Section 5. COMMODITY RESEARCH AND EXPERTISE OF NON-FOOD PRODUCTS

RENEWAL OF PORES DISTRIBUTION IN LEATHER PRODUCTS

V. Zakharenko, A. Diakov, Zh. Vorontsova

The questions concerning the possibility of a complete curve \( f(r) \) volumetric differential distribution of pores according to the experimentally found part of the distribution curve for large radii of pores are considered in the article. This problem’s solution is grounded on the basis of the connection between \( f(r) \) and function of logarithmic normal distribution of casual amount \( P(r) \) found in previous works. The supposition that volumetric distribution of pores is based on logarithmically normal distribution lies in the grounds of the research. During the curve renewal the methods of numerical analysis on the basis of common non-linear regression with the use of mathematical system Mathcad are used.

A standard function \text{genfit} \text{ of mathematical packet Mathcad was used for obtaining differential function of distribution. It was found that the exactness of the initial vector stipulation sufficiently influences the possibility of the distribution curve renewal. Under condition of the initial vector stipulation, which sufficiently differs from real one, the violation of the calculation process and obtaining of wrong data becomes possible.}

Keywords: differential division of pores, leather, logarithmically normal distribution, mathematical system Mathcad.

THE INFLUENCE OF AESTHETIC PROPERTIES OF PRODUCT PACKAGING ON CONSUMERS’ PREFERENCES

T. Letuta, A. Gasanova, D. Grygorets

With the help of marketing research, the influence of aesthetic packaging properties on customers' preferences is analyzed. The aim of such research is to determine packaging elements that influence consumers' decision on buying the corresponding product. The innovations in product packaging are analyzed. Considering them as an important part of business activity, current questions of nutritional product packaging study are revealed. The authors have studied the consumers' treatment of packaging design and their level of innovations comprehension in this field. Online survey is conducted, on the basis of which the following conclusion is made: modern Ukrainian market seems to be compositionally uniform, that leads
to the necessity of more detailed study of a consumer preferences to timely packaging design development and innovations implementations in this field of activity.

**Keywords:** packaging, design, composition, demand.

**Formulation of the question in general.** In the modern world manufacturers are actively trying to catch the attention and earn the loyalty of consumers, effectively using main elements of marketing: product, price, sale and communication. Nowadays, packaging also stands along with these important components. Though it is often viewed as a part of an enterprise’s product policy, lately some of the scientists distinguish it as additional separate marketing element.

The packaging eases the products’ movement on the market, facilitates the identification of goods and their producers by consumers, highlights the main product characteristics and helps to make an impression on it. From the point of view of the product promotion, packaging is the one of most effective means of doing it. According to the surveys, in 76% of cases buyers choose goods because of their bright and convenient packaging.

There is a certain interconnection between the packaging and psychological processes during buying or selling. An average buyer pays attention to the peculiarities of packaging, especially to its color, form and size. Packaging is an integral component of a product, it’s external shell. This leads to the fact that more than 20% of consumers make their choice grounding exclusively on the impression of packaging. A successful selection of color, form and packaging fonts leads to a higher increase of manufacturer’s profits than by means of advertising. Yet it’s much less expensive, since the packaging is “communicating” with the buyer trying to “sell itself”.

Attractive packaging creation is one of the most effective ways to satisfy modern consumer and urge him or her to buy exactly this product among the dozens of other suggestions in the corresponding product group.

**The analysis of the latest researches and publications.** Lately, many researches are conducted by the scientists who try to analyze the topicality of innovative design of consumer packaging in Ukraine, and how its aesthetic peculiarities help to discover certain product characteristics, resolving the task of creating product’s image [1–3]. The market of a flexible packaging in Europe and Ukraine is analyzed, and the developmental tendencies are discovered.

Scientists around the world are trying to find practical and interesting solutions to this issue. For example, Japanese designers have developed a
The purpose of the article is to study the impact of aesthetic properties of goods’ packaging on consumer preferences.

The main material under research. Packaging is a one-way channel for delivering industrial, technical, economic and marketing information to distributors and consumers [7]. There are several product packaging requirements: packaging design should influence the image that the company has created for its products; packaging needs to comply with national and international standards in order to be competitive in the world market. Standardization of packaging increases its chances to international recognition; the selection of size, color and shape depends on the packaging method and storage term, transportation and ease of use. A consumer is sensitive to such factors as price, so when creating a new packaging you should count its absolute as well as its relative price. The choice of packaging is affected by the presence of space for labels, that would attract attention of a buyer; packaging needs to conform to the marketing strategy firm.

