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ANALYSIS OF THE FACTORS AND BARRIERS INFLUENCING THE CONSUMPTION OF ORGANIC PRODUCTS. CASE OF BIHOR COUNTY, ROMANIA

Anamaria Aurelia MORNA[1*], Anca Monica BRATA[1*], Olivia Paula TIRPE[1], Iulia C. MURESAN[2], Felix H. ARION[2], Andreea Florina FORA[3], Dorin POPA[1*], Aurelia Ioana CHEREJI[1**], Ioana Anda MILIN[4], Ramona Vasilica BACTER[1**]**

[1]University of Oradea, Faculty of Environmental Protection, *Department of Engineering of Food Products, **Department of Animal Husbandry and Agritourism, 26 Gen. Magheru St., 410087 Oradea, Romania, Emails: amorna@uoradea.ro, abrata@uoradea.ro, dopopa@uoradea.ro, otirpe@uoradea.ro, aurelia.chereji@uoradea.ro, rbacter@uoradea.ro
[2]University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Faculty of Horticulture and Business in Rural Development, Department of Economic Sciences, 3-5 Manastur St., 400372, Emails: iulia.muresan@usamvcluj.ro, felixarion@usamvcluj.ro
[3]University of Oradea, Department of International Business, Faculty of Economic Sciences, 1, Universitatii St, 410087 Oradea, Romania, Email: afora@uoradea.ro
[4]University of Life Sciences "King Mihai I" from Timisoara, Faculty of Management and Rural Tourism, 119 Calea Aradului St., Timisoara, 300645, Romania, Email: andamilin@usvt.ro

Corresponding authors: abrata@uoradea.ro, otirpe@uoradea.ro

Abstract

The recent pandemic, as well as sustainability issues have led to changing trends when it comes food purchasing and consumption. Thus, more and more consumers tend to pay more attention to how the food is produced, processed, handled and marketed. Over the past few years, the organic food market has experienced a notable surge in popularity. This study seeks to examine the factors and obstacles shaping the consumption of organic products. Additionally, it aims to explore the socio-demographic traits of consumers in this category and identify the primary types of preferred organic products. The study's convenience sample of 214 customers from Romania's Bihor County served as the basis for data collection, which was done online. The results of our study show that the confidence that a product is organic ranked first among all factors on the consumer's list, followed by a price similar to normal food products and certification by a control body. Organic vegetables, fruits, and eggs were among the most preferred products by the consumers, while processed and canned goods ranked lower on the preferences list for the respondents. Concerning obstacles to organic food consumption, the main concern is related to the additional cost that consumers have to cover relative to other food items. Additionally, half of the respondents who abstain from organic product consumption expressed a lack of belief in organic certification.

Key words**:** *organic food products, food consumption, organic consumption barriers*

INTRODUCTION

In the context in which people are consuming more resources than ever, keep growing the level of waste and pollution, the conventional food system becomes unsustainable from an economic, social, and environmental standpoint [7]. Moreover, the COVID-19 pandemic pointed out the importance of the interrelations between our health, ecosystems and consumption patterns [16].
Organic agriculture as a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity, becomes an important alternative for aware consumers [16]. One driving force that can be identified for organic agriculture is consumer or market-driven organic agriculture.
In these efforts, food consumption is a major sustainability issue, due to the impact on individual and public health, natural resources, social cohesion and economy [18]. Studies regarding consumers' behaviour and their acquisition motives have led to a better

understanding of the sustainability attributes of organic food products [38].

