



QUALITY AND AVAILABILITY OF ORGANIC FOODS BY SLOVAK CONSUMERS

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ABSTRACT

The increasing consumer demand for organic products caused that the organic food market has expanded in all continents of the world. Organic foods represent a specific segment of the food market. Currently land area farmed organically in Slovakia represents 9% of the total agricultural land. In this work we identified organic foods purchase by Slovak consumers, the availability, reasons of purchase and quality assortment of organic foods at the Slovak market. Questionnaire survey involved 271 respondents. The Hierarchical multiple factor analysis was used for the segregation and classification of consumers into representative groups. The group of respondents was based on algorithms divided into three groups. In the first group of respondents, prevalent are responses that assortment is not sufficient and no answer, in the second group think that organic food assortment is not sufficient, and in the third group of respondents also dominates opinion that is not sufficient. At the question of organic food quality in all three groups is prevalent opinion that it is rather high, in the first group nearly the third of respondents considered the quality of organic foods as rather low, in the second group of respondents is rate: „rather low“ response and „rather high“ almost equal. In the third group of respondents strongly dominated response that the quality of organic food is rather high. Regarding the availability of organic products at the Slovak market, 16% of respondents considered it to be sufficient, 54% of consumers considered assortment as not enough available for all. We also analyzed the reasons of buying organic food. 42% of respondents reported that the main reason for buying organic food is a concern for the environment and landscape, 33% of respondents state it is a pleasure and the opportunity to try something unusual, 11% reported confidence in the quality of organic food and 7% their health care. Environmental education in the family since childhood and the opinions of friends significantly influence consumers when buying food and organic food. We assume that, organic food will be processed minimally in the future. Consumer demand for organic food we recommend to increase by increased support of the direct sales, informing about quality of organic foods and their beneficial effects on the human body at basic and secondary schools, organizing of excursions to organic farms and processing companies.

Keywords: organic food; consumer behavior; reasons of purchase; quality; availability

INTRODUCTION

Currently land area farmed organically in Slovakia represents 9% of the total agricultural land. The main goal of organic agriculture is to optimize the health and productivity of dependent communities: soil life, plants, animals and humans (Mulero et al., 2010). Competitiveness in the agriculture and food sectors and the impact of globalization on the food market is discussed by Bielik & Rajčániová (2004). Production of agricultural products and farming as an industry of the national economy plays an important role in the economic base of rural areas of Slovakia (Fáziková & Hamada, 2011). Schwarczová et al. (2010) analyzed knowledge and skills of farmers and experts in organic agriculture.

As defined in the Act of the National Council of the Slovak Republic No. 152/1995 on food, organic food is produced from raw materials coming from organic farming - the plant production, which uses special crop rotation, green fertilization, organic manure, mechanical and

biological methods of plant protection; and the animal production which uses feed coming exclusively from organic crop production and simultaneously uses special veterinary care.

The aim of this work was to evaluate slovak respondent opinions on reasons of organic foods purchase, the quality and product assortment availability of organic foods at the Slovak market.

MATERIAL A METHODOLOGY

Consumer opinions about purchase of organic foods and their preferences and shopping behaviors were obtained by using a questionnaire technique. The survey was performed from December 2010 till March 2011. 271 respondents attended, of which 73% are women and 27% men.

In our survey, 271 respondents participated in the following age structure: category 18 to 30 years is 28% of the respondents, the second age category from 31 to 40

years is 48% of the respondents, the third category of age 41 to 50 years represented 11% of respondents, the fourth category of 51 to 60 years represented 12% respondents, the fifth age group above 61 years is 1% of respondents. By education dominated respondents with secondary education by 63%, followed by respondents with the university education 32% and 5% of respondents had only basic education.

Agglomerative hierarchical clustering on the contingency tables derived from the dataset by the method of Agnes R (Agglomerative Nesting) has been used to highlight the structure (similarities of the responses), R Development Core Team (2011). The Hierarchical multiple factor analysis (HMFA), which is a part of a specialized R package for work with questionnaires EnquireR (R Development Core Team 2011) was used for the segregation and classification of consumers into representative groups. The group of respondents was based on algorithms divided into 3 groups.

RESULTS AND DISCUSSION

Our results show that assortment of organic products at the Slovak market was by 9% of respondents considered as sufficient, 55% of respondents think is not sufficient and 36% of respondents can not judge it. In the first group of respondents, prevalent are responses that assortment is not sufficient and no answer, in the second group think that organic food assortment is not sufficient, and the third group of respondents also dominates opinion that is not sufficient (Fig. 1). Consumer preferences for organic food were analyzed by several authors. **Padel & Foster (2005)** state that in the decision-making process consumer comprehensively evaluates motives and barriers to buying organic food.

