

IMPROVING THE MARKETING OF NATURAL MINERAL WATER ON THE EXAMPLE OF PJSC "MYRHOROD MINERAL WATER PLANT"

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Summary - PJSC "Myrhorod Mineral Water Plant" was chosen as the object of research of the scientific article. PJSC "Myrhorod Mineral Water Plant" and its trademark "Myrhorodska" are widely known and popular among consumers. To analyze the attitude of consumers to the products of PJSC "Myrhorod Mineral Water Plant", a marketing study was conducted through a questionnaire Internet survey using google forms, the results of which revealed weaknesses in the marketing system of the enterprise. Such shortcomings are include the product portfolio has not been updated for a long time (consumers want to update it); unsatisfactory design of the products and means of advertising. An analysis was also made of the competitiveness of the products of PJSC "Myrhorod Mineral Water Plant", which consumers like the least by the method of integrated assessment of marketing objects. An expert focus group was set up to determine the list of evaluation criteria. To increase the objectivity of the assessment of the opinion of experts was used the method of the survey "Designer the L.S.Shkolnik". The main way to improve the marketing activities of the researched enterprise is the introduction of an innovative product. We have offered new products in the form of sweetened low-carbonated water with the addition of plant extracts. The logo, the layout of the environmentally friendly "Plant Bottle" and the innovative "Myrhorod Fresh & Health Collection" trademark were also presented. The price of "Plant Bottle" is lower than the packaging currently used by PJSC "Myrhorod Mineral Water Plant". Concluding this study, we can conclude that PJSC "Myrhorod Mineral Water Plant" has a strong position in the mineral water market. But at the same time the company has weak links that require innovation to help maintain and improve the business.

Keywords: *integrated assessment, marketing, marketing research*

INTRODUCTION

The modern market of mineral waters of Ukraine has significant prospects for development, as the average citizen of the country consumes 30-40 liters of mineral water per year, while in the EU there is about 100 liters per citizen per year [6; 9]. According to the State Statistics Service of Ukraine, as of September 1, 2020, about 500 sources of mineral waters are officially registered in Ukraine.

Deep in the underground bowels of Ukraine in the Poltava region, there are huge reserves of mineral salts. They saturate water deposits, which give people an extraordinary healing elixir "Mirhorodska mineral water". "Mirhorodska water" is famous for its ability to remove various toxins from the body - from natural decay products to chemical poisons and radiocarbon elements, therefore it contributes to the rehabilitation of patients with cancer. The properties of water to raise the general tone of the body and strengthen the immune system, is used to improve the health of pregnant women, children, the elderly. "Mirhorodska water" also helps to get rid of chronic fatigue and accumulated stress. [2]

Accordingly, the culture of mineral water consumption, the presence of a large number of potential consumers and significant reserves of relevant resources create the preconditions for the development of the mineral water market in Ukraine and increase production by companies in the country.

THE MAIN MATERIAL

The purpose of scientific work: To explore the possibilities of improving the marketing of PJSC "Myrhorod Mineral Water Plant" by creating new products using only natural raw materials, the introduction of modern environmentally friendly packaging.

Methodology. When writing the article, the methods of conducting marketing research using the Internet survey and the focus group method were used. To improve the objectivity of the assessment of the opinion of experts, the development of the "Designer the L.S.Shkolnik" [7] was used. To assess the competitiveness of the product on the market, we used the method of integrated assessment of marketing objects, developed by the authors. [3] Computer programs were used to develop product design layouts: Adobe Photoshop CC 2015; CoreDRAW Graphics Suite 2019.