Worldwide consumers, given the coronavirus crisis, became more aware about decision making regarding how their food is produced, processed, handled and marketed. In 2020, the organic markets in Europe and the rest of the world rose significantly more than the organically cultivated surface, maintaining the upward trend from previous years [57]. Thus, 14.7 million hectares of land were under organic cultivation in the EU, with the amount of organically grown land rising by 55.6% between 2012 and 2020, from 9.46 million to 15.9 million hectares [15]. In the EU, France occupies the highest place in terms of land organically farmed in 2020 with 2.5 million hectares, closely followed by Spain and Italy with 2.4 and 2.1 million hectares respectively. With 468,887 hectares of organically grown land, Romania comes on the 10 position among the top EU nations. In Romania, the proportion of organically farmed land grew by 62.7% in comparison to 2012 [15].

Moreover, sales of organic products in the USA significantly increased between 2020 and 2021, surpassing $63 billion and increasing by 2% in 2021 compared to the previous year, with the sales of organic goods in the USA also doubling from 2012 to 2021 [31]. Regarding the consume in 2020, the European Union was the second largest market for organic products after the United States, with 44.8 billion euros from organic retail sales. Germany (14.99 billion euros) and France (12.7 billion euros) hold the first places in Europe, while Romania is placed on the 26th place of this European top of organic retail sales, with 41 million euros [43].

Unveiling the primary factors and obstacles shaping consumer behaviour towards organic food products is pivotal for the advancement of the organic food industry, given the heightened awareness and scrutiny consumers now apply to their food choices. Furthermore, the insights derived from this study could offer valuable guidance to key stakeholders in the organic food sector, enhancing their understanding of customer needs and preferences.

In this regard, our study aimed to address the following research queries: What factors influence the adoption of organic products? What socio-demographic traits characterize organic consumers? What are the chief impediments hindering both the consumption of organic products and the growth of the organic market? Lastly, what are the primary categories of organic products that find consumer favour?

Literature review

Factors influencing and affecting organic food consumption

Scholars in the field identified that organic food consumers' profiles may present differences. Consequently, in Brazil, the choice to consume organic foods is influenced by income and ethnic background, whereas in Europe, researchers have discerned preferences shaped by age and gender [18, 58].

Hence, sociodemographic elements such as age, income, educational attainment, and the presence of children in the household appear to impact consumer behavior regarding organic food [12, 27, 47, 55, 56].

Results of some previous studies have confirmed four main factors (health awareness, education level, subjective factors, and price) that influence the consumer's attitude towards organic food products, and an additional one, the availability of clean food [41]. Health and environmental concerns along appear as the main reason for purchasing and consuming organic food [49, 22, 32, 39, 40, 49, 54]. Moreover, a positive impact on the intention to buy organic products is observed with environmental awareness, although variations in the connection between environmental awareness and this inclination exist based on gender [14].

As per a study in Poland, the primary motivations for selecting organic products, in addition to those mentioned earlier, revolve around the superior taste and elements linked to food safety and quality assurance [8].

The findings of extended research carried out in Italy, Denmark, the United Kingdom, Finland, Greece, Spain, Germany, Sweden, and Poland reveal a strong correlation between the consumption of organic products and sociodemographic factors including age, gender, income, education, and environment (urban or rural). These studies' findings suggest that women over 40 with higher-than-average salaries are most interested about buying organic goods [8, 37]. A review on consumers' perceptions and preferences for local food also included emotional and/or ethical dimensions such as personal bounds with the region [38].

Despite numerous favourable reasons for choosing eco-friendly food [50], the share of the organic food products market remains relatively low within the overall organic food market [10]. This indicates the existence of significant barriers for consumers that need thorough analysis to enhance marketing strategies [26]. Notably, the most commonly cited barrier by consumers is the higher cost of purchasing organic food compared to conventional alternatives [1, 2, 6, 23, 24, 25, 26, 28, 32, 36,49, 60, 62].

In 2020, as indicated by FiBL-AMI surveys, global consumption of organic products surpassed 120 billion euros. Leading the way is North America, with a per capita consumption of 147.5 euros, followed by Europe in second place with a per capita consumption of 63.2 euros. [57].

