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Characteristics and Development Suggestions for Green Agricultural Products in Chongqing from the Perspective of Rural Revitalization

Ya Zhang[1,a], Xiaoling Li[2], Jia Zhang[3]

[1]*Management Center of Dachang Lake National Wetland Park, Chongqing, 404700, China*
[2]*River and Lake Management Affairs Center of Wushan County, Chongqing, 404700, China*
[3]*Chongqing Wushan County Water Conservancy Development Co., LTD, Chongqing, China*
[a]*562459341@qq.com*

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Abstract: Under the deepening implementation of the rural revitalization strategy, green agricultural products serve as the core link connecting ecological protection and rural economic development. Their development quality directly affects rural industrial upgrading, farmers' income increase, and ecological sustainability. Based on the survey data of consumers in Chongqing, this paper systematically analyzes the development characteristics of green agricultural products in Chongqing from three dimensions: consumption cognition, willingness, and behavior. It reveals core issues such as the disconnection between consumption willingness and behavior, weak brand recognition, and insufficient logistics support. Combined with the regional reality, specific suggestions are proposed in terms of consumption guidance, industrial upgrading, brand cultivation, and infrastructure construction. Through data modeling and visual analysis, this paper provides theoretical and practical references for the high-quality development of green agricultural products in Chongqing and the implementation of the rural revitalization strategy.

1. Research Background and Significance

1.1 Research Background

The world today is facing global challenges such as resource shortage, energy scarcity, and deteriorating ecological environment. Developing a green, healthy, and resource-efficient economy has become an important proposition of the new era of socialism with Chinese characteristics. In the stage of high-quality economic development, green agricultural products, as the core component of the quality safety system, are not only the key carrier for ensuring food safety but also a necessary condition for meeting consumers' health needs and promoting agricultural modernization [1]. Currently, the consumption of green agricultural products in China is still at an initial stage. Issues such as unclear consumption cognition and imbalance in market supply restrict the development of

this industry [2]. Chongqing, as an ecological barrier in the upper reaches of the Yangtze River and a major agricultural city, has over 90% of its area covered by mountains and hills, with abundant ecological resources. The development of green agricultural products in Chongqing not only concerns the enhancement of rural economic vitality in the local area but also has significant demonstration significance for rural revitalization in the southwest region. It is urgently necessary to solve the development bottlenecks through systematic research [3].

1.2 Research Significance

Theoretically, this study constructs an "cognition-willingness-behavior" analysis framework, focusing on the interaction between regional consumption characteristics and industrial development, enriching the application of the theory of green agricultural product consumption behavior in regional research, and providing empirical support for the theoretical system of agricultural industrial upgrading in the context of rural revitalization [4]. Practically, based on the optimization paths proposed from the consumer survey data in Chongqing, it can provide scientific basis for local governments to formulate industrial policies, enterprises to expand the market, and farmers' production decisions, helping to implement the rural revitalization strategy in the agricultural sector and promoting green agricultural products to become an important link connecting ecological protection and farmers' income increase [5].

2. Data Sources and Data Analysis

2.1 Data Sources

This survey was conducted from May to August 2025. A random sampling survey was conducted on consumers in Chongqing using the questionnaire method. A total of 108 questionnaires were distributed, and 108 valid questionnaires were retrieved, with a 100% response rate and a 98% qualification rate. The samples included 143 local residents in Chongqing (accounting for 71.5%) and 67 non-local residents living in Chongqing (accounting for 28.5%). The survey content covered aspects such as personal characteristics of consumers, cognition of green agricultural products, purchase willingness and behavior, and satisfaction evaluation. The samples covered the main districts and counties of Chongqing's main urban area and Wanzhou, Fuling, and Fengjie, and had good regional representativeness. This data analysis method based on regional consumer surveys is widely used in green agricultural product market research to enhance the specificity of conclusions [6].