During the packaging design development, one should be aware that the use of traditional design solutions is more typical for the manufacturers that have already become well established in the eyes of consumers, being the symbols of quality and reliability. Manufacturers entering the market can apply unique solutions that help attract the attention of potential customers and generate interest in the product [8].

The review of scientific literature showed that complete product packaging has a significant impact on a sufficient number of consumers and encourages them to purchase food. Note, however, that the wrong combination of individual elements can have the opposite effect, and the consumer may either refuse to purchase a product, or even not to notice it and prefer the competing products. Knowing this, it is necessary to have a comprehensive approach. Let us consider the elements of packaging that are worth paying attention during the design development:

1. Composition. It can be symmetric and asymmetric. These composite solutions are differently perceived by the consumers, so the choice of a composition is the task that should be well considered (Table 1).
Table 1

**Consumer perception of composite packaging solutions**

<table>
<thead>
<tr>
<th>Kind of composition</th>
<th>Customer acceptance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symmetrical</td>
<td>Adherence to the manufacturer traditions, compliance with the old recipes, conservatism, fashion independence. Love to order, seriousness and thoughtfulness. Persistence and responsibility, respectability, reliability, stable position in the market. Officiality, the idea of statehood</td>
</tr>
<tr>
<td>Asymmetric</td>
<td>Freedom, relaxedness, dynamism, energy, activity. Strength and aggressiveness. Novelty, modernity. Elegance, lightness, bohemian elitism. The creative search, manufacturer desire for novelty, the, informal approach</td>
</tr>
</tbody>
</table>

2. Using the colour on the packaging significantly impacts on people’s mood, decisions and emotions.
3. Using the information and visual elements. The marketer determines the number and size of the main information elements, the possibility of including graphic elements and their desirable ratio on the package as a percentage when providing technical task for the development of packaging.

Graphic elements play an important role in food packaging, because the most common rectangular shape can limit the design possibilities.

There are the following causes of discomfort in the package perception (Table 2) [9].

Table 2

**The causes of discomfort in the perception of packaging**

<table>
<thead>
<tr>
<th>Cause</th>
<th>Design disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information on packaging cannot be read at all or with large efforts</td>
<td>Using sophisticated fonts. The inscription does not stand out against the background. Inscriptions are angled uncomfortable to read</td>
</tr>
<tr>
<td>The product &quot;does not hold&quot; a glance</td>
<td>The composition is not balanced, set of different elements of the package. Accents are placed at the edges of the package</td>
</tr>
<tr>
<td>Packaging looks &quot;cheap&quot;</td>
<td>Used failed combination of colors. The presence of many achromatic colors. Poorly chosen font. Low photos and drawings quality. Applied standard, commonly used texture, shading and symbols of commonly available software</td>
</tr>
</tbody>
</table>
We have carried out a market research as an online survey by means of the Internet. For the survey 50 people aged from 16 to 40 years were chosen. Three sets of questionnaire were elaborated: the definition of the package benefits block, determining the degree of innovative perception in food packaging block and socio-demographic block. Online application was published in a social network "VKontakte". The results of the survey are presented in Table 3.

Table 3

<table>
<thead>
<tr>
<th>Question</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you agree that package affects the choice of a product?</td>
<td>33% – agree 47% – partially agree 20% – disagree</td>
</tr>
<tr>
<td>The purchase of what kind of goods is most affected by the package?</td>
<td>Candy – 35%, confectionery products – 14%</td>
</tr>
<tr>
<td></td>
<td>tea and coffee – 14%</td>
</tr>
<tr>
<td>Do you read information on packaging?</td>
<td>Always read – 51%, occasionally – 38%, rarely – 9%, never – 2%</td>
</tr>
<tr>
<td>What type of manufacturers do you prefer: innovators, followers or outsiders?</td>
<td>Innovators – 25%, followers – 70%, outsiders – 5%</td>
</tr>
</tbody>
</table>

Perception of packaging innovations

<table>
<thead>
<tr>
<th>Product</th>
<th>Buy 50% of respondents, including an extra charge 15...25% – 64%, 26...35% – 28%, 36...45% and more – 4%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illuminated bottle</td>
<td></td>
</tr>
<tr>
<td>Juice in the form of fruit</td>
<td>Buy 78% of respondents, including an extra charge of 15...25% – 97%, 26...35% – 3%</td>
</tr>
<tr>
<td>Spoon-cover (Spoon-lid)</td>
<td>Buy 54%, of which an extra charge 15...25% – 70%, 26...35% – 30%</td>
</tr>
</tbody>
</table>

Analyzing the data tables, it was found that 47% of respondents agree with the statement that package effects on the goods choice; majority of the online survey believe that package has the biggest impact on the buyer's choice of confectionery and chocolates; 51% of respondents always read the information on the package; 70% of respondents prefer to producers-followers. Most respondents decide to purchase goods with innovative package.