In Romania, the average annual expenditure on organic products is a mere 2 euros [53], in stark contrast to the highest per capita consumption of organic food seen in Switzerland (418 euros), Denmark (384 euros), and Luxembourg (285 euros) [57]. Studies suggest that this discrepancy is attributed to the perception among Romanians that organic products are excessively costly [10].

Low level of awareness regarding organic food benefits is directly related to a low budget allocated for green products [32]. Along with insufficient knowledge [32], availability/accessibility of organic food products is considered an important barrier in consumption as well [9, 46, 51].

Studies carried out in Japan and India have identified and grouped consumption barriers regarding organic products in categories such as usage, value and risk barriers [44,45].

Within the realm of barriers to usage, the predominant issues involve the challenge of obtaining information about organic products and the difficulty in locating retail outlets that offer these items. Additionally, the necessity of establishing a routine for the consumption of organic products, which proves to be a challenging endeavour, falls into this category [44]. Moving on to value barriers, the perceived high cost of organic products is a prominent concern. Lastly, under the category of risk barriers, there's the apprehension of purchasing organic products that may not be authentic, coupled with a lack of trust in the certification process for such products.

In Switzerland, according to a study carried out in 2018, the main barrier to consumption of organic products identified was the high price [21]. Even though Switzerland is a country with a high standard of living, the study highlighted that the cost of living is also high and not all Swiss can afford to buy organic products.

The findings from a study conducted in Poland underscored the primary obstacles to the consumption of organic products. These included the elevated price of the products, inadequate consumer awareness, insufficient availability of organic products, the notably brief shelf life, and an additional challenge pertained to the limited visibility of organic products in stores [8].

In Romania, the reasons that prevent the purchase of organic products, after price, are the perishability of the products and the fact that they are difficult to procure [10].

As shown, among the factors that may affect consumers' willingness to buy is trust in the certification of the product [24]. The fact that consumers are satisfied with the conventional food products might be another explanation regarding the low level of organic food consumption [27].

The primary categories of organic foods being consumed and the locations where they are typically purchased

Recognizing accessibility as a paramount factor in the acquisition of organic food products [52], supermarkets emerge as the primary venue for purchases, despite the preference for procuring directly from producers being highly regarded [17].

In 2020, the EU imported a total of 1.79 million metric tons of organic agri-food products [57]. The main importers were the Netherlands (31%), followed by Germany (18%) and Belgium (11%). In contrast to 2019, organic imports experienced a 1.9% decline in 2020, even as production continued to expand [33].

The largest category of imports, constituting 27.3% of the total, includes tropical fruits (fresh or dried), nuts, and spices, with a total of 885,930 tonnes. Following closely are oilcakes, cereals other than wheat, as well as rice and wheat. Consequently, Ecuador and the Dominican Republic stand out as the leading exporters of organic tropical fruits, nuts, and spices to the EU, while China and Ukraine take the lead in exporting organic oilcakes and cereals [33].

As the national data on the market shares of organic products in many EU countries show, organic dairy products reach the biggest value in the total retail market. It is the case of Denmark (60 %), Austria (50 %), Germany (40 %), France and Switzerland with 37 % [57].

Comparing the European data with studies conducted nationwide, it can be observed that in Romania the purchase for organic fruits (27%) is the most popular. The preference for organic fruits is followed by the one for organic vegetables (26%), the market share for eggs (24 %) and dairy products (21%) registering the 3rd and the 4th place, on Romanians' choices [34]. Regarding the place of acquisition, in many developed countries, supermarkets are the driving force in the market, whereas specialised retailers face more and more competition [5, 42].

Organic eggs represent the second type of organic food consumed by Europeans, reaching values of 37% in France, 30% in Switzerland and Denmark, and more than 20 % in Germany and Austria [34]. Moreover, studies have also shown that in Poland and the Czech Republic the demand for organic products based on cow's milk has increased greatly [6, 19].