To analyze the attitude of consumers to the products of PJSC "Myrhorod Mineral Water Plant" in the framework of writing a scientific article, a marketing study was conducted through a questionnaire Internet survey. [17] A marketing survey will help you learn more about your customer. Having received reliable information about the audience, you can understand what is better to attract it. This will determine which products are most successful and which are selling poorly and why. [4] The main subjects of the drinking water market in the study were consumers of drinking water and their attitude to bottled water produced by PJSC "Myrhorod Mineral Water Plant". The research was conducted by the method of a questionnaire survey of persons who are inclined to PJSC "Myrhorod Mineral Water Plant". An online questionnaire was created using the Google Form. Google Forms is a handy tool that allows you to easily and quickly schedule activities, compile surveys and questionnaires, and gather other information. [5] The form can be linked to a Google spreadsheet, and then respondents' answers will be automatically stored in it. Such a questionnaire is quite relevant, because according to the Internet Association of Ukraine (published on their official website in November 2020), which presents the results of a survey conducted during the third quarter of 2020, 71% (22.96 million) of the adult population of Ukraine use the Internet [<https://inau.ua/proekty/doslidzhennya-internet-audytoriyi>]. Therefore, the online survey occupies a leading position among the dissemination of information. Forms can be easily created, edited and completed on both computers and mobile devices, making it much easier to gather information. Google Forms is very convenient due to the fact that the statistics of the answers, including in the form of a chart can be viewed in two ways: in the spreadsheet with answers and using the "Summary Form" mode. [15] During the survey, different categories of respondents aged 17 to 70 were interviewed. As a result, the total number of respondents who took part in the survey is 200 people. The questionnaire included 10 questions, the answers to which allowed to obtain fairly complete information about the opinions, preferences and behavior of consumers. This survey presents different categories of consumers. Therefore, its results are closest to the real situation. According to the results of the survey, we found that the majority of respondents choose still water, the least audience is attracted by low-carbonated mineral water. Thus, the weakest strategic business unit to which the company should turn is low-carbonated water. The answers to the second question make it clear that the company's marketing activities are not effective enough, as the majority of respondents (55%) learned about the products of PJSC "Myrhorod Mineral Water Plant" when they saw it on store shelves. Also, the survey results show that a large number of consumers are dissatisfied with the appearance of the products of the studied enterprise. It is difficult for the consumer to distinguish the products of the Myrhorodska brand from the analogue products. We found that most respondents believe that the appearance of products is quite standardized and does not have pronounced individual characteristics. The last question is "Are you expecting a new product from Myrhorodska trademark? The purpose was to find out whether consumers would like to receive a new product from PJSC Myrhorod Mineral Water Plant. "Yes" was answered by the vast majority, 98% (197 people), and only 2% (3 people) - "no" Thus, based on the results of the survey, it can be concluded that

consumers are waiting for a new product of the Myrhorodska brand, and the company's communication policy has weaknesses that need to be addressed.

To analyze the competitiveness of low-carbonated mineral water of the Myrhorodska brand, we will use the method of integrated assessment of marketing objects. To determine the characteristics that will be used to determine the competitiveness of mineral water brands, an expert focus group of 8 people was created, consisting of representatives of the marketing department of PJSC "Myrhorod Mineral Water Plant" and invited marketing specialists. This focus group also determined the subjective significance of the characteristics. To increase the objectivity of the assessment of the opinion of experts [8] was used the method of the survey "Designer the L.S.Shkolnik" [7]. This technique is named after the psycholinguist Leonid Semenovich Shkolnik. The essence of the approach is to interview experts in two stages. At the first stage, experts form a list of factors, at the second - a sheet of paper on which the factors are written, cut it into strips. There is one factor on each strip. Experts are then asked to rank these factors in order of importance from their point of view.

To assess the competitiveness, we will choose the three most popular on the Ukrainian market brands of low-carbonated water "Mirhododska", "BonAqua" and "Obolonska"[1; 9]. Common to all these products are the characteristics by which they can be unambiguously assessed taste (in points); price per unit of goods (in UAH); bottle design (in points); total mineralization [11;12;13] (percent A matrix of natural values is created (Table 1)).

Table 1: Matrix of natural values of characteristics

№	Product manufacturer	Product characteristics			
		Tastes, points	Price per unit of goods, UAH	Bottle design, points	Total mineralization,%
1	"Mirhododska" low-carbonated	9	10,50	5	0,21
2	"BonAqua" low-carbonated	8	8,50	2	0,026
3	"Obolonska". low-carbonated	6	7,60	3	0,053

[own development]

In this matrix, the numerical values of the characteristics have different units of measurement, so mathematical operations with them are not possible. Perform the transformation of the elements of the original matrix in one of the following ways:

- a) $\bar{X}_{i,j} = \frac{X_{i,j}(\min)}{X_{i,j}}$, if the best value of the characteristic is the minimum;
- b) $\bar{X}_{i,j} = \frac{X_{i,j}}{X_{i,j}(\max)}$, if the best value of the characteristic is the maximum.

We obtain a matrix of relative values [$\bar{X}_{i,j}$] (Table 2).

Table 2

Matrix of relative values [$\bar{X}_{i,j}$]

№	Product manufacturer	Product characteristics			
		Tastes, points	Price per unit of goods, UAH	Bottle design, points	Total mineralization,%
1	"Mirhododska" low-carbonated	1	0,72	1	1
2	"BonAqua" low-carbonated	0,89	0,81	0,40	0,12
3	"Obolonska" low-carbonated	0,67	1	0,60	0,25
Σ		2,56	2,53	2	1,37

[own development]

To assess the intrinsic (functional) significance of the characteristics, we use the method of determining entropy.

