

CONSUMER ACCEPTANCE OF SUSTAINABLE PLANT-BASED CULINARY FOOD PRODUCTS

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ABSTRACT

This study examines the factors influencing consumers' acceptance of sustainable plant-based culinary food products, with particular attention to perceived health benefits, environmental sustainability, taste, texture, price, product familiarity, nutritional value, and social influences. The study adopts a quantitative research approach using a descriptive and cross-sectional research design. Data can be collected from consumers through a structured questionnaire using a Likert-scale format. Descriptive statistics, correlation analysis, and regression analysis can be used to examine relationships between product attributes and consumer acceptance. The expected findings indicate that taste, perceived health benefits, environmental concerns, nutritional value, and product quality are important factors influencing acceptance, while higher prices and unfamiliarity may create barriers. The study concludes that improving sensory quality, affordability, nutritional information, and consumer awareness can contribute to greater acceptance of The growing demand for sustainable food systems has increased interest in plant-based culinary food products as alternatives to conventional animal-based foods. Consumer acceptance is an important factor sustainable plant-based culinary products.

KEYWORDS: Plant-Based Foods, Consumer Acceptance, Sustainability, Sustainable Food, Culinary Products, Consumer Behaviour, Food Innovation

INTRODUCTION

The global food system is increasingly influenced by concerns related to environmental sustainability, population growth, food security, health, and changing consumer lifestyles. Conventional food production, particularly intensive animal agriculture, requires substantial natural resources and is associated with environmental pressures such as greenhouse gas emissions, land degradation, water consumption, and biodiversity loss. de Boer, J., & Aiking, H. (2026). Found t5hatThese challenges have encouraged researchers, food producers, chefs, and consumers to explore alternative food products that can contribute to more sustainable food systems. Plant-based culinary food products have consequently received considerable attention because they can provide alternatives to traditional animal-based foods while incorporating ingredients such as vegetables, legumes, grains, nuts, seeds, fruits, and plant-derived proteins.Plant-based foods are no longer limited to traditional vegetarian meals. Modern food innovation has resulted in a wide range of products, including plant-based burgers, sausages, dairy alternatives, plant-based desserts, meat substitutes, protein-rich snacks, and innovative culinary dishes. The development of these products has created opportunities for restaurants, hotels, catering businesses, food manufacturers, and culinary professionals to incorporate sustainability into food preparation and menu development. However, the availability of sustainable products does not automatically guarantee consumer acceptance. Consumers evaluate food products according to multiple characteristics, including taste, appearance, texture, price, nutritional value, convenience, familiarity, and perceived health benefits.

Taste is one of the most important considerations in food choice. Consumers may express positive attitudes toward sustainability but still reject plant-based products if they believe that

the products do not provide satisfactory sensory experiences. Texture, aroma, appearance, and overall eating experience can therefore influence willingness to purchase and consume plant-based foods. Culinary professionals and food manufacturers need to consider these sensory characteristics when developing sustainable products. Products that successfully combine sustainability with desirable taste and texture may have greater potential to become part of consumers' regular diets. Health perceptions are another important factor in consumer acceptance. Some consumers perceive plant-based foods as healthier because they may contain vegetables, legumes, whole grains, dietary fibre, vitamins, minerals, and other beneficial nutrients. However, consumers may also be concerned about the nutritional composition of highly processed plant-based alternatives, particularly regarding protein, sodium, fats, additives, and micronutrients. Consequently, transparent nutritional information and scientifically supported health communication can influence consumer perceptions. Environmental awareness also plays a significant role in the growing interest in sustainable food products. Price represents another potential barrier. Sustainable and innovative plant-based products may involve higher production, processing, research, or marketing costs.

Therefore, affordability is particularly important for expanding sustainable food consumption beyond consumers who are already highly motivated by environmental or ethical concerns. Consumer familiarity can also influence acceptance. People who have limited experience with plant-based foods may be uncertain about their preparation methods, taste, nutritional value, or cultural suitability. In contrast, repeated exposure and positive experiences may increase familiarity and reduce uncertainty. Culinary education, food demonstrations, restaurant menus, social media content, tasting events, and nutritional information may therefore help consumers understand and evaluate plant-based products. In the culinary sector, sustainable plant-based food products also provide opportunities for innovation. Chefs can use traditional ingredients and modern culinary techniques to create attractive dishes that are culturally relevant and environmentally responsible. Curtain, F., & Grafenauer, S. (2019) explains Local legumes, vegetables, grains, fruits, nuts, and seeds can be incorporated into innovative recipes. This approach can potentially support local agriculture while providing consumers with familiar flavours in new forms. Therefore, studying consumer acceptance is important for understanding whether sustainable plant-based culinary products can become more widely adopted. The global food system is undergoing significant transformation as increasing attention is being given to environmental sustainability, human health, food security, resource conservation, and changing consumer lifestyles.

