

CONSUMPTION AND OFFER OF ORGANIC FOOD ON THE SLOVAK MARKET

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Abstract

The growing interest of consumers in the products of organic farming is currently considered as a trend on the food market. The aim of the submitted paper is to characterize organic farming, the production, the offer of organic food in Slovak retails and the position of consumers on the organic food market in Slovakia. For evaluating the situation of organic farming in Slovakia, secondary data from the database of Research Institute of Agricultural and Food Economics and Central Institute of Control and Testing in Bratislava were used. The primary data were obtained through two survey questionnaires. The aim of the first of them was to find out the offer of organic food in retail stores in Slovakia. Based on the results, we can state that most of the addressed retailers sell organic food and the most widespread are dairy products and bakery products. Nowadays, the offer of organic food is the same as the most desirable products by consumers. 40% of the surveyed Slovak retails have specially labelled products of organic farming placed among conventional foods. The second conducted questionnaire survey, which aim was to determine buying behaviour of young consumers on the Slovak market. Based on the results, it could be stated that consumers mostly purchase organic food in specialized stores, supermarkets, hypermarkets, and they mainly decide according to the quality and origin of the food.

Keywords: consumer, consumer behaviour, retail, organic farming, organic food

INTRODUCTION

Nowadays, consumers during the food selection take into consideration their lifestyle (Chrysochou, 2010), which could be considered as an increasing trend on the food market. When making a purchase decision, they focus on health and nutritive aspects of each product category (Nagyová *et al.*, 2012; Kretter and Kádeková, 2013; Paluchová and Benda Prokešová, 2014). Rovný *et al.* (2010) emphasize that consumers should not only concentrate on the consumption of selected food categories but also to prefer variety and food diversity.

Zámková and Prokop (2013) highlight that consumers should be interested in seeking information about the country of origin and processing method with a regard to the environment. All these attributes are fulfilled in case of organic food, where consumers perceive them as healthier, safer, tastier and more ecological alternative to their conventional substitutes (Magnusson *et al.*, 2003; Yiridoe *et al.*, 2005; Hughner *et al.*, 2007; Aertsens *et al.*, 2011; Gottschalk and Leistner, 2013).

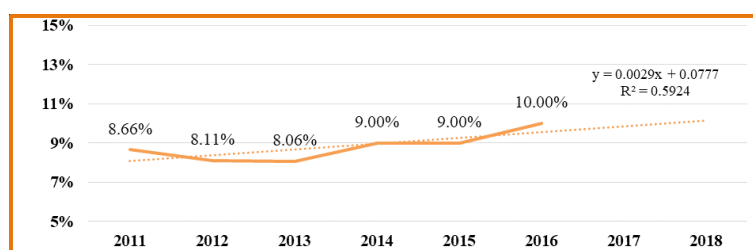
These aspects represent the main reasons of purchase which is reflected in constant increasing of its consumption (Živelová and Crhová, 2012).

On the other hand, it is necessary to point out the barriers in consumption of organic food such as unfavourable economic situation which leads to stagnation and decrease of inhabitants' income as well as expenditures on organic food (Lehmann, 2005), followed by relative high prices (Frýdlová and Vostrá, 2011), insufficient information (Demeritt, 2002; Vácvalík, 2009) and their availability in retail stores (Kretter, 2005; Nagyová *et al.*, 2012). As far as the consumption of organic food is increasing, it is necessary to analyse the production itself.

In conditions of the Slovak Republic, the importance of organic food is gradually increasing. The statement is based on an increasing tendency of cultivated land under organic farming and, currently, it represents a 10% share (187 011

ha) of total cultivated land in the Slovak Republic. According to the data from Research Institute of Agricultural and Food Economics (2017) and the applied index of determination (R^2) with 59.2% confidence, it could be stated that the percentage development regarding the size of cultivated areas under organic farming in relation to total cultivated area for the next two years (2017 - 2018) will rise and reach approximately 10.2–10.3% share (Predanocyová *et al.*, 2017).

