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ASSESSMENT OF KNOWLEDGE OF GDYNIA'S CITIZENS ON THE POSSIBLE USAGE OF ORGANIC FOODS IN THE PREVENTION OF HEALTH

The aim of this study was to obtain information about the state of consumer awareness about organic food and its impact on health and the perception of this type of product and to determine on the basis of what factors are critical for the development of retail sales of products from organic farming system and associated with this development of organic farming. The majority of subjects had a satisfactory level of knowledge about organic products. The results indicate that the citizens of Gdynia know that organic food is characterized by high nutritional values. Centers that are efficiently informing about organic food are television and radio. Most consumers make their purchases of organic products in supermarkets and specialty stores. The majority of respondents are familiar with the EU's Euro-leaf logo, and can identify units responsible for the certification of organic food. Consumers choose organic food mainly because of concern about the health of their own and their families. Behind the main disadvantage of organic food among non-consuming subjects, was the price difference between organic products from their equivalents coming from conventional production.

Key words: *organic food, nutrition*

INTRODUCTION

The relationship between health, diet and lifestyle, as well as the effect of proper nutrition on maintaining health and preventing diseases of civilization was proven many years ago. As the research carried out by the US Centre for Disease Control demonstrated, the most important elements affecting human health include food and nutrition, accounting for 53% [10].

Under conditions of an increasing interest in food free from chemical contamination offering guaranteed quality, other food values also become important, and should be included as having health-promoting and disease-preventing functions. The properties of organic food permit it to be classified as functional food, i.e. food consumed to help prevent diseases caused, among others, by improper nutrition [4, 7].

The organic farming market in Poland is a rapidly-developing segment with high potential. It is subject to transformations caused by an increased supply of products originating from organic farming and by a change in consumer expectations

towards food. In recent years, the development of organic farming has focused on creating a system of control and the development of appropriate legal regulations related to organic food [9].

Organic farming is oriented towards high quality raw materials and products by applying technologies which are safe for people and the natural environment. Organic cultivation of plants consists in applying crop rotation using plants that increase organic matter content in soil.

Conventional farming is focused on maximizing yield by increasing the productivity of plants and animals with all available means. This type of farming is characterized by high capital costs of production means and fuel. Plant cultivation involves the application of agricultural chemical agents which support growth, preventing diseases and pests. Conventional farming does not treat crop rotation as a basis for plan production, and mineral components are provided directly to plant roots. This entails the introduction of nitrates, pesticides, seed pickles, growth stimulators, antibiotics and animal hormones into soil. In the alimentary tract, as a result of reduction, nitrates are transformed into nitrites and nitrosamines, and mycotoxins are produced in soil affected by chemical treatment. The accumulation of harmful substances in soil particularly affects vegetables, berries and potatoes, while fruits growing on trees and cereals are less susceptible [8].

Organic farm produce has higher nutritional values than products originating from conventional farming. This is the effect, among others, of fertilization, cultivation method, degree of ripeness and conditions during the vegetation period [1].

MATERIALS AND METHODS

A research survey was conducted in Gdynia between June and August 2014 containing single or multiple choice, close-ended questions. Additionally, a question was asked using the Likert scale. The survey was anonymous and consisted of 12 questions (for the declared consumption of organic food, the respondents had to answer 11 questions, otherwise, they had 9 questions to answer). Forty randomly-selected respondents participated in the survey. The respondents included persons who are organic food consumers, as well as persons who do not eat organic products.

In the examined groups, women (55%) were a slight majority over men (45%). Among the respondents, the prevailing group were young people under 40 (65%), followed by middle-aged persons (25%), while people above 55 accounted only for 8% (Tab. 12). Taking into account both socio-demographic factors (sex and age), women in two groups, under 25 (20%) and aged 25–40 (20%) made up the largest share, while the number of persons above 55 was the lowest: 4% men and 4% women.

Employed persons accounted for the largest share of survey respondents (62%), every fourth respondent was a student and every tenth respondent was unemployed. Retirees and pensioners made up the smallest group of respondents, accounting for only 8%.

An important variable differentiating consumer behaviours towards organic food was an evaluation of their financial population. The most numerous group was made up of respondents who evaluated their income as medium (42%). 30% of respondents described their financial situation as good and 15% as very good. Low or very low income was declared by 13%.

