

Research on the Packaging Design Practices of Agricultural Products in the Context of Rural Revitalization: A Case Study of Zhaoqing Emperor Oranges

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Abstract: To carry out the packaging design of agricultural products around rural revitalization, and to study the innovative application of brand culture in the packaging of agricultural products. Through the case method, Zhaoqing Emperor Citrus is selected as an example for design analysis and practice. Firstly, through the domestic and foreign related literature and data research, the current situation of agricultural product packaging design is sorted out, and the existing packaging problems are summarized; secondly, the user needs are obtained through the qualitative analysis of user interviews, and the near-design orientation is made; finally, countermeasure strategies and design solutions are put forward in combination with the current problems of agricultural product packaging design. In this topic, design practice is carried out for the packaging design of agricultural products, design reference is provided, and relevant design strategies are proposed based on the background of rural revitalization. The innovative storytelling as well as visualization of the culture outside the product can better empower the value of agricultural products, thus contributing to rural revitalization.

Keywords: Rural Revitalization; Characteristic Agricultural Products; Packaging Design; Brand Culture.

1. Introduction

On February 13, 2023, Document on "Opinions on Doing a Good Job in Comprehensively Promoting Key Tasks for Rural Revitalization in 2023"[1], clearly states the goal of building a strong agricultural nation and emphasizes the responsibilities of departments related to rural revitalization, aiming to promote county-level planning and industrial development. Leveraging this opportunity to promote regionally distinctive agricultural products and establish agricultural product brands can effectively facilitate the upgrading of rural industries and advance rural revitalization [2]. However, there is currently a significant lack of emphasis on agricultural product brand development and packaging design in the market. Presently, the awareness of branding among agricultural products is weak, the integration of packaging design with cultural elements is insufficient, and there is a lack of emotional connection with consumers. Therefore, there remains considerable research potential in the development of agricultural products.

From the perspective of supply and demand structure, citrus fruits are the largest in terms of area and production among fruits in China. According to data from the National Bureau of Statistics, in 2022, the area of citrus orchards in China reached 44.9372 million acres, accounting for 23.03% of the national fruit orchard area. The production of citrus fruits was 60.0389 million tons, representing an increase of 28.075 million tons compared to 2013, with a growth rate of approximately 87.83% and an average annual compound growth rate of about 7.26%. The apparent consumption of citrus fruits was 59.5459 million tons, slightly below the national production, resulting in a per capita supply of 42.18 kilograms, which far exceeds the global average level. As the

area of citrus orchards and production continue to rise nationwide, the per capita supply of citrus fruits in China remains highly saturated year after year, highlighting a significant issue of structural overcapacity [3]. Thus, how to innovate the design and planning of these agricultural products to better balance supply and demand and enhance value is a critical issue that needs to be addressed.

2. Current Development Status of the Zhaoqing Emperor Orange Brand

2.1. Brand Culture of Zhaoqing Emperor Orange

As one of China's four major citrus varieties, the Zhaoqing Emperor Orange has received the "National Geographic Indication" certification mark and is listed as a "National Geographic Indication Product." The Emperor Orange is a high-quality and rare variety cultivated by local farmers, with a long history of cultivation. As early as the Northern Song Dynasty, the Emperor Orange was considered a tribute to the imperial court, hence the name "Tribute Orange." Although there are certain shopping centers in the local area, the lack of effective brand development has resulted in low recognition of the Emperor Orange in shopping centers outside the region.

2.2. Current Status and Challenges of the Zhaoqing Emperor Orange Brand Development

Currently, Zhaoqing City has not established an independent and comprehensive brand for the Emperor Orange, and there is a significant lack of awareness regarding brand development. This limitation, to some extent, hinders the market sales and promotional effectiveness of the

Zhaoqing Emperor Orange. Although the Emperor Orange has received national geographic indication certification, its reputation as the "King of Oranges" has not been widely disseminated, making it difficult to stand out among similar products. In today's e-commerce era, consumers tend to prefer online shopping. In the midst of overwhelming information on the internet, the key to enhancing product visibility lies in swiftly establishing a mature and influential brand.

