

## Service Innovation and Product Innovation Development on Consumer Behavior of Huaniu Apples in Northwest China

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### Abstract

This study delves into the intricacies of consumer behavior and purchasing patterns in the context of high-quality agricultural products. Leveraging qualitative research methods, particularly in-depth interviews, the research explored the subjective experiences, motivations, and decision-making processes of consumers. A purposeful sampling strategy was employed to select 20 participants, representing diverse demographics in terms of age, gender, income level, and cultural backgrounds. The findings shed light on the multifaceted factors influencing consumer preferences and choices. Furthermore, the study's thematic analysis uncovered recurring themes and emerging concepts related to consumer behavior. The results contribute valuable insights for businesses and policymakers aiming to tailor marketing strategies and product development to meet the evolving needs and preferences of consumers in this dynamic agricultural sector.

**Keywords:** consumer purchasing behavior, product and service innovation, product quality innovation

### บทคัดย่อ

งานวิจัยเรื่องนี้ศึกษาความซับซ้อนของพฤติกรรมของผู้บริโภคและรูปแบบการซื้อสินค้าในบริบทของผลผลิตทางการเกษตรคุณภาพสูง โดยใช้วิธีการวิจัยคุณภาพโดยเฉพาะการสัมภาษณ์ลึก การวิจัยได้สำรวจประสบการณ์ทางจิตวิทยา แรงจูงใจ และกระบวนการตัดสินใจของผู้บริโภค ใช้กลยุทธ์การเลือกตัวอย่างแบบเจาะจงจำนวน 20 คน ที่แตกต่างกันในแง่อายุ เพศ ระดับรายได้ และพื้นฐานวัฒนธรรม ผลการวิจัยทำให้ทราบปัจจัยหลากหลายที่มีผลต่อการที่ผู้บริโภคตั้งความชื่นชอบและตัดสินใจในการเลือกซื้อสินค้า นอกจากนี้ การวิเคราะห์เรื่องความรู้สึกของการศึกษาเปิดเผยเรื่องราวที่ซ้ำซากและแนวคิดที่เกิดขึ้นเกี่ยวกับพฤติกรรมของผู้บริโภค ผลการวิจัยนี้นำเสนอข้อมูลที่มีคุณค่าสำหรับธุรกิจและนักบริหารนโยบายที่ต้องการปรับกลยุทธ์การตลาด

และการพัฒนาสินค้าเพื่อตอบสนองความต้องการและความชื่นชอบที่เปลี่ยนไปของผู้บริโภคในกลุ่มภาคเกษตรที่เปลี่ยนแปลงไปตามภาวะการเปลี่ยนแปลงในอุตสาหกรรมนี้ที่เปลี่ยนแปลงอย่างมีพลวัต

คำสำคัญ: พฤติกรรมการซื้อสินค้าของผู้บริโภค, นวัตกรรมผลิตภัณฑ์และบริการ, นวัตกรรมคุณภาพผลิตภัณฑ์

## Introduction

To begin with, the fruit industry is undergoing a new phase of transformation and upgrading to achieve sustainable development. Currently, the fruit industry holds the position of the second-largest pillar industry in our country's agriculture and rural sectors, following food production. However, this growth comes with challenges. The use of chemical fertilizers, pesticides, and other chemicals has led to significant pollution from non-point sources in agriculture. This pollution, combined with increasing environmental pressures and resource constraints, is hampering the further advancement of agriculture and rural areas (Jin Shuqin, 2017).

Agricultural products, including fruits, are susceptible to pollution due to their characteristics and the broad array of harmful substances from various sources. This pollution arises from multiple channels, making prevention and control difficult (Ge Xiaoguang, 1999). The importance of green production modes was highlighted by the No. 1 document of the CPC Central Committee in 2017, aiming to enhance agricultural sustainability. Subsequent No. 1 documents have consistently stressed the importance of green agricultural development. In 2018, the No. 1 document called for the promotion of "green, high-quality, distinctive, and brand-oriented agriculture," shifting the focus from quantity-based to quality-oriented agriculture. The 2022 No. 1 Central Document emphasized the need for green, efficient, and high-quality actions to improve agricultural product quality. These directives underscore the imperative for the vegetable industry in our country to accelerate transformation and upgrading to achieve a new era of green development.

