

PERCEPTION OF CONSUMERS OF CHILLED MEAT PRODUCTS AS TO THEIR QUALITY: A SYSTEMIC VIEW

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Abstract: The production of safe food is a goal shared by industries and food services and by the competent government agencies. Consumer education, in turn, influences their level of demand and translates into a reduction in the risk of foodborne illnesses. In this context, meat products stand out because they are easily perishable and with the need to have an efficient cold chain, when sold chilled. When it comes to the perception of quality seen by the eyes of the consumer, this is manifested through the sensory characteristics, which are mainly responsible for choosing the quality attributes of meat products, however, when faced with the temperature control of these same products during commercialization, this item does not represent a priority, which can cause risks to the consumer's health, since it is the great conservation link. Based on these principles, we sought to characterize this consumer's relationship with quality, bringing information that may serve as indicators for companies to seek tools that inform them about the importance of evaluating all attributes in the act of acquisition, whether sensory, sanitary or even nutritional, aiming to guarantee your health.

Keywords: Consumer; meat products; quality.

INTRODUCTION

Since 2020, Brazil has been consolidating itself as the largest commercial cattle herd in the world, standing out in the production of animal protein according to data from the Ministry of Agriculture, Livestock and Supply (BRASIL, 2020). In this growing, the productive sector of Brazilian meat, tends to become admirable and increasingly valued nationally, due to all its economic importance in the country and globally due to exports (EMBRAPA, 2020).

According to data from the Associação Brasileira Exportadora de Carnes (ABIEC) in 2021, the Brazilian herd was estimated at

196.47 million heads and with a slaughter of 39.14 million. Still, according to the same association, the main destinations of Brazilian beef exported in 2021 in volumes of (tons) are China with (39.20%), Hong Kong (11.91%), United States (7.52 %), Chile (5.99%), European Union (4.19%), Egypt (3.95%), United Arab Emirates (2.68%), Philippines (2.51%) Saudi Arabia (2.17%) and Paraguay (2.16%). Shahbandeh (2021) made a projection of beef exports from Brazil, which could reach a volume of 2.73 million tons of carcass equivalent per year in 2022.

In terms of domestic consumption, the National Supply Company (CONAB) indicated that Brazilian beef consumption in 2020 was 29.3 kg per inhabitant, a 5% reduction compared to 2019, which was 30.7 kg, year in which consumption had decreased by 9%, this drop being caused by the reflection of high meat prices in 2020, driven by the restricted supply of cattle in the country and strong demand from China (CARRANÇA, 2021).

Another factor that reduced beef consumption was world inflation and unemployment, added to the Covid-19 pandemic, which caused changes in consumers' eating habits and reduced beef consumption to the lowest level in 25 years, as it was secondarily responsible by the increase in the unemployment rate (FORBES, 2021).

Since the rise in prices, and the reduction in meat consumption, the United Nations Food Waste Index has shown the enormous scale of food waste worldwide, with 931 million tons of food being consumed by families in 2019 alone. and retailers, restaurants and other food services wasted by cold chain failures (RUKIKAIRE, 2021). This author argues that one of the main measures to contribute and reduce food loss is the expansion of the sustainable cold chain. This cold chain, especially for chilled meat products, is

essential to reduce food loss, also contributing to economic development.

In this sense, we sought to characterize this consumer's relationship with quality, bringing information that may serve as indicators for companies to seek tools that inform them about the importance of evaluating all attributes at the time of purchase, whether sensory, sanitary and /or nutritional, aiming to guarantee your health.

LITERATURE REVIEW

Foods of animal origin have the most diverse types of microorganisms, which are part of their usual microbiota. To maintain the multiplication process, these microorganisms need favorable conditions, represented by multiple factors, including temperature, which during the conservation process is of fundamental importance to inhibit microbial proliferation and minimize the biochemical reactions that cause food deterioration. (MURMANN et al., 2005).

However, the Beef Point team (2008) describes that consumers usually choose and evaluate the quality of meat products, based on the knowledge they have, regarding the visual and olfactory appearance and obviously from the cost, that is, the price that must be established at a fair value, in order to meet consumer expectations, with regard to sensory, sanitary, nutritious and economic quality attributes when we refer to price.

Undeniably, in order to be able to analyze the meat exposed to commercialization, it is necessary to know the physical-chemical, sensorial, nutritional characteristics, as well as the conditions of hygiene, conservation, exhibition and commercialization. Another relevant aspect to be observed in the commercialization of meat products of animal origin is the maintenance of adequate temperature (LUNDGREN et al., 2009). Indeed, the main causes of food deterioration

are attributable to physical, chemical factors and microbiological changes during storage, with chilled meat being a perishable and short-lived product, requiring the cold chain for its conservation (SINGH, 2000; NASTASIJEVIĆ et al., 2017).

Panza and Silva (2007) evaluated that foods, including meat, in supermarkets in the city of Maringá/PR, have non-compliance with microbiological contamination, due to inadequate refrigeration in storage and handling, with animal foods being the ones that frequently offered conditions in optimal proportions for the multiplication of microorganisms.

In a survey carried out in the city of São Paulo/SP, it was found that most of the refrigeration equipment and foods inspected had temperatures above the standards recommended by legislation, in spite of the fact that (81.2%) of the 80 equipment evaluated carry a thermostat. He was immediately alerted to the problems related to the lack of knowledge of the technicians responsible for the conservation of products, whether by cooling or freezing, in commercial establishments, which use refrigerated chambers or refrigerated counters (SOUZA et al., 2013).

