SEBESY Zsanett
SÁNTHA Tamás

University of West Hungary,
Faculty of Agricultural and Food
Sciences, Department of Agricultural
Economics and Marketing
H-9200 Mosonmagyaróvár, Vár 2.
e-mail: sebesyzs@mtk.nyme.hu

ANALYSING CONSUMER AND BUYER PREFERENCES FOR FUNCTIONAL MILK PRODUCTS IN HUNGARIAN REGIONS

Nowadays consumers living in either developed or developing countries have a great choice of products, because very often the offers exceed the demands. Companies can only survive in the mass of brands if they are capable of applying adequate and authentic communication. The consumers' and buyers' preferences for functional food stuffs are introduced in three Hungarian Regions (South-Great Plain, South-Transdanubia and West-Transdanubia) with the help of primary data used by the authors. The method of quantitative analysis was applied in the form of a questionnaire as a part of the marketing research.
The elaboration of this issue was based on a field that represents a very close segment in Hungary and a part of them is unknown to consumers. The authors aimed to get an overall picture of the judgment of the consumers about functional milk products and about the phrase "functional" among thos consumers. The research work covers the judgment of the consumers regarding functional milk products and it presents information about the factors that influence the purchase and consumption of those products. Effective and successful communication is essential for those products, because some misbeliefs and deliberately misleading commercials exist that negatively influence the market of functional milk products and may lead to serious problems. Beyond presenting consumer demand, the authors aim at creating consumer segments and highlighting how a successful marketing concept could be elaborated and applied in future. The authors were also looking for the factors that motivate consumers to decide about buying functional milk products. The study also compares the communication of the market actors and analyses their efficiency.

1. INTRODUCTION

The Hungarian milk industry had to face several problems during the past years. They accompany the product line from the production of raw materials through processing until the distribution of the end product.

So called "lifestyle diseases" or "diseases of civilization," very often resulting in death, represent a high rate in Hungary. The situation could be eased by nourishment that fits a change in life style. Research results confirm that nourishment has a great influence on the state of health (BALOGH, 2010).

KSH (Central Statistical Office) (2011) data reveal that consumption – including milk products – decreased compared to the basic period of the previous years as a result of rising raw material prices. Consumer habits changed according to the changes in prices; consumers shoped more rationally than in the previous years.

Like in other parts of Europe, the retail market in Hungary is greatly influenced by financial uncertainty. Moreover, shaky consumer confidence threatens the successful operation of companies. Success requires adequate design and information as well as drawing attention to the product. This is the same in the functional milk product market, since it is a very narrow segment in Hungary, the increase of which cannot be considered as intensive as under the Western European circumstances.

The ratio of health conscious consumers in Hungary is very low, but it is expected to increase in the future. The market of functional (health promoting) products is the most dynamic one in the branch of food stuffs (TEMESI, 2010).

It is obvious that functional food stuffs have positive effects on one or more life functions of the organism completed by their nourishing and biological functions. Accordingly, the consumption of such products contributes to better health or more favourable wellbeing, as well as the reduction of health risks (DIPLOCK et al., 1999). The phrase "functional foods" does not yet exist legally: nowadays it is still a virtual food category (SZAKÁLY, 2011), therefore we cannot give an exact definition without raising further questions. However, we need to mention some important requirements: 'functional food' products should improve the diet and health if consumed regularly; their composition cannot reduce

the nutritional value of other foods; they cannot be distributed in the form of pills, powder or capsule; and they must be of natural origin (VASS and JÁVOR, 2008). Furthermore the applied processes can also play a role in functionality: improvement (e.g. Ca+ products), replacement (replacement of fat by omega3 fatty acids), addition (e.g. fibres, vitamins) and extraction, i.e. light products (LEHOTA, 2001). Regular consumption of functional milk products contributes to healthy nourishment, but only 13% of Hungary's population is health conscious, which has a negative influence on the consumption of milk products (SZAKÁLY, 2010).