It is assumed that the above-mentioned development reflects consumers' needs and requirements in terms of organic food, and organic farming will become more perspective and demanded industry for farmers and food processors. On 31st of January 2018, 94 processors of organic food operate



1: Percentage share of agricultural land in the system of organic farming on the total area of agricultural land
Source: Predanocyová *et al.* (2017)

I: The most famous processors involved in the production of food from organic farming

Food products	The most famous processors
Dairy products and eggs	Tatranskámliekareň a. s., Kežmarok, AGRO TAMI, a. s., Nitra
Mill products	Mlyn Pohronský Ruskov, BIOMILA spol. s r. o., MINIT SLOVAKIA spol. s r. o.
Bread and bakery products	
Meat products	Biofarma Šuňava PD, ALFA BIO
Beverages, coffee and tea	McCarter a. s. Bratislava, Baliarne obchodu, a. s. Poprad, KLEMBER a SPOL, s. r. o., HERBEX, s. r. o. Vinica, Agrokarpáty, s. r. o.
Honey	Bioapis-SK Včelárfarma
Other food products	Old Herold Hefe s. r. o., NOVOSEED s. r. o.

Source: The Central Institute of Control and Testing, 2018

II: Certified food products produced in organic farming in the period 2013–2016

Food products	M.u.	2013	2014	2015	2016
Processed and preserved fruits and vegetables	kg	2 894 232	4 442 840	534 888	141 828
	l	2 298 440	883 315	413 998	393 726
Dairy products and cheese	l	5 934 700	5 605 901	343 561	2 111 012
	kg	1 174 800	3 859 400	861 343	787 109
Mill products	kg	4 522 800	13 768 501	656 434	664 817
Bread and bakery products	kg	2 562 030	30 094 610	462 721	587 476
Oils and fats	l	22 000	7 470	12 794	2 752
	kg	1 437 400	658 400	402 335	620 111
Other food products	kg	4 391 602	399 700	19 236	2 133 362
	l	3 150	2 200	2 808	39
Processed and preserved meat	kg	–	–	119 096	175 491
Prepared dishes and meals	kg	–	–	1 995 769	168 829

Source: The Central Institute of Control and Testing in Bratislava, 2017

in the Slovak Republic. The most famous processors are shown in Tab. 1 divided according to product categories. The interesting fact occurs in terms of organic honey, which is represented by only one company–Bioapis–SK Včelíafarma.

In the context of organic production in the Slovak Republic, it is inevitable to examine the quantities of new-certified food products produced in organic farming. According to the information from the Central Institute of Control and Testing in Bratislava (see Tab. II), the quantities of new-certified organic products have an increasing tendency on Slovak market. In general, the products are divided into several product categories, such as processed or preserved fruits and vegetables, dairy products and cheese, mill products, bread and bakery products, oils and fats, processed and preserved meat, prepared dishes and meals, and other food products. In an observed period of years 2013–2016, the quantities of new-certified organic food is increasing which is reflected in an increased offer in Slovak retail stores.

The total size of the cultivated area in organic farming is continuously increasing, however, in Slovak conditions, the production of organic food is not sufficient. The demand for this product category is still rising and it is necessary to import organic products from abroad, therefore distributors are inevitable on the market with organic food. The most frequent are retail stores, which offer organic food of various product categories to final consumers whose interest towards organic consumption is increasing (Živělová and Crhová, 2013).

MATERIALS AND METHODS

The main aim of the paper was to identify consumer behaviour of young generation towards organic food as well as to analyse the offer of organic food in Slovak retail stores. The paper objectives were based on secondary and primary data. The secondary data included information from Research Institute of Agricultural and Food Economics and Central Institute of Control and Testing in Bratislava. The primary data were based on two questionnaire survey conducted in the period of December–February 2017/2018.

The first questionnaire survey was focused on the purchasing behaviour of the young generation up to 30 years in Slovakia, and research sample reached 663 respondents. From socio-demographic point of view, the sample comprises both males (43.0%) and females (57.0%) in age of 18–24 years (50.7%) and 25–30 years (49.3%), living in the city (52.9%) or in the village (47.1%), with elementary education (1.4%), secondary vocational education (4.4%), secondary education (46.3%) and higher education (48.0%). The majority of respondents were students (49.4%) or employed (41.3%) with the income level of up to 400 € (49.0%), 401–600 € (15.1%), 601–800 € (18.5%) and more than 800 € (17.4%).

