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ENVIRONMENTAL CONCERN FACTORS AND CONSUMERS’ PURCHASE DECISION ON THE LOCAL AGRI-FOOD MARKET

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Abstract

This study is addressing topics related to sustainable consumption and aims to identify and rank the decisional factors involved in the process of purchasing local eco-friendly agri-food products and to analyse to what extent the incidence of eco-friendly agri-food consumption is influenced by five factors: income, age, gender, education, living area. Thus, the paper presents the results of a market research regarding the consumer behaviour of agri-food and the willingness of adopting a more sustainable diet, in one of the developing regions of the European Union: the North-East Region of Romania, Iași County. Our substantive findings indicate that personal benefits (taste, perceived health benefits and freshness) are the main motivations driving sustainable consumption, while environmental conditions did not reach such a great significance. The results show that, in general, people are not well informed about the environmental implications of their diet. Their environmental attitudes are not aligned with their actual purchase practices: although the majority of people declare they are preoccupied with environmental protection, the driving motivations of agri-food purchase do not necessarily imply environmental concern factors, such as transportation, reusable/recyclable package or the wish to protect the environment. The study shows that women are more willing than men to change their consumption behaviour of agri-food products in order to contribute to a sustainable environment. Also, elderly people are more determined to purchase agri-food produced in an environmentally sustainable manner. Findings from this research lead to understanding the multiple factors that consumers consider in making purchase decisions of environmentally sustainable agri-food. Educational campaigns should be implemented in order to grow awareness about how our diet and food choices can address climate change.

Key words: agri-food, dietary habits, environmental attitudes, food pollution, sustainable consumption

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1. Introduction

As a consequence of the globalization trends, the consumption of agri-food products tends to transcend the borders of the production country. Thus, we are witnessing a distance increasing phenomenon between the place of production and the place of consumption, which influences the food choices of the population. In the process of production and processing of agri-food, millions of farms and intermediary traders are involved globally, and these actions develop multiple environmental implications.

According to Annunziata et al. (2019), it is widely recognized that food is one of the three consumption domains responsible for the largest share of environmental impact. Food production and consumption are related to several main environmental impacts such as GHG emissions, water pollution and loss of biodiversity that will be exacerbated in the future by the growing global population (Reisch et al., 2013).

In the present context, all the humans’ choices, lifestyle, interferences and their contribution to global climate change is crucial. The contemporary agri-food

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systems provide consumers with a large range of products in order to satisfy various demands, but the associated environmental impacts should be taken into account.

Specifically, Bamberg (2003) proposes the need to not consider environmental concern as direct determinant of specific behaviours, but as an important indirect determinant of specific behaviour, a general orientation pattern that influences the definition of a specific situation. Moreover, Panzone et al. (2016) shows that explicit and implicit attitudes towards environmentally friendly products influence consumer decisions differently in specific food categories.

In terms of global trade and income growth, in more developed countries there is a tendency of increasing environmental quality, whereas they have detrimental effects on environment in most developing countries (Baek et al., 2008). This difference between the more developed countries and the developing ones appears due to the *pollution haven theory* which contends that the composition of pollution-intensive industry will increase in a country with less stringent standards and decrease in a nation with more strict ones (Gallagher, 2009). The main concept of this hypothesis states the fact that developing countries are more tolerant regarding the environmental risks brought by intensive pollution industries, and will export more pollutions intensive goods (Kellogg, 2006). Therefore, a shifting of polluting industries from developed countries to the developing world may be possible, according to a series of trade and environmental policy debates (Levinson and Scott, 2008).

Agriculture is one of the biggest sources of pollution worldwide, with groundwater aquifers contaminated by nitrate from farming (FAO, 2018), tons of waste produced as a result of various agricultural operations (manure, harvest waste), the use of chemical fertilizers and pesticides that affect water, air and soil, are just a few factors which influence the environmental balance (Nagendran, 2011). Teodosiu et al. (2009) stated that industry and agriculture are the most important users, in terms of water consumption and wastewater discharges, at the same time producing the biggest impacts (most of them negative from the environmental point of view).