Fermented milk products can be positively used in the diet of people with gastrointestinal problems, since these products can ease their pains. In conclusion we can say that cultured milk products can regenerate gut flora and prevent gastrointestinal discomfort. Those bacteria cannot originally be found in the food products, therefore they have to be modified. This is primarily useful for those who have gastrointestinal diseases. Diet tests on children show that gut flora changed after the modification of the product composition. Milk products produced with probiotic cultures were very widespread in the last decades of the last century. Best known among them were sour milk products and beverages. Probiotic cheeses are expected to spread in the first decade of our century more widely. is . Consuming probiotic milk products protects against weight gain and helps the healthy function of gut flora, reduces the occurrence of colorectal cancer as well as significantly reducing the risks of arteriosclerosis and decreasing lactose sensitivity five-fold (CSAPÓ and CSAPÓ, 2002).

It is in the interest of the manufacturers of functional foods to make their health protecting products well known among consumers, who may remember the information at the time of purchase decision. Suitable product design, authentic information content and overall attractiveness could spell out future success for the producers of functional foods.

Functional food stuffs are the future of nutritional sciences because they couple nutrition with the latest scientific results (LELOVICS, 2011).

2. MATERIALS AND METHODS

In our research work we applied both secondary and primary collection of information. Our primary questionnaire research work was based on the analysis of the pieces of secondary information from abroad and home. To collect samples we chose 320 people in the first half of 2012. This quantity of samples was consciously based on the ratio of the regions' population and the density, the education and age groups compared to the country's population data. The target age group of the research work included people between 20-79 years of age. Questionnaires were distributed and filled in three Regions: West-Transdanubia, South-Transdanubia and South-Great Plain. The number of the statistical elements included 400 questionnaires. 376 questionnaires were returned and 320 were evaluated. The questionnaires were filled in personally or online in the form of e-mails. Sample taking happened randomly. Questionnaires were elaborated by internet database; data was evaluated and analysed by pc with the help of the Microsoft Excel 2003 and SPSS 13.0 programme packages. Analysing the data, we present here the frequency distributions according to the sample population and mathematical statistical indices. Among background variables we show only those that represent significant differences at a 95% confidence level.

The applied questionnaire included 26 closed and 3 open-ended questions. The following issues helped the respondents to give answers: information about functional foods, buying functional milk products, effects of functional milk products, consumption of functional milk products. The issues offered the possibility to participate in the survey for those who have not before encountered functional foods, because the survey also included general shopping and consumption habits of milk products and health consciousness, although the present research does not include the relevant research results.

3. RESULTS AND DISCUSSION

The research gives answers to the following issues: how many persons are familiar with, or have already heard the phrase "functional foods" among those who participated in the survey, as well as the respondants informal channels and also expressing ideas in their own wording. Analysing the answers from the relevant regions we could observe respondants opinions regarding what factors influence the purchase of functional milk products, and, beyond the frequency of consumption, what preferred products were mentioned from individual producers.

Table 1 shows the distribution according to the background variables involved into the sample, where frequency and different statistical indices were applied. We characterized only the background variables and the results of the individual questions that showed significant differences.

Results were shown according to question groups and regions for the sake of better separation and representation.

3.1. Distribution of high profile, informal channels and the wording of functional foods

As a result of our research we learned how many respondants have already heard the phrase "functional foods." *Figure 1* summarizes the answers. The majority of the respondents in the three regions have already heard the phrase (61.3%), 27.2% have never heard it and 11.6% answered "I do not know".

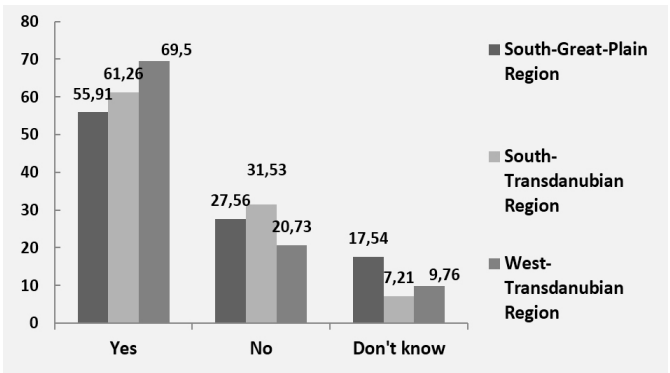

Fig. 1

Awareness of functional foods, % (n=196)