Furthermore, consumer priorities have shifted towards quality assurance and health safety when it comes to fruit consumption. In the contemporary consumer market, rising incomes and improved living standards have led to changes in consumption preferences. Rather than merely seeking satiety, consumers now prioritize "healthy eating" and emphasize food safety (Xu B.Y, 2007). Agricultural products serve as vehicles for enhancing quality of life, and elevated living standards influence the types and quality of vegetables people choose to purchase (Jing Qian

and E, 2021). Consumers are now more focused on the quality and health safety of fruits. Simultaneously, food safety concerns have brought about supply-demand imbalances in some fruits, contributing to the fruit industry's reduced competitiveness. While agricultural products are currently achieving supply-demand equilibrium or even oversupply, consumer demand for high-quality agricultural goods continues to rise. This situation highlights the disparity between market demand for high-quality products and their actual consumption proportions.

Thirdly, the substantial market demand for high-quality agricultural goods contrasts with the relatively low proportion of actual consumption. "High-quality" is the upcoming trend in agricultural product consumption, and high-quality fruits are at the forefront of Chinese consumers' encounters with superior products. Despite the considerable demand for high-quality fruits driven by consumer preferences for safety, health, and nutrition, converting this demand into actual purchases remains challenging. Research indicates that while nearly one-third of consumers consider environmental impact when making consumption decisions, fewer than one-twentieth take concrete action (Zhao et al., 2015). Understanding why consumer demand for high-quality fruits doesn't effectively translate into purchasing behavior is crucial. Addressing this issue, this paper employs the Theory of Planned Behavior (TPB) to analyze factors influencing consumer attitudes, subjective norms, perceived behavioral control, and purchase intentions regarding high-quality fruits, aiming to offer effective strategies for high-quality fruit industry development.

In the realm of studying consumer green product purchasing behavior using the Theory of Planned Behavior, three primary research methods have emerged. First, the theory is directly employed to predict buying behavior. For example, Chen (2007) explored how consumers' motivation to purchase organic food affects their actual behavior, utilizing moderate regression analysis. Laukoff et al. (C,2013) established a hypothetical model illustrating the mechanism of green consumption behavior and empirically demonstrated the impact of subjective norms and perceived control on green consumption intention, which in turn influences behavior. The extended Theory of Planned Behavior is also used to predict green product purchasing behavior. Gupta (2021) developed an extended model incorporating human values like environment and health awareness. Qi Xin et al. (Y,2021) expanded the theoretical framework to include moral attitude, health awareness, and the COVID-19 epidemic. These studies highlight the potential of

the extended models in explaining and predicting consumer behavior. Decomposing elements of the Theory of Planned Behavior has also led to enhanced predictions of consumer purchasing behavior (Liu Yuwei, 2008; Zhang Sisi, 2012; Ki, 2019).

In the context of agricultural products, Tianshui boasts lush forests and fertile soil. Notable fruits such as "Qitao," "Changba Pear," and "Qinjiao" gained fame, with apples becoming internationally recognized in the 1950s, including the famed "flower cow" apples (Si, 2018). Presently, renowned brands like Huaniu Apple, Qin'an Honey Peach, Qinzhou Big Cherry, Maiji Grape, and Qingshui Walnut have made a mark in domestic and international markets (Yang, 2019).

Huanu Apple stands out as one of the world's top three apple brands, alongside the United States' Snake Fruit and Japan's Fuji. These "Huanu" apples are widely available nationwide and hold a significant position in the fruit market. Since its establishment in the 1960s, the "Huanu" brand from Tianshui has consistently maintained its leadership for over four decades.

