



Difficulties and Breakthrough Paths in Green Food Brand Marketing: a Systematic Review Based on 4Ps Marketing Theory

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Abstract. Against the backdrop of the "dual carbon" strategy and increasing health consciousness, China's green food industry is experiencing substantial growth; however, green food brands face challenges in achieving nationwide market expansion. This paper reviews the difficulties and breakthrough paths in green food brand marketing. To effectively investigate the difficulties and breakthrough paths in green food brand marketing, this paper utilizes a case analysis method. This involves the collection of relevant data from three carefully selected, typical brands to provide in-depth insights. It is found that there are systemic imbalances in value visualization, premium rationality, channel experience, and communication effectiveness, which hinder the transformation of green food from a niche market to mainstream consumption. To address these issues, the "4E Model" is proposed, emphasizing "Evaluability" green value communication, "Experientiality" channel construction, "Emotionality" value resonance, and "Engagement" consumer interaction. This study provides a theoretical framework and practical guidance for green food companies to overcome marketing obstacles and achieve sustainable development.

Keywords: Green Food Marketing, 4Ps Marketing Theory, 4E Model.

1 Introduction

Against the backdrop of the "dual carbon" strategy and the upgrading of health consumption, China's green food industry is experiencing a significant growth trend, with a continuously expanding scale and notable annual growth rate. The latest industry report indicates that the number of green food production enterprises is projected to exceed 6,400 by 2025. However, significant disparities in market penetration remain between developed and less developed regions, with only 28.6% of brands achieving cross-regional operation [1]. This indicates that although the green food sector continues to attract new entrants suggests, it still faces numerous obstacles in expanding across the national market. This phenomenon reflects a core contradiction in current green food brand marketing: on the one hand,

consumers' awareness of health and environmental protection is constantly increasing; on the other hand, brands generally lack sufficient market expansion capabilities. This is specifically manifested in: Consumers expect a price premium limit of around 30%. However, the industry average premium reaches approximately 50%; and brand communication that predominantly focuses on functional demands, with less use of storytelling to establish emotional resonance with consumers at the value level. The existence of these issues severely restricts the transformation of green food from a niche market to mainstream consumption.

2 Literature Review

Existing research has explored green marketing from various perspectives, including the current stage of domestic marketing in China, consumer behavior motivations, and market demand characteristics concerning domestic green food consumption behavior.

Currently, green food marketing in China has entered a stage of deepening practice, but exhibits significant gradient development characteristics. Leading well-known enterprises, such as Three Squirrels, have constructed differentiated competitiveness through the concept of "forest food," with its "Wuwei Ecological Park" achieving full-chain environmental control from production to logistics [2]. However, small and medium-sized enterprises still face technological bottlenecks, with over 60% of green food remaining at the primary agricultural product processing stage, lacking innovative designs such as degradable packaging and low-carbon production. In terms of channels, traditional retail accounts for over 70%, but there is a prominent problem of disconnected online and offline experiences—the absence of environmental protection displays in offline stores, and a lack of third-party data support for 40% of "green" promotions on online platforms [3].

Consumers in China exhibit a "health demand first" characteristic in their perception of green food. Self-interest-oriented health and safety demands (such as no pesticide residues, non-GMO) are more likely to trigger purchase decisions than altruistic environmental protection concepts. Surveys indicate that 72% of consumers consider "food safety" as the primary factor in their green food selection. However, there is a clear "cognition-behavior gap" in the market: although 85% of consumers acknowledge green concepts, the actual purchase rate is less than 40%. The core obstacles are the average price premium of 25% to 30% for green food and consumers' insufficient trust in environmental certifications [2]. When segmented, consumers in first- and second-tier cities are beginning to pay attention to deeper indicators such as carbon footprint and water resource consumption, while consumers in third- and fourth-tier cities still rely on basic certifications (such as the green food logo) as the main basis for decision-making [4].

International research indicates that green marketing is transitioning from "concept promotion" to "data-driven." For example, the EU's "New Green Deal" requires all food to be labeled with environmental impact labels by 2030, directly showing consumers the environmental impact of their purchased products. This offers dual implications for China's green marketing development: first, technology empowers marketing, such

as using AR technology to demonstrate the soil and water conservation effects of forest food cultivation, enhancing consumer engagement; second, building a full-chain transparency system, drawing on the practice of a leading home appliance company that discloses specific data such as "each refrigerator produced saves 15% of electricity, " to enhance trust [5].