We also analyzed the reasons of buying organic food. 42% of respondents reported that the main reason for buying organic food is a concern for the environment and landscape, 33% of respondents state it is a pleasure and the opportunity to try something unusual, 11% reported confidence in the quality of organic food and 7% their health care.

One important factor when deciding to buy organic food is the knowledge of the product by customers (**Verbeke, 2008**). The strongest reason for buying organic food for Romanian respondents is also health care. This reason was presented by 42% of respondents. The second most important reason for 25% of respondents is their own health problems. The third is concern about the environment (16%) and the fourth is a vegetarian diet (15%). Two percent of respondents buy organic products randomly (**Potclan, 2012**). Reasons of Chinese consumers to buy organic food were examined by **Shiji et al., (2010)** and were found to be strongly influenced by factors such as income funds, the level of trust in organic food, the rate of acceptance of organic food prices and consumer concerns about own health, and only slightly influenced by factors such as consumer age, education level and interest in environmental protection.

We monitored sources where consumers receive information about organic food as well. We found that the most frequently used source of information about organic food is for 33% of the respondents internet. One fifth of respondents reported professional journals and books. TV

is information for 16% of respondents, leaflets and brochures 15% of respondents, from newspapers, friends and colleagues take information 8% of respondents.

Research of products and origin of organic foods offered at the Slovak market in three retail chains and specialized stores was performed by **Abrhan (2011)**. Most of organic food came from the countries of the European Union (98%). Outside the EU, the stores with organic products have only coffee and bananas from Ecuador. The largest share of the market was for the Czech Republic (28%), followed by Italy (24%), Slovakia (22%), Germany and Poland consistently with an 8% share. The Czech Republic had the largest portion (beef, ketchup, pasta, rice and spelt breads, oatmeal, flaxseed oil, teas) **Abrhan (2011)**.

Availability of organic products at the Slovak market considered 16% of respondents to be sufficient, 54% of organic food consider it as not enough available for all consumers and 30% of respondents to this question could not reply. In the second and third group of respondents think that organic foods are not available for all respondents (Fig. 2).

At the question of organic food quality in all three groups is prevalent opinion that it is rather high, in the first group nearly the third of respondents considered the quality of organic foods as rather low, in the second group of respondents is rate: „rather low“ response and „rather high“ almost equal. In the third group of respondents strongly dominated response that the quality of organic food is rather high (Fig. 3).

Quality of organic foods and their derived products were analyzed by several authors. Complex analysis of organic and conventionally grown oranges made **Turra et al. (2006)**, who confirmed that for the processing of orange juices are more preferable ones from an environmental management system because of the higher content of vitamin C. **Frančáková et al. (2012)** state that different varieties of apples and juices are rich source of polyphenols and antioxidant active substances from organic production, so these contain nutritionally important substances in higher amounts.

The quality and safety of raw cow's milk is important for dairy processing companies and consumers of milk products. The content of fat, protein and solids-non-fat are the main indicators used for technological purposes (**Zajác et al., 2012**). Milk quality from organic and conventional production was also compared. Higher content of fat (4.23 g/100g) and protein (3.41 g/100g) in organic milk in comparison to conventional milk (4.11 g/100g, resp. 3.39 g/100g) were found. Conventionally produced milk had significantly lower heat resistance. Better heat stability of organic milk and higher content of calcium correspond with higher technological quality (**Čuboň et al., 2008**).

Microbiological analysis of the quality of eggs from organic and conventional farming of laying hens was done by **Kačániová et al., (2006)**. Occurrence of microorganism groups on the surface of egg shells was compared. The number of coliform bacteria (including *Escherichia coli*), lactobacilli and number of mesophilic and aerobic sporulating microorganisms in organic farming is lower than in conventional farming. The number of enterococci and fungi is lower in conventional breeding.

The research of O'Donovan and McCarthy (2002) states that consumers consider organic meat to be better compared to conventional meat in terms of quality, safety, labeling, production methods, and nutritional value.

Winemakers who decided to produce organic wines must comply with the rules of organic production in accordance

with the relevant legislation. Significant differences in the evaluation of the quality of the resulting wines coming from conventional growing compared to organic are not known (Kirsanov et al., 2012; Vietoris et al., 2011).