RESULTS

One of the key factors motivating consumers to purchase organic food is the level of their ecological conscience, defined as a set of information and beliefs concerning the natural environment, as well as the perception of relations between the state and the character of the natural environment and the quality of human life. Factors contributing to the development of ecological awareness of consumers include: sense of responsibility, sense of health security and readiness for self-restriction [13].

The first question the respondents were asked concerned their level of knowledge concerning organic food. 51% described their knowledge as medium, regardless of age or sex (Tab. 1). A high or very high level of knowledge of eco-food was declared by 37% respondents, including 35% women and only 2% men. These were mainly persons below 55 years of age. Only 12% respondents described their knowledge as very low or low.

Table 1

Level of respondents' knowledge of organic food

Level of knowledge	Age/sex of respondents (%)								Total (%)
	Below 25		25–40		41–55		Above 55		
	W	M	W	M	W	M	W	M	
Very low	0	0	2	0	0	0	0	2	4
Low	0	3	0	0	0	2	0	3	8
Moderate	10	10	3	10	3	12	3	0	51
High	5	2	10	0	8	0	2	0	27
Very high	5	0	5	0	0	0	0	0	10

Source: Results of own research

Respondents were provided six statements and asked to assign to them an appropriate level of acceptance - at their own discretion (from: "Absolutely not", through "Rather not", "I don't know", "Rather yes", to "Absolutely yes"). The analysis of answers was based on the Likert scale. The highest score in questions 1, 3, 5 was 5 points, while in questions 2, 4, 6 a reverse scale was used, with

1 point as the highest score (Tab. 2). As many as 97% respondents completely agree or agree with the statement that organic food is characterized by high nutritive values, while 3% respondents do not have any opinion on this issue. This statement received 4.68 points on the five-degree Likert scale. The statement that organic farming is an environmentally-friendly system and leads to a reduction of pollution was the second most-frequent answer chosen by the respondents. This is an opinion with which 63% respondents agree, 35% rather agree, and only 2% of respondents rather disagree. This opinion received 4.62 points on the Likert scale. 77% of respondents totally disagreed and rather disagreed with the statement that organic farming is an old-fashioned system, 15% responded that it was a rather old-fashioned system; these were mainly persons below 40, regardless of their financial status and social and employment structure, while 8% of the surveyed had no opinion. This opinion received 4.37 points in the Likert scale. Most respondents surveyed in this study agreed with the statement that organic agriculture and food are free from genetic modifications – which obtained an average score of 3.94 on the Likert scale. In percentage terms, 50% respondents agreed and 12% rather agreed. Every fourth person had no opinion on GMO in organic food; these were only men from all age groups. The statement that “organic food is a publicity stunt” received a mean score of 3.63. 47% respondents disagreed with this opinion, a high share of respondents indicated that this is rather a publicity stunt (35%), and 18% respondents had no opinion. For the statement claiming that the production of organic food uses artificial and chemical fertilizers, the lowest mean on the Likert scale was recorded (3.4), which corresponds to the opinion “I don't know”. More than a half of respondents (55%) absolutely disagreed or rather disagreed with this statement. A large part of the respondents (33%) claimed that organic farming was not totally free from chemical components and 12% had no opinion on this issue.

Table 2

Knowledge of organic farming among consumers

	Definition	Number of answers / Age in years				Mean in Likert scale
		<25	25–40	41–55	>55	
1.	Organic farming and organic food are free from genetically modified food (GMO)	3.71	3.75	4.8	3.5	3.94
2.	Organic farming is an old-fashioned system	4.07	4.42	4.5	4.5	4.37
3.	Organic food is characterized by high nutritive values	4.86	4.92	4.7	4.25	4.68
4.	Organic food is only a publicity stunt	3.36	3.67	4	3.5	3.63
5.	Organic farming is a system which leads to a reduction of environmental pollution	4.43	4.42	4.9	4.75	4.62
6.	Production of organic food uses artificial and chemical fertilizers	3.86	3.5	4	2.25	3.4

Source: Results of own research.

The attitude of consumers towards organic food determined purchasing behaviours. A positive approach to organic food is an important factor affecting consumer choice. Purchasers with high knowledge are the slowest in changing their attitude towards the product. Consumers with low knowledge are more eager to change their attitude [11].

Most respondents know that organic food is more expensive than conventional food. This answer was provided by 80% respondents. Only 5% knew the prices of organic food and 15% declared that they did not know.

