser uma prioridade para todos                      | Joining efforts to develop public food policies should be a priority for all  | -0.003 | 0.882  |
| 11   | Eu me solidarizo com problemas internacionais relacionados aos alimentos, tendo ou não contato direto com estes                        | I sympathize with international food-related problems, whether or not I have direct contact with them                               | 0.277  | 0.485  |
| 12   | Eu conheço os direitos civis relacionados à alimentação  | I know the civil rights related to food   | 1.004  | -0.395 |
| 13   | Eu conheço meus direitos e deveres enquanto ator do sistema alimentar  | I know my rights and duties as an actor in the food system  | 0.919  | -0.285 |

|    |  |   |        |        |
|----|--|---|--------|--------|
| 14 | É inaceitável que algumas pessoas tenham mais acesso a informações sobre alimentos do que outras   | It is unacceptable that some people have more access to information about food than others                        | -0.054 | 0.761  |
| 15 | Eu conheço sobre o funcionamento do sistema alimentar  | I know about the functioning of the food system   | 0.608  | -0.077 |
| 16 | Políticas públicas acerca de alimentos deveriam ser uma prioridade do governo  | Public food policies should be a government priority  | -0.111 | 0.806  |
| 17 | A garantia da oferta de alimentos de qualidade deveria ser uma prioridade para todos   | Ensuring the supply of quality food should be a priority for all  | -0.081 | 0.832  |
| 18 | Eu tomo decisões que favorecem um interesse coletivo, abrindo mão, se necessário, de um interesse individual                                   | I make decisions that favor a collective interest, giving up, if necessary, an individual interest                | 0.525  | 0.254  |
| 19 | Eu atuo de maneira proativa para obter alimentos, ou seja, não aguardo que outras pessoas obtenham alimentos por mim, ou que me solicitem isso | I act proactively to obtain food, that is, I do not wait for other people to obtain food for me, or to request it | 0.293  | 0.198  |
| 20 | Eu atuo de maneira consciente em relação aos alimentos, pensando no meu impacto sobre o sistema alimentar                                      | I act consciously in relation to food, thinking about my impact on the food system                                | 0.697  | 0.135  |
| 21 | Eu converso com outras pessoas sobre temas que podem mudar a realidade relacionada aos alimentos   | I talk to other people about topics that can change the reality related to food                                   | 0.542  | 0.154  |
| 22 | Eu cuido do meu próprio corpo por meio das minhas escolhas alimentares   | I take care of my own body through my food choices  | 0.397  | 0.168  |
| 23 | Eu cuido do planeta por meio das minhas escolhas alimentares   | I take care of the planet through my food choices   | 0.517  | 0.252  |
| 24 | Eu me solidarizo com a possibilidade de mudar práticas insustentáveis relacionadas aos alimentos   | I sympathize with the possibility of changing unsustainable practices related to food                             | 0.175  | 0.647  |
| 25 | Com relação a alimentos, meu comportamento está de acordo com minhas preferências, interesses e preocupações                                   | Regarding to food, my behavior is in line with my preferences, interests and concerns                             | 0.372  | 0.017  |

## Appendix D - Unrotated Loading Matix, second AFE

| Item | Description in Portuguese   | Free Translation to English  | F1    | F2     | Communality |
|------|---|--|-------|--------|-------------|
| 1    | Movimentos sociais globais sobre as questões alimentares deveriam ser uma prioridade para todos                           | Global social movements on food issues should be a priority for all  | 0.828 | -0.213 | 0.730       |
| 2    | É inaceitável que pessoas tenham mais acesso a alimentos em alguns países do que em outros                                | It is unacceptable that people have more access to food in some countries than in others                     | 0.684 | -0.319 | 0.570       |
| 3    | A melhoria da rotulagem dos alimentos deveria ser uma prioridade para todos   | Improving food labeling should be a priority for all   | 0.663 | -0.146 | 0.461       |
| 4    | Projetos focados em soluções para os problemas alimentares deveriam ser uma prioridade para todos                         | Projects focused on solutions to food problems should be a priority for everyone                             | 0.842 | -0.163 | 0.736       |
| 6    | É inaceitável que o sistema alimentar seja prejudicado pelo controle corporativo (das grandes empresas sobre os mercados) | It is unacceptable that the food system is undermined by corporate control (of large companies over markets) | 0.646 | -0.153 | 0.441       |
| 7    | A melhoria do sistema alimentar local deveria ser uma prioridade para todos   | Improving the local food system should be a priority for all   | 0.819 | -0.139 | 0.690       |
| 8    | Campanhas que combatam o desperdício de alimentos pelo consumidor deveriam ser uma prioridade para todos                  | Campaigns to combat food waste by consumers should be a priority for everyone                                | 0.782 | -0.208 | 0.655       |
| 9    | A sustentação de um sistema alimentar justo e ambientalmente equilibrado deveria ser uma prioridade para todos            | Sustaining a fair and environmentally balanced food system should be a priority for all                      | 0.851 | -0.168 | 0.752       |
| 10   | A união de esforços para a elaboração de políticas públicas sobre alimentos deveria ser uma prioridade para todos         | Joining efforts to develop public food policies should be a priority for all                                 | 0.858 | -0.184 | 0.770       |
| 11   | Eu me solidarizo com problemas internacionais relacionados aos alimentos, tendo ou não contato direto com estes           | I sympathize with international food-related problems, whether or not I have direct contact with them        | 0.693 | 0.072  | 0.485       |
| 12   | Eu conheço os direitos civis relacionados à alimentação   | I know the civil rights related to food  | 0.403 | 0.753  | 0.729       |
| 13   | Eu conheço meus direitos e deveres enquanto ator do sistema alimentar   | I know my rights and duties as an actor in the food system   | 0.433 | 0.659  | 0.622       |



|    |  |  |       |        |       |
|----|--|--|-------|--------|-------|
| 14 | É inaceitável que algumas pessoas tenham mais acesso a informações sobre alimentos do que outras             | It is unacceptable that some people have more access to information about food than others         | 0.706 | -0.202 | 0.540 |
| 15 | Eu conheço sobre o funcionamento do sistema alimentar  | I know about the functioning of the food system  | 0.397 | 0.394  | 0.313 |
| 16 | Políticas públicas acerca de alimentos deveriam ser uma prioridade do governo                                | Public food policies should be a government priority   | 0.687 | -0.234 | 0.527 |
| 17 | A garantia da oferta de alimentos de qualidade deveria ser uma prioridade para todos                         | Ensuring the supply of quality food should be a priority for all                                   | 0.750 | -0.246 | 0.624 |
| 18 | Eu tomo decisões que favorecem um interesse coletivo, abrindo mão, se necessário, de um interesse individual | I make decisions that favor a collective interest, giving up, if necessary, an individual interest | 0.656 | 0.277  | 0.507 |
| 20 | Eu atuo de maneira consciente em relação aos alimentos, pensando no meu impacto sobre o sistema alimentar    | I act consciously in relation to food, thinking about my impact on the food system                 | 0.667 | 0.386  | 0.594 |
| 21 | Eu converso com outras pessoas sobre temas que podem mudar a realidade relacionada aos alimentos             | I talk to other people about topics that can change the reality related to food                    | 0.560 | 0.297  | 0.402 |
| 23 | Eu cuido do planeta por meio das minhas escolhas alimentares   | I take care of the planet through my food choices  | 0.642 | 0.246  | 0.473 |
| 24 | Eu me solidarizo com a possibilidade de mudar práticas insustentáveis relacionadas aos alimentos             | I sympathize with the possibility of changing unsustainable practices related to food              | 0.778 | -0.026 | 0.606 |