Scholars from other European countries (such as Denmark, Austria, Switzerland) show that more than 70% of the marketing channels of organic food, are provided by general retailers. Only a small percent (20%) is represented by special retailers. Moreover, because supermarket chains have partnerships with organic associations and sell their brands, the number of the organic shops even decreased lately (the example of Germany: from 33% in 2014 to 24, 6% in 2020, of organic products sold in organic shops) [57].

In France online distribution and hard discount stores are steadily developing [11].

Studies also show that, especially due to the COVID-19 pandemic, consumers start questioning the global agri-food system and are looking for more sustainable alternatives to the conventional mode of food supply. One of these alternative food networks is known as short food supply chains (SFSCs). According to a study carried out in Poland, during the pandemic, a change was observed regarding the way in which people began to procure their organic products. The Internet has become very important, a large part of consumers preferred to use this purchasing channel [61]. These changes in consumer behaviour are causing companies to change their marketing strategies and adapt to the new demands.

To this extent, many shops had to adapt to consumer preferences for not leaving home and become innovative in selling food. Online sale options, like subscription boxes for organic food or "Click and Collect" forms of contactless shopping, had a significant increase in popularity [11].

MATERIALS AND METHODS

The aim of this research was to determine which are those factors that influence consumers' decision to buy certified products, on one hand, and which the barriers for organic food consumption are, on the other hand.

The study relied on a convenience sample of 214 consumers from Bihor County, Romania, with data collected through an online questionnaire. Prior to commencing the survey, participants were briefed on the study's objectives and reassured about compliance with the General Data Regulation Protection (GDPR).

A total of 225 questionnaires were distributed, with 214 ultimately validated.

The collected data consisted into 3 main categories:

(i) socio-demographic aspects of the respondents;

(ii) influential factors affecting consumers' choices to purchase certified organic products;

(iii) barriers for not buying organic certified products.

The items regarding the factors that influence consumers' decision to buy certified products were evaluated on a scale from 1 to 5, where 1 means totally disagree, while 5 means totally agree.

For the items related to the barriers for organic food consumption were used dichotomous variables.

The data were analyzed using the descriptive statistics.

The Shapiro-Wilk test was utilized to assess the normality of the data ($p>0.05$). Additionally, the Mann-Whitney U test was employed to compare the two groups.

RESULTS AND DISCUSSIONS

Respondents' socio-demographic profile

A significant majority of the respondents were female (70.1%), indicating an imbalance in the gender distribution within the sample (Table 1).

A total of 23.8% of the participants graduated high school, while 39.7% had a university degree and 36.4% a postgraduate degree. Regarding the age distribution, most of the respondents were over 36 years old.

The proportion of respondents belonging to the 26–35 and 46–55 years groups were similar (22.4% and 22.9%, respectively). Regarding the respondents' income, most of them earned more than RON 5,001 monthly (36%).

Additionally, 60.7% of the respondents reported not having children.

Table 1. Socio-demographic profile of the respondents

Characteristics	Variables	Number of respondents N=214	Percent of respondents (%)
Gender	Female	150	70.01
	Male	64	29.90
Age	18-25	44	20.60
	26-35	48	22.40
	36-45	51	23.80
	46-55	49	22.90
	Over 56	22	10.30
Education Level	High school	51	23.80
	University degree	85	39.70
	Postgraduate degree	78	36.40
Household Monthly Income (RON)	<2,000	16	7.50
	2,001-3,000	46	21.50
	3,001-4,000	42	19.60
	4,001-5,000	33	15.40
	>5,001	77	36.00
Children	YES	84	39.30
	NO	130	60.70

Source: own findings, based on applied survey.