The respondents look for information on organic farming methods, as well as on quality features of organic food and the labelling of such products, mainly on television and radio (37%), followed by the press and the Internet (27%). A large group of persons (13%) acquired knowledge of organic food during lectures. These were mainly persons below 25 years of age. Some respondents (13%) declared that they obtained their knowledge from their family. These were mainly retirees in the highest age group.

The majority of students of Lublin universities (80%) also listed lectures and classes as a source of food information. Media play an important role in this group of respondents (Internet – 70%, press 32%, television and radio – 17%) [2]. Gdynia students, apart from lectures, gained their knowledge from television and radio. A randomly-selected population of respondents in Kraków and vicinity gained their knowledge from magazines (36%), television (24%), radio (2%), professional literature (14%), family (15%) and 9% from other sources [3].

As observed by Zalejski and Faszczewska [14], purchasers of organic products have a wide choice of information sources, which is the reason why the results vary depending on the place where the survey was conducted. Not only family and friends could be consulted, but also eco-food specialists and sellers at the place of purchase. Although there is a lot of information on the Internet, TV and in the press, unfortunately, not all of this information is consistent, which causes problems with the identification of organic products. This excess of information makes consumers disoriented and, consequently, distrustful.

The respondents were asked to select, out of three provided labels found on organic food, the one that certifies that a product was made with organic methods. The first of them was a euroleaf, indicating an eco-product. The second was a protected geographical indication, displayed on products manufactured in a specific region, and the last sign was a traditional speciality guarantee label, denoting products protected due to their specific production region, composition, or manufacturing with traditional raw materials. The majority of respondents (63%) knew the labelling of organic products. These were mostly students below 25, 100% of whom chose the correct logo.

Ecological trademarks are an important instrument of communication between manufacturers and consumers. Research carried out in Warsaw by Kucińska [5] proves that more than a half of respondents (55.5%) properly recognized the previous symbol of organic food, which, as the author claims, is a result of the very

good clarity of this mark and the information campaign conducted. She examined symbols which do not denote products originating from organic farming. More than 31% of respondents claimed that the symbol of eco-products is “ECO (Ecological) Label”, while 18% marked the “E-marguerite” eco-label. This proves that information contained on labels is unclear and disorients the consumer, who associated the Eco designation with organic products. This theory is confirmed by Krełowska-Kuras [3], who examined terms associated with organic food. All respondents (100%) identified the name “ecological” only with products of organic origin.

According to Witek [13], consumers of organic food have fragmentary knowledge concerning the labelling of this type of products. Their sceptical attitude towards labels results in questioning the creditability of eco-food. Additionally, she points to the information gap to explain why knowledge of issues related to organic production are only general.

In the question which checked respondents’ recognition of organic products, they were asked to select out of six products those that they thought originated from organic farming.

More than 80% of respondents recognized the presented organic products (“Symbio” strawberry BIO jam and “Bionica” dried fruit). It should be noted that 95% of women provided correct answers in both cases. In each case, regardless of age, men provided fewer correct answers than women. More than half of the respondents wrongly believe that Oscypek is an organic product. This group is composed mainly of men from the youngest age group. It should be emphasized that 48% believe that naturally-smoked ham is an organic product, and 30% believe that “Muszynianka” is an organic product. It is interesting that only 10% of respondents think that “Activia” yogurt is classified as organic food. The results provided by the respondents characterize not only their knowledge, but also their intuition, since, apart from the correct answers, the same respondents also chose non-organic products.

The question which evaluated the knowledge of entities responsible for granting organic food certificates provided six possible answers, with only one correct. The largest group of respondents (40%), mainly including persons above 25 years, knew that certificates of organic farming system were granted by certifying entities. Almost the same number of respondents (38%), mainly young persons, believed that certificates of organic farming were granted to farms by the Ministry of Agriculture and Rural Development. Only some of them (12%) thought that the certificates were granted by the EKOLAND Association, while 10% had no opinion on this issue.

The research by Kucińska [5] presents the problem of the lack of knowledge of certifying entities in a similar way. Most respondents (38.3%), mainly elderly persons, knew that organic certificates were awarded by certifying entities, but 34.7% wrongly believed that this was the Ministry of Agriculture and Rural Development.