2.2 Sample Feature Analysis

From the perspective of the sample structure, the surveyed group has the following characteristics (see Table 1): Gender structure: Male accounts for 60.19%, female accounts for 39.81%. The male participation rate is higher, which may be related to the gender division of responsibility for family food purchases. Age distribution: 23-30 years old accounts for 40.74%, 31-51 years old accounts for 50%, and 51 years old and above accounts for 9.26%. The core consumer group is the young and middle-aged people aged 23-51, who are in the period of family formation and stability and have a high concern for food health [7]. Educational level: Bachelor's degree and above accounts for 55.56%, junior college and vocational college accounts for 33.33%, and those with junior college or above education account for 88.89%. The overall educational level is high, and the acceptance of the green consumption concept is stronger. Income source: Those who earn all their income by themselves account for 72.22%, with strong economic independence

and high autonomy in consumption decisions. Occupation and income: Civil servants, personnel in public institutions and state-owned enterprises account for 48.15%, company employees account for 21.3%; those with monthly income of 5000 yuan or above account for 37.96%, those with 2001-5000 yuan account for 45.37%. They have a certain ability to purchase green agricultural products. Overall, the sample group consists of core consumers with purchasing needs and consumption capabilities. The survey data has strong reference value for analyzing the green agricultural product consumption market in Chongqing.

Table 1 Basic Information of the Survey Questionnaire

No.	Statistical Category	Classification Indicators	ratio
1	Gende	Male, Female	60.19%, 39.81%
2	Age	Under 22, 23-30, 31-51, 51 and above	0%, 40.74%, 50%, 9.26%
3	Education level	Bachelor's degree or above, junior college, vocational college, high school, technical secondary school, junior high school and below	55.56%, 33.33%, 7.41%, 3.7%
4	source of income	All from the family, some from the family and some by oneself, all earning by oneself.	5.56%, 22.22%, 72.22%
5	occupation	Civil servants, public institutions, state-owned enterprises, Company employees, self-employed individuals, others	48.15%, 21.3%, 8.33%, 22.22%
6	monthly income	No, less than 2000 yuan, 2001 yuan - 5000 yuan, 5000 yuan and above	7.41%, 9.26%, 45.37%, 37.96%

2.3 Analysis of the Development Characteristics of Green Agricultural Products in Chongqing

2.3.1 Consumption Cognition Characteristics

The survey data shows that the consumers in Chongqing have a "basic cognition but insufficient depth" regarding green agricultural products. 89.81% of the consumers believe that the core attraction of green agricultural products is "safety and reliability", 65.74% focus on "excellent quality", and 41.67% mention "varied varieties", indicating that consumers have a relatively high recognition of the health value of green agricultural products (see Table 2). However, from the perspective of brand cognition, only 1.85% of the consumers stated that they "very well understand" the public brand of green agricultural products, 53.7% were in a "basic understanding" state, and 25.93% were "completely unaware", showing a phenomenon of "knowing the good but not the details". This is consistent with the current situation of generally low brand recognition of green agricultural products nationwide [8]. From the perspective of information acquisition channels, 58.33% learned about green agricultural products through "news", 44.44% through "economic life programs", and 27.78% through "entertainment programs", indicating that official media and life-related content are the main information carriers, but the depth and accuracy of information reach are insufficient, and consumers have a vague understanding of the production standards, certification processes, and ecological value of green agricultural products.

2.3.2 Consumption Willingness Characteristics

The overall consumption willingness of consumers in Chongqing for green agricultural products is relatively strong, with 85.19% of the respondents stating "having a purchase intention", but there are structural differences in the intensity of the willingness. From the perspective of categories, consumers are more inclined to pay a premium for essential household items, with the purchase willingness for vegetables and fruits reaching 94.44%, for grains and oils reaching 49.07%, and for livestock and aquatic products reaching 49.07%, which is highly consistent with the characteristic

of "23-51-year-old core consumer group paying attention to family health" (see Table 2). Research shows that the green consumption willingness for essential household items is usually positively correlated with family health needs [9]. Consumption willingness is related to income level to some extent (see Figure 1). Among those with monthly income of 5,000 yuan or above, the proportion willing to pay a premium of 10% or more for green agricultural products is 32%, while for those with income below 2,000 yuan, this proportion is only 8%, indicating that income level remains an important factor restricting the transformation of consumption willingness. In addition, the sensitivity to price of the 31-51-year-old group is lower than that of the 23-30-year-old group, and they pay more attention to product quality and safety, with stronger willingness stability.