The second questionnaire survey was oriented on retail stores in the Slovak Republic with the aim

at organic food offer, its merchandising, origin and consumers' preferences from a managers' point of view. The survey comprised 106 retail stores with various size of selling area: up to 400 m² (70.4%), 400 m²–2 500 m² (20.8%) and more than 2 500 m² (1.9%). According to the geographical division, the majority of stores were situated in Western Slovakia including Bratislava region (70.7%), followed by Central Slovakia (15.1%) and Eastern Slovakia (13.2%).

For a deeper analysis of research objectives were formulated the following hypotheses:

- Hypothesis 1: there exists dependence between the purchase of organic food and respondent's gender.
- Hypothesis 2: there exists dependence between the purchase of organic food and respondent's age.
- Hypothesis 3: there exists dependence between the purchase of organic food and respondent's level of education
- Hypothesis 4: there exists dependence between the purchase of organic food and respondent's income
- Hypothesis 5: there exists dependence between the place of organic food purchase and respondent's place of residence.
- Hypothesis 6: there exists a difference in the price evaluation at the purchase of organic food and respondent's gender.
- Hypothesis 7: there exists dependence between the awareness of organic honey and consumer perception of conventional and organic honey

The formulated hypotheses were tested by applying the following statistical tests:

- Chi-Square Test of Independence
- Cramer's contingency coefficient
- Mann Whitney U test
- Fisher's exact test

All the above-mentioned tests have been calculated in statistical software SAS Enterprise Guide 7.1. In hypothesis testing, if the p-value is lower than significant level, in case of SAS software, it is 0.05, the null hypothesis is rejected and the alternative hypothesis is confirmed (Košíčiarová et al., 2017; Witek, 2016).

RESULTS AND DISCUSSION

The results of the survey proved, that young generation of Slovak consumers are interested in organic food. 41.0% of all respondents participated in survey purchase food which was produced in organic farming.

Regarding to this question several dependencies were examined between the selected socio-demographic variables of the respondents and the purchase of organic food. Applying the statistical tests of Chi-squared test of Independence and Fisher's exact test, no statistically significant dependency has been proved between purchasing of organic foods and gender (p-value = 0.0917), education

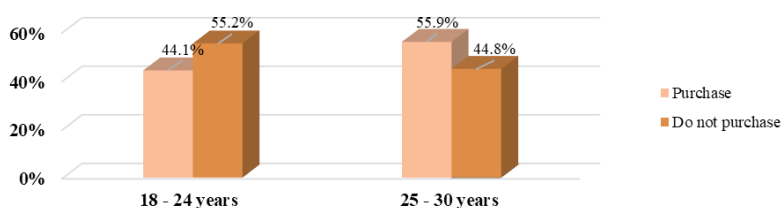
(p-value = 0.9342) and income (p-value = 0.1119). The only dependency was confirmed in case of respondent's age (p-value = 0.0045). Based on the Cramer's V-coefficient (0.1111) it could be concluded, that the strength of dependency is weak.

Out of all surveyed respondents who purchase the organic food, 41.2% of consumers prefer supermarkets and hypermarkets, 34.2% prefer specialized stores, 11.0% purchase the organic foods directly from producer and 3.3% of consumers prefer the purchase via the Internet. Remaining 10.3% of respondents are not purchasing any organic food, yet they rather grow organic food in their own gardens. Zámková and Prokop (2014) came to the similar conclusion, that consumers purchase organic food mostly in supermarkets and hypermarkets (31.3%), in stores specialized on healthy nutrition and organic food (16.3%), directly from farmers and agriculture markets (5.4%) and 17.7% of respondents grow the organic food by themselves.

