

## **Pilot study of variability on demand and knowledge concerning organic food on an example of two Polish regions**

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**Abstract.** The paper focuses on showing variability of knowledge and demand for organic food in two regions of Poland, i.e. Świętokrzyskie and Mazovian provinces. The selected for detailed investigations Polish regions differed in society wealth. Mazovia province with capitol (Warsaw) is reach as opposed to Świętokrzyskie – mountain province with dominance of more difficult conditions for comfort and affluent life. Basing on questionnaire the group of respondents' attitude towards organic food was recognized and compared. The problems included in the questionnaire there were factors influencing the organic food buying, factors which influence about the resignation of organic food buying, the availability of information about organic food, availability of organic food in selected regions, requirements for organic food, most frequently purchased organic products, place where consumers buy organic food, consumption frequency of organic food, factors influencing the choice of organic food. The comparison of two provinces indicated differences within the meaning of organic food as well as autonomy in consumer behaviour. Polish society is characterized by a growing interest in organic food. The production industrialization and mass food processing causes people to look for some alternatives. Organic farming gives people that chance. In the conclusions, we have formulated a term mean that due to the consumption of organic products – 'we are what we eat'.

**Key words:** consumer, demand, knowledge, organic food, Poland, production.

### **INTRODUCTION**

The organic agriculture has constantly expanded world-wide in the last years including developed as well many developing countries. The international market of organic food has rapidly increased as well. An important factor behind the organic success is the positive consumer awareness on health and environmental issues, including the resistance towards GMO farming and genetically modified food produces (Defrancesco & Rossetto, 2007). This way the organic food products constitute one of the significant alternatives within the global food market. Food markets have become more global over recent decades as retailers and manufacturers source and distribute food products, raw and processed worldwide (Fulponi, 2004).

The organic food products and production can be included as a part of sustainable agriculture and food production system. The term sustainability has become omnipresent: It obviously can no longer be excluded from any statement or discussion that is in any way oriented towards development, progress and our common future

(Knaus, 2007). Sustainable agriculture may be broadly defined as ecologically sound agriculture and narrowly defined as eternal agriculture (Heitschmidt et al., 1996). Sustainable development is today often used and broadly accepted in science, politics and nearly all societal groups as a guiding principle for societal development (Meyer, 2006).

The agricultural and environmental conditions in Poland, as well as biological variety are favourable for organic farming development. Transition of the Polish economy towards market system has initiated many discussions on criteria taken into account to assess the changes observed in all stages of food chain (Gaworski, 2006).

Changes in agricultural practice over the past 50 years have increased the world's capacity in order to provide food for its people through increases in productivity, greater diversity of foods and less seasonal dependence. Food availability has also increased as a consequence of rising income levels and falling food prices (Kearney, 2010). Major advances in sustainable food production and availability can be achieved with the concerted application of current technologies and the importance of investing in research sooner rather than later to enable the food system to cope with both known and unknown challenges (Godfray et al., 2010).

In the field of food system development is possible to indicate many significant, current problems, like food quality as well as food availability. Access to food varies substantially across households because of the various factors affecting food prices. The mentioned factors include environmental dimensions, such as geographic region of the country; urban versus rural setting; types of stores available (supermarkets, convenience stores, mass merchandisers etc.); and types of foods available, such as healthier versus less healthy (Caswell & Yaktine, 2013).

The short review of food system development can be inspiration to put general scientific problem concerning consumer attitude to some kind of food products. To precise the scientific problem it is possible to phrase the following question: Can consumer attitude to some food products result from consumer knowledge and access to these products?

Aim of the research was to show effect of regional conditions and variability on consumer behaviour referring to some food products.

Scope of the research included two Polish regions, where access as well as consumer demand and knowledge concerning food organic products were investigated.

As a result of the research it was expected to develop problem, how sustainable development of national food system include variability of regions translating into consumer approach to organic products.

## **MATERIALS AND METHODS**

To find differences in consumer behaviour referring to organic food products, two Polish regions were selected to carry out the investigations. The selected for detailed investigations regions differ in many respects: geographical, social and economic. Mazovia with the capital (Warsaw) is a region of relatively high quality of life, in contrast to the Świętokrzyskie province – mountain area of domination of difficult living conditions.