Table 1

Sample distribution according to major background variables

Description		*Sample distribution*	
		Persons	*%*
Total		320	100,00
Gender	Women	180	56,25
	Men	140	43,75
Age	16-25 years	76	24,00
	26-35 years	109	34,40
	35-50 years	77	24,30
	51-65 years	45	14,20
	Above of 65 year	13	4,10
Highest level of education	Elementary school	15	7,70
	Vocational school	45	14,20
	Graduation	131	41,30
	Higher education	129	40,70
Domicile	Village	91	28,70
	Town	113	35,60
	Capital of a county	116	36,60
Net income per capita	Significantly below the average	74	23,30
	Slightly below the average	96	30,30
	Average	108	34,10
	Slightly above the average	25	7,90
	Significantly above the average	17	5,40

Companies try to get into even closer touch with consumers through the use of personal interviews. One of the most suitable methods is the use of the media and internet *(Fig. 2)*.

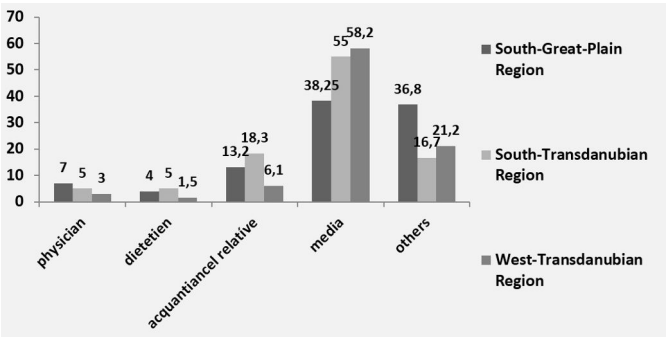

Fig. 2

Informal channel, % (n=160)

Nowadays the greatest problem is that the majority of the buyers do not know what to understand by the phrase "functional food stuffs." Companies have to face a further challenge which is to create a unified picture about products that represent a very narrow segment, as the respondents mainly prefer media, (80.7%) marking them as the source of information.

According to BERKE and MOLNÁR (2006) the majority of the companies in the food market are multinational and use spectacular advertising. These companies can use as much as 20% of their revenue for marketing communication, which could come to several billion HUF per year. Knowing that bigger companies have considerable advances on the market of functional milk products, the so called „above the line" (ATL) TV, press, radio and internet also help them (BERKE, 2010).

Analysing the demographic background variables we can observe that men (39.5%) have less information than women (60.5%). There is a significant correlation between the awareness and the age group of the responders ($p<0.05$). According to our results functionality in this respect is unknown for elderly people, i.e. it grows with the age.

62.9% of men and women in the age group of 16-35 have already heard this definition in all three regions. In the questionnaire, under the definition "informal channel" the frequency of occurrence of the category "others" was 24.9% on average. We have to mention that we included school (49.6%) and shop advertising (29.6%) into the category "informal channel" as well. This is not surprising, because responds from higher educational settings marked this category very often (42.3%) if it was on the study plan. New trends and promoting health becomes common sense for the young and innovative generation at the beginning of adulthood.

Communication at shops also plays a very important role in selling a product, because BTL instruments can help to personalize the product (e.g. tasting). Further more the different advertisements at the place of buying and selling also have a motivating effect through the impulses in the shopping area. Research results confirm that 70% of buying decisions are made in shops, therefore the marketing instruments mentioned before have a very important role in this respect.

According to NIELSEN (2012) the latest reports based on surveys in 47 countries among internet users about advertising in different media, word-of-mouth recommendation has been still the most reliable (68%), followed by newspapers (48%).

Therefore, we have to mention that in Hungary suitable and effective marketing communication has an important role in the transfer of passive information.

In our questionnaire we asked those who had already heard about functional foods to define the phrase (as an open question). 102 out of 196 respondents were able to formulate their own opinion. Because this was an open question we created a coding method to get usable data and to be able to evaluate the results. Definitions were as follows: a special effect on health (43%); additional functions (19%); beneficial effect on the organism (10%); no preservatives (8%); enriched product (7%); free of additives (6%).