Consumers and non-consumers of organic food products

The Shapiro-Wilk test was employed to assess the normality of statements ($p>0.05$), and the comparison of the two groups based on their family members and attitudes towards reasons for increasing organic product consumption was conducted using the Mann-Whitney U test (Table 2). The results indicate a dominant group of organic food consumers (N=190) in comparison to non-consumers (N=24). Consumers, irrespective of gender, demonstrated a positive inclination and interest in purchasing and incorporating organic products into their daily lives. Notably, the gender distribution reveals a higher percentage of women in both consumer and non-consumer groups, with 71.1% of organic product consumers being women, whereas only 37.5% of non-consumers are men. The respondents were further categorized into various age groups to glean precise insights into the attitudes and purchasing behaviors of organic product consumers. Following the analysis of the collected data, among the surveyed respondents, the largest share is those aged between 26-35 years and 46-55 years (23.7% each). Non-consumers are more prominently represented in the category of young respondents aged 18-25 years old (33.3%). Both consumers and non-consumers of organic food are predominantly individuals with university education (38.4% and 50%, respectively). The group of organic food consumers is characterized by a higher percentage of respondents with elevated incomes (36.3% with a monthly income exceeding 5,001 RON). Moreover, organic consumers tend to have a larger number of family members (40.5%) compared to non-consumers (29.2%).

Table 2. Socio-demographic features of consumers versus non-consumers of organic food

Characteristics	Variables	Consumers (N=190)	Non-consumers (N=24)	p-value
Gender	Female	135 (71.1%)	15 (62.5%)	0.00*
	Male	55 (28.9%)	9 (37.5%)	
Age	18-25	36 (19.9%)	8 (33.3%)	0.00*
	26-35	45 (23.7%)	3 (12.5%)	
	36-45	44 (23.2%)	7 (29.2%)	
	46-55	45 (23.7%)	4 (16.7%)	
	Over 56	20 (10.5%)	2 (8.3%)	
Education Level	High school	48 (25.3%)	3 (12.5%)	0.00*
	University degree	73 (38.4%)	12 (50.0%)	
	Postgraduate degree	69 (36.3%)	9 (37.5%)	
Household Monthly Income (RON)	<2,000	14 (7.4%)	2 (8.3%)	0.00*
	2,001-3,000	38 (20.0%)	8 (33.3%)	
	3,001-4,000	40 (21.1%)	2 (8.3%)	
	4,001-5,000	29 (15.3%)	4 (16.7%)	
	>5,001	69 (36.3%)	8 (33.3%)	
Children	YES	77 (40.5%)	7 (29.2%)	0.00*
	NO	133 (59.5%)	17 (70.8%)	

*p<0.05
Source: own findings, based on applied survey.

Influential factors affecting consumers' choices to purchase certified organic products

Table 3 illustrates the main factors influencing the consumption of organic products, revealing that, for both types of respondents, there are certain elements considered equally important. To this extent, the confidence that a product is organic ranked first among all factors on the consumer list (4.53±1.024 vs 4.00±1.168), followed by price similar to normal food products (4.25±1.021 vs 3.78±1.204) and certification by a control body (4.31±1.045 vs 3.65±1.369). Certification serves as a means to imbue the attribute of organic quality, ensuring sustainable agriculture and promoting a healthy lifestyle. The results show that all factors are ranked as important, especially because the production of organic products does not use pesticides, they can benefit human health, thus contributing less to environmental pollution. However, consumers who reported consuming organic food were more likely to show increased interest in organic food produced environmentally friendly and using organic conditions and technologies (4.14±1.114 vs 3.70±1.460), as well as products certified by a control body (4.31±1.045 vs 3.65 ±1.369).

Table 3 Influential factors affecting consumers' choices to purchase certified organic products

Factors	Consumers		Non-Consumers		P-value
	Mean	SD	Mean	SD	
A price similar to normal food products.	4.25	1.021	3.78	1.204	0.049*
Promotion of a particular type of product.	3.51	1.311	2.91	1.443	0.058
Trust that it is an ecological product.	4.53	1.024	4.00	1.168	0.114
To be certified by a control body.	4.31	1.045	3.65	1.369	0.010*
Let them be cheaper.	3.85	1.177	3.61	1.196	0.320
To be produced under environmentally friendly conditions.	4.14	1.114	3.70	1.460	0.000*

* p<0.05
Source: own findings, based on applied survey.