The consumer behaviour, knowledge and assessment of access to organic food products were investigated on the base of a questionnaire. The model questionnaire included 10 basic questions, each of them with few optional answers. Questions at this part of questionnaire included information, how many answers was possible to give. Structure of the questionnaire was supplemented with 6 questions concerning: dwelling place (options: big city, small city and village), education (primary, secondary and higher education), monthly income (per family), expenses for food per month (including four ranges), expenses for organic food per month (including four ranges), and general assessment of own financial situation (very good, good, average, bad and very bad).

The research problems highlighted in the questionnaire were:

- factors influencing the purchase of organic foods,
- factors for canceling the purchase of eco-food,
- availability of information on organic food,
- availability of organic food in selected regions,
- requirements for organic food,
- most frequently purchased organic products,
- place where consumers buy organic food,
- frequency of consumption of organic products,
- factors influencing the choice of organic food.

General procedure of the data collection on the base of questionnaire included at first step the sent inquiry to potential respondents about possible participation in the research on organic food problems. When the participation was approved the printed or electronic version of the questionnaire was sent to the respondents. During one week we have received the filled questionnaires from respondents. At this period we had the contact with respondents to explain some doubts, when it was necessary. At the next step answers given in questionnaires were verified in respect of completeness. Together 40 completely filled questionnaires were taken to further analyses.

Questionnaire was directed only to the women carrying a house and responsible for grocery shopping. The definition of consumers as a specific group in which women played a predominant role is even more relevant in the context of policy making (Terragni, 2007).

Group of 20 women represented Mazovian region, while 20 women were investigated in Świętokrzyskie region. The selected respondents belonged to the age bracket of 25–45 years old.

Including basic criterion of analysis, i.e. Polish region, differences in structure of respondents was possible to indicate. Group of women representing Mazovian region was dominated by big city dwellers (95% of respondents), while distribution of respondents from Świętokrzyskie region included: 45% – country dwellers, 35% – small city dwellers and 20% – big city dwellers.

Considering education status of respondents slight differences were possible to find. The group of respondents living in Mazovian region included the same percentage (45%) of persons with higher and secondary education, while 10% of women had primary education. However, respondents in Świętokrzyskie region were characterized by the following education status: higher – 40%, secondary – 40% and primary – 20% of investigated population.

Statistical analysis of data concerning respondents was performed using the Statistica v.12 software. Analysis of variance (ANOVA) for main factors was conducted. The statistical model included the fixed effects of region (Mazovian / Świętokrzyskie region). Significance level was  $\alpha = 0.05$ .

Results of the investigation were presented in descriptive form. Detailed answers given by respondents in questionnaires were taken to discuss some problems of organic food consumption and differences between consumers and their behaviour in two considered Polish regions, i.e. Mazovian and Świętokrzyskie provinces.

## RESULTS AND DISCUSSION

Results of analysis of variance showed significant difference ( $p < 0.05$ ) between respondents from Mazovia and Świętokrzyskie region for one main factor, i.e. dwelling place (Table 1). The dwelling place included three options: big city (more than 50 thousand of inhabitants), small city (less than 50 thousand of inhabitants) and village.

**Table 1.** Analysis of variance for investigated respondents from two Polish regions (Mazovia and Świętokrzyskie region)

Effect	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Education status	0.5846	2	0.2923	3.0613	0.0622
Dwelling place	2.2888	2	1.1444	11.9844	0.0002
Incomes	0.5759	3	0.1920	2.0104	0.1345
Expenses for food	0.5272	3	0.1757	1.8403	0.1619

For other main factors (educational status, incomes and expenses for food) it wasn't found significant difference ( $p > 0.05$ ) between respondents investigated in Mazovia and Świętokrzyskie region.

### Knowledge of organic food

Women living in large cities both in Mazovian and Świętokrzyskie know organic food. Respondents representing villages or smaller towns in the area Świętokrzyskie mostly not heard of organic food. Participants were from secondary and vocational mostly never heard of organic food, in the case of women with higher education – the situation is vice versa. Eleven of the twenty surveyed in Świętokrzyskie heard of organic food, which gives 55% in the Mazovian until nineteen twenty people familiar with organic food (95%).