Evaluating the responses of those aware of functional foods, we took into consideration how the respondents were able to formulate a definition of functional foods. In all the three regions an average of 60% of the total number of respondents had already heard the definition, but only 35-40% were able to give a definition. The reason for that could be the huge amount of media information; people get more and more pieces of information through different channels nowadays (in the street, on public transport means, through the papers, radio or TV). Furthermore, regarding the different definitions, being under-informed could contribute to uncertainty and doubt with respect to a certain product. In Hungary media education is in its infancy, so the responsibility of advertisers is very high with respect to the content of the messages transferred. We could observe an uncertainty in respect to those products, since only a small part of the persons involved in the questionnaire were able to give a correct definition, because they are probably not aware of the phrase. As a result we should provide the consumers with a communication that will be able to transfer a correct and precise definition that is authentic and free of misbeliefs.

3.2. Willingness to pay premium price for functional milk products

Research work, development of the technology and production cost much more for functional milk products than for conventional ones. We asked the respondents how much more they would be willing to pay for certain products listed in the questionnaire. In *Table 2*, we summarized the results we got for the different products according to region. We also presented the percentages and distributions of the averages. Based on our results respondents would pay less premium for kefir (5.03%) and milk desserts (5.7%) and they would pay the most premium for milk (7.6%) and cheese (9.5%). The highest distribution was shown by milk desserts since the respondents in the regions of the South-Great Plain and West-Transdanubia gave values above one. So we can summarize that the respondents showed the highest difference for this group of products but there was a considerable understanding in the issue of milk (0.19).

The results urge us to the conclusion that the persons living in the regions and involved in the research work show a very low willingness to pay a premium for the mentioned groups of products. Considering the average consumer prices given by KSH (2011) we can see that this willingness has been manifested in different sums as per product category. Regarding the cheeses, this willingness to pay premium prices amounts to HUF 135 per kilo on average, and for milk it comes to about HUF 20 per litre. It is worth mentioning that most of the respondents in the South-Great Plain Region rejected to pay a premium, since 5% of the 115 respondents selected the answer 0%. Analysing the data we can say that the respondents will not be willing to pay a premium for milk desserts (73%) or butter (49%). We need to emphasize the correlation of the background variables in respect to willingness to pay a premium. We discovered significant correlations ($p<0.05$) among females compared to the males, as they showed a higher willingness to pay a premium for milk, yoghurt and milk desserts in the West-Transdanubian and the South-Transdanubian Region.

Table 2

Willingness to pay a premium among the consumers of functional milk products (n=285)

	milk		*yoghurt*		*kefir*		*sour cream*		*cottage cheese*		*cheese*		*milk dessert*		*butter*	
	average, %	*distribution*	*average, %*	*distribution*	*average, %*	*distribution*	*average, %*	*distribution*	*average, %*	*distribution*	*average, %*	*distribution*	*average, %*	*distribution*	*average, %*	*distribution*
South-Great-Plain Region	8,73	0,12	8,48	0,45	4,52	0,41	6,61	0,39	7,27	0,34	9,82	0,29	5,39	1,12	6,88	0,80
South-Transdanubian Region	6,99	0,20	5,67	0,64	4,48	0,45	5,52	0,38	6,03	0,35	7,12	0,31	5,03	1,08	5,79	0,90
West-Transdanubian Region	7,12	0,25	7,60	0,73	6,27	0,69	6,79	0,36	8,85	0,37	11,55	0,36	6,79	1,15	7,39	0,01

3.3. Factors influencing the purchase of functional milk products

As a result of the economic crises of 2008 consumers have changed their shopping habits and they do their shopping more rationally than in the previous years. Urbanisation and the ageing of Hungarian society somehow influence the demand and the ratio of the age groups.

Analysing the factors that influence the purchase of functional milk products we aimed to put simple and easily understandable questions. We asked the respondents to evaluate the listed product features on the 5-grade Likert-scale, where „1" meant not important, and „5" meant the very important answer. In *Table 3* we present our results of average and distribution in the three regions.