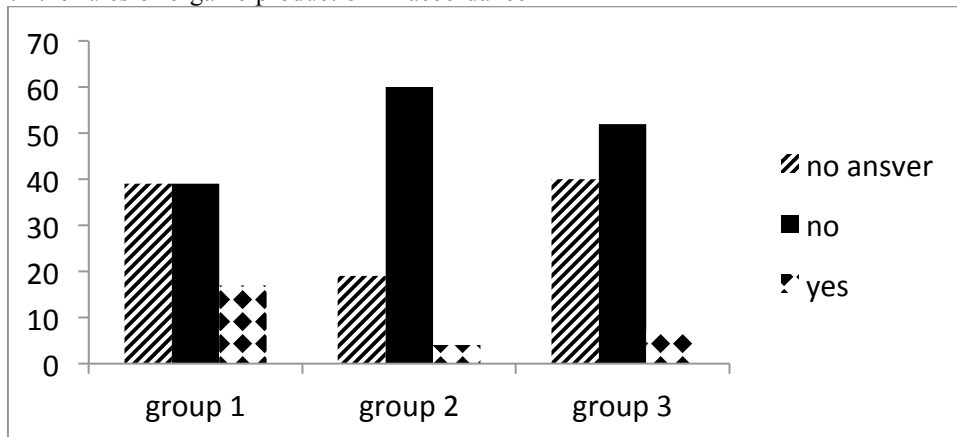


Figure 1 Barplot of question : Is assortment of organic products at the Slovak market sufficient?

1: no answer, 2: no, 3: yes

Source: Own research and processing

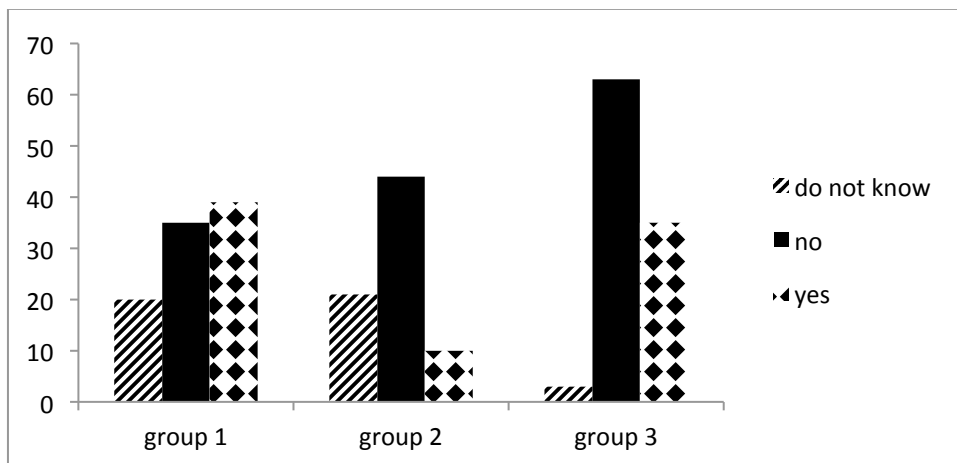


Figure 2 Barplot of question : Are organic foods available at the Slovak market for all consumers?

1: do not know, 2: no, 3: yes

Source: Own research and processing

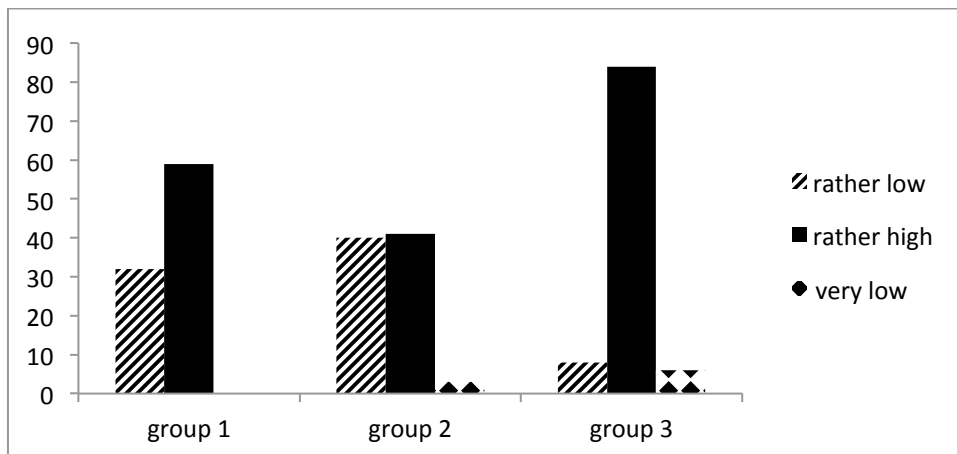


Figure 3 Barplot of question : Quality of organic foods at the Slovak market

1: rather low, 2: rather high, 3: very low

Source: Own research and processing.