2.2.1. Absence of a Brand Logo

As a visual element of a brand, the brand logo plays a crucial role in recognition and memorability, positively influencing users' purchasing desires [4]. However, the Zhaoqing Emperor Orange brand has not prioritized logo design in its brand development, resulting in a lack of unique identifying features in its products in the market. The current packaging design is limited to indicating the origin and product information, exhibiting a style that is overly similar and generic. This approach fails to create a profound brand impression in consumers' minds and does not effectively differentiate it from other similar products. The lack of a distinctive brand image places the Zhaoqing Emperor Orange at a disadvantage in market competition, significantly reducing its competitiveness compared to other brands.

2.2.2. Absence of Brand Cultural Value Representation

A successful brand relies not only on urban elements but also on the cultural connotations that enhance consumer understanding and recognition of the brand, thereby fostering trust and a sense of belonging [5]. However, in terms of brand cultural development, the Zhaoqing Emperor Orange has failed to effectively showcase and promote its cultural aspects externally, resulting in a certain information gap in competition with similar products. Additionally, the Zhaoqing Emperor Orange has not fully leveraged its unique regional cultural characteristics for promotion. The regional charm of Zhaoqing has not been adequately expressed through brand communication, limiting its influence and competitive advantage in a broader market.

2.2.3. Packaging Homogenization



Fig 1. Packaging of Zhaoqing Emperor Orange

The Zhaoqing Emperor Orange still utilizes outdated, uncreative plain cardboard boxes for product packaging, lacking targeted visual design. This has resulted in a high degree of homogenization in the market, as illustrated in

Figure 1, which shows the currently common packaging for Emperor Oranges. The homogeneous external packaging fails to stimulate consumer purchasing desire for this regionally distinctive agricultural product. The packaging design for the Zhaoqing Emperor Orange should integrate regional culture and extract design symbols that reflect local characteristics, combining the regional image with the corporate identity. By adopting innovative packaging forms, not only can the perceived quality of the product be enhanced, but it can also effectively convey information about the distinctive product, thereby increasing market appeal and competitiveness.

3. Analysis of Similar Agricultural Products

3.1. Market Demand Analysis

At both the national and provincial levels, the citrus market is showing an upward trend. Data indicates that in 2021, the fruit production in Guangdong Province reached 16.2669 million tons, with citrus fruits accounting for 21.88% of this total. Zhaoqing City's orchards and fruit production made up 7.59% and 11.45% of the province, respectively, ranking third in Guangdong. Furthermore, in 2023, the production of Deqing Tribute Oranges reached an impressive 126 million pounds, marking a remarkable harvest. In terms of consumer snack preferences, fruits have become the top choice for healthy snacks. Fresh fruits or ready-to-eat fruit cuts are not only convenient to consume but also fit into various scenarios, such as after meals, during TV shows, afternoon tea, and while working or studying. This convenience has facilitated the trend of snackification of fruits, further embedding them into daily life and driving growth in market demand.

3.2. Consumer Demand Analysis

Based on the previous analysis of the issues related to the Zhaoqing Emperor Orange packaging—namely, the absence of a brand logo, the lack of representation of brand cultural value, and packaging homogenization—a user interview outline was developed to gather consumer insights. The user interview outline is shown in Table 1. A total of 12 users participated in in-depth interviews, and through qualitative analysis, it was concluded that current consumer demands for regionally distinctive agricultural products can be categorized into three main parts:

1. Brand Identification: Users expressed a desire for clear and recognizable brand logos on the packaging of the Zhaoqing Emperor Orange. They indicated that the brand logo should reflect the uniqueness of the Emperor Orange through elements such as color, font, and pattern, creating memorable associations.

2. Brand Culture: Users hope that the packaging design can imbue the product with greater cultural significance, thereby enhancing their desire to purchase. By incorporating cultural elements and brand stories, the packaging can elevate the overall perception of the product's quality, allowing it to stand out among various agricultural products.

3. Brand Packaging: Users wish for innovations in the materials and shapes of the Zhaoqing Emperor Orange packaging to avoid homogenization with other fruit packaging on the market and to enhance visual appeal. The packaging design should combine visual innovation with practicality, such as ease of transport and convenient opening, to provide a positive user experience.