Our results show that among the most important shopping influencing factors the lowest value was received for product advertising (2.42) and the highest one for price (4.23). This value shows a clear rejection of product advertising. Marking the informal channel produced a different result. The contrast was very interesting because respondents said that they had not been influenced by the advertising, although 80.7% of them received their first piece of information about this group of products through the media. The fact that the health promoting effect of the product can be connected to this product feature was a very interesting piece of information for our research. We think that the fear of additives might play a role as well.

Answers reveal that there are very large differences between the regions regarding some influencing factors. The largest difference can be observed for the category „E-number free" the South-Great Plain Region produced the lowest value (2.82) compared to the other two regions. Indicating the Hungarian manufacturer on the package also produced important differences, i.e. respondents in the South-Great Plain Region were meanly influenced (3.67) but in the South-Transdanubian Region this value was 4.02. It is important to mention the relationship of the respondents to products having a trademark. Respondents in the South-Great Plain Region say that trademarks are less important than medium (2.82) when buying functional milk products. This is slightly more important in the West-Transdanubian Region, but it is not much higher than the mean value. We are of the opinion that low prices are more important for most consumers than other product parameters like practical packing, but we could observe high consumer demands on the taste linked to them. We found significant correlation between the category "favourable effect on health" and the number of persons living in the household of the respondents ($p<0.005$). While singles produced an average of 3.73 for the parameter favourable effect on health, those living in a big family (5-6 persons in one household) produced 4.13 on average. It is not surprising that for women the family's decision is more important ($p<0.00\ldots$).

Table 3

Factors influencing purchase

		Factors influencing pruchase											
		Product flavours	*Family liking*	*Product price*	*Foreign manufacturer*	*Only natural components*	*Practical, easy packing*	*Product publicy*	*The impact of healthcare products*	*Rand mark*	*E-number mark*	*Hungarian manufacturer*	*Indicating region on the packing*
South-Transdanubian Region	average	5,05	3,6	4,0	3,05	3,72	3,14	2,54	4,23	3,20	4,10	4,02	2,98
	distribution	0,48	0,1	0,6	0,41	0,10	0,26	0,12	0,10	0,00	0,50	0,29	0,22
South-Great-Plain Region	average	3,80	3,3	4,7	2,84	3,45	3,08	2,22	4,10	2,80	2,80	3,67	2,52
	distribution	0,39	0,7	0,2	0,34	0,22	0,38	0,39	0,54	0,30	0,70	0,10	0,20
West-Transdanubian Region	average	3,99	3,9	4,0	3,14	3,88	3,25	2,50	3,90	3,20	4,10	3,83	2,67
	distribution	0,15	0,7	0,6	0,56	0,56	0,20	0,31	0,36	0,10	0,40	0,25	0,34

3.4. Awareness of trademarks and functional milk brand products

We would like to close the presentation of our research results with an introduction of the awareness of the trademarks of the functional milk consumed. In this issue we present the trademarks that the respondents already knew (n=269), which were presented in the questionnaire as open questions, so they could answer them unassisted. The recall of the trademark showed a negative value in this issue, which revealed that consumers were less aware of the products and trademarks they consumed. Consumers mentioned the following manufacturers of functional foods in the three regions: Danone (54%), Sole-Mizo (25%), Milli (14%), Tolle (7%), Alföldi Tej (5%) and Adexgo (2%).

It is important to mention even if consumers managed to assign a product to a trademark it did not prove to be correct in most of the cases. Many of the respondents are not aware of the product families and the included products. 15% of the responders included margarine and the name of different manufacturers in the category of functional milk products, too. Some of the respondents of the regions are not aware of the difference between margarine and butter. The lobby of plant-based products like the margarine lobby has always strongly influenced the market position of milk products. A more powerful and efficient communication is required to dispel myths.

4. CONCLUSIONS

In order to validate our quantitative research results, we measured the opinion and attitude of consumers towards functional milk products in a questionnaire.

The influence of income and product prices on the consumption of animal origin foods as well as functional milk products is the highest. We should also mention the effect of the demographic situation, the restructuring of the society and consumer habits. Based on statistical data we have mentioned above, we can observe that consumption shows a close positive correlation with the changes in the income situations.