2.3.3 Consumption Behavior Characteristics

Table 2 Explanation of Variables for Analyzing Factors Affecting the Development of Green Agricultural Products

NO.	variable name	Definitions and Assignments	ratio	Expected application direction
1	Consumption intention for green agricultural products	Yes, No	85.19%, 14.81%	-
2	Purchase green agricultural products at the store	Supermarket, farmers' market, online platform, others	76.85%, 53.7%, 34.26%, 19.44%	+
3	The proportion of income spent on green agricultural products	No, less than 5%, 5% - 10%, 11% - 20%, 20% and above	7.41%, 28.7%, 48.15%, 6.48%, 9.26%	-
4	Awareness of the green agricultural product common brand	Have no understanding at all, have a basic understanding, have a relatively good understanding, have a very good understanding	25.93%, 53.7%, 18.52%, 1.85%	-
5	Pay attention to the channels of green agricultural products	News, entertainment programs, economic life, others	58.33%, 27.78%, 44.44%, 40.74%	+
6	Categories of purchasing green agricultural products	Grains and oils, vegetables, fruits, livestock and aquatic products, others	49.07%, 94.44%, 49.07%, 12.96%	+
7	What are the appealing aspects of green agricultural products for you?	Safe and reliable, of high quality, with a wide variety of products, and more	89.81%, 65.74%, 41.67%, 14.81%	+
8	Green's satisfaction with the current range and quality of green agricultural products provided	Not satisfied, average, satisfied	18.52%, 62.96%, 18.52%	-
9	Satisfaction with the current prices of green agricultural products	Too high, unacceptable; relatively high, not very satisfied; average; relatively satisfied; very satisfied	10.19%, 30.56%, 41.67%, 13.89%, 3.7%	-

Note: "+" indicates an expected positive impact, while "-" indicates an expected negative impact.

From the perspective of purchase channels, 76.85% of the consumers choose "supermarkets", 53.7% choose "marketplaces", and 34.26% purchase through "online platforms" (see Table 2), presenting a pattern of "offline as the main, online as supplementary". The influence of age differences on channel selection is significant: the online purchase proportion of the young group (23-30 years old) is 45%, preferring the convenience and variety of e-commerce platforms; the online purchase proportion of the 51-year-old and above group is only 12%, more relying on the intuitive experience of offline channels. This is consistent with the research conclusion on the generational differences in agricultural product consumption channels in the context of the digital economy [10]. From the perspective of consumption expenditure structure, 48.15% of the consumers spend 5%-10% of their income on green agricultural products, 28.7% below 5%, and only 9.26% reach 20% or above, indicating that green agricultural products have not yet become a core component of consumption expenditure. At the same time, consumption behavior is constrained by both quality and price: 18.52% of the consumers are "not very satisfied" with the

current types and quality of green agricultural products, 41.67% have a "moderate satisfaction" with the price, and 30.56% consider the price "high and not satisfactory", reflecting that the quality improvement and cost control of the supply side still need to be strengthened.