Table 1. Zhaoqing Emperor Citrus Packaging Design Interview Outline

Topic Interview	Question Outline
User Background	<ol style="list-style-type: none"> 1. Have you ever purchased or come into contact with Zhaoqing Emperor Mandarin? 2. What channels do you usually use to purchase agricultural products (e.g. supermarkets, online e-commerce, etc.)?
Brand Logo	<ol style="list-style-type: none"> 3. How important do you think the brand logo is in the packaging of agricultural products? How does it affect your purchasing decision? 4. Have you noticed that there is no obvious brand logo on the packaging of Zhaoqing Emperor Mandarin? How does this affect your choice of this product? 5. What kind of brand logo do you want to see on the packaging of Zhaoqing Emperor Mandarin? (For example, suggestions on color, pattern, font, etc.)
Brand Cultural Value	<ol style="list-style-type: none"> 6. When buying agricultural products, do you consider the culture and stories behind them? If so, what kind of cultural stories do you think are most attractive to you? 7. How much do you know about the culture of the Zhaoqing area and the history of Zhaoqing Emperor Mandarin? Does this affect your opinion of its products? 8. If the packaging of Zhaoqing Emperor Mandarin can better reflect the culture and history of the brand, would you be more inclined to buy it? How do you expect the packaging to convey this information? (e.g. text description, graphic symbols, etc.)
Packaging homogeneity	<ol style="list-style-type: none"> 9. What other factors do you think have an important impact on your purchasing decision in agricultural product packaging design? (e.g. environmental protection, portability, reuse, etc.) 10. Do you have other suggestions or expectations for the future packaging design of Zhaoqing Emperor Mandarin Oranges?

3.3. Packaging Design Positioning

Considering the existing issues and market research, the innovative packaging design for agricultural products requires not only a clear visual positioning but also further development of its cultural and emotional value. An analysis of the nutritional value of the Emperor Orange reveals that it is rich in beneficial nutrients, aligning with a green and healthy brand positioning. Additionally, when analyzing consumption scenarios, the Emperor Orange has a thin peel that is easy to remove and a delicate flesh that makes it ideal for direct consumption, juicing, or preparing sweet soups. Finally, in terms of demographic analysis, the Emperor Orange is suitable for all health-conscious individuals, particularly due to its high vitamin C content, which helps enhance immunity. Vitamin C and calcium are also beneficial for children's growth and development. The soft and tender flesh of the Emperor Orange makes it easy to chew and digest, making it suitable for older adults with dental issues. Given its long-term consumption appeal across all age groups, the brand positioning can be defined as affordable and suitable for all ages. In summary, the design positioning of this brand is "green, healthy, affordable, and suitable for all ages." This indicates an emphasis on the product's natural ripeness, health benefits, affordability, and suitability for consumers of all age

groups.

4. Packaging Design Strategies for Zhaoqing Emperor Orange

4.1. In-depth Exploration of Local Cultural Elements

The history of Deqing Emperor Orange can be traced back to the Yongzheng period of the Qing Dynasty, boasting over 300 years of cultivation. As one of China's four major citrus fruits (including Puning Pomelo, Xinhui Pomelo, Shantou Baizhi Dried Peel, and Deqing Emperor Orange), the Deqing Emperor Orange enjoyed the prestigious reputation of being known as the "King of the East and the Prince of the West" during the late 19th and early 20th centuries. It was once presented as a national gift to heads of state, including the President of the United States and the Prime Minister of Australia. The brand culture can be visualized through traditional Chinese scroll-style illustrations that incorporate elements of ancient prosperity and architecture, using modern illustration techniques to create a visual representation of the brand's cultural significance. As shown in Figure 2, this cultural visualization design practice aims to highlight the rich heritage and history associated with the Emperor Orange.



Fig 2. Illustration Design of Zhaoqing Emperor Orange

4.2. Establishing a Brand Story

A compelling brand story allows consumers to connect with the brand's personality, values, and philosophy, fostering

emotional resonance. A good brand story can evoke emotions in consumers, making them more willing to support and remain loyal to the brand. It helps differentiate the brand in a competitive market, conveys its values, increases brand trust,

and enhances brand differentiation [6]. The Deqing Emperor Orange has three distinct harvest periods:

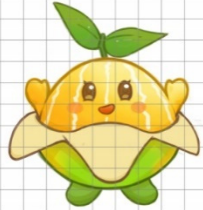


1. Early Harvest Period: This phase typically begins in mid to late October, during which the Emperor Orange starts to ripen. The flavor is sweet with a hint of tartness, appealing to consumers who prefer a slight acidity.

2. Mid Harvest Period: Generally occurring in November, the fruit further ripens, resulting in a sweeter taste and a more delicate texture. This is considered the optimal time for consumption.

3. Late Harvest Period: From December to January, the Emperor Orange is fully mature, boasting a golden color and the highest sugar content, achieving the best flavor.