The survey research attempted to describe respondent preferences as regards the place of purchase of organic food. Almost a quarter (24%) of respondents who purchase products from organic farms buy them in organic food stores (Tab. 3). The respondents also looked for such products in supermarkets (24%). In both cases, these were mainly younger persons: students and working persons below 40. The second source mentioned was a market, where 21% of the surveyed population above 25 years of age bought their products. The answer concerning purchasing food directly from a farmer (producer) was selected by 18% respondents between 25 and 55 years. The Internet is nowadays a very well-developed database concerning ecology and provides an important source of information, used primarily by young people. For this reason, 13% respondents under 40 years of age chose it as the place of making purchases.

Śmiechowska [11] presented the main purchasing points of organic food in Poland compared to other European Union countries. A difference in the range of organic products was found: Germany had 2,000–3,000 items while Poland had 200–300. In most of the so-called old-EU states, eco-food is sold in standard grocery store chains. In Italy, the Netherlands, Germany and France, organic products can be purchased mainly in specialist stores. In the United Kingdom, there are megastores where special marketing is used in order to attract eco-food consumers. This includes, for example, preparing weekly packages of fruit and vegetables prepared on ecological farms, with attached recipes for preparing them for consumption. A disadvantage of this form of sale distribution is the low level of staff competence on information concerning, for example, the labelling of organic food. The research carried out in Poland has emphasized the variety of points of sale offering eco-food, but it has also highlighted the unsatisfactory amount and diversity range compared to customer expectations. It is also important to emphasize the seasonal nature of products. Most of the available purchase points offer them only from September to March.

Table 3

Declared organic food purchase place

Place	Number of answers (%) / Age in years				
	<25	25–40	41–55	>55	Total
Eco-store	7	10	7	0	24
Supermarket	14	7	0	3	24
Organic farm	0	10	8	0	18
Market	0	7	10	4	21
Online store	10	3	0	0	13
Other	0	0	0	0	0

Source: Results of own research.

The respondents declared that they usually purchased organic food once a month (41%), 28% respondents purchased it less than every six months, 21% declared that they purchased it once a week and only 10% respondents stated that they purchased those products several times a week. The frequent purchase

of organic food (several times a week) was declared by persons in the 25–40 age group, who were employed and had a high knowledge about this group of products. Organic food was purchased once a week mainly by women in each age group, first of all by employed persons, describing their financial situation as medium or good. A significant group declaring the purchase of organic products once a month was composed of young persons, purchasing food in organic stores or in online stores. The main motives for the purchase included family tradition and health care. People above 40 years old purchased eco-products out of concern for the health of themselves and their families. Respondents who purchased organic food less often than every six months purchased such products primarily out of interest or at the insistence of their friends. Two persons in this group were vegetarians.

The results of a study performed by Śmiechowska and Śmiejkowska [12] among inhabitants of Pomerania Province differed significantly. The respondents in that study indicated that they usually purchased organic food several times a month (57.7%). These were members of households composed of 3–4 persons, as well as persons living in the country and in small towns. A purchase less than once a month was declared by 25%, and more often than once a week – by 17.3% of the respondents. In the group of persons purchasing organic food once a week or more frequently, as in the case of Gdynia inhabitants, middle-aged women in a good financial situation were prevalent. This group declared feeling responsible for their own health and the health of their nearest family (probably children) which caused their particular interest in organic food.

The respondents were asked about the main reasons for choosing organic food. More than a half of them (55%) were motivated by a desire to care for themselves and their families (Figure 1). This response was determined by sex. Women most frequently chose this reason in comparison to men. These included women mostly over 41 years of age. More than 40% respondents began buying organic food out of interest, often encouraged by family and friends (17%). Apart from curiosity, young people were most frequently influenced by trends (24%). 21% of persons declared that their choice of eco-products was related to health problems; this group included persons over 55. Other consumers included those guided by family tradition (17%), vegetarians, and those who most often selected organic plant products (14%). A quite large share of respondents (17%) selected the answer “other”. It can be assumed that the determinants included: care for the natural environment, interest in ecology after having read a book, the birth of a child, etc.

The authors' own research was confirmed by Mackiewicz-Walczak [6], who carried out studies in five Polish cities: Katowice, Kraków, Łódź, Poznań and Warsaw. It was found that the main reason for choosing organic food was health (31%). 25% of respondents provided health problems as the main motive, 13% declared that they purchased organic products encouraged by their friends and 10% of respondents bought them accidentally. Factors that were less important for the examined group included: fashion, a vegetarian diet and caring for the environment.