These challenges have encouraged researchers, food manufacturers, chefs, restaurants, and consumers to explore alternative food systems that can provide nutritious and appealing foods while reducing environmental pressure. Aschemann-Witzel, J., Gantriis, R. F., & Fraga, P. FJA Perez-Cueto Plant-based food and protein trend from a business perspective: Markets, consumers, and the challenges and opportunities in the future., 2021 explained Within this context, sustainable plant-based culinary food products have emerged as an important area of food innovation. Plant-based foods include products and dishes prepared primarily from vegetables, fruits, legumes, grains, nuts, seeds, fungi, and other plant-derived ingredients. Their increasing availability reflects both technological developments in food production and growing consumer interest in alternative dietary choices. The concept of plant-based food has

developed considerably beyond traditional vegetarian meals. Modern food technology and culinary innovation have enabled the development of products designed to provide sensory characteristics similar to conventional animal-based foods. These products include plant-based burgers, sausages, nuggets, meat substitutes, dairy alternatives, plant-based desserts, protein-rich snacks, and innovative restaurant dishes. At the same time, many culinary professionals are incorporating naturally plant-based ingredients into contemporary menus by using legumes, vegetables, whole grains, mushrooms, nuts, seeds, fruits, and locally available crops. This development provides opportunities to connect sustainability with culinary creativity.

Taste is one of the most important factors affecting food acceptance. Consumers generally expect food products to provide enjoyable sensory experiences regardless of whether they are plant-based or animal-based. Although consumers may support sustainable food consumption, they may be unwilling to purchase a plant-based product repeatedly if they dislike its flavour, aroma, appearance, or texture. Texture is especially important for plant-based alternatives designed to replace meat because consumers often compare these products with familiar animal-based foods. A product that successfully reproduces desirable sensory characteristics may reduce consumers' reluctance to try plant-based alternatives. Therefore, culinary innovation should focus not only on nutritional and environmental characteristics but also on flavour development, texture, appearance, aroma, cooking performance, and overall eating experience. Health perception is another important factor influencing consumer acceptance. Plant-based diets can include substantial amounts of vegetables, fruits, legumes, whole grains, nuts, and seeds, which may provide dietary fibre, vitamins, minerals, plant proteins, and other beneficial components. Consumers who are concerned about heating may therefore associate plant-based foods with positive health outcomes. However, consumer perceptions can differ depending on the type of plant-based product. Some consumers may view minimally processed plant foods as healthier than highly processed plant-based meat or dairy alternatives.

Price and affordability also play a significant role in the acceptance of sustainable plant-based products. Innovative plant-based products can involve costs related to research, processing, specialized ingredients, packaging, marketing, and distribution. When these costs result in higher retail or menu prices, consumers may perceive plant-based products as less accessible. Price sensitivity can be particularly important for consumers with limited disposable income. Even consumers who have positive attitudes toward environmental sustainability may choose cheaper conventional foods when they perceive the price difference as too large. Therefore, increasing consumer acceptance requires consideration of affordability alongside environmental and nutritional objectives. Familiarity is another factor that can shape consumer responses to plant-based culinary foods. Consumers tend to be more comfortable with foods they have previously consumed or encountered. Unfamiliar ingredients, unfamiliar preparation techniques, or unfamiliar product names may create uncertainty. In contrast, repeated exposure to plant-based dishes can increase knowledge and reduce hesitation. Restaurants, hotels, culinary institutions, supermarkets, food demonstrations, social media platforms, and educational programs can contribute to greater consumer familiarity by presenting plant-based foods in attractive and understandable ways. Familiar culinary

traditions may also be used to introduce plant-based products because consumers may be more willing to try innovative versions of foods they already recognize.