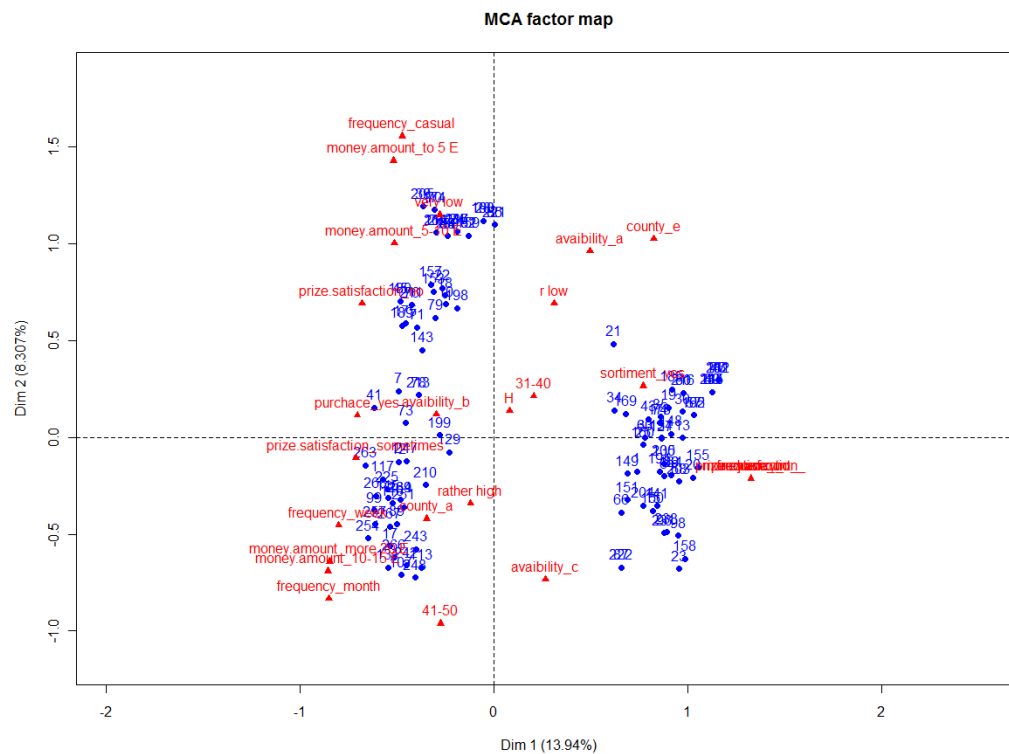


Figure 4 HMFA map of individual respondent positions and response categories
Source: Own research and processing.

Environmental education in the family since childhood and the opinions of friends significantly affect consumers when buying food and organic food. Social factors influencing buying behavior are external influences such as the reference group, or family. Their views on consumer food choices were processed and subsequently led to the decision to buy a particular product. Slovak consumers are significantly interested in the consumption of organic products, and it is expected to be increased (Kozelová et al., 2011; Turňová, 2011).

In the structure of purchased organic food at the Slovak market respondents prefer cereal products (26%), fresh and processed vegetables (24%), fresh and processed fruits (15%). Followed by 10% of dried legumes and eggs (10%), 7% of respondents buy milk and dairy products, potatoes by 5%, 3% of meat and meat products.

Matysik-Pejas and Szafranská (2009) consider as the most common forms of organic food distribution in Poland direct farm sale, sale from farm to specialized shops, conventional processing establishments, marketplace and to organic processing establishments. Farms located either in the county with the highest concentration of organic farming or in the vicinity of cities reach the best return on sales.

Several analyzes of consumer buying behavior show that organic food are bought mostly by consumers of higher education (Aguirre, 2007).

The interesting results found Kolačkovská (2012), with 317 views of Slovak consumers aimed at organic nutrition of children examined whether there are differences

between the two groups of respondents, a group that has and a group that does not have pre-school aged children in their household. In the group, which has the pre-school age children in households consume four times more organic. In the group, which consisted of no pre-school age children, up to 28% no organic food was consumed. Respondents who have the preschool children at home and have lower monthly income are even so willing to respect the needs of children and to buy organic food and to introduce them at home.

CONCLUSION

By analyzing the behavior of Slovak consumers at the market with organic products were created three groups of respondents. In all three groups of respondents generated, prevalent was secondary education, while the second and the third group consisted of more than the third of respondents with a university education. In all three groups of respondents is opinion that organic food quality is rather high.

Availability of organic products at the Slovak market considered 16% of respondents to be sufficient, 54% of organic food consider it as not enough available for all consumers. Survey of consumer opinions on the quality and availability of food offered at the Slovak market with organic products shows that all respondents knew the term "organic", but only 65% respondents purchases organic food. The most frequently are bought cereal products (26%), fresh and processed fruits and vegetables (24%), fresh and processed fruits (15%). Followed by 10% of

dried legumes and eggs also by 10%, 7% of respondents buy milk and dairy products, potatoes 5%, meat and meat products 3%. The mostly respondents (42%) buy organic food because of environmental reasons and (33%) enjoyment, the opportunity to try something new.

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