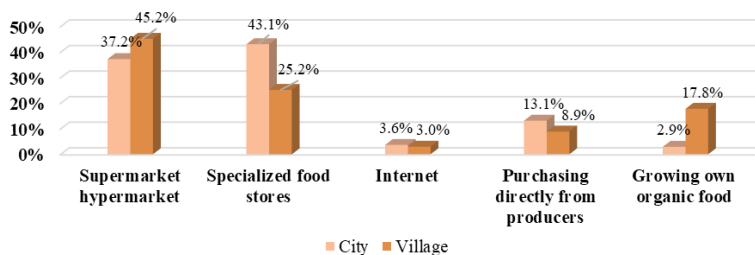
By this question another dependence was examined between the location of the organic food purchase and

permanent residence of the respondents. Applying the statistical test of Chi-squared test of Independence with significance level $\alpha = 0.05$, the null hypothesis was rejected (p-value = 0.0001) and confirmed statistically important difference between the place of organic food purchase and respondents' residence. Based on the calculation of Cramer's V-coefficient (0.2920) it could be concluded that the strength of dependency is weak.

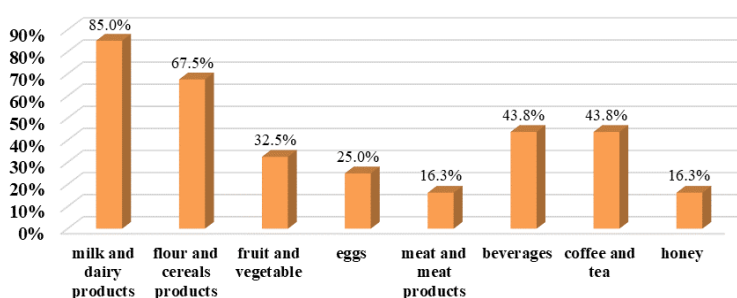
In the context of above, it could be stated that nowadays, the organic food is offered in all types of retails in the Slovak Republic, which confirm the results of our research conducted on retails. Results showed, that up to 75% of the retails offer organic food as a part of their assortment. Kalužáková (2011) conducted field research in retails and found that 76.5% of the stores also offer a range of organic food. In terms of product categories, 85% of surveyed retail stores in the Slovak Republic offer milk and dairy products produced in organic farming, such as yoghurts, fresh butter and milk or curd from the producers Rajo, Tatranskámlietkareň and Agro Tami. The assortment of organic flour and



2: Purchase of organic food according to age of respondents
Source: own research, 2018



3: Place of purchase of organic food according to the permanent residence of the respondents
Source: own research, 2018



4: The offer of organic food in Slovak retails
Source: own research, 2018

cereal products is offered by 67.5% of the retails, with Racio, Biomila and Ravita being the most frequent suppliers. 43.7% of the retails also offer bio drinks, mainly fruit juices, organic tea and coffee from producers Aloe Vera, Biocare, Ovko, Biolinie, M.DER. LLC. 32.5% of retails offer fruit and vegetable from organic farming, most often ordered from Bonduelle and local eco-farms. Eco-farms and Novogal company deliver organic eggs into 25% of all interviewed retails. 16.25% of analysed stores also offer organic meat and meat products as a part their assortments supplied by Hyza, Alfa Bio and Biopark-Farma PD Cvikov, which is mainly oriented on delivering beef. Same percentage of retails also offer the organic honey from Medar company. The supply of individual product categories of organic food, offered in Slovak retails stores, is illustrated in Fig. 4.

All the above-mentioned, fresh food is mainly supplied by Slovak producers, especially in order to preserve freshness, durability and quality of food. In case of durable food, retails may also choose among foreign producers. Based on the research results it could be concluded that more than 90% of retails managers prefer Slovak food producers if the product category allows it. Moreover, the representation of organic food products of Slovak origin in retails was examined. In 27.5% of the surveyed retail stores, the share of Slovak organic food is above 75%, 13.75% has a share of organic food with Slovak origin of 50-74% and 17.50% offer Slovak organic food in the range of 25-49%. Research found that 18.75% of the stores offer a very small portion of organic food from Slovak producers.