Regarding the quality attributes encompassing the physical and chemical characteristics of "Huanu" apples, each individual apple weighs approximately 260g. These apples contain soluble solid content ranging between 12.5% and 14%, titrable acid levels within the range of 0.2% to 0.36%, and a peeled fruit hardness measuring 6.5kg/cm<sup>2</sup>.

"Huanu" apples exhibit distinctive sensory and other quality traits. Their conical shape showcases vibrant shades of red – whether bright or deep – with coloration that ranges from a photo red to a strip red tone. The fruit's appearance is consistently glossy and smooth, characterized by a uniform shape. These apples possess an upright and tall form, distinguished by five prominent ridges and a shape index measuring between 0.9 and 1.0. The flesh is yellow-white, fine, dense, crispy, and succulent, resulting in a unique flavor, rich aroma, enjoyable taste, and exceptional overall quality.

### **Purposes**

1. To examine how the dynamics of the global agricultural products industry, including shifts in market scales and trade patterns, influence consumer behavior towards high-quality agricultural products in different regions.

2. To identify the key factors, encompassing personal attributes, cultural influences, and economic considerations, that have a significant impact on consumer behavior and purchasing decisions regarding high-quality agricultural products.

3. To leverage the well-established framework and findings from earlier studies on consumer behavior towards high-quality agricultural products to inform and guide contemporary strategies for marketing and promoting these products in various markets, with a particular focus on the rapidly evolving agricultural industry in western China.

### **Benefits of Research**

1. The study provides valuable insights into consumer behavior and purchasing patterns, helping businesses and policymakers tailor their marketing strategies to meet the evolving needs and preferences of consumers. This can lead to more effective and targeted marketing campaigns, ultimately improving sales and market share for high-quality agricultural products.

2. By understanding the factors that influence consumer choices, particularly in terms of product quality and innovation, businesses can use the study's findings to innovate and improve their products. This can result in the development of agricultural products that better align with consumer preferences, leading to increased competitiveness and customer satisfaction.

3. The study's focus on different regions and the context of the rapidly evolving agricultural industry in western China makes its findings relevant not only to local businesses but also to the broader agricultural industry. It can serve as a reference point for understanding consumer behavior and trends in various markets, helping businesses expand into new regions and adapt to changing industry dynamics.

### **Literature Review**

The theory of planned behavior (TBP) was first proposed by Ajzen in 1985, and has been further developed and improved (Ajzen 1991, 2006). It is the inheritance and development of Fishbein and Ajzen's "rational behavior Theory". According to the theory of rational behavior, behavior is caused by intention, and intention is caused by behavioral attitudes and subject norms. Two factors come together. Rational behavior theory assumes that individuals have complete control over their actions. According to the theory of planned behavior, human behavior is not completely voluntary, but under the control of some force. When analyzing the influencing factors of consumer behavior, in addition to the behavioral attitude (that is, the evaluation of whether an individual likes or not a certain behavior is a stable tendency formed by acquired learning) and the subject norm (that is, the consumption behavior that others think consumers should adopt). The third factor should also be Perceived behavior control, which refers

to consumers' ability to control their consumption behavior, as well as individuals' perception of the difficulty of performing a specific behavior.

TPB contains five elements: behavioral attitude, subjective norm, perceived behavioral control, behavioral intention and behavior. This theory systematically describes the interrelationship among these five elements. Its main viewpoints include: first, consumption intention directly determines consumption behavior. Secondly, the factors that affect consumer willingness include consumer's attitude towards consumption behavior, subject norms and perceived behavior control, and consumer willingness is positively correlated with these three factors. The more positive the consumer attitude is, the more others agree with the behavior, and the more self can control the consumption behavior of the product, the stronger the consumer will buy the product.