3. Problems Faced by the Development of Green Agricultural Products in Chongqing

3.1 There is a disconnection between consumption intentions and behaviors, and the conversion mechanism is not smooth

Although 85.19% of consumers expressed a willingness to purchase, the actual high proportion of consumption (with an expenditure ratio of 20% or more) only accounted for 9.26%. There is a significant gap between intention and behavior. The main reasons include: First, the price threshold. Green agricultural products generally have prices 30%-50% higher than ordinary agricultural products due to factors such as production costs (ecological planting, organic fertilizer investment), certification fees, etc. 30.56% of consumers consider the prices "too high" and find it difficult to continue purchasing; Second, the lack of trust. There are "false green agricultural product brands" in the market, and consumers have a high demand for "strict anti-counterfeiting". Some people give up purchasing due to concerns about "paying a high price for ordinary products"; Third, information asymmetry. Consumers lack effective means to distinguish the authenticity and quality grades of products. Problems such as chaotic packaging labels and opaque certification information restrict the purchase decision.

3.2 Insufficient brand recognition and lack of highlighting of regional characteristics

The public awareness of the green agricultural products brand in Chongqing is extremely low. Only 1.85% of consumers "fully understand" it. This results in high-quality products being "fragrant but afraid of being ignored in the alley". On one hand, there is a lack of unified regional brand integration. Special agricultural products such as Fengjie tangerines, Fuling pickled vegetables, and Wanzhou red oranges have a certain popularity, but they mostly operate independently and have not formed a "regional brand + characteristic single product" cluster effect. On the other hand, brand promotion lacks targeting and insufficient interpretation of green standards (such as pesticide residue limits, ecological planting processes) and ecological values (such as carbon footprint, water and soil conservation contributions), failing to effectively reach the health needs and emotional identification of the core consumer group aged 23-51 [8]. The lag in regional brand construction has become a key factor restricting the realization of the value of green agricultural products.

3.3 Weak logistics support and incomplete industrial chain structure

During the research, the demands from consumers such as "consider transportation costs" and "increase logistics subsidies" were particularly prominent, reflecting that the logistics problem has become a bottleneck restricting the development of the industry. The mountainous terrain in Chongqing leads to a low coverage rate of rural logistics networks. In some remote districts (such as Chengkou and Wuxi), the coverage rate of village-level logistics outlets is less than 60%, and the transportation cost is 20%-30% higher than that in plain areas. At the same time, there is a lack of cold chain logistics facilities, and the loss rate of fresh green agricultural products reaches 15%-20%, far exceeding the level of less than 5% in developed countries. This not only increases circulation costs but also affects product quality and consumer experience [3]. Moreover, the industrial chain is short, with weak primary processing and deep processing links, and the product value is low, further exacerbating the "quality not translating into good price" dilemma.

3.4 Quality supervision and standard system need to be improved

In some areas, there are problems such as poor quality of agricultural products and potential safety hazards. 18.52% of consumers are "not very satisfied" with the quality. On one hand, the standards for production processes are not strictly enforced. The scattered cultivation by small farmers has led to issues such as pesticide residues and improper use of fertilizers, which have not been completely resolved. Some products cannot meet the green standards. On the other hand, the certification system is complex, and the certification costs for small and medium-sized farmers are high (about 2-50,000 yuan for single product certification), and there are "fake green" products in the market, which mislead consumers through false certifications, packaging hype, etc., disrupting market order and damaging industry reputation. An imperfect quality supervision system will significantly reduce consumer trust and hinder the sustainable development of the industry.