In a study by Kowalczyk-Vasilev [2] concerning students of Lublin universities, the main factors for selecting organic food included concern for their own health and the health of their nearest family. This answer was selected by 70% respondents. Other important factors were taste values and concern for the natural environment (30% of respondents). Answers that were less often chosen included: a desire to change the previous dietary pattern, vegetarianism, local patriotism and the requirements of the diet followed by the respondents.

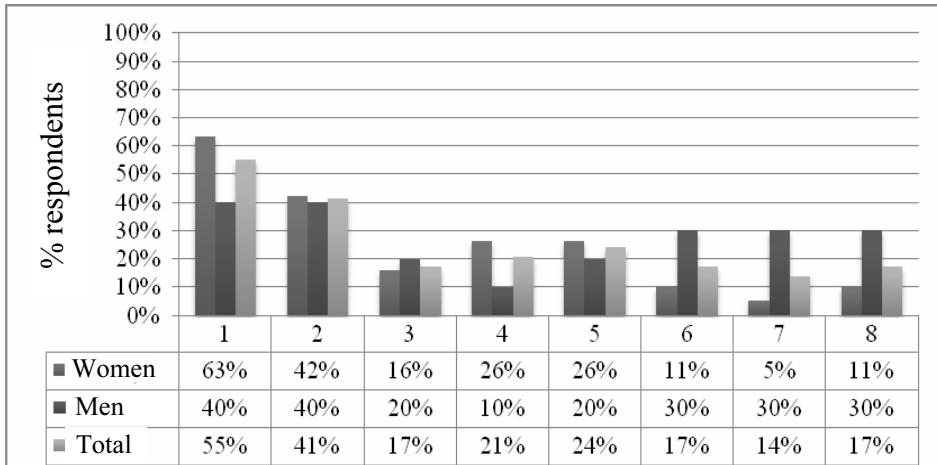


Fig. 1. Motives for purchasing organic food

Source: results of own research.

- 1 – I am concerned about my own health and the health of my nearest family
- 2 – Curiosity, willingness to try new products
- 3 – Family tradition
- 4 – I have health problems
- 5 – I follow the trends
- 6 – I was convinced by friends
- 7 – I am a vegetarian
- 8 – Other

Persons who decided not to purchase organic products felt that their high price in comparison to their equivalents from conventional farming was the main disadvantage. This was the statement provided by a group of 36% respondents, mainly young people. Their financial situation, in this case, was a barrier for the development of purchasing behaviours. Although persons in this group described their level of knowledge as low, they were aware that organic food may have a favourable effect on human health. Young respondents also claimed that this food was not easily accessible (27%). Respondents above the age of 55 believed that the range of available organic products was too low (10%). It was found for all age groups above 25 that it was not possible to buy organic food in the shops where they make their purchases.

A study conducted on a group of students by Kowalczyk-Vasilev et al. [2] found that the major obstacle for the development of organic food market is its high price. The students also emphasize the lack of advertising of eco-products (attractive package, information about points of sale) and their limited range.

The Polish organic food market is still in its initial stage of development. This is related to a limited supply, as well as to poorly-developed sales channels. This affects the level of prices of organic food and constitutes a barrier for purchasing eco-products. A difference in the prices between organic and conventional food ranges from a few dozen to even a few hundred percent. The offer and availability of organic products in Poland is still limited, which affects the development of demand for organic food.

It should be also emphasized that a significant barrier for consumers who do not purchase organic food is a lack of ability to distinguish it from conventional products [15].

CONCLUSIONS

1. Consumers demonstrate quite extensive ecological knowledge, but this knowledge is often incomplete and fragmentary. The results of the research indicate that inhabitants of Gdynia are aware that organic food is characterized by high nutritive values.
2. Television and radio most effectively provide information about organic food.
3. Most respondents know the EU logo identifying organic food (a euroleaf), but there are many people who do not recognize it and confuse it with the previous label used for organic farming.
4. Consumers most often purchase organic food in supermarkets and specialist stores. Megastores provide the best solution for young people where, considering the pace of life, they can purchase conventional and organic products in one place. Elderly persons choose organic stores since they have higher confidence in the quality of offered products.
5. Consumers chose organic food mainly out of concern for their own health and the health of their families.
6. The price difference between organic products and their equivalents originating from conventional production was considered to be the main disadvantage of organic food.

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