For approximately 26% of the global greenhouse gas (GHG) the global food system emissions is responsible, which includes production, and post-farm process such as processing and distribution (Poore and Nemecek, 2018). Also, 24% of food's emissions around the globe is generated by food losses. The study of Poore and Nemecek (2018) shows that the food wastage, due to improper handling, storage and transport in the supply chains, stands for 15% of food emissions, while for 9% are responsible consumers and retailers. Therefore, the study shows that the food wastage is accountable for 6% of the total global greenhouse gas emissions. Thus, consuming locally produced food may decrease this percent as long as storage, refrigeration and transport

are diminished. By shortening the distance between the place of production and the place of consumption, transporting food for long distances will use less tremendous energy and resources and the food waste will be reduced during the process. Therefore, when consuming agri-food products, a "field to plate" approach will have less adverse consequences on the environment. While the environmental impacts of agri-food are substantial and constant, ensuring the access of population to a nutritious diet in a sustainable way is a problem we must solve, in order to tackle climate change. The public concern over global warming is increasingly rising, and the opportunities for consumers to be directly involved in shaping a better future, preserving the biodiversity, healthy soils and world's forests are also translated into a more sustainable diet.

Even when the sustainability framework and policies are very well defined and adequate instruments are chosen, there is still the question of measuring the progress towards sustainability or the sustainable use of resources, by conceiving and applying adequate sustainability indicators (Teodosiu, 2007).

Over the years, agriculture has become the major land use activity in the world and Romania as well. The needs of society and the consumers' expectations determined a demand growth in agri-food products, and thus, farming became more intensive in order to raise productivity. As world population agri-food consumption increases, so does its climate impact. The consumers' way of life and preferences in terms of agri-food are important factors which influence the demand and, subsequently, the offer of agri-food products. A local consumption is often translated into support and development of the locally owned businesses, which use local resources, provide jobs in the community and serve mainly local consumers. Studies show that small local farms can contribute in preserving the food heritage of a region and the biodiversity of agri-food by cultivating local varieties and landraces. The Food and Agriculture Organization of the United Nations (FAO) estimates that more than 75% of agricultural genetic diversity was lost in the 20th century due to industrial agribusiness which cultivates high-yield hybrids bred for fast maturation and thick skins to withstand mechanical harvest and transport (FAO, 2004). Besides a sum of economic and social disadvantages and endanger the biodiversity, the consumption of imported agri-food products may lead to environmental issues, such as increased pollution caused by complex and long transport processes of imported goods (Jones, 2002) or discourage the packaging reuse. However, eating locally is not the main action a person should take in order to reduce pollution through agri-food consumption habits. Agri-food choices have a significant impact on the environment: livestock production pollutes more than producing other agri-food (FAO, 2006), whereas consuming more vegetable-based products contribute to GHG reduction (Eshel and Martin, 2006) and

substituting less than one day per weeks' worth of calories from red meat and dairy products to chicken, fish, eggs, or plant-based alternatives reduces GHG emissions more than just buying only agri-food local sources without paying attention on what we consume more often (Weber and Scott, 2008).

The massive differences in the GHG emissions of different foods, and the fact that animal-based products tend to have a higher footprint are also revealed in a recent study in which authors compared greenhouse gas emissions from the average diet across countries in the European Union. The study determined that dairy, meat and eggs food production, land-use change and trade (i.e. transport) accounted for 83% of GHG emissions from the average EU diet, while only 17% of GHG emissions results from plant-based foods (Sandström et al., 2018). Therefore, besides the fact that we should consume more locally and what is available in season, we should pay attention at the amount of pollution each agri-food product is generating, starting with the early stages of production.