Main barriers regarding the consumption of organic food products perceived by non-consumers

Table 4 illustrates the primary barriers perceived by non-consumers regarding the consumption of organic food products. Among the respondents who abstain from organic product consumption, 11.20% cited their high prices as the main deterrent. Notably, 79.20% of non-consumers find organic products too expensive, and 58.30% either lack knowledge about them or do not believe in ecological certification. It's noteworthy that two-thirds of these respondents did not consider appearance or the unavailability of products in supermarkets as barriers.

Table 4. Barriers on the consumption of organic products

Barriers	Yes		No	
	Number of Respondents	Percent of Respondents (%)	Number of respondents	Percent of respondents (%)
They are expensive.	19	79.2	5	20.8
I don't know them.	14	58.3	10	41.7
I don't believe in ecological certification.	14	58.3	10	41.7
I don't know where to buy them.	11	45.8	13	54.2
They have an unpleasant appearance.	8	33.3	16	66.7
I can't find them in the supermarket.	8	33.3	16	66.7

Source: own findings, based on applied survey

Main categories of ecologically certified products consumed

Table 5 shows the main categories of ecologically certified products consumed. 88.80% of respondents declared that they consume organic products. The findings indicate that the most commonly consumed certified organic products include fruits (94.2%), vegetables (92.1%), eggs (83.7%), and milk/dairy products (75.3%). On the other hand, fewer than 50% of the respondents reported consuming organic products such as canned vegetables and fruits, sweets, and processed items.

Table 5. Type of consumed certified products.

Certified organic product	Number of respondents	Percentage of respondents (%)
Milk and dairy products.	143	75.3
Meat and meat products.	125	65.8
Vegetables.	175	92.1
Fruits.	179	94.2
Canned vegetables and fruits.	89	46.8
Cereals and cereal products.	109	57.4
Sweets.	83	43.7
Processed products.	79	41.6
Eggs.	159	83.7

Source: own findings, based on applied survey.

Regarding the socio-demographic profile, our study revealed similar results to other studies conducted in Poland, Italy, Denmark, UK, Finland, Greece, Spain, Germany and Sweden [8, 37]. Both men and women have shown interest in the consumption of organic products, but consistently across various studies, the number of women surpasses that of men. The average age of organic product consumers tends to be over 40 years, and their income typically falls into the category above the national average of each respective country. In terms of education, a majority of organic product consumers belong to the highly educated category.

We included gender, education, age, income, and household size as control variables. Research suggests that women may exhibit a greater inclination to purchase environmentally friendly products as they often express more concern for communal goals than men [56]. Additionally, understanding complex environmental issues may be more prevalent among more educated consumers [13, 30]. It is also theorized that consumers with higher incomes might be less affected by the costs of green products and more likely to engage in sustainable behavior, although empirical evidence on this connection remains inconclusive [11, 48].

Finally, household size could have an effect on organic buying behavior as it is positively correlated with price sensitivity [35]. The effects of these sociodemographic data may not be very strong because our model already includes values and attitudes that can mediate their influence.

The outcomes of our study unveiled that the primary factor influencing the consumption of organic products is the trust in their ecological nature. Similar findings were observed in Saudi Arabia [4], where the decision to purchase organic products is most influenced by the quality of these products. Another noteworthy factor influencing organic product purchases in our study is the insistence on certification by a reputable institution. Studies conducted in Bangladesh and Kosovo [3, 29] regarding factors impacting the decision to buy organic products concluded that organic certification takes precedence as the most significant influence on organic product consumption. Additionally, a study in Egypt [63] suggests that eWOM (Electronic Word-of-Mouth) plays a substantial role in the decision-making process when it comes to purchasing agricultural products. It appears that online reviews carry increasing weight in today's context, particularly in the realm of buying organic products.