### Availability of organic food

Respondents in accordance match that organic food is expensive. None of the women indicated no answer: I do not like organic food, which indicates that these products are considered tasty. But the problem arises when issues related to the availability of that food. It turned out that in Świętokrzyskie eleven women indicated the answer – 'I do not know where to buy it', and in the Mazovian only one. This shows that in Świętokrzyskie organic food is not very common and exposed, it is difficult to find the point where you can buy eco-food.

### **Knowledge of products and their availability**

The respondents most frequently indicated that organic food is healthy and without harmful substances. The information the respondents most often acquire in the store with this type of product. The ladies of Mazovian indicated in addition to exhibitions and fairs during which they can gain proper knowledge about the products, often to try the products and also buy merchandise.

In Świętokrzyskie province up to 75% of the respondents answered that they misjudge the availability of organic products, 20% was medium and only 5% – well. On the contrary, the results show up in Mazovia, where the availability of good estimates 55% on average – 40% and only 5% – bad. These results are justified by the requests indicated in the introductory part of the paper. Świętokrzyskie province is poorer compared to the Mazovian, few industrialized and incomes of the population are mainly generated through farming. We can indicate a relationship here that say the fact that the population of the Świętokrzyskie region trust the products produced by themselves, on their farms, without requiring processing. They recognize that only these products are healthy. Such approach confirm important aspect named regional food system. Regional food systems face high expectations: from regional economic development perspective, they are seen as a means to produce regional value added – an expectation which induces the creation of regional brands for food and other products in almost every region with active regional management (Kaliwoda et al., 2007).

### **Opinions and knowledge about organic food**

Quite disturbingly present the results concerning the knowledge of the respondents about organic food. In Świętokrzyskie province they fell the most common response from these products are made naturally and without preservatives. However, in the Mazovian portfolio answer it turned out to be much broader namely: less processed, with a shorter shelf life, appropriately marked and certificated and rich in nutrients. In Świętokrzyskie nobody paid attention to the response of labeling and certification process and once selected answer with a short shelf life. It provides with a little knowledge of organic products in general. Ignorance of signs and certificates resulting in limited ability to search for organic products.

Behaviour of the investigated consumers can result from their attitude and identified psychographic-motivating profile of the Polish consumer. A type of the consumer being mature as regards dietary behaviours predominates in two groups of eco-consumers: a group of those being health-motivated and a group of those having futuristic motivation. Two types of the consumer represent an ecological motivation for eco-consumption: sceptic and traditionalist (Cichocka & Grabiński, 2009).

### **Consumer behavior**

With the Świętokrzyskie province 50% of respondents buys organic food. According to them, the most widely purchased products include eggs, vegetables and bread. None of the women do not buy fruit and vegetable preserves and fruit. In Mazovian district organic food bought fifteen of the twenty surveyed women, i.e. 75% of respondents. Most buy bread, eggs, vegetables and also gave further grits, flour, spices, herbs and olive oil. There is more interest in dairy products and meat and fruit preserves. It should be noted that awareness of the existence of products, do not reach for and availability. In Mazovian district is greater access and choice of organic food,

and in Świętokrzyskie people are unaware that such products exist. In Świętokrzyskie province people face the problem of misinformation and ignorance that organic food can be purchased.

In Świętokrzyskie province 50% of all respondents buying organic food, usually as much as 80% make their purchase from the manufacturer, 20% of organic food store. None of the women not purchasing over the Internet. This is due to ignorance that such foods can be purchased over the Internet. Most buys from the manufacturer because they have better access, a small portion is shopping in stores with organic food, which is caused by a limited number of the shops. In the Mazovian district 75% of all respondents buy organic food. From this 80% is supplied with organic food stores, because they are public. Through the Internet buys 13% and the producer only 7%. The indicator of direct purchases from the manufacturer is low and associated with low availability-proximity to public areas where food is prepared is that – as a rule, are a type of tourism are places where outside activities of a typical tourist, it is also produced food from local organic producers.