4. Suggestions for Optimizing the High-Quality Development of Green Agricultural Products in Chongqing

4.1 Precisely guide consumption and establish a channel for the transformation from intention to action

The company should first implement a tiered pricing strategy by offering differentiated products for different income groups. For basic categories such as vegetables and grains, which are popular among the general public, the company can reduce costs through large-scale cultivation and standardized production, keeping price increases within a controlled range (suggested not to exceed 15%). This approach can be marketed as the 'Affordable Green' series. For specialty products in demand by high-income groups, such as organic fruits and ecological livestock, the company should build premium brands, justifying reasonable price increases through quality upgrades to meet diversified consumer needs. A reasonable pricing strategy is the key to balancing consumer willingness and payment ability. Second, the company should establish an information transparency system by building a “one product, one code” traceability platform. Consumers can scan the code to query full-chain data such as the production entity, planting process, test reports, and certification information. The company should utilize blockchain technology to ensure the information cannot be tampered with. At the same time, it should carry out activities such as 'live-streaming to support agriculture' and 'base opening days,' inviting consumers to visit in person or observe the green production process online, thereby enhancing trust. Information transparency can effectively alleviate the information asymmetry problem in the agricultural product market. Third, the company should cultivate green consumption habits by targeting two key demographics: the core group (aged 23-51) and the potential group (Generation Z). It can promote green consumption concepts through health education short videos and eco-wellness lectures, emphasizing the connection between green agricultural products and family health, children's development, and other lifestyle benefits. Additionally, the company could establish 'green consumption experience zones' in communities and supermarkets, using product trials and comparative displays to reinforce consumer awareness and preference. The cultivation of consumption habits requires long-term scenario-based guidance and value transmission.

4.2 Strengthen brand cultivation and create regional characteristic IPs

First, the municipal government should integrate regional brand resources by establishing a unified system centered on 'Chongqing Ecological Good Products' as the core public brand. This system should consolidate distinctive agricultural products from across the region under a

'municipal public brand + district/county sub-brands' framework. The initiative should implement standardized brand logos, unified quality standards, and coordinated marketing campaigns to ensure consistency. Fuling Pomelo and Hualin Pickled Vegetables, etc. will be included in the regional brand matrix, forming a cluster effect and enhancing overall recognition. Regional brand integration can effectively enhance the market competitiveness of agricultural products. Second, the Chongqing Agricultural Bureau should implement targeted marketing campaigns by leveraging both traditional and digital channels. Through authoritative outlets like news media and economic programs, it should establish brand credibility. Simultaneously, the Bureau should collaborate with new media platforms to create engaging content - including 'green production vlogs' and 'origin storytelling' series - specifically tailored for young consumers aged 23-30. All content should emphasize the core values of 'safety, sustainability and health,' while highlighting how Chongqing's unique mountainous ecosystem contributes to superior green agricultural products. Diversified publicity channels are an effective path to enhance brand recognition. Third, the Chongqing Tourism and Agriculture Development Committee should promote experience marketing through agriculture-tourism integration. Building on successful models of rural tourism, the Committee should develop immersive projects - including pick-your-own farms, agricultural study tours, and eco-friendly homestays - in key green agricultural production zones. This initiative should seamlessly blend product consumption with rural tourism experiences, enabling consumers to personally engage with green production processes. Such first-hand exposure will strengthen brand recognition while stimulating experiential consumption growth. Agriculture-tourism integration can achieve the coordinated improvement of agricultural product value and rural tourism value.

4.3 Improve infrastructure and strengthen logistics and industrial chain support

First, the municipal government should enhance logistics policy support by establishing a dedicated subsidy fund for green agricultural product distribution. The policy should include: (1) transportation cost subsidies of no less than 30% for remote areas, and (2) equipment purchase subsidies of 15-20% for cold chain logistics providers. These measures will effectively reduce rural-to-urban distribution costs. Additionally, the government should incentivize logistics companies to operate specialized 'green agricultural product supply routes' to optimize transport efficiency. Policy subsidies are an important guarantee for improving the shortcomings of rural logistics. Second, upgrade the logistics network system. Logistics providers should partner with local governments to expand rural node coverage, targeting town-level express outlet completion by 2026 and 90%+ village access. Priority investments should include cold chain hubs in Wanzhou, Fuling, and Fengjie, featuring pre-cooling technology and refrigerated transport networks to cut fresh produce waste below 10%. The upgrade of cold chain logistics can significantly improve the quality stability of fresh agricultural products. Third, extend the industrial chain to increase added value. Develop primary processing and deep processing of agricultural products, such as processing vegetables into fresh-cut vegetables and fruit dried products, and processing grains and oils into nutritious breakfast foods, reducing logistics losses, and enriching product forms. Cultivate 10-15 agricultural product processing, promote the integrated development of "production + processing + sales", and increase the overall income of the industry. The extension of the industrial chain is the core path for enhancing the added value of agricultural products.

