Staple food consumption influencing economic, social, cultural, nutritional, and public health aspects in Brazil

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Abstract

In 2016 the Brazilian Agricultural Research Corporation (Embrapa) launched an initiative (movement) entitled "Rice and Beans: the Brazilian Food" aiming to demonstrate the nutritional importance of diets based on the products rice and beans via the dissemination of customized information about their nutritional and functional aspects. This initiative was released because, in the last decades, the food industry has offered several products and services that reshaped the eating patterns of the population. The substitution of culinary preparations based on fresh or raw grains/cereals of almost ready or semi-ready foods was the consequence of this behaviour of food industries. In Brazil, this change affected the consumption of rice and beans, the staple foods of the population, with negative consequences in economic, social, cultural, nutritional, and public health aspects. This situation is not restricted to Brazil. The World Health Organization recommends governments to guide populations towards more healthy food choices. The movement "Rice and Beans: the Brazilian Food" was planned in three stages: 1) consumption diagnostics; 2) evaluation of the data from the first stage by a multidisciplinary team; and 3) disclosure to the population critical points identified in the surveys. The data obtained by diagnosis was carried out with consumers in the states of Goias and Mato Grosso. The diagnosis identified aspects related to changes in eating habits that affect the consumption of rice and beans. However, the traditional food remains, regardless of age and family income. On the other hand, it was detected the need to better inform the population with scientific arguments about the benefits of consumption of rice and beans, giving special attention to sick people, such as obesity, arterial hypertension, diabetes, high levels of triglycerides and cholesterol. The results corroborate and subsidize the main proposal of movement that according to it agents in the production chains must promote the dissemination of information on nutritional and functional characteristics of rice and beans to different profiles of Brazilian consumers, encouraging them to prefer more healthy diets. Steps one and two of this project were performed as planned. However, to perform step three, it still is necessary the support of food chain members to overcome some obstacles related to funding and dissemination of information to consumers.

Keywords: Food Security, Nutrition Security, Sustainable Diets, Consumption Patterns, Food Culture

Background and Objective of the Study

Originally, the term "food security" was used to describe whether a country had conditions to ensure the population access to enough food to meet dietary energy requirements. Next, was introduced the issue about the capacity of the countries to produce the food that they need or that

which its population demands. So, the term "food security" was expanded to "National food security". Later, it was introduced the term Food sovereignty, i.e. the measure of the extent to which a country has the resource necessary to make available to its people the food needed or demanded, irrespective of whether the food is domestically produced or imported. Up to this point, the use of the term food security focused on the supply side of the food equation (FAO, 2003). The current definition of food security is that all people, at all times, have access and social and economic conditions to obtain safe, nutritious and of their preference foods, in sufficient quantity to meet their needs and provide them with a healthy life.

The term "food security" has been used over time to mean different things (Pinstrup-Andersen, 2009). Despite the concept food security has become a multi-faceted covering broad aspects, governments, and research institutions still have their concerns concentrated in issues not directly connected with nourishment. The main considered topics are climate change, growing global population, and environmental stressors that can cause significant impacts on quantity offered, but not on the quality of the diet. It is clear that the problems of climate change and others are important, but for the people it is more desirable for the government to promote actions that guarantee compliance with the principle of life in health provided for food security.

In Brazil, the Food and Nutrition Security Policy has been established by law since 2006 (The Organic Law of Food and Nutrition Security – LOSAN) (Brasil, 2006). Brazilian Government recognizes the responsibility to face the causes of hunger and to organize a legal political framework to guarantee the human right to adequate food (Oliveira, 2018). The LOSAN consider Food and Nutrition Security (SAN) as the right of all citizen to regular and permanent access to quality food, in sufficient quantity, without compromising access to other essential needs. SAN is based on health-promoting food practices that respect cultural diversity and that environmentally, culturally, economically, and socially sustainable (Brasil, 2006).

Agricultural production, processing, transformation, and distribution of agricultural products to the final consumer is regulated and standardized by norms public and private institutions. This legal framework and inspection do not guarantee that all the terms provided for LOSAN are being contemplated. Especially, when it comes to adequately meet nutritional needs, promoting health and preventing diseases and social and cultural aspects.

According to Household Budget Surveys (POFs), conducted by the Brazilian Institute of Geography and Statistics (IBGE), the average household consumption of rice and beans in 1987 was 29.9 kg rice and 11.7 kg of beans per inhabitant/year. The 2018 survey of the rice consumption fell to 19.8 and beans consumption fell to 5.9 (IBGE, 1991; IBGE, 2019). In contrast, Brazilian people have increased the consumption of ultra-processed foods at the expense of traditional food. Usually, these products have a relatively low comparative cost with natural products. The artificial ingredients that are added in this type of food are inexpensive, but they are also, in most cases, high energy density, rich in fat and refined sugar, and in addition to offer less complex carbohydrates, which are an important source of dietary fiber (Monteiro et al., 2019).