Agri-food lies at the heart of climate change, and measures have to be taken in order to decrease the impact of food consumption on environment. Producing and consuming more sustainable food through organic farming may be an efficient approach (Paoletti et al., 2010). Starting with improvements in agricultural efficiency and technologies, food waste reduction, solutions should be found also in the attitudes of producers and consumers toward environment. Farmers' environmental attitudes and their conservation behaviour should be shaped according to more environmentally friendly practices. Also, consumers need to change their behaviours or practices in support of sustainable agri-food systems in order to combat climate change. Analyzing the attitudes and actions of people who have a commitment towards environmental responsibility, the concept of "Ecological Citizenship" is developed. Dobson (2003) highlights the fact that ecological citizens are people who have a strong commitment to sustainable actions and so, they will try to reduce their negative impacts on earth by changing their consuming behaviours and preferences in their daily lives. Therefore, the daily sustainability practices of an "ecological citizen" are related more to voluntary actions to protect the natural environment and this could be a motivating force for sustainable consumption. On the same concept, Seyfang (2006) emphasizes that sustainable actions and environmentally friendly decisions will be determined more by "community building and social cohesion", with the help of education and through involvement of local food networks into community.

The concept of "ecological citizenship" directs the attention towards the consumer and the power expressed through the act of purchase. Nowadays, the consumer is not just a witness of environmental damages through agri-food lifecycle, but an active participant with a decisional role in the sustainable consumption paradigm. Several trends associated with

environmental sustainability developed lately: the penetration of both organic and locally grown food in the U.S. and EU mirrors that consumers are more aware of the benefits of consuming eco-friendly products (Weber and Scott, 2008). In Europe, organic food consumption varies, developed countries registering higher consumptions per capita than developing countries. The average per capita consumption came to 67 euro in 2017, the highest amount spent per person is registered in Switzerland with 288 euro/person, followed by Denmark (278 euro/person) and Sweden (237 euro/person). In comparison with other European countries, Romania has a low consumption of organic food, with only 2 euro spent/person in 2016 (Wunsch, 2020).

Based on the previously presented literature review, this paper tests a series of hypotheses, regarding the consumption habits of local agri-food products from the perspective of the impact they have on the environment:

Hp 1: The incidence of organic / bio / eco agri-food products consumption is determined mainly by price. Other main underlying factors which influence the purchase of agri-food products are, in order, the following: taste, perceived health benefits, care for the environment, desire to support local farmers and local economy.

Hp 2: People with higher income and / or educational level, living in urban areas are more susceptible in consuming agri-food products that pollute less.

Hp 3: Younger public is more concerned of the impact that the consumption of agri-food products have on the environment, as they are more educated in this field and more open to be involved in creating and maintaining a sustainable environment.

In the present study we aim to verify the role played by the environmental considerations in consumer purchase decisions of local agri-food products in one of the developing regions of the European Union: the North-East Region of Romania, Iași County. The main objective of the study is: *Identifying whether there is a correlation between environmental concern and the consumers' purchasing decision of local agri-food products in Iași County, Romania.*

The secondary objectives of the study are:

S.O.1. Identifying the decisional factors involved in the process of purchasing local agri-food products.

S.O.2. Ranking of the factors involved in buying decisions of eco-friendly agri-food products based on their attributed importance.

S.O.3. Analyzing to what extent the incidence of eco-friendly agri-food consumption is influenced by five factors: income, age, gender, education, living area.

2. Material and methods

The studies necessary for the elaboration of the present paper were carried out during 2018-2019,

using secondary data sources such as statistical analyses, causal (explanatory) researches, periodical (annual) researches, papers and books in the field of agri-food, consumer buying behaviour and the environmental impact of agriculture, globalization and trade, as well as primary data gathered through a market research

In order to investigate the views of people located in Iași County, Romania, who would more likely be trying to incorporate local agri-food into their shopping habits, we applied a quantitative data research method - a market survey carried out on 343 people. The survey results were obtained through random sampling with the help of an online application and gathered among people focused on buying agri-food products. The gathered data were analyzed and interpreted using the SPSS PC program.

As will be shown, the results of the research determined for Iasi County, reveals data which is affined to the known situation at national level. However, there are no studies undertaken yet regarding the reasons of why people do choose certain agri-food products and their decision making, neither at national, regional or county level. This research aims at determining the reasons in decision making regarding to the choice of agri-food products in the studied area, Iasi County.