At the same time, existing literature lacks sufficient research on the synergistic mechanisms among the 4Ps elements in green food marketing, particularly lacking in differentiated strategy analysis tailored enterprises across various market tiers. For example, large enterprises in first-tier cities can leverage technological advantages to develop high-end green food such as organic grain gift boxes, coupled with degradable packaging and traceability QR codes, aligning with the dual demands of high-end customers (generally referring to consumers who prioritize product value over product price) for quality and environmental protection. In contrast, small and medium-sized enterprises in third- and fourth-tier cities, limited by supply chain scale, focus more on basic categories such as local seasonal vegetables, simplifying packaging and reducing costs with the concept of "direct supply from the source."

3 Case Studies

Based on the typicality of green brand marketing practices and data availability, this research selects three representative brands for in-depth analysis:

3.1 OATLY (Plant-Based Beverage Brand)

This brand quantifies and visualizes its environmental commitment through an innovative carbon footprint tracking system (using LCA (Life Cycle Assessment) software to conduct carbon measurement throughout the entire chain of oat cultivation, processing, and transportation), displaying the carbon emissions of each product's production process. In its pricing strategy, it employs an "entry-level price + membership discount" flexible mechanism, reducing the actual premium rate from 180% to approximately 120% perceived by members through methods such as points rebates. In terms of channel construction, it initially focused on high-end boutique supermarkets, and in 2024, it established "environmental protection hut" pop-up stores in first-tier cities such as Shanghai and Beijing. The average daily traffic of these pop-up stores reached 800 people, with the customer transaction value exceeding that of ordinary supermarkets [6].

3.2 HowBottle (Environmental Lifestyle Brand)

In terms of product design, it innovatively adopts blockchain traceability technology (Ant Chain technology), allowing consumers to view the entire process record of raw material recycling and processing and manufacturing by scanning a code. In marketing promotion, its "24 Bags" series, which tells the story of disaster relief tents regenerated into fashion bags, garnered over 2 billion views on the Douyin platform, successfully achieving emotional resonance with consumers and driving the series' monthly sales to a new peak. Offline channels, through limited pop-up store models, have increased the conversion rate of experiential marketing to a leading 15% in the industry.

3.3 Mi Xue Ice Cream (New-Style Tea Drink Brand)

This brand has made significant investments in sustainable development. As of 2024, the brand's usage rate of degradable packaging materials has reached 90%, placing it in a leading position in the industry. However, limited by its affordable positioning, it is relatively weak in green value communication, with consumer awareness of its environmental protection measures being less than 30%, significantly affecting the systematic construction of the brand's green image. Its channel advantage is reflected in the dense network formed by over 20, 000 stores nationwide, but the standardization of environmental protection image display in individual stores needs improvement [7].

4 Strategy Analysis

Based on case comparisons and market research, the core contradictions in current green food marketing practices can be summarized as systemic imbalances in four areas: value visualization, premium rationality, channel experience, and communication effectiveness:

4.1 Insufficient Value Visualization

Current Status. Most brands simply label certification marks, lacking environmental benefit data support for the production process, such as carbon reduction, water saving, and resource recycling. For example, OATLY faced questioning in its early stages due to the lack of transparency in its carbon footprint calculation methods, making it difficult for consumers to directly understand its environmental contributions, thereby reducing trust and purchase intention.

Underlying Causes. The value of green food is often reflected in the environmental friendliness of its production process, such as reducing pesticide use, saving water resources, and lowering carbon emissions. These values need to be quantified and visualized through scientific data to be perceived and recognized by consumers. If brands only rely on slogans or simple certification marks, it is difficult to establish sufficient trust and differentiated advantages.

Improvement Strategies. 1. Establish a comprehensive environmental benefit data disclosure system, such as publicly disclosing key indicators like the product's carbon footprint, water footprint, and land use efficiency. 2. Adopt third-party certification to enhance data credibility, such as obtaining ISO14001 environmental management system certification, carbon footprint certification, etc. 3. Utilize visualization tools, such as charts and infographics, to present complex environmental data in a consumer-friendly format. 4. Draw on the experience of leading enterprises and employ technologies such as blockchain to achieve traceability of the entire product production process, increasing transparency.

4.2 Questionable Premium Rationality

Current Status. There is a gap of more than 20% between consumers' acceptance of green premiums and brand pricing. This means that consumers believe green food should be priced higher than ordinary food, but brands' actual pricing exceeds consumers' psychological expectations.