By integrating the culture of the "Gonggan" (Emperor Orange) into these three timeframes, a brand story can be established that follows a chronological narrative. As shown in Table 2, the entire brand story depicts the journey of the Emperor Orange from a little sprite to a child and ultimately to an emperor, highlighting qualities such as friendship, courage, wisdom, and leadership. This enchanting adventure story not only captures the interest of a younger audience but also aims to spread the sentiment of land stewardship to the general public. Through a complete brand story, consumers can empathize with the brand, enhancing their recognition and connection to it.

Table 2. Zhaoqing Emperor Citrus Packaging Design Interview Outline

Timeline	IP	Story
Birth		In a forest of citrus trees, a little green spirit named Gong Xiaogan, who absorbed the essence of heaven and earth, awakened. Born from the nurturing of nature, he saw the hardworking people and made a vow to diligently cultivate himself, swearing to protect this sweet citrus forest and the human world.
Entering the World		After much dedicated training, Gong Xiaogan grew into the form of a small human child. He carried a bamboo basket that could endlessly yield citrus fruits and stepped into the human world, eager to let more people know about the wonders of citrus. Gong Xiaogan worked diligently alongside everyone, creating an orchard filled with laughter and joy.
Attaining Enlightenment		Heaven rewards those who work hard; through his efforts, Gong Xiaogan spread the fame of citrus, and the variety he belonged to earned the esteemed title of "Emperor Orange." As he traveled through the human world, Gong Xiaogan transformed from a little child into a mature and reliable figure resembling an emperor. However, he knew that this was not the end of his journey; there was still a long path ahead for Gong Xiaogan's future.

4.3. Innovative Packaging Form of Characteristic Agricultural Products

With the steady progress of the rural revitalization strategy, the enhancement of the external packaging design of characteristic agricultural products should not only focus on the innovative visual effect, but also pay attention to the innovation of the packaging functional structure [7]. Therefore, while pursuing visual aesthetics, it is necessary to focus on analyzing and researching the actual use needs of agricultural products in transportation and storage. It is only through this functional consideration that a more targeted solution can be provided for the planning and positioning of the outer packaging, so as to realize the organic combination of aesthetics and practicality, and further enhance the market competitiveness of agricultural products and user experience. As shown in Figure 3, Zhaoqing Emperor Citrus, as the transportation of fruits, needs to consider the collection and handling, in order to ensure the visual aesthetics at the same time, the material can be used recyclable and biodegradable paper materials, and the design of the carrying handle can be

designed without affecting the transportation.



Fig 3. Zhaoqing Emperor Citrus Packaging Design

4.4. Interactive Marketing and Promotion

Nowadays, the number of information platforms is increasing, and the marketing and promotion mode is also continuously updated, learning to visualize data with the help of big data on the relevant user text can be a better design

practice [8]. For the brand marketing of Zhaoqing Emperor Citrus, a set of dynamic emoticons in online media was designed (shown in Figure 4). Emoticons have a wide range and high frequency of use in online media, and as a kind of cultural symbol that is easy to spread and accepted by the public, they can show the personalized characteristics of the brand's IP image. In this way, it can bring the brand closer to consumers, enhance brand affinity, and stimulate consumers' goodwill so that they will spontaneously participate in brand interaction. In terms of online promotion, for example, through the official live broadcast and H5 page design, it is convenient for modern consumers to understand the brand information on various online platforms. Offline, it can cooperate with agro-industries to plan emperor citrus picking activities, build interactive experience activities and science education activities, so as to enhance consumers' sense of participation. At the same time, the establishment of strategic partnerships related to the agricultural industry and rural revitalization will help promote rural development and further enhance the brand influence of Zhaoqing Emperor Citrus.



Fig 4. Interactive marketing and promotion

5. Conclusion

In the current context of rural revitalization, in order to effectively expand the scope of influence of characteristic agricultural products, packaging design should build a unique brand culture. While pursuing visual beauty, it is necessary to pay attention to the emotional experience of consumers. By combining brand culture with the emotional needs of consumers, packaging design can not only stay at the visual level, but also stimulate the resonance of consumers, thereby enhancing the market competitiveness of the brand and promoting sales growth. Taking Zhaoqing Emperor Mandarin as an example, this article integrates regional culture into brand innovation design, and creates an agricultural product brand with Zhaoqing characteristics-'Gong Xiaogan', in order to help rural revitalization and build a design reference.

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