

Demand for Packaging Design of Grain and Agricultural Products in Northeast China

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Abstract

The Ministry of Agriculture of China has made significant contribution to the economic development of Northeast China and promoted the production of many agricultural products[1]. Due to demand, the importance of packaging design in this area is also being upgraded, as it can reshape the appearance of products and improve consumers' attention to products. The purpose of this study is to clarify the needs of packaging design of agricultural products in Northeast China, and also to study products from the perspective of consumer demand. Study design using qualitative methods, including focus group discussions with consumers and packaging designers. The survey results show that the demand for innovative, informative and environmentally friendly packaging design is growing rapidly. Consumers show a preference for packaging that blends aesthetic appeal with function and sustainability. In addition, well-designed packaging can significantly influence consumers' purchasing decisions, thus playing a pivotal role in brand competition and market positioning. The analysis also highlights a paradigm shift towards personalized packaging design, in line with global trends. The study highlights the need for agricultural producers and packaging designers in the Northeast to evolve with changing needs and recommends investing in creative, sustainable packaging design. It also advocates fostering synergies between designers, producers and consumers to optimize the packaging design process, thereby driving market competitiveness, consumer satisfaction and environmental stewardship. The insights gleaned from this study illuminate pathways for future research and practical advancements in the field of agricultural packaging design in the Northeast region.

Keywords: Jitterbug Mall, Oriental Selection, Emotional Resonance, Packaging Design Elements

Introduction

Northeast China mainly takes agricultural development as an economic industry, and agricultural products play an important role in the regional economy. The annual output of agricultural products accounts for one-fifth of the country. Northeast China is also known as the granary of China[2]. Due to the huge grain production, the packaging of agricultural products has also become an essential link. The latter is increasingly recognized for its transformative potential to enhance product visualization, capture consumer interest and enhance brand image in the market. The interaction between packaging design and consumer behavior is an interrelated relationship, in which the former attracts consumers through external packaging attributes, and the latter consumers decide to buy through needs to determine goals. This dynamic interaction significantly affects the demand relationship of the market. With the increasing importance of packaging design in the agricultural field, this study sorted out the packaging design of agricultural products in Northeast China and the needs of customers and markets. In addition, attempts are made to measure the intrinsic needs of buyers that influence packaging design on consumer behavior and product packaging attributes.

Background of the Study

"Rice is almost synonymous with food," global rice experts say in the 4th Edition of Rice Knowledge. With the development of society and the improvement of people's aesthetic needs, consumers are no longer just satisfied with the basic consumption needs of rice, but begin to select those exquisite, beautiful and distinctive hardbound rice in numerous cereal products and packaging to meet their own aesthetic needs.[3]. The packaging of agricultural products is the first feeling of consumers on the product, and its design and quality directly affect the purchasing decision of consumers.[4].

Northeast China, consisting of Liaoning, Jilin and Heilongjiang provinces, covers an area of about 1.47 million square kilometers, accounting for 15.3 percent of the country's total land area. According to the 7th National Census, the total population of the region was 97,297,700. The region has unique geographical and climatic conditions, mainly belonging to the temperate monsoon climate and temperate continental climate, cold winter and high humidity, which provides unique conditions for the growth of grain crops. According to the Food and Agriculture Organization of the United Nations, global rice production exceeded 740 million tons in 2013, of which more than 90% was produced in Asia, and China's production of 205 million tons ranked first in Asia. In 2021, China's National Development and Reform Commission pointed out at a press conference that the three northeastern provinces account for more than one-fifth of the country's grain output and are praised as China's "Northeast granary." In this context, the importance of agricultural packaging design is self-evident.

Significance of packaging design of agricultural products

The packaging design of agricultural products plays an important role in modern marketing. First, it protects agricultural products from damage during transportation and storage, maintaining the freshness and quality of the product. Second, by passing on product information such as origin, type and expiration date, it helps consumers make informed purchasing decisions. Well-designed packaging can attract the attention of consumers and increase the sales potential of the product. At the same time, packaging design is also an important part of the brand image, helping to establish and enhance consumer awareness and trust in the brand. The environmentally friendly packaging design not only shows the

social responsibility of the company, but also meets the expectations of modern consumers for green and sustainable consumption. In a highly competitive market environment, innovative and eye-catching agricultural packaging design has become an important tool for agricultural product market promotion and brand building, adding added value to agricultural products and promoting the development and innovation of the agricultural market.