Underlying Causes. The production costs of green food are typically higher than those of ordinary food, leading to higher prices. However, consumers' insufficient awareness of the value of green food, or the perception that green premiums are unreasonable, reduces their purchase intention.

Improvement Strategies. 1. Strengthen the promotion of green food value to enhance consumers' perception of the rationality of green premiums, such as emphasizing the health benefits, environmental value, etc., of green food. 2. Adopt dynamic pricing mechanisms such as tiered membership plans, loyalty points, and product exchange discounts, to reduce consumers' price sensitivity. 3. Offer products at different price points to meet the needs of different consumers.

4.3 Disconnected Channel Experience

Current Status. There is insufficient consistency in brand presentation between online and offline channels, with only 12% of brands having standardized environmental experience zones. Such as online environmental information sections, offline information display boards, interactive installations and visual traceability screens and other facilities. This indicates inconsistency in brand presentation across platforms. and experiences across different channels, affecting brand perception and purchase decisions.

Underlying Causes. Many brands have shortcomings in channel construction, such as a lack of interactive experience in online channels and a lack of standardized displays in offline channels. This makes it difficult for consumers to fully and deeply understand the brand's green philosophy and product characteristics.

Improvement Strategies. 1. Relevant enterprises establish an omni-channel integrated experience system to ensure consistency in brand image and experience across online and offline channels. 2. Add interactive experience elements to online channels, such as virtual reality (VR) displays, online consultations, and community interactions. 3. Relevant enterprises establish standardized environmental experience zones in offline channels to showcase the product's production process, environmental philosophy, and sustainable development achievements.

4.4 Low Communication Effectiveness

Current Status. Most brands still rely on traditional advertising, while the marketing effectiveness of user-generated content (UGC) is 3.2 times that of brand content. Mi Xue ice cream, despite its scale advantage, lacks systematic green content planning, such as thematic copywriting, green behavior guidance, user interaction modules, and themed interactive campaigns.

Underlying Causes. Traditional advertising methods are relatively singular and struggle to establish interaction and emotional connection with consumers. UGC, on the other hand, has higher authenticity and credibility, and can better influence consumer purchase decisions. Many brands have not fully recognized the value of UGC or lack effective UGC incentive mechanisms.

Improvement Strategies. 1. Increase investment in content marketing, creating high-quality green content, such as environmental knowledge dissemination, sustainable lifestyle sharing, and brand environmental stories. 2. Encourage user-generated content (UGC), such as organizing environmental-themed photography contests, soliciting environmental creative ideas, and inviting users to share their usage experiences. 3. Utilize social media platforms, such as WeChat, Weibo, and Tiktok, to expand the reach and influence of green content.

5 Theoretical Model Construction

Based on the research findings, this study proposes the "4E Model" for green food brand marketing:

5.1 Evaluability

Definition. This dimension emphasizes the quantitative demonstration of their environmental benefits, enabling consumers to clearly understand their environmental contributions.

Specific Measures. 1. Relevant enterprises can quantitatively demonstrate environmental benefits, such as carbon footprint, water-saving data, and waste reduction. 2. The green food industry adopts unified measurement standards and calculation methods to ensure data comparability and accuracy. 3. Merchants enhance data credibility through third-party certifications, such as carbon footprint certification and green product certification. 4. Enterprises can utilize visualization tools, such as environmental benefit labels and QR code inquiries, to enhance consumer accessibility and comprehension of environmental performance.

5.2 Experientiality

Definition. Refers to the need for brands to build an omni-channel system of "online transparent traceability + offline immersive experience, " providing consumers with comprehensive and multi-level green experiences.

Specific Measures. 1. Online Channels: Relevant enterprises can employ technologies such as blockchain to achieve traceability of the entire product production process, increasing transparency and trust. Provide interactive elements such as virtual reality (VR) experiences, online consultations, and community interactions to enhance consumer engagement. 2. Offline Channels: Establish standardized environmental experience zones at the point of sale to showcase the product's production process, environmental philosophy, and sustainable development achievements. Create immersive experience scenarios, such as environmental-themed pop-up stores and green lifestyle pavilions, to increase purchase conversion rates. 3. channel Integration: Relevant enterprises ensure consistency in brand image and experience across online and offline channels, achieving information sharing, membership interoperability, and service coordination.

5.3 Emotionality

Definition. Employ storytelling marketing to evoke resonance, transforming environmental concepts into emotional value. Evoke consumers' emotional resonance.