This method must first find the total amount of each matrix column [$\bar{X}_{i,j}$]. Then by the formula

$$P_{i,j} = \frac{\bar{X}_{i,j}}{\sum_{i=1}^n \bar{X}_{i,j}} \text{ determine the share of each element in the total.}$$

We obtain a matrix [$P_{i,j}$] (Table 3).

Determine the value of entropy for each column of the matrix [$P_{i,j}$]:

$$E_j = -\frac{1}{\ln N} \sum_{i=1}^n (P_{i,j} \cdot \ln P_{i,j}).$$

The internal functional significance and its reduced value are found by the formulas: $d_j = 1 - E_j$;

$$\bar{d}_j = d_j / \sum_{j=1}^m d_j.$$

Table 3

Matrix for entropy calculation | P_{ij} |

№	Product manufacturer	Product characteristics			
		Tastes, points	Price per unit of goods, UAH	Bottle design, points	Total mineralization, %
1	"Mirhododska" low-carbonated	0,39	0,28	0,50	0,73
2	"BonAqua" low-carbonated	0,35	0,32	0,20	0,09
3	"Obolonska" low-carbonated	0,26	0,40	0,30	0,18

[own development]

The entropy value is determined for each column of the matrix. The values of entropy are:

$$E_1 = -1/\ln 3 * (0,39 * \ln 0,39 + 0,35 * \ln 0,35 + 0,26 * \ln 0,26) = 0,987;$$

$$E_2 = -1/\ln 3 * (0,28 * \ln 0,28 + 0,32 * \ln 0,32 + 0,40 * \ln 0,40) = 0,990;$$

$$E_3 = -1/\ln 3 * (0,50 * \ln 0,50 + 0,20 * \ln 0,20 + 0,30 * \ln 0,30) = 0,937;$$

$$E_4 = -1/\ln 3 * (0,73 * \ln 0,73 + 0,09 * \ln 0,09 + 0,18 * \ln 0,18) = 0,687.$$

The values of internal functional significance are equal to:

$$d_1 = 1 - 0,987 = 0,013;$$

$$d_2 = 1 - 0,990 = 0,01;$$

$$d_3 = 1 - 0,937 = 0,063;$$

$$d_4 = 1 - 0,687 = 0,313.$$

$$\Sigma = d_1 + d_2 + d_3 + d_4 = 0,399.$$

Determine the values of the given values of internal functional significance:

$$\bar{d}_1 = 0,032;$$

$$\bar{d}_2 = \overline{0,025};$$

$$\bar{d}_3 = \overline{0,158};$$

$$\bar{d}_4 = \overline{0,784}.$$

To determine the subjective significance of the characteristics of table water, we construct a matrix of pairwise comparisons. In this matrix, rows and columns are characteristics. (Table 4)

Table 4

Matrix of pairwise comparisons

№	Product characteristics	Product characteristics				Σ
		Tastes, points	Price per unit of goods, UAH	Bottle design, points	Total mineralization, %	
1	Tastes, points	X	3	3	2	Σ=8
2	Price per unit of goods, UAH	1	X	2	1	Σ=4
3	Bottle design, points	1	2	X	1	Σ=4
4	Total mineralization, %	2	3	3	X	Σ=8

[own development]

$$\Sigma\Sigma=8+4+4+8=24$$

The elements of the matrix are obtained by comparing the characteristics in pairs. If the subjective significance of this characteristic is greater than that with which the comparison takes place, then in the corresponding cell of the matrix we write the number "3", if less - the number "1", if they are equivalent - the number "2".

Finding first the sum of each line, then the sum of these sums,

we determine the external (subjective) significance $\bar{q}_i = \frac{\sum_{j=1}^m}{\sum_{i=1}^m \sum_{j=1}^m}$.

The values of external significance are equal to:

$$\bar{g}_1 = \frac{8}{24} = \overline{0,33};$$

$$\bar{g}_2 = \frac{4}{24} = \overline{0,17};$$

$$\bar{g}_3 = \frac{4}{24} = \overline{0,17};$$

$$\bar{g}_4 = \frac{8}{24} = \overline{0,33}.$$

To take into account both objective and subjective significance, we determine the generalized significance

(k_i) and its reduced value. $k_j = \frac{\bar{d}_i \cdot \bar{q}_i}{\bar{d}_i + \bar{q}_i}$; $\bar{k}_i = k_i / \sum_{i=1}^m k_i$.