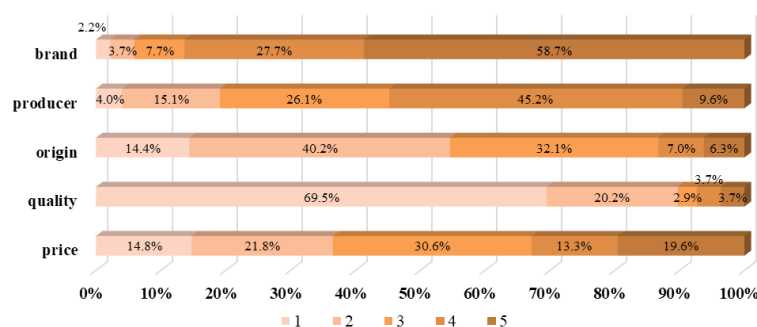
Existing situation can be determined by individual product categories, where retails that offer more dairy products, meat and pastry prefer Slovak producers and those retails that have a larger range of durable products such as fruit juices, tea, coffee, cereals choose foreign suppliers. The main criteria for their decision could be a lower price compared to Slovak competitors. The presented results and statements are supported by the results of consumer research, which was focused on the importance of criteria considered during purchase of organic

food. Fig. 5 shows the importance of criteria as price, quality, origin, producer and brand of the product. Respondents evaluated these criteria on the 5-point scale (1–the most important, 5–the least important). In general, it could be stated, that for Slovak consumers, the most important factor is quality, origin and price, while the less important are producer and brand.

As it was mentioned before, the quality and country of origin are important for Slovak young consumers, however it is necessary to focus on how respondents perceive the price. Regarding this question, the difference in the price perception of organic food between the respondents' genders was examined by applying the Mann-Whitney U test. The calculated the p-value (0.0349) is less than significance level $\alpha = 0.05$, which means, that the null hypothesis was rejected and there is a statistically significant difference in price perception between men and women. It could be concluded that women are more price sensitive in comparison to men.

In this context, it needs to be highlighted that the price of products remains a crucial and decisive factor. Of the total number of respondents, up to 71.8% perceive the price of organic food in Slovakia as high and for this reason this category of food is unavailable to many consumers, as Kubeláková and Košíčiarová (2016) confirmed in their research. The solution would be to extent the sale of organic food under private brands, where a lower price is expected compared to its commercial substitutes. However, the results of retail research showed that only 36.3% of retails offer organic food under private brands. In general, private brands, such as Tesco Organic, Naše Bio, K-Bio, Coop Jednota Bio and Fresh belong to larger retails chains.

The reason why the consumers do not buy the organic food of Slovak origin on regular basis could be caused by two factors. The first factor is insufficient awareness of consumers about the identification of organic food of Slovak origin and the second factor could be insufficient labelling in the Slovak stores. Consumer research has shown that 42.5% of respondents are aware of and recognize the identifier of Slovak organic food. 44.0% of the consumers misidentified the labelling



5: The importance of individual organic food selection criteria

Source: own research, 2018

of Slovak organic food, considering it as an identifier used for organic food produced at European Union level or in Czech Republic. The remaining 13.5% of consumers do not pay attention to labelling of organic food, and therefore it is assumed that they rely on labels directly in the store's premises. In addition, the survey conducted in retails with managers showed that up to 28.7% of retails do not have organic food extra labelled and placed among conventional food. Therefore, it could be concluded that if the consumers are not able to identify the organic food by identifier on the product packaging, they might not buy it. 40.0% of the stores has the organic food placed among the conventional food, but the organic food is visibly and clearly labelled. In this case, the consumer can compare the organic food with a conventional substitute in one place. The results showed that 31.3% of the stores has a separate place for organic food. This leads to easier and faster consumer orientation in the store. This form is a very good alternative for those consumers who prefer only the purchase of the organic food.

Regarding the food produced in organic farming, it is important to focus on which organic product categories are preferred to buy by consumers. In the context of above mentioned, research was conducted from consumers as well as retailers' point of view. Based on the results of consumer-targeted survey shown in Fig. 7, it could be stated that most young consumers in the Slovak Republic prefer to buy fruit and vegetable from organic farming (81.1%), organic milk and dairy products (40.6%), meat produced on organic farms (47.7%), organic eggs (34.9%) and organic honey (33.5%). Approximately 24.6% of the consumers add organic flour and cereal products to their shopping cart, organic coffee and organic tea is preferred by 8.1% young people and organic drinks are purchased only by 7.7% of the respondents. In the structure of purchased organic food on the Slovak market according to Kádeková *et al.* (2017), respondents in different age categories prefer fruit and vegetables (37.0%), meat and meat products (18.0%), milk and dairy products (13.0%), and the least bought category of organic foods are sweets and pastry.