Ultra-processed foods cause, among other problems, nutrient imbalance, and excessive caloric intake (Monteiro et al., 2019). According Eat-Lancet (2019) and Monteiro et al. (2019) there is a correlation between frequent consumption of ultra-processed foods and problems with obesity, diabetes, hypertension, heart disease, and some types of cancer. In Brazil, the occurrence of these diseases is increasing (Brasil, 2014).

The movement "Rice and Beans: the Brazilian Food" concerns about food security and has potential to improve people's health and quality of life, to care for nature, and to boost the economy. It has been possible to connect with the strategy of United Nations' Sustainable Development Goals (SDGs), mainly Zero Hunger, Good Health and Well-Being, Responsible Consumption, and Production. On the other hand, the Covid-19 pandemic can aggravate poverty, so these issues are important to implement policies and actions that facilitate people's access to staple foods.

Methodology

The scope of the Rice and Beans movement ("Rice and Beans: the Brazilian Food" (R&B) was defined by entities from different segments of the value chains of these products at the Ministry of Agriculture. R&B aims to disseminate customized information on nutritional and functional aspects of these foods, targeting to clarify and raise awareness among different agents in the rice and bean production chain and policymakers, planning to maintain the healthy habit of consuming the symbolic dish of Brazil.

The execution of R&B provides for three stages: 1) research/diagnostics with consumers, aiming to obtain guiding elements from the perception and needs of consumers. 2) evaluation of the data from the first stage by a multidisciplinary team, given that the decision of the type of food consumed is determined by stimuli and sensations studied in different areas of knowledge. 3) promotion and dissemination of customized advertising pieces.

Embrapa and the Federal University of Goias prepared and applied a questionnaire in the metropolitan regions of the capitals of the State of Goiás and Mato Grosso. The research were carried out in these localities because they are large consume center (more than one million inhabitants) and contain characteristics of the differences between the south and the north of the country. Supermarkets were chosen under the criterion of forming a marginal circle in the cities, one in the central region. The sample size (300 in each location) was determined using the formula for sample size used by Triola (2005). The choice of respondents was made randomly Statistical analyzes were performed using the IBM SPSS Statistics software (https://www.ibm.com/br-pt/marketplace/spss-statistics).

The appreciation of rice and beans is well regarded by the productive, industrial, and public sectors. However, no proposal made by stakeholders and policymakers has been successfully implemented. According to Ferreira et al. (2018), this fact is due to the existence of antagonistic points in the productive value chains that have led to the predominance of individual interests over the collective. Another restriction is the fact that the information is not systematised and it has high costs for execution. To overcome these obstacles, R&B submitted for analysis of different professional categories the data of survey to consumers, to identify, with technical knowledge, what important information should be disclosed, it observing the principles of collective action. The information aims to improve the understanding of the positive aspects of the consumption of these products and to clarify points in which consumers' responses are at odds with the scientific studies show. These issues are certainly influencing the reduction in the consumption of rice and beans.

Results and Discussion

The strategy of stakeholder involvement, quantity, and quality of subsidies obtained in the field research opened perspective to the dissemination of scientifically supported information, clarifying misperceptions and reinforcing positive aspects provided by the consumption of rice and beans, they will lead consumers, companies and institutions to consciously decide as to whether it is convenient or not and in what quantity it should keep the consumption of the most typical Brazilian food. More than that, it rescues the tradition and valorization of the Brazilian food standard. This does not only mean safeguarding culture, which involves ways of feeling, thinking, acting, interacting within a given society, but also the concept of a sustainable diet, which according to the Food and Agriculture Organization (FAO) are those that imply in low environmental impact that contributes to food and nutritional security. They are protective and they respect biodiversity and ecosystems; culturally acceptable; economically fair and accessible; nutritionally adequate; safe and healthy; optimizing natural and human resources and providing healthy lives for present and future generations (FAO, 2012). The National Academies of Sciences, Engineering, and Medicine (2019) subdivides the sustainable diet structure into four dimensions: (1) nutrition and health; (2) economic; (3) social and cultural; and (4) environmental.

The future of rice and beans depends on the production capacity using technologies adjusted to the demands of consumers, which is currently going global.

So far, bibliographic materials have been developed with messages valuing the products (rice and beans); four folders were distributed general public ("Beans representing the Brazilian people in the form of grains", "Rice: Protagonist of the Brazilian table", recipes based on rice and beans and "rescuing tradition and enhancing the Brazilian food standard"). Many articles were published in journals, congresses, magazines, newspapers. Exhibition of banners at the headquarters of the Ministry of Agriculture, participation in events and exhibitions aimed at small farmers, lectures, television programs. A book with chapters under the responsibility of doctors, sociologists, psychologists, agronomists, nutritionists, economists is under preparation.

Concluding remarks
It is believed that the strategy proposed in R&B has the potential to motivate the increase in the consumption of rice and beans. This will lead producers to establish transition strategies in the production systems. The increase in demand will create feedback circles between consumers, producers, and policymakers, generating propellant effects and strengthening activity, causing multidimensional development of the two production chains of these foods that bring benefits to the population health.

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