Our research also revealed several misbeliefs of the respondents. We are of the opinion that only a persistent and authentic communication strategy could be successful in this respect. Consumer habits cannot be seen as independent elements, but they appear as a result of social-economic factors. Consumer insecurity refers to cheap import products, which do not meet quality requirements in Hungary at all, so they mislead the consumers and mean huge rivals on the domestic milk product market.

The ratio of awareness of functional milk products is excellent since 62% of the respondents have already heard this phrase. Regarding the definition we can observe a negative relationship, since only 28.9% of the respondents were able to define the meaning or formulate it in their own words. As a result the authors have come to the conclusion that there is a need to apply a more authentic and clearer communication for these products, because the consumers get a choice of products without example. This is the result of the fact that the offer is larger than the demand on the market.

One of the determinants of the consumers' willingness is that consumers are featured by price sensitivity which can be well followed in the answers given by the respondents of the regions, too.

In every case (if not always with significant results) the average values given by women are always higher than those given by men. It is obvious that women can better appreciate the health promoting effects of functional milk products, perhaps because they place greater emphasis on "healthy eating" to promote their own and their family's health.

The results show that women respondents in the age group of 30-45 living in towns can be considered regular consumers of functional milk products. As a result of this we have to say that the aim should not be to fulfil the demands of that segment only but to enlarge the target group as well since consumers with lower incomes would also buy those products but they could not afford them at the moment. It is essential to restructure and enlarge the segment because the shoppers consciously begin to look for those products and they could become consumers as a result of information indicated on the package.

Research results could be useful, on one hand, for the companies that produce functional milk products and, on the other hand, they could serve as guidelines for the marketing communication. Therefore, market demand could better be planned and marketing communication could also be more successful.

Companies will need authenticity and adequate communication techniques in the future since the lack of those factors could strengthen some misbeliefs among consumers.

REFERENCES

(1) **Balogh V.:** Sertéshúsfogyasztással kapcsolatos fogyasztói preferenciák, attitűdök elemzése az Észak-Alföldi régióban I. Élelmiszer, táplálkozás és marketing 7 (1) 27- 30 (2010)

(2) **Berke Sz., Molnár E.:** Reklámstratégia a funkcionális élelmiszerek piacán. Élelmiszer, táplálkozás és marketing 3 (1) 19-26 (2006)

(3) **Berke Sz.:** The availability of target groups, communication strategic proposals. In Marketing of traditional and regional food market, University of Kaposvár, Faculty of Economics, Kaposvár, 2010.

(4) **Diplock, A. T., Aggett, P. J., Ashwell, M., Bornet, F., Fern, E. B., Roberfroid, M. B.:** Scientific concepts of functional foods in Europe: consensus document. British Journal of Nutrition (81) (Suppl. 1) 1-27 (1999)

(5) **Csapó J., Csapó J.:** Milk and milk products in nutrition. Agriculture Rent, 2002, 377-385.

(6) **KSH:** Central Bureau of Statistics Yearbook, Budapest, 2011.

(7) **Lehota J.:** Marketing research in the agricultural sector. Agricultural Publishing, Budapest, 2001, 27-64.

(8) **Lelovics Zs.:** Hiteles termékek – tudatos fogyasztók. A funkcionális élelmiszerek táplálkozásbiológiai áttekintése. Élelmiszer, táplálkozás és marketing 8 (1-2) 13-17 (2011)

(9) **Szakály Z.:** Marketing Nutrition. Agricultural Publishing, Budapest, 2011.

(10) **Szakály Z.:** Marketing of milk and milk products in the light of consumer expectations. In Kukovics S.: The role of human milk nutrition, 2010, 561-574.

(11) **Temesi Á.:** The canning industry, produced by the marketing possibilities of functional foods. PhD thesis, Kaposvár, 2010, 1-120.

(12) **Vass N., Ceglédi L., Jávor A.:** The functional foods of animal origin significance in human nutrition. In The future of food and health, University of Debrecen, Centre of Agricultural Sciences and Engineering. 2008, 49-62.

(13) **NIELSEN:** URL: http://hu.nielsen.com/site/documents/Reklambizalom.pdf. (letöltés: 17-07-2012)