The authors chose this area for the research for several reasons. Iasi County is an average and a appropriate example of a developing area in Romania and the E.U. The County main locality, the city of Iasi, is the second largest city in Romania by population. Moreover, the County area benefited by a particularly dynamic economy development in the recent years, since the E.U. accession of Romania. The respondents of the sample belong to various food and shopping habits, ways of living, individual and family income, social position etc. and hence they're responses can be representative for the whole region, for other regions in Romania or for the whole country. Iasi County is a representative area both for the whole North-East Region and also for other counties and regions in Romania, these facts being a solid reason for why the authors chose to make the research on Iasi County.

2. Results and discussion

Sustainable consumption is the key to reduce the environmental impacts of agriculture while providing nutritious agri-food products to a growing global population. Dietary habits have significant consequences on environment, the consumption of local, organic and less polluting agri-food products being a *sine qua non* condition in order to tackle climate change. Within the field of dietary habits of consuming agri-food products, studies show that day-to-day personal choices have a great impact on the environment. Therefore, the first part of the study analyzed the frequency of consumption for different agri-food products. Offering five options of answer (Daily/Several times a week/Once a week/Less than once a week/Never), respondents were asked to say

how often they consume products from the following categories: meat and meat products, fish and fish products, eggs, milk and dairy, fruits and vegetables, bread and bakery products, cereals. Results show that the agri-food products most often purchased by respondents of this survey are, in this order: fruits and vegetables (65.9% daily consume), bread and bakery products (64.1% daily consume) and milk and dairy products (30.9% daily consume) (Table 1). The results confirm the national statistics regarding the high bread consumption in our country. Romania is one of the countries in the European Union with the highest bread consumption per capita, with approximately 8 kg / month / capita in 2018 (INS, 2017). The North-East region has a consumption of 6.8 kg / month / capita, the smallest national level (INS, 2017).

While vegetables, fruits, dairy and bread and bakery products occupy an important place in the daily shopping basket of the respondents, at the opposite pole are situated fish and fish products. Considering the statistics at the national level regarding the fish consumption, the results of the present study are not surprising. With an annual consumption of only 7 kg of fish per capita, Romania is well below the European Union average: statistically, an European consumes at least 24 kg of fish every year. The research shows that fish and fish products are the least consumed, 58.6% of respondents declaring that they consume these products less than once a week or even never – 5.5%, whilst 0% declared that they consume these products daily (Table 1).

The market research shows a correlation between people with low income and reduced fish consumption habits, this category of products being more expensive than other agri-food. 78% of people with income between 1100-2000 lei declared they consume fish and fish products less than once a week, while 7.3% of the same category declared they never consume these products. For people with even lower income, the fish consumption is very rare, 71.4% of people with income lower than 1000 lei consume fish and fish products less than once a week, while 19% of the same category never consume these products. A higher consume is registered among people with income over 5000 lei, they consume fish and fish products several times a week - 12.7% or once a week - 33.1%. As regards the most polluting food categories, respondents answered they consume several times a week: meat and meat products – 57.4% and daily – 23%, milk and dairy products - 49% and daily – 30.9%, eggs – 60.9%. Only 3.2% of respondents say they do not consume meat and meat products at all, while a smaller number say they never consume milk and dairy products - 0.9% (Table 1). These results are confirmed by the national trends, statistical data show that in Romania, the annual average consumption for the main agri-food products per capita is led by fruits and vegetables with 178.4 kg of vegetables/person, 96 kg of fruits/ person, followed by 246.3 litres of milk and dairy products in equivalent milk/ person, meat, meat products and edible offals with 68.6 kg/ person and 267 eggs/person (INS, 2017).

Table 1. Frequency of consumption for different agri-food products (%)

<i>Consumption %</i>	<i>Bread & bakery products</i>	<i>Fruits & vegetables</i>	<i>Eggs</i>	<i>Cereals</i>	<i>Milk & dairy products</i>	<i>Fish & fish products</i>	<i>Meat & meat products</i>
Daily	64.1%	65.9%	8.5%	17.2%	30.9%	0%	23%
Several times a week	24.8%	26.5%	60.9%	37.9%	49%	7.9%	57.4%
Once a week	5.2%	5%	19.2%	13.1%	9%	28%	11.7%
Less than once a week	4.4%	2.6%	10.5%	26.5%	10.2%	58.6%	4.7%
Never	1.5%	0%	0.9%	5.2%	0.9%	5.5%	3.2%

Analyzing the intensive meat consumption habits profile, the study doesn't reveal significant differences in relation to demographic characteristics of the respondents. Regardless of age, income or the fact that respondents do have or do not have children in care, meat and meat products are consumed several times a week by more than 47%. However, more people with higher income (over 5000 lei) consume these products daily - 29.3%, compared to the rest of the categories.