RESEARCH OBJECTIVES

1. To examine consumers' level of acceptance of sustainable plant-based culinary food products.

RESEARCH QUESTIONS

1. What is the level of consumer acceptance of sustainable plant-based culinary food products?

LITERATURE REVIEW

Plant-based food consumption has become an important area of research within sustainable food studies. Plant-based diets and products can contribute to dietary diversification and may reduce dependence on animal-based food production. However, sustainability depends on the specific ingredients, production methods, processing, transportation, packaging, and consumption patterns involved. Therefore, consumers increasingly require information that allows them to understand the environmental characteristics of food products. Consumer acceptance refers to the extent to which consumers are willing to try, purchase, consume, and recommend a particular food product. In the context of plant-based culinary products, acceptance is influenced by both product-related and consumer-related factors Malta, I., Hoeks, J., & Graça, J. (2024)elaboraton. Product characteristics include taste, texture, aroma, appearance, price, nutritional composition, and convenience. Consumer characteristics may include environmental concern, health consciousness, food preferences, values, knowledge, and previous experience. Acceptance is therefore multidimensional. A consumer may have a positive environmental attitude toward plant-based food but may not purchase it because of price or taste concerns. Similarly, a consumer may enjoy the taste of a plant-based product without being particularly concerned about environmental sustainability.

Products that fail to provide satisfactory sensory experiences may have difficulty achieving repeat purchases. Taste is especially important because consumers may compare plant-based alternatives directly with familiar animal-based products. Therefore, culinary innovation should focus on improving flavour, texture, appearance, cooking performance, and overall eating experience. Product development based on consumer sensory preferences can improve acceptance. Environmental sustainability is an important motivation behind plant-based food consumption. Consumers concerned about climate change, resource use, biodiversity, and environmental degradation may demonstrate greater interest in sustainable food alternatives. However, environmental concern alone may not guarantee behavioural change. Consumers frequently balance sustainability considerations against taste, price, convenience, and personal preferences. Effective sustainable food strategies therefore need to address both environmental motivations and everyday consumer needs. Price can influence consumers' willingness to purchase sustainable plant-based products. When plant-based alternatives are considerably more expensive than conventional foods, consumers with limited budgets may

be reluctant to purchase them regularly. Competitive pricing can therefore contribute to market expansion. Food producers may improve affordability through efficient production systems, local sourcing, economies of scale, and the use of locally available plant ingredients. In culinary settings, incorporating affordable legumes, grains, vegetables, and seasonal ingredients may provide sustainable alternatives without substantially increasing menu prices. Familiarity can reduce uncertainty and increase acceptance.

Consumers who have previously consumed plant-based foods may have greater confidence in their taste, preparation, and nutritional characteristics. Hartmann, C., Lazzarini, G., Funk, A., & Siegrist, M. (2021).found that In contrast, unfamiliar consumers may hesitate to try products they do not understand. Consumer education can therefore play an important role. Restaurants, culinary institutions, food companies, educational organizations, and social media platforms can provide information about ingredients, preparation techniques, nutritional benefits, and sustainability. The transition toward more sustainable food systems has increased scholarly and commercial interest in plant-based foods. Sustainable plant-based culinary food products generally refer to foods and prepared dishes in which plant-derived ingredients such as vegetables, legumes, grains, nuts, seeds, fruits, mushrooms, and plant proteins constitute the major components. These products may include both minimally processed plant foods and innovative alternatives developed to replace conventional animal-based products. The growing interest in this area is connected with concerns about environmental sustainability, resource consumption, food security, human health, and changing consumer lifestyles. However, the sustainability of a food product cannot be determined solely by whether it is plant-based. Production methods, processing, packaging, transportation, agricultural practices, and food waste also influence its overall sustainability. Therefore, consumer acceptance needs to be examined within the broader context of sustainable food-system development.

This development has encouraged the food industry to create products that imitate the sensory characteristics of meat, dairy, and other conventional foods. At the same time, culinary professionals have increasingly experimented with plant ingredients without necessarily attempting to imitate animal products. This distinction is important because consumers may respond differently to a traditional vegetable-based dish compared with a highly processed meat analogue. Research on consumer acceptance therefore needs to consider the diversity of plant-based products rather than treating all plant-based foods as a single category. Consumer acceptance represents the extent to which individuals are willing to try, purchase, consume, repurchase, and recommend a food product. In plant-based food research, acceptance is influenced by a combination of personal attitudes and perceptions of product attributes. Consumers may evaluate whether a product is enjoyable, healthy, affordable, convenient, environmentally responsible, culturally appropriate, and compatible with their existing eating habits. Research has shown that positive attitudes toward sustainability do not necessarily result in consistent consumption of sustainable food products. Consumers often experience a gap between what they believe and what they actually purchase. Environmental concern may encourage consumers to consider plant-based products, but sensory quality, price, convenience, habit, and familiarity may ultimately determine their choices. This suggests that consumer acceptance is a complex behavioural outcome rather than a direct consequence of environmental awareness. Onwezen et al.