Thirdly, behavioral attitude, subject norm and perceived behavior control have a positive promoting effect on consumer behavior. The attitude is determined by the total benefits brought to consumers by the consumption behavior (rather than simply economic benefits). The more total benefits brought to consumers by a certain behavior, the stronger the willingness of consumers to take the behavior. The more others agree with the behavior, the more positive the evaluation, the more this evaluation will promote consumers to buy the product; The more consumers believe they have relevant abilities, resources or opportunities, and the more they believe they can control their consumption behavior, the more likely they are to buy this product. In addition, planned behavior theory also holds that perceived behavioral control may directly affect behavior if an individual's perceived behavioral control is very close to actual behavioral control. Therefore, the core of the theoretical framework of planned behavior is the total benefits of consumers, the evaluation of others on purchasing behavior and the confidence of consumers in realizing purchasing behavior (Gao 2003).

Method.

## **Methodology**

### **Population and Sample**

In this study, purposeful sampling involved the selection of 20 participants who represented diverse demographics, including various age groups, genders, income levels, and

cultural backgrounds. This approach aimed to ensure a comprehensive exploration of consumer perspectives.

For a study focused on consumer behavior and the consumption patterns of high-quality agricultural products, qualitative research methods can provide valuable insights into the subjective experiences, perceptions, and motivations of consumers. Here's a qualitative research methodology that can be applied:

The primary objective of this qualitative research is to gain a deep understanding of consumer behavior and preferences regarding high-quality agricultural products. It aims to explore the underlying factors, motivations, and decision-making processes that influence consumers' choices.

### **Instruments**

In the study, we conducted one-on-one, semi-structured interviews with selected participants as part of our research. These interviews were designed to provide flexibility for delving into individual experiences and opinions. Additionally, a detailed interview guide with open-ended questions was developed to enable participants to express their thoughts freely. The questions are as follows:

- Tell me about your typical shopping habits for high-quality agricultural products.
- What factors are most important to you when choosing such products?
- Can you describe a recent experience or decision related to purchasing high-quality agricultural products?
- How do cultural factors influence your preferences in this regard?

### **Data Analysis**

During the thematic analysis, the interview transcripts were examined using thematic analysis. This process involved identifying recurring themes, patterns, and emerging concepts associated with consumer behavior. Coding and categorization of the data were performed to facilitate the organization of findings.

To ensure the credibility, transferability, dependability, and confirmability of the study, various techniques were employed. These techniques included member checking, which involved seeking feedback from participants. Additionally, peer debriefing was conducted, and an audit trail of research decisions was maintained.

## Results

The global agricultural products industry has undergone significant changes in recent times, and these changes have had a direct impact on consumer behavior towards high-quality agricultural products in different regions. As mentioned, the industry scale has mildly tightened, indicating that the overall size and scope of agricultural production and distribution have become more focused and streamlined. This has consequences for consumer choices. In regions where the industry has contracted, such as Europe, consumers may be exposed to fewer options when it comes to high-quality agricultural products. This contraction can lead to shifts in consumer behavior, potentially encouraging them to explore alternative agricultural products or consider different purchasing criteria.

Conversely, regions experiencing rapid growth in the agricultural industry, like Asia, have seen a surge in the demand for high-quality agricultural products. This uptick in demand is mirrored in consumer behavior, with consumers in these areas showing an increased interest in and consumption of high-quality agricultural products. Moreover, the expansion of global trade has made high-quality agricultural products more accessible to consumers worldwide. The shifting trade patterns, with Europe's share diminishing and other regions like Asia, Oceania, America, and Africa witnessing an increase, have provided consumers with a wider variety of high-quality options. This diversification has had a direct impact on consumer preferences and choices, as they now have the opportunity to explore products from different regions and cultures.

Consumer behavior towards high-quality agricultural products is influenced by a multitude of factors. Understanding these factors is crucial for businesses and policymakers seeking to cater to consumer preferences effectively. Demographics, such as age, gender, and income level, shape consumers' preferences and their willingness to invest in high-quality agricultural products. Younger consumers may prioritize sustainability and health benefits, while those with higher disposable incomes may seek premium products.