4.4 Strengthen quality supervision to lay a solid foundation for industrial development

Agricultural cooperatives across Chongqing should adopt strict production protocols by: developing region-specific green standards, implementing biological pest management and soil-optimized fertilization, and maintaining digital production logs with quarterly quality testing.

Through mandatory grower training and blockchain-enabled traceability systems, these measures will guarantee premium product quality from seed to sale. Standardized production is the foundation for ensuring the quality of green agricultural products. The certification system should be modernized through digital transformation - online applications with 50% fee cuts for small producers, coupled with blockchain-based certification tracking and a publicly accessible violators database. This creates both incentives for compliance and deterrents against fraud. The optimization of the certification system needs to balance lowering the threshold and strengthening supervision. A tech-enhanced monitoring system should complement interdepartmental raids, combining AI-powered market scans with whistleblower platforms to identify and eliminate fake green products. Real-time data sharing between agricultural inspectors, market regulators, and police will ensure swift punishment of violations, preserving consumer trust in certified green products. Strict law enforcement is an important means of maintaining the market environment.

4.5 Optimize policy support to stimulate the vitality of industrial development

First, the Chongqing Agricultural and Rural Affairs Commission should drive industrial restructuring by leveraging the city's 'One Zone, Two Clusters' spatial planning framework. The Commission must strategically designate specialized green agricultural production zones that align with regional advantages, ensuring optimal resource allocation and competitive differentiation across the metropolitan area. The ecological conservation zone in the northeastern part of Chongqing will focus on developing specialty fruits such as citrus and tea; the Wuling Mountain area in the southeastern part will develop ecological crops such as vegetables and medicinal herbs; the surrounding areas of the main urban area will develop close-province green vegetable bases, forming a characteristic pattern of "one village with one specialty, one town with one industry". Regional planning can fully leverage the comparative advantages of resources. Agricultural enterprises should collaborate with municipal authorities to co-invest in green tech innovation, including: varietal development funds, sustainable practice R&D, and a network of demonstration farms. Through university partnerships, they can transform research into field-ready solutions via farmer training academies that bridge the lab-to-land gap. Technological support is the core driving force for improving the quality and efficiency of green agriculture. Agricultural cooperatives should pioneer equitable value-chain integration through contractual farming models that guarantee: minimum purchase prices, profit-sharing from processed goods sales, and premium wages for quality production. This triple-benefit structure aligns farmer incentives with market success while meeting rural revitalization KPIs through measurable income growth. The interest linkage mechanism is the key to achieving coordinated growth of farmers' income and industrial development.

5. Conclusion

The development of green agricultural products in Chongqing exhibits distinct characteristics in terms of consumer perception, willingness and behavior: Consumers highly recognize the health value of green agricultural products, but have insufficient deep understanding; The overall consumption willingness is strong, but is constrained by prices and trust, and the transformation from willingness to behavior is not smooth; Offline channels remain the mainstream, but the online consumption potential of young groups is significant. At the same time, the industry development faces problems such as low brand recognition, weak logistics support, and incomplete quality supervision. Guided by the rural revitalization strategy, efforts should be made in multiple dimensions such as precise consumption guidance to open up the transformation channels, strengthen brand cultivation to shape regional IP, improve logistics and industry chain support, and

strengthen quality supervision and policy support to break through the development bottlenecks. In the future, with the implementation of various measures, Chongqing's green agricultural products are expected to achieve the unification of "ecological value - economic value - social value", becoming an important support for promoting rural industrial upgrading, increasing farmers' income and wealth, and protecting the ecological environment, and providing practical experience for the development of green agriculture in the southwest region.

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