(2021), in a systematic review of alternative proteins, identified several factors associated with consumer acceptance, including product perceptions, attitudes, familiarity, emotions, social influences, and food-related values. Their work demonstrates that acceptance of alternative proteins cannot be explained by one factor alone.

Sensory expectations are particularly important for plant-based meat alternatives because consumers may compare these products with familiar meat products. If a plant-based burger or sausage has an unfamiliar texture or flavour, consumers may perceive it as inferior even when they support the environmental purpose of the product. Therefore, food manufacturers and chefs need to consider sensory quality as a central component of sustainable food innovation. Michel et al. (2021) examined consumers' perceptions and acceptance of meat and plant-based meat alternatives and emphasized the importance of product experience in shaping acceptance. Consumers' expectations about taste, texture, health, and naturalness can influence how they evaluate plant-based alternatives. This indicates that improving sensory characteristics can potentially reduce barriers to consumer adoption. Health is another important factor influencing consumer interest in plant-based foods. Plant-based diets can contain substantial quantities of vegetables, fruits, legumes, whole grains, nuts, and seeds, which provide fibre, vitamins, minerals, plant proteins, and various bioactive compounds. Joshi, V., Gupta, V. K., Bhanuprakash, A. G., Mandal, R. S. K., Dimri, U., & Ajith, Y. (2018). Found that Consumers who are concerned about healthy eating may therefore perceive plant-based food as an attractive dietary option. However, consumers do not necessarily perceive all plant-based products as equally healthy. A distinction may be made between whole or minimally processed plant foods and highly processed plant-based meat or dairy alternatives.

METHODOLOGY

This study adopts a quantitative research approach. A quantitative approach is appropriate because the study aims to measure consumer perceptions and determine relationships between different factors and acceptance of sustainable plant-based culinary food products. Data can be collected using a structured questionnaire containing closed-ended questions and Likert-scale statements. Respondents can indicate their level of agreement with statements concerning taste, health benefits, environmental sustainability, nutritional value, price, familiarity, and purchase intention. This study employs a systematic quantitative methodology to investigate consumer acceptance of sustainable plant-based culinary food products. The methodology is designed to identify the factors that influence consumers' willingness to try, purchase, consume, and repurchase plant-based culinary products. Particular attention is given to consumers' perceptions of taste, sensory quality, health benefits, nutritional value, environmental sustainability, price, familiarity, convenience, product appearance, and purchase intention. Since the study seeks to measure consumer perceptions numerically and examine relationships between different variables, a quantitative methodology is considered appropriate. The study focuses on consumers who have either consumed plant-based culinary products previously or have some awareness of such products. Plant-based culinary food products in this study include foods and dishes prepared primarily from vegetables, fruits, legumes, grains, nuts, seeds, mushrooms, and other plant-derived ingredients, including innovative alternatives to conventional animal-based foods.

The methodology allows the researcher to collect standardized information from a relatively large number of respondents and identify general patterns in consumer acceptance. The study follows a quantitative research approach.

RESEARCH DESIGN

The study uses a descriptive cross-sectional research design. Data are collected from consumers at one point in time to examine their perceptions and acceptance of sustainable plant-based culinary products. The target population may include consumers who have purchased, consumed, or have some awareness of plant-based food products. A sample of approximately 200–300 respondents can be selected using convenient or purposive sampling, depending on the accessibility of participants. Ethical principles should be followed by informing participants about the purpose of the study, voluntary participation, confidentiality, and anonymous treatment of responses. A structured questionnaire is used as the primary data-collection instrument. Respondents are asked to express their level of agreement with different statements using a five-point Likert scale. The quantitative approach provides an opportunity to compare responses across participants and determine which factors are most strongly associated with acceptance. A descriptive and cross-sectional research design is adopted for the study. The descriptive component is used to describe consumers' perceptions, attitudes, awareness, and acceptance of sustainable plant-based culinary food products. The cross-sectional component means that data are collected from respondents during a specific period rather than following the same participants over a long period. The research design is suitable because the study aims to obtain a current picture of consumer acceptance and the factors associated with it. The researcher does not manipulate the variables or conduct an experimental intervention. Instead, naturally occurring perceptions and intentions are measured through a questionnaire.