#### **Consumption of organic food**

Another important issue is the frequency of consumption of eco-food. In Świętokrzyskie province answer was given by 50% of all respondents. Several times a month organic food consumed 60%, less 30% and the answer 2–3 times a week marked 10%. No one answered that eats organic food every day. In Mazovian district answered 75% of all respondents, of which every food that consumes 20%, 2–3 times a week – 47% and 33% several times a month. No one answers rarely indicated. The above-mentioned differences result from the wealth of people in both provinces.

#### **Factors determining purchase organic food**

The last important issue is the choice of organic food and the factors influence the choice. In Świętokrzyskie district this question answered 50% of all respondents. Most often marked answers, i.e. motive for the choice of organic food are: price of product, manufacturer, appearance and suggestions dealer. Suggesting a producer is understandable, since most respondents buy food directly from him. Nobody pointed labeling, which indicates ignorance in this regard. In the Mazowieckie voivodship answer was given by 75% of all respondents. In the majority of answers they were falling price of the product, as well as the expiry date, ingredients, labeling and manufacturer. Consumers from Mazovia show more interest in healthy food kitchen. It was in Mazowieckie voivodship the last five years created the majority of culinary blogs that promote living in harmony with the trend 'fit'. They also have a greater knowledge of the labeling of organic products, know how to distinguish from conventional.

You are what you eat ... this saying testifies to attempt to show users how important the daily diet and knowledge of the products consumed.

Awareness about organic food of Polish respondents participated in the research is growing. We want to eat healthy and from a reliable source. The industrialization of mass production and food processing causes people to look for alternatives. Organic farming gives us that chance. Derived from the production it is healthier and more secure.



Availability of natural products derived from crops, in which no artificial fertilizers are used and the processing is carried out without preservatives is high. Their purchase is not limited to specialty health food stores or stalls in markets and residential shelves in stores. Organic food has become more available and 'for everyone' thanks to the visibility of its hypermarkets and the possibility of purchasing over the Internet.

The guarantor providers that buy organic food, is the certificate that recovery is very difficult. This 'green leaf' testifies to the fact that the production / food was carried out without any artificial and harmful substances. This applies to the entire production chain - from the farm after a company engaged in the processing. As a result, we are confident about the naturalness of a product and we can expect the highest quality.

It can be important to treat organic food consumption as a part of ecological system. The preferred direction is making by households ecologically oriented choices in terms of acquisition, use of goods and then waste disposal. It is possible to show the impact of some patterns and styles of consumption (like consumerism, sustainable consumption) on the demand for environmental resources and to high-light the greening processes of household consumption as a factor positively associated with the efficient resources management (Rumianowska, 2013).

In Poland, the market for organic food is still a small percentage of the entire industry. In 2015 it reached 770 million PLN. We can say with full awareness that it is a developing market with an upward trend. If we were to compare yourself to our western neighbors, that's for sure a lot of us still missing. Some statistical data show that the Polish inhabitant a year on eco-food seems approximately 4 euros and in Western Europe it is from 90 to 195 euros (Kowalska, 2015).

At the current time and in the future, the problem of access to some kind of food, including organic food can be considered in the field of ethics. 'Food Ethics' is a discipline, which tries to examine the whole spectrum of ethical aspects of nutrition in an interdisciplinary way (Bambauer & Meinhardt, 2004).

## CONCLUSIONS

The carried out investigations confirm effect of dwelling place on consumer behaviour concerning organic food. Women living in large cities in two considered regions know organic food. Respondents representing villages and smaller cities in the poorer region (Świętokrzyskie province) mostly not heard of organic food. In practice the results of investigation indicate needs to improve access to organic food, especially in small cities. The country dwellers have more possibilities to have contact with some kind of organic food, when they are owners of small farms. Such approach confirm important aspect named regional food system.

The regional food system, especially in small cities and villages can be partly equated with organic food system and it is chance to have access to high quality food products in some, especially poorer regions.

The undertaken problem of variability in access, consumer demand and knowledge concerning food organic products in regional scale can be developed for international comparisons. As a result it can be expected to find differences in consumer behaviour concerning organic food in some countries.

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