Considering the production of meat products in Brazil and its relationship with the consumer when there is some irregularity, the site for complaints Reclame Aqui (Complain Here), which has become the ally of consumers to review their rights, since it offers free services, both for consumers to post their complaints and for companies to respond to them, recorded until October 2022, 1,043 complaints in the acquisition of meat products. Thus, the main problems are: poor quality in 602 complaints, bad smell in 318 and bad taste, among other 123 (CLAIM HERE, 2022). Therefore, this factor reinforces that consumers, when choosing food, use

attributes to classify quality and one of them involves the sense organs, that is, the sensory characteristics, detecting the quality factors divided into categories such as appearance, texture and flavor (LIMA, 2001).

The various transformations that have taken place in the world economy have been reflected in the behavior of consumers of meat products traditionally known as commodities. Barcellos and Calegari (2002) draw attention to the fact that the purchase of beef becomes a limited decision-making process, due to particularities such as lack of knowledge and search for alternatives by consumers;

On the other hand, the concern with the educational aspect of the consumer in purchasing a quality meat product was verified by Gai et al. (2003), when they evaluated the profile of 128 meat consumers in the city of Campos de Goytacazes/RJ and showed that the main aspect taken into account at the time of purchase was the appearance (46.87%), followed by the odor (5.47%). These authors questioned consumers about their concerns about the origin of the meat in terms of sanitary inspections, and a minority (43%) answered yes.

Despite the evaluation of the consumer's educational profile, a study carried out by Silveira et al. (2003), in the city of São Paulo/SP, interviewing 61 consumers, were able to characterize this public as (51%) women, (33%) aged between 20 and 30 years and (39%) with complete higher education, thus having a profile of who purchased the meat product at that time.

However, the socioeconomic profile of consumers influenced the appreciation of the concept of quality, since (23.5%) of respondents showed concern only with brand and price when purchasing meat products in hypermarkets in the city of Rio de Janeiro/RJ (SOARES et al, 2003).

Felicio (1999) considered that sensory

characteristics such as freshness, firmness and palatability of the meat are individual attributes of the sense organs and can hardly be measured by instruments.

By bringing the relationship quality with the health of the raw material, it was evaluated by consumers, when purchasing their meat products, that they expected them to come from healthy animals, slaughtered and processed hygienically, but adding that the quality of the meat is evaluated based on its physical, chemical and microbiological characteristics (SARCINELLI et al., 2007)

Andrighetto et al. (2010) still in the field of the consumer and its relationship with the quality of meat products, found that they valued the chemical and sensory characteristics of the meat such as tenderness, color, juiciness, flavor and aroma, as well as verified that tenderness and color are most relevant characteristics in the decision to purchase the product followed by juiciness, flavor and aroma.

Good manufacturing practices are acts of hygiene that must be adopted by industries and food establishments, obeyed by handlers from the acquisition of raw materials, from processing to the consumer, with the aim of preventing occurrences of diseases caused by the consumption of contaminated food (BRAZIL, 2004). In 2012, Matos et al., carried out a study regarding the health profile of fresh beef sold in supermarkets and concluded that there were failures in good manufacturing practices in (100%) commercial establishments, such as washing hands, inducing exposure to the product to microbiological contamination.

The conditions of storage and packaging of fresh meat in mini-markets in the city of Recife/PE showed irregularities, and of the twenty-one establishments visited, only one (4.76%) of the refrigerated chambers were in good condition, hygiene and functioning; in eight

establishments (38.09%) they found chambers without hygiene and in poor condition and in twelve (57.14%) they observed that there were no cold rooms in the place, concluding that the storage conditions of the products were unsatisfactory (COSTA et al., 2012). In an analysis performed by Correia et al. (2013), on the hygienic-sanitary conditions of temperatures of freezing islands and products in supermarkets in the city of Sobral/CE, it was verified that the establishments did not follow good manufacturing practices, for the preservation of meat products. Still in this sense, Nuvolari et al. (2019) evaluated good manufacturing practices and the cold chain in supermarkets in Botucatu/SP, concluding that refrigeration temperatures for product conservation were inadequate in most establishments

Within the principles of quality when consumers buy meat products, the same authors observed that some consumers are concerned about the way products are stored and displayed and concluded that the lack of interest in this information becomes worrying. to ensure the quality of meat products.

Consumers of meat products in the city of Porto Alegre/RS were concerned about the quality of the meat consumed, together with environmental preservation. In this regard, in addition to evaluating the sensory characteristics, they took into account stamps on the meat labels that informed the guarantee of quality and safety in the environmental aspect. This concern was so important for the consumer that he did not care about the product getting a higher price than the one used in the region (AZEVEDO et al., 2017).

In the municipality of Marília/SP, it was found that beef consumers valued color, texture, packaging structure, price, ease of purchase, nutritional composition and product brand as the main quality requirements at the time of purchase. This study was carried

out in supermarkets located in the north and south zones of the city, with price being the determining factor at the time of purchase, with an average of 41%, followed by color in 33% and appearance in 27% (OSHIIWA et al., 2017).

FINAL CONSIDERATIONS

The consumer has a direct relationship with the quality control of chilled meat products, which is the holder of conduct for the acquisition of a product considered to be of quality, using attributes that range from sensorial to economic, being fundamental that In this scenario, companies must look for ways to insert special attention in the market that make their products showcase quality, thus providing conditions for this consumer, by taking innocuous products, thus preserving their health.

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