Research Objectives

This paper is divided into three research objectives

- Evolution of packaging design in the development of agricultural products in Northeast China.
- Influence of the attributes of grain agricultural products on the design of grain agricultural products.
- From the perspective of consumers' aesthetic perception and evaluation, through quantitative research on packaging design factors, this paper analyzes the important factors that affect consumers' evaluation of agricultural products' outer packaging, so as to provide support for the packaging design of grain and agricultural products in Northeast China.

Literature Review

An exploration of the packaging world has revealed a growing need for designs that are not only beautiful, but also informative and environmentally sound. Consumers show their personal preference for packaging aesthetics. The research results show that well-conceived packaging design significantly affects consumers' purchase choices, thus becoming the key to brand competition and market positioning, and consumers have obvious demand for product packaging quality[5]. In addition, there is an obvious demand for personalized design, which also reflects the trend of niche product design from the side.

Packaging design evolution in agricultural development

Literature shows that the concept of timeliness in history, that is, with the passage of time, modern agriculture is time-efficient, breaking through the previous restrictions of mainly producing primary agricultural products, and the outer packaging of agricultural products will be more in line with the brand and social aesthetic trends[6].

Impact of Agricultural Product Attributes on Grain Packaging Design

Regional traditional cultural features have been explored and integrated into agricultural product packaging design to showcase unique traditional regional culture and history[7]. Moreover, the dimensions of packaging design, including design aesthetics, font type, color, materials, and printed information, play crucial roles in consumer purchasing intent[8]. In the agricultural sector, effective packaging design significantly helps in reducing food loss from harvesting to consumption, emphasizing the importance of packaging in preserving the quality and safety of agricultural products[9].

Consumer Aesthetic Perceptions and Evaluations of Packaging Design

Understanding consumer perceptions is vital to achieve the desired positioning in the minds of consumers through correct packaging design[10]. Aesthetic packaging design significantly influences consumer decisions and needs, as visual aesthetics are integral to a product's success and influence the amount of time consumers spend making decisions[11].

Current trends driving food packaging design, such as rightsizing, sustainability, and food waste, reflect evolving consumer preferences and the importance of packaging design in addressing these preferences[12]. Furthermore, the materials and graphics used in packaging design have been found to influence consumer perceptions and evaluations regarding sustainability[12]. Recent advances in consumer aesthetics research explore various elements of packaging, such as shape, color, and visual appeal, as well as their demands on consumer behavior[13].

This literature review outlines the evolution and importance of packaging design in the Northeast China agricultural sector, the interplay between agricultural product attributes and packaging design, and the significance of understanding consumer aesthetic perceptions and evaluations in developing effective packaging strategies to meet evolving consumer demands. Through a deeper exploration of these themes, this research aims to provide substantial insights into the demand for innovative packaging design of agricultural products in Northeast China. The evolution and importance of agricultural packaging design in Northeast China again plays an interactive role between the attributes of agricultural products and packaging design, as well as the impact of understanding consumers' aesthetic perception and evaluation on developing effective packaging strategies to meet changing consumer needs.

Research Methods

Consumer Perspective

Consumers are the end beneficiaries of product design, and their needs usually revolve around the functional and aesthetic experience of food and agricultural products. However, many times, consumers may not be clear about the specific requirements and goals of food and agricultural packaging design. At this time, the role of designers is not only to present the requirements of customers, but also to guide consumers to discover the value and beauty of products through design.

Customer perspective

The client is the initiator of the design project, and they usually have a clear design needs and market positioning. Communication with the designer is a key step to ensure that the design solution fits the food and agricultural products market and brand positioning. Customers may provide product features, brand positioning, industry characteristics and other information to help designers understand the direction and goals of the design.

Designer's perspective

Designers are the bridge between customers and consumers, they need to have enough expertise and creativity to meet the needs of customers, but also to guide and satisfy the aesthetic and functional needs of consumers. In the communication with customers, designers not only need to listen patiently, but also need to be able to put forward professional suggestions to guide the direction of design to ensure that the design scheme can accurately convey the brand information and meet the market demand.