In the context of organic honey, research additionally focused on consumer perception towards this specific product. According to legislation of the European Union, organic honey is produced under strict conditions involving ecological treatment, hives build from natural materials, clean environment without factories, intensive agriculture, air pollution and feeding only with honey. (Council Regulation (EC) No 834/2007; Commission Regulation (EC) No 889/2008). All these aspects are reflected in higher quality of product, however, consumers are not aware and fully informed (Cosmina *et al.*, 2016) and many consumers consider conventional honey from local beekeeper as organic. The last formulated hypothesis examines whether awareness of organic honey influence

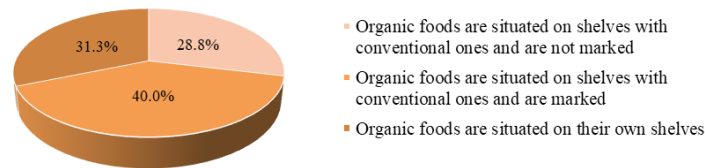
consumer perception. Based on the results of Fisher's exact test (p value = $<.0001$), the dependence was proven at significance level $\alpha = 0.05$. According to Fig. 8, the majority of consumers who know organic honey perceive difference between conventional honey and honey from organic beekeeping.

The results of retail research showed, that the most demanded organic food by retailers' point of view are organic milk, followed by products from cereals and organic flour, fruit and vegetable, eggs, meat and meat products, beverages, organic honey and the least demanded products are tea and coffee. Managers in retails were asked to order the product categories of the organic food according to the customer demand, 1 represents the most demanded organic food and 8 the least demanded. Results showed that the most demanded products according to their average order value were as follows: milk and dairy products (2.07), flour and flour products (2.86), fruit and vegetables (3.08), eggs (3.7), beverages (5.11), honey (5.26), coffee and tea (5.58).

Fig. 9 compares the demand for organic food with supply of organic food according to retailers. The observed differences are the basis for a deeper analysis of the comparison of supply and demand for organic food on Slovak market and the determination of excessive demand or supply in the selected categories of organic food.

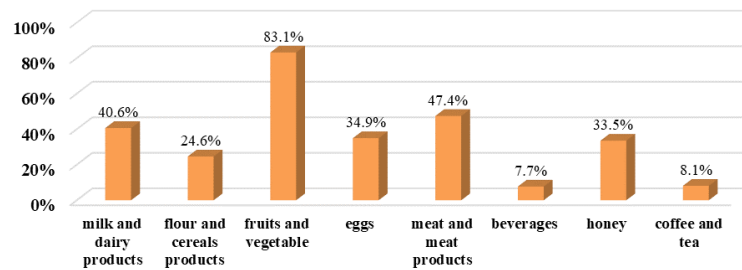
Based on the comparison of the demanded and supplied organic food products, it could be concluded that the supply is sufficient in most categories of organic food. In the case of fruit and vegetable, eggs and meat, consumers would welcome a wider offer. Furthermore, research examined whether the stores consider to extent their assortment in the future and based on the results it could be stated that 67.5% of the surveyed stores consider to extent it. 28.75% of stores would expand the section of fruit and vegetables from organic farming, same percentage of retails would extend their assortment by organic eggs. It could be assumed that if these categories will be added, the current supply will cover the demand in case of organic food on the Slovak market. Živčlová and Crhová (2013) suggest that the demand for organic food will gradually increase which will create space for organic farmers, processors, distributors and sellers of organic food.