Specific Measures. 1. Marketers can explore the environmental stories behind the brand, such as the founder's initial commitment to environmental protection, environmental innovations in the product development process, and corporate involvement in public welfare activities. 2. Marketers can create emotionally engaging content, through multimedia formats such as video, music, and imagery, to convey the brand's environmental philosophy and values. 3. Relevant enterprises can attempt to establish emotional connections with consumers through methods such as community interaction and membership activities, enhancing brand recognition and belonging. 4. Relevant enterprises should select spokespersons or partners who align with the brand's values to enhance brand image and influence.

5.4 Engagement

Definition. Refers to the need for brands to design user co-creation mechanisms, encouraging consumers to participate in the brand's environmental actions and reinforcing consumer engagement and brand affinity.

Specific Measures. 1. Relevant enterprises initiate environmental-themed activities, such as environmental check-ins, upcycling, and green lifestyle sharing, to attract consumer participation. 2. Relevant enterprises establish brand communities, providing

platforms for consumer communication and interaction. 3. Marketers encourage user-generated content (UGC), such as sharing environmental experiences and creating environmental works. 4. At the point of sale, provide rewards and incentive mechanisms, such as points rewards, coupons, and honorary titles, to increase user participation.

6 Discussion

This study, through a comparative case analysis of several representative green food brands such as OATLY, HowBottle, and Mi Xue ice cream, reveals the main obstacles in the 4Ps marketing practices of current green food brands, and constructs the "4E Model" as an optimization framework. The main conclusions of the study are as follows:

The Impact of Insufficient Dissemination of Green Value. Insufficient green value communication restricts market expansion. Although consumer awareness and demand for green food are constantly increasing, many brands fail to effectively convey the environmental benefits and sustainable development concepts of their products. This leads to insufficient consumer perception of the value of green food, reducing purchase intention and premium acceptance, thereby restricting the expansion of green food from niche markets to mainstream consumer markets [8].

The Current Status of Traditional Marketing Model. Traditional marketing models urgently need transformation and upgrading. The traditional 4Ps marketing mix faces limitations in the green food sector. Overemphasizing the functional attributes of products while neglecting emotional value and consumer participation impedes the formation of meaningful consumer-brand relationships. At the same time, issues such as disconnected online and offline channel experiences and homogenized communication content also reduce marketing efficiency [9].

The Role of the "4E model". The "4E Model" provides new insights for green marketing. The "4E Model" proposed in this study—Evaluable, Experiential, Emotional, and Engaging—provides a new theoretical framework and practical guidance for green food brand marketing. This model emphasizes a consumer-centric approach and focuses on value co-creation, which is conducive to solving the current market dilemma of green food being "praised but not purchased."

Research Recommendations. 1. The government should take the lead, in conjunction with industry associations and third-party certification bodies, to establish unified environmental benefit measurement standards for the industry, such as energy consumption coefficients in the production process, carbon emissions of packaging materials, and pollution reduction in the transportation process, to enhance data transparency [10]. 2. Enterprises should fully consider consumers' value perception

and price sensitivity, and formulate reasonable green premium strategies, strengthening the promotion of green food value to enhance consumers' perception of the rationality of green premiums, such as emphasizing their health benefits, environmental value, and social responsibility;3. Enterprises should integrate online and offline channel resources to create a consistent and standardized brand image and consumer experience. Online channels should focus on interactivity and engagement, such as using VR/AR technology to showcase the product production process, providing online environmental consultations, and establishing consumer communities. Offline channels should create immersive experience scenarios, such as establishing environmental-themed stores, holding green living experience activities, and conducting sustainable consumption education;4. Enterprises should increase investment in content marketing, creating high-quality green content, such as environmental knowledge dissemination, sustainable lifestyle sharing, and brand environmental stories. Encourage user-generated content (UGC), such as organizing environmental-themed creative competitions, soliciting environmental product designs, and inviting consumers to share their green consumption experiences.

7 Conclusion

The study systematically reviewed the difficulties and breakthrough paths of green food brand marketing based on the 4Ps marketing theory, and constructed the "4E Model". This model emphasizes the importance of "Evaluable" green value communication, "Experiential" channel construction, "Emotional" value resonance, and "Engaging" consumer interaction for green food brand marketing. It aims to provide theoretical support and practical guidance for green food companies to break through marketing bottlenecks and achieve sustainable development. In the future, it is hoped that the government, enterprises, and consumers can jointly promote the healthy development of the green food industry, achieving a win-win situation for environmental protection and economic benefits.

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