In the process of packaging design of agricultural products, designers need to master and use the visual communication law and the professional characteristics of packaging design, so as to meet the needs of customers, but also to provide pleasant and satisfactory visual experience for the target consumer group. Through clear market positioning and deep consumer understanding, designers can discuss and determine the core elements and

direction of design together with customers, so that agricultural packaging design can accurately convey product value and brand concept, and then promote the success of food packaging in the market.

The researchers prepared a series of grain-based agricultural packaging for 118 consumers to participate in the experiment: five designs were explained. From these five designs, consumers have made a comparison of the needs of color, graphics, fonts, layouts and materials.

Create a spreadsheet that identifies the aesthetic needs of consumers for design factors. This type of analysis relies on data gathered from actual market research or consumer surveys. It can be used to record and analyze this type of data.

Some data about different design factors' influence on consumers' aesthetic demands were collected through questionnaire survey. The following is a possible measurement table template Figure 1:

Table 1

Design factor	Average rating (1-5)	Significance test value (P-value)	Correlation coefficient (r)	Consumer aesthetic ranking
Colour	4.2	0.001	0.79	1
graph	3.8	0.005	0.65	2
typeface	3.5	0.010	0.060	3
layout	3.3	0.015	0.55	4
material	3.0	0.020	0.50	5

Design factors: Lists the design factors you should consider, such as color, graphics, fonts, etc.

Average rating (1-5): The average consumer rating for each design factor based on your survey or research.

Significance test value (P-value): A significance test value derived from a statistical test.

Correlation coefficient (r): To measure the degree of correlation between design factors and consumer evaluation, the value of the relationship between color and consumer aesthetic preference is 0.78, which is a valid value.

Consumer Preference Ranking: Rank preferences for design factors based on average ratings or other relevant data.

Conclusion

In the context of increasingly fierce competition in the food and agricultural products market, the understanding and satisfaction of packaging design needs has become the key to break through. This process is not just about the visual presentation of the designer, but covers the close interaction of the three aspects of the consumer, the client and the designer. The following is an in-depth analysis of the needs of agricultural packaging design.

With the improvement of consumer awareness and taste, packaging design has become one of the important factors determining the success of food and agricultural products sales. The purpose of this study is to explore the aesthetic factors of consumers' evaluation of the outer packaging of grain agricultural products in Northeast China, identify and optimize the main design factors that affect consumer evaluation, so as to meet the needs and expectations of consumers.

Good packaging can not only protect products, convey brand information, but also attract consumers' attention and promote sales, especially in the rice production areas such as Northeast China, high-quality packaging design can increase the added value of food and agricultural products, enhance the market competitiveness of products, while meeting the growing aesthetic needs of consumers. By improving packaging design, we can further promote the construction and market expansion of grain and agricultural products in Northeast China, and make positive contributions to the sustainable development of regional economy. The implications of this research are not only academic, but also have profound practical implications. Agricultural producers and packaging designers in Northeast China are called upon to meet the changing needs through the attributes of packaging design. In addition to aesthetics, the study advocates building good feedback between designers, producers and consumers. This feedback can improve the packaging design process, thereby promoting market competitiveness and increasing consumer satisfaction.

Based on Maslow's demand theory, this paper provides an order for the elements of agricultural product packaging through consumers, customers and designers. Consumers choose agricultural product packaging from the following three aspects: color, graphics and font layout. It is the main contribution of this paper to propose the ordering of design elements by consumers, which can help designers have a bias in their work.

Suggestions

Through the above research and summary, it is suggested to improve the color matching of cereal packaging design, and carry out targeted typesetting of packaging images to meet the needs of consumers. Designers in the packaging design of agricultural products not only to meet the needs of customers, but also to guide and meet the aesthetic and functional needs of consumers, this market-oriented design idea has a strong practical value. We can see that the packaging design of agricultural products is a complex process with multiple levels and multi-participation, which requires close cooperation and communication between designers, customers and consumers. In the future research and discussion, we can try to provide more specific and practical design suggestions and programs from more practical cases, combined with market data, in order to promote the further development of the field of agricultural packaging design.

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