DATA ANALYSIS

The collected data can be analyzed using SPSS or another statistical software package. Frequency, percentage, mean, and standard deviation can be used to summarize demographic characteristics and responses. Cronbach's alpha can be used to determine the internal consistency of questionnaire items. A value of approximately 0.70 or above is commonly considered acceptable for research scales. Pearson correlation can be used to examine relationships between independent variables such as Consumer Acceptance = Taste + Health Benefits + Sustainability + Nutritional Value + Price + Familiarity + Errors. Sustainability perception, taste, health benefits, nutritional value, price, and familiarity and the dependent variable, consumer acceptance. Multiple regression analysis can be used to determine which factors significantly predict consumer acceptance and purchase intention. A possible model is: The results can be interpreted using significance levels, correlation coefficients, regression coefficients, and explained variance. Overall, this study uses a quantitative, descriptive, cross-sectional research design to investigate consumer acceptance of sustainable plant-based culinary food products. Data are collected through a structured questionnaire from approximately 200–300 consumers. The questionnaire measures demographic characteristics, familiarity, taste and sensory quality, health perceptions, nutritional value, environmental sustainability, price, convenience, appearance, and consumer

acceptance. Validity is supported through expert review and pilot testing, while reliability is assessed using Cronbach's alpha. Descriptive statistics, correlation analysis, and multiple regression analysis are used to analyze the collected data. Ethical principles concerning informed consent, confidentiality, voluntary participation, and responsible data handling are maintained throughout the research process.

FINDINGS

The findings of the proposed study are expected to show that consumers' acceptance of sustainable plant-based culinary food products is influenced by several interconnected factors. Taste and sensory quality are expected to have a particularly important relationship with acceptance because consumers generally require plant-based products to provide satisfactory eating experiences before they consider purchasing them repeatedly. The study is also expected to indicate that perceived health and nutritional benefits contribute positively to consumer acceptance. Consumers who believe that plant-based products can contribute to a healthy diet may demonstrate stronger willingness to try and purchase such products. However, nutritional concerns may remain among consumers who perceive some highly processed plant-based alternatives as less healthy. Environmental sustainability is expected to demonstrate a positive relationship with acceptance. Consumers who are concerned about environmental issues may be more willing to consider sustainable plant-based products. Nevertheless, environmental motivation may be weaker when products are perceived as expensive, unfamiliar, or inferior in taste. Price is expected to act as an important barrier to regular consumption. Consumers may express positive attitudes toward sustainable plant-based foods but show lower purchase intentions when prices are substantially higher than conventional alternatives. This suggests that affordability is important for transforming positive attitudes into actual purchasing behaviour. Product familiarity is also expected to be positively associated with acceptance. Consumers who have previously tried plant-based products may demonstrate greater confidence and willingness to consume them again. Exposure through restaurants, food demonstrations, social media, family members, and educational activities may contribute to greater familiarity.

CONCLUSION

Consumer acceptance is an important factor in the successful development and expansion of sustainable plant-based culinary food products. Although environmental sustainability provides an important reason for developing plant-based alternatives, consumers evaluate food products through multiple dimensions. Taste, texture, appearance, nutritional value, perceived health benefits, price, convenience, familiarity, and environmental impact can all influence consumers' willingness to try and purchase these products. The study highlights the importance of developing plant-based culinary products that combine sustainability with desirable sensory and nutritional characteristics. Consumers are more likely to accept sustainable alternatives when they provide satisfactory taste and quality while also offering reasonable nutritional value and affordability. Therefore, food manufacturers and culinary professionals should focus on improving product formulation, sensory quality, nutritional transparency, and pricing strategies. Consumer education can also contribute to greater acceptance. Providing clear information about ingredients, nutritional value, preparation

methods, and environmental benefits may reduce uncertainty and increase consumer awareness. Restaurants and culinary businesses can further support acceptance by incorporating attractive plant-based dishes into menus and using familiar local ingredients. The findings also suggest that sustainability should not be communicated separately from consumers' everyday food priorities. Environmental benefits may encourage initial interest, but positive eating experiences and reasonable prices are important for encouraging repeated consumption. Consequently, sustainable plant-based food innovation should integrate environmental objectives with consumer expectations concerning taste, health, quality, affordability, and convenience.

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