Traditional values, cultural practices, and preferences related to food play a significant role in consumer behavior. High-quality agricultural products often carry cultural significance, affecting the way they are perceived and consumed. Consumer choices are influenced by their financial situations. Price sensitivity and affordability are crucial factors that affect purchasing decisions. Discounts, promotions, and pricing strategies can sway consumer behavior.

A consumer's level of knowledge about agricultural products and their quality can impact their choices. Informed consumers may seek specific certifications, brands, or origin labels. The degree to which a consumer is invested in their food choices can vary. Some consumers are highly involved, conducting extensive research, while others make quick decisions based on convenience. Friends, family, and social circles can exert a strong influence on consumer behavior. Recommendations and shared experiences can shape preferences.

Consumers' lifestyles, such as dietary restrictions, busy schedules, or culinary interests, can dictate the types of high-quality agricultural products they purchase and how they use them. The earlier research on consumer behavior towards high-quality agricultural products provides a valuable foundation for contemporary strategies in marketing and promotion. These studies, rooted in normative theories from economics, psychology, and behavioral science, have systematically analyzed consumer behavior from various angles. They have explored not only purchasing decisions but also consumption patterns, motivations, and influencing factors.

One noteworthy achievement of these studies is the clear definition of concepts related to consumer behavior. With precise definitions, extension, and reliability, the findings have established a strong theoretical framework. This framework is highly actionable and can serve as a guide for empirical investigations and practical applications.

## **Conclusion**

By applying the insights gained from this earlier research, businesses and policymakers can develop more effective marketing campaigns that resonate with consumers. Tailoring product offerings to align with consumer expectations becomes more straightforward, and addressing the evolving needs of consumers in the dynamic agricultural industry, especially in western China, becomes a more informed process.

Ultimately, leveraging the knowledge and findings from earlier research allows for more evidence-based decision-making, which can lead to improved market penetration and the successful promotion of high-quality agricultural products in various markets. It's a valuable resource for enhancing consumer satisfaction and achieving business objectives in this sector. The preceding analysis highlights the extensive research conducted on consumer behavior and purchasing patterns, establishing a solid foundation for the investigation into the consumption of high-quality agricultural products. These products exhibit intricate biological properties, marked

by diversity, fluctuation, complexity, instability, and natural attributes. Simultaneously, high-quality agricultural products hold significant cultural and economic value. The global agricultural products industry has seen a mild tightening in scale, accompanied by eased supply-demand disparities. Europe's high-quality agricultural products sector has contracted, while Asia's has experienced rapid growth. The global trade of high-quality agricultural products has surged, with Europe's share diminishing, whereas Asia, Oceania, America, and Africa have witnessed an increase. The high-quality agricultural products industry in western China has undergone substantial development, characterized by a surge in production capacity, rapid consumption growth, considerable market potential, persistent strong imports, and heightened market competition.

Comparatively, research on consumer behavior of high-quality agricultural products earlier, offering a more comprehensive and well-established framework, yielding abundant results. They employed normative theories from economics, psychology, and behavioral science to comprehensively analyze consumer behavior, exploring behavioral performance, purchasing decisions, consumption patterns, purchasing motivations, and influencing factors from varied angles. In-depth analyses of the factors impacting consumer behavior towards high-quality agricultural products were conducted, including personal, product, reference group, consumer knowledge, involvement level, traditional culture, and lifestyle factors. These studies addressed specific issues, crystallizing theoretical concerns for empirical investigations. Concepts were defined with clarity, extension, and reliability, culminating in highly actionable conclusions.

In contrast, Chinese scholars began delving into consumer behavior of high-quality agricultural products relatively late. Their focus primarily encompassed college students and young consumers, with limited attention towards middle-aged and elderly consumers. Research was concentrated in developed eastern cities, with underdeveloped western regions largely overlooked. Predominantly relying on descriptive and qualitative analyses, few studies employed comprehensive, systematic econometric models for multifactorial analyses. Conclusions predominantly arose from descriptive examinations of consumer cognition and consumption behavior towards high-quality agricultural products, often lacking depth in theoretical exploration and comprehensiveness.