Determination of generalized significance and its reduced value.

$$k_1 = 0,032 * 0,33 / (0,032 + 0,33) = 0,029;$$

$$k_2 = 0,025 \cdot 0,17 / (0,025 + 0,17) = 0,022;$$

$$k_3 = 0,158 \cdot 0,17 / (0,158 + 0,17) = 0,082;$$

$$k_4 = 0,784 \cdot 0,33 / (0,784 + 0,33) = 0,232.$$

The integral assessment of each object is determined by the formula

$$Q_i = \sum_{j=1}^m (\bar{k} \cdot \bar{X}_{i,j}).$$

$$Q_1 = 1 \cdot 0,079 + 0,72 \cdot 0,060 + 1 \cdot 0,224 + 1 \cdot 0,635 = 0,981;$$

$$Q_2 = 0,89 \cdot 0,079 + 0,81 \cdot 0,060 + 0,40 \cdot 0,224 + 0,12 \cdot 0,635 = 0,284;$$

$$Q_3 = 0,67 \cdot 0,079 + 1 \cdot 0,060 + 0,60 \cdot 0,224 + 0,25 \cdot 0,635 = 0,406.$$

Based on the results of determining a comprehensive integrated assessment based on an expert survey of three brands, we can conclude that "Myrhorod low-carbonated" has the highest competitive position in the Ukrainian market.

But, focusing on the attitude of consumers who found low-carbonated water the least attractive of the goods of PJSC "Myrhorod Mineral Water Plant", as well as the fact that they are waiting for new products, it is necessary to improve this product.

The development of an innovative product is the main way to improve the assortment policy of the object of study. The company has to "launch" a new product in its range, for example, sweetened low-carbonated drinks with the addition of plant extracts in updated containers and with new approaches to promotion. One of Myrhorodska's main competitors is "Obolon Corporation", which has been producing sweetened beverages for a long time, but the latter's products contain a large number of artificial food dyes, preservatives, acidifiers and acidity regulators, which have a detrimental effect on the human body. [12;14]. Therefore, in the range of PJSC "Myrhorod Mineral Water Plant" it is necessary to introduce a product that will contain the maximum possible amount of natural useful plant extracts, flavors and food dyes. Plant extracts are obtained from natural raw materials by pressing, extraction, distillation. For example, the natural flavor of pomegranate is obtained after passing through the press of the berries themselves. The taste of lemon is obtained by the method of extraction, when after grinding its peel, the essential oil is extracted. Apple flavoring is obtained by a distillation method - it is squeezing the juice and then removing water from it. Natural (natural) food dyes are dyes isolated by physical means from plant and animal sources. Raw materials for natural food dyes can be berries, flowers, leaves, roots, etc., including in the form of waste processing of vegetable raw materials in canneries and wineries. We offer the researched enterprise PJSC "Myrhorod Mineral Water Plant" an innovative product line called "Myrhorod Fresh & Health Collection". Our proposed brand requires the development of its own logo, the graphic representation of which is shown in Figure 1



Figure 1. Graphic representation of the logo of the "Myrhorod Fresh & Health Collection" trademark [own development]

Currently, there is a trend towards production that minimizes carbon dioxide emissions into the Earth's atmosphere, so the company under study should replace PET packaging made from petroleum with

environmentally friendly "Plant Bottle" packaging, developed by The Coca-Cola Company. This type of packaging is made from cereal waste, which means that it can be processed an unlimited number of times. The price of PET packaging is UAH 360. per package of 200 pieces, the price of the container currently used by PJSC "Myrhorod Mineral Water Plant" is UAH 295. for 150 pcs. So, on each bottle the saving is 17 kopecks. [10;11]. We have proposed three versions of sweetened low-carbonated mineral water with the addition of extracts of plant origin ("Myrhorod Fresh & Health Collection"): 1. "Refreshing Lemon"; 2. "Toning Apple"; 3. "Invigorating Pomegranate". Consider the models of the appearance of the products of the developed goods (Figure 2).



Figure 2. Layout of new products [own development]

CONCLUSION

When writing the article to assess the attitude of consumers to the products of PJSC "Myrhorod Mineral Water Plant", a marketing study was conducted through a questionnaire Internet survey, the results of which revealed weaknesses in the marketing system of the enterprise. An integrated assessment of the competitiveness of low-carbonated mineral water of the Myrhorodska brand of PJSC "Myrhorod Mineral Water Plant" was also performed on the basis of the work of an expert focus group. To increase the objectivity of the assessment of the opinion of experts was used the method of the survey "Designer the L.S.Shkolnik". The results of the analysis showed that low-carbonated water is least liked by consumers, but it is more competitive than other brands of similar products. To strengthen the position on the market of low-carbonated mineral water of the Myrhorodska brand, its improvement is proposed. The authors proposed new products in the form of sweetened low-carbonated water with the addition of natural plant extracts. The logo, the layout of the environmentally friendly "Plant Bottle" and the innovative "Myrhorod Fresh & Health Collection" trademark were also presented.

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