Innovative activity is an integral part of commercial success on the market. For the most successful implementation it is necessary to ensure compatibility between package and human senses: smell, taste, sight, touch and hearing.
Conclusions. Most Ukrainian producers are satisfied customers with packages for food products, but it traced uniformity of composite solutions, so it needs conduct a more detailed study of consumer preferences before starting the design. Consumers are ready to buy products in innovative packages at affordable prices, so manufacturers should improve existing packaging, as it may have a positive impact on aesthetic satisfaction of consumer needs and to increase revenues from producers’ business.

Список джерел інформації / References

   Voskoboieva, O.V. Rynok hnuchkoi upakovky: osnovni tendentsii rozvytku [Flexible packaging market, the main trends], available at: http://www.ej.kherson.ua/

   Orliuk, O.O. Spivvidnoshennia pravovoi okhorony promyslovych zrazkiv i torhovelnych marok [Value for legal protection of industrial designs and trade marks], available at: http://www.ndiiv.org.ua/


Slovnyk terminiv [Glossary], available at: http://www.ht-shipping.com/ua/eHT/GlossaryTerms.html

Летута Тетяна Миколаївна, канд. техн. наук, проф., кафедра товарознавства та експертизи товарів, Харківський державний університет харчування та торгівлі. Адреса: вул. Клочківська, 333, м. Харків, Україна, 61051. Тел.: 0995078654; e-mail: kaf_tovarovedenia206@mail.ru.

Летута Татьяна Николаевна, канд. техн. наук, проф., кафедра товароведения и экспертизы товаров, Харьковский государственный университет питания и торговли. Адрес: ул. Клочковская, 333, г. Харьков, Украина, 61051. Тел.: 0995078654; e-mail: kaf_tovarovedenia206@mail.ru.

Letuta Tetiana, Candidate of Sciences (comparable to the academic degree of Doctor of Philosophy, Ph.D.), Professor, Department of
Commodities and Commodity Expertise, Kharkiv State University of Food Technology and Trade. Address: Klochkovskaya str., 333, Kharkov, Ukraine, 61051. Tel.: 0995078654; e-mail: kaf_tovarovedenia206@mail.ru.

Гасанова Анна Едуардовна, канд. техн. наук, асист., кафедра товароведения и экспертизы товаров, Харьковский государственный университет хранения и торговли. Адрес: вул. Клочковская, 333, г. Харьков, Украина, 61051. Тел.: 0676453879; e-mail: gasanova.anna@mail.ru.

Гасанова Анна Эдуардовна, канд. техн. наук, асист., кафедра товароведения и экспертизы товаров, Харьковский государственный университет питания и торговли. Адрес: пр. Клочковская, 333, г. Харьков, Украина, 61051. Тел.: 0676453879; e-mail: gasanova.anna@mail.ru.

Gasanova Anna, Candidate of Sciences (comparable to the academic degree of Doctor of Philosophy, Ph.D.), Department of Commodities and Commodity Expertise, Kharkiv State University of Food Technology and Trade. Address: Klochkovska str., 333, Kharkov, Ukraine, 61051. Tel.: 0676453879; e-mail: gasanova.anna@mail.ru.

Григорец Дмитро Олегович, студ., кафедра товароведения и экспертизы в таможенной сфере, Харьковский государственный университет хранения и торговли. Адрес: вул. Клочковская, 333, г. Харьков, Украина, 61051. Тел.: 0960010809; e-mail: dmitry.grygorets@gmail.com.

Григорец Дмитрий Олегович, студ., кафедра товароведения и экспертизы в таможенном деле, Харьковский государственный университет питания и торговли. Адрес: пр. Клочковская, 333, г. Харьков, Украина, 61051. Тел.: 0960010809; e-mail: dmitry.grygorets@gmail.com.

Grygorets Dmitry, student, Department of Commodity and expertise in customs, Kharkiv State University of Food Technology and Trade. Address: Klochkovskaya str., 333, Kharkov, Ukraine, 61051. Tel.: 0960010809; e-mail: dmitry.grygorets@gmail.com.