Nevertheless, the attention should be paid to consumers who do not buy organic food. Based on the results obtained, it could be stated that currently 58.18% of the young consumers do not prefer to consume the given food category. The main barrier of consumption for 29.56% respondents is economic factor connected with higher prices. Other reasons were mistrust in the quality of food (25.19%) and lack of information about the reasons for buying (17.22%). The same barriers of purchase were identified by Kubeláková and Košíčiarová (2016), Savov *et al.* (2011) and Ham *et al.* (2016). Based on these factors, it is appropriate to spread



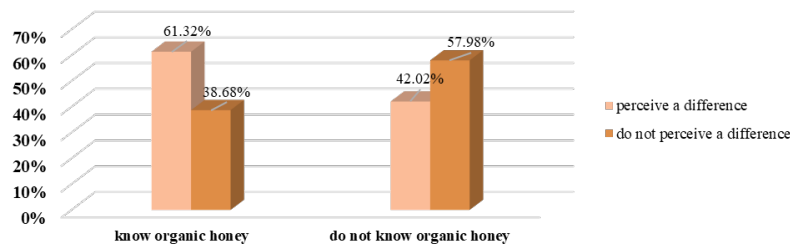
6: Merchandising of organic food in the Slovak retail store

Source: own research, 2018



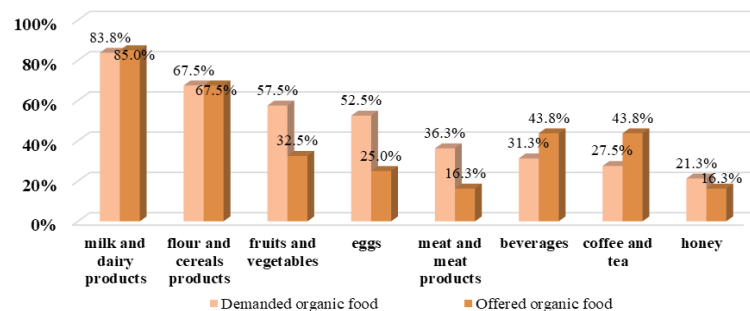
7: The most demanded categories of organic food from the consumers' point of view

Source: own research, 2018



8: Consumer perception towards organic honey

Source: own research, 2018



9: The most demanded organic product categories in comparison to the most offered organic food (% of retails, which marked particular categories of organic food as demanded from 1–4 and % of retails, which offer these categories of organic food)

Source: own research, 2018

the information and educate the consumers about the reasons for purchase food produced in organic farming and to emphasize the quality, health aspect and method of processing which is friendlier to the environment (Kozelová *et al.*, 2013; Bryla, 2016). Mentioned factors are also confirmed by the Slovak young consumers purchasing organic food. They consume organic food for their positive health impact (36.76%) and due to their higher quality

(25.74%) in comparison with the conventional ones. Information should be communicated to young consumers by social media because of young people use social media as a source of information and they are influenced by it. This statement is also proved by results of the questionnaire research, which suggests, that 46.22% of respondents consider social networks as the most suitable tool for searching and promoting organic food.

CONCLUSION

Food market is characterised by constant changes which are determined by consumers' behaviour. Increasing interest in purchase of organic products could be considered for the current trend in food market. The aim of the paper was to analyse the current situation on market with food produced in organic farming. Research included questionnaire survey in Slovak retail stores and questionnaire survey focused on consumer behaviour of young generation in Slovakia. Based on the results, it could be concluded that nowadays organic food is offered in 75.0% of surveyed retail stores. Consumers living in villages prefer to purchase organic food in supermarkets and hypermarkets while those who are living in the city prefer specialized shops. Slovak retail stores offer relatively wide range of organic food such as fruits and vegetables, milk and dairy products, meat products, mill products, beverages, eggs, honey, coffee and tea. Consumers mostly prefer to buy fruits and vegetables, meat and dairy products. Approximately 41.0% of respondents purchase organic food and in future it is expected increase in consumption of this category due to its higher quality and health aspect. Retail stores consider to extend their organic assortments by adding fruits and vegetables, meat products and eggs. At purchase of organic products, consumers consider as the most important the quality, country of origin and price. In terms of price, young women are more price-sensitive than young men. Furthermore, study examined the barriers for purchasing organic food and the most frequent were higher prices and insufficient information. Young consumers should be educated and more informed about reasons why to consume organic food by using predominantly internet and social media due to the fact that 46.22% of respondents use internet for searching information.

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