When it comes to the main factors hindering the consumption of organic products, the fact that they are perceived as an expensive food category is the most important (79.2%), reinforcing the results from previous studies where price is considered a dominant barrier [9, 22, 41, 44, 46, 49, 51]. Related to high prices, organic food is considered a premium category of food and this perception affects the level of consumption a fair one because organic food addresses a niche segment based on low price. [45]. Another aspect that often prevents consumers from buying organic food is the fact that they do not know it (58.3%) and do not believe in organic certification (58.3%). Indeed, other studies have highlighted the perishability of organic foods, particularly in the context of fruits and vegetables, as a barrier to consumption. Interestingly, our study diverges from other related research as it indicates that the perishability of organic food (45.8%) is considered a more significant barrier to consumption compared to the challenge of finding these products. This finding contrasts with studies that commonly rank availability as a second important barrier [9, 10, 26, 44, 46, 51, 62]. The unattractive aspect (33.3%) of organic food and the fact that they cannot be found in the supermarket (33.3%), are mentioned as a barrier by Romanian consumers.

Considering the primary categories of organic products consumed, our study reveals that the top three preferences among Romanian consumers are fruits (94.2%), vegetables (92.1%), and eggs (83.7%). Remarkably, this top three aligns with the preferences observed in other countries, including Poland, Portugal, and Turkey [20, 59], emphasizing the significance of these categories for consumers across diverse regions.

Additionally, the results of our study highlight that another noteworthy category of organic products preferred by Romanian consumers is milk and dairy products, with a consumption rate of 75.3%. Based on the research findings, a series of useful managerial implications were formulated for producers, processors, distributors and traders of ecological agri-food products.

The results of this study revealed that people are searching sustainable solutions in terms of food as well. In this sense, all operators in the ecological agro-food chain should invest time and financial resources in ensuring the highest possible level of knowledge about the environment and in increasing the ecological sensitivity of consumers.

Steps must also be taken to educate the population in order to adopt an "ecological" behavior, reduce pollution and food waste. Actions are needed to raise awareness among the population regarding the benefits of consuming organic products for health and the environment, a fact that will lead to the adoption of a healthier lifestyle.

Moreover, actions are needed to raise the population's awareness of the medium and long-term negative effects of the consumption of food products from the agricultural system that uses pesticides on the human body and the environment. Absolutely, placing emphasis on informing the population about the importance of consuming organic food products and the associated benefits for both the human body and the environment should be a central focus for producers, processors, and distributors of organic food products. Education and awareness play pivotal roles in fostering a greater understanding and appreciation for the positive impact of choosing organic options.

The primary limitations of this study revolve around the relatively modest sample size, preventing the extrapolation of the obtained results to the broader Romanian population.

The data was collected using questionnaires and included mainly respondents from the Northwest region of Romania. Moreover, the organic food market in Romania is an emerging one, much smaller compared to other European countries, although the results of our study are similar to other researches conducted in other countries on the same topic.

CONCLUSIONS

According to the findings of our research, consumers are actively looking for sustainable food options. Thus, all stakeholders in the ecological agro-food chain should devote time and money to ensuring that customers have the greatest possible degree of environmental awareness and ecological sensitivity.

The results of our study show that there are certain elements considered equally important regarding the factors influencing the consumption of organic products among both types of respondents. To this extent, the confidence that a product is organic ranked first among all factors on the consumer list, followed by price similar to normal food products and certification by a control body. Organic vegetables, fruits, and eggs were among the most preferred products by the consumers, while processed and canned goods ranked lower on the preferences list for the respondents.

In terms of obstacles to organic food consumption, the primary challenge is the elevated price compared to other food products. Additionally, half of the respondents who refrain from consuming organic products expressed skepticism or disbelief in organic certification.

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