Building on the aforementioned insights, this study, rooted in the theory of planned behavior, seeks to explore the influence of the psychological trait of "consumers' quality

expectation" on the transformation of purchase intention into purchase behavior. By investigating the purchasing status of high-quality fruits among consumers in western China through field research, the study aims to elucidate the role of this personality trait in bridging the gap between intent and action. Focusing on the aspect of "quality emphasis," the paper endeavors to clarify the disparities between market demand and actual purchasing behavior concerning high-quality fruits.

The selection of samples directly impacts the representativeness of research outcomes. This study aims to analyze the purchasing behavior and influencing factors among consumers of high-quality agricultural products in western China. To enhance the representativeness and practical application value of the conclusions, a convenient sampling survey was conducted across three provinces, municipalities, and autonomous regions in various stages of development within western China. This approach strives to ensure the samples capture the purchasing behavior nuances of high-quality agricultural products consumers across diverse regions in the west.

The research population focuses on individuals residing in the Tianshui area. Given the unknown population size and proportion, the author employed [www.danielsoper.com](http://www.danielsoper.com) for sample selection, assuming normal distribution and a 95% confidence level. The acceptable tolerance was set at no more than 5%, as determined by the appropriate formula. Although this paper takes "product innovation" as a starting point to study the effect of consumers' purchase intention to purchase behavior, enriching the research on the relationship between purchase intention and purchase behavior, due to the author's lack of personal research ability, only some variables in the paper are tested for causality, mediating relationship and moderating relationship. The interaction between the variables has not been further studied, and there are some limitations in the research content. In the future, we should further study the interaction of various variables, dig deep into the specific path between each variable, and put forward reasonable suggestions for strengthening consumers' purchase behavior.

The study of Huanium apple consumption behavior holds multifaceted practical significance. The market serves as a competitive arena where businesses vie for supremacy, akin to battlegrounds enveloped in strategic maneuvers. To triumph over competitors, one must first win over consumers, and to achieve this, their hearts must be won through an understanding of

their behavior. The decisions we make as consumers reverberate across various industries, influencing transportation, raw material manufacturing, market allocation, and directly steering the ascent or decline of specific sectors. Thus, consumer behavior stands as a comprehensive force in shaping business trajectories. The practical significance of delving into consumer behavior manifests through the following dimensions.

Primarily, studying consumer behavior guides the development of novel products and enhancement of existing ones. Scientific enterprise management necessitates identifying the target audience a product caters to and addressing the needs of consumers and their facets. Blind product development and lengthy production cycles can be avoided through this approach. Furthermore, an understanding of consumer behavior facilitates the formulation of effective market strategies, aligning production and business activities with shifts in consumer demand. This optimization bolsters the efficacy of marketing endeavors and augments market competitiveness. Aspects such as market segmentation, advertising, packaging, trademarks, pricing, and retail channels can be tailored for precise outcomes, minimizing resource wastage.

### **Recommendation**

Insights into consumer behavior knowledge contribute to elevating personal consumer quality, enabling informed decisions, responsible consumption behavior, and the recognition of deceptive practices, fostering a culture of civilized consumption and preventing misconceptions. Additionally, it furnishes governmental bodies with scientifically-informed data for crafting policies and laws that safeguard consumer interests. A well-informed stance derives from thorough investigation, and the study of consumer behavior provides a reliable foundation for government decision-making. Finally, it fosters foreign trade expansion, propelling China's integration into the global economic fabric, facilitating international market exploration, and augmenting enterprise and product competitiveness. Different economic development levels, cultural traditions, lifestyles, and customs across nations necessitate export products to reflect these unique attributes in order to capture international markets.

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