Studies show that milk and dairy products are among the most polluting food categories, after meat. The present research reveals that this category has the highest consuming frequency of the most polluting food categories. Milk and dairy are present daily or several times a week in the menu of respondents, regardless of income, residence area or gender. A slight increase in the consume is observed among people with children in care - 37.2% daily consume, compared with 27.5% daily consume for people with no children in care. Also, people over 65 years old consume these products more often than others, with over 47% daily consume and over 47% several times a week. No questioned person over 45 years old excludes milk and dairy from nutrition.

The egg consumption reaches a normal frequency considering the official advocated amount. Since they are not recommended on a daily diet, the majority of respondents consume eggs several times a week (60.9%) and only 0.9% do not eat eggs at all.

In top agri-food products preferences are fruits and vegetables: 226 of respondents (65.9%) consume fruits and vegetables daily, and 26.5% several times a week. No respondents stated that they exclude this category from the menu. As studies reveal, as long as we substitute meat with plant-based alternatives, we can reduce negative environmental impacts and these results can represent a basis for other studies regarding the disponibility to dietary changes in favor of preserving a sustainable world.

The next part of this research aimed at analyzing the interest regarding the food source. In the last years, more and more corporations and groups of interest are touting the benefits of locally grown agri-food products, often described as "sustainable," "healthy," or "natural." Since agri-food production has become globalised, eco-friendly advocates try to warn population through different campaigns and marketing strategies that when it comes to food

options, certain characteristics must be taken into account in order to consume more sustainable products. Questions like "Where does our food come from?" or "How far has our food travelled?", "How many resources have been used producing and transporting our food?", "Is there a local alternative?" are advertised, in order to point out the necessity of food distance reduction and the benefits of consuming local products. Despite the fact studies show that what we eat is more important than the source we choose, people tend to relate the local consumption with a more ecological approach, the same idea being contoured in the present research also.

Respondents prefer local agri-food products detrimental of the imported ones. The most often consumed agri-food products are produced in Romania (54.5% consume them frequently, 36.2% consume them very frequently), followed by products produced in Iași County (44% consume them frequently, 24.2% consume them very frequently). Agri-food products produced in other countries are on the last place, being occasionally consumed (40.5% rarely, 16.3% very rarely) (Table 2).

A frequency consumption increase of imported agri-food products is visible rather among young people than among people over 55 years old. 47.1% of the respondents aged between 18-24 years old consume imported agri-food frequently, while 63% of respondents aged between 55-64 years old consume the same products rarely.

Although the present research shows increased preferences for the local agri-food market (Table 2), the national statistical data point out other trends. In terms of commercial balance for agri-food products there is a large trade deficit registered in the past years. In the first eight months of 2019, a trade deficit of one billion euros was registered in Romania, the main imported agri-food being meat products, fruits and vegetables, milk and dairy and bakery products (MADR, 2019).

In this regard, the study also focused on discovering the most important factors that determine the choice of agri-food. Respondents were asked to rate to what extent they choose each of the following features: price, freshness, taste, eco-friendly, health benefits, organic/bio/eco/result of ecological agriculture, recyclable or reusable package, desire to support local farmers and the local economy, influence their food purchasing behaviour, using a

five-point Likert scale ranging from 1 (unimportant) to 5 (very important). Results reveal that many factors are influencing the buying of agri-food, such as better quality, care for the environment, perceived health benefits, the desire to support local farmers and the local economy, but the main underlying factors seem to be freshness, health benefits and taste (Fig. 1).

The environmental concern factors, such as if the product is eco-friendly (28.9% very important, 40.8% important), the product is organic/eco/bio/a result of ecological agriculture (26.5% very important, 41.7% important) and the ecological package (19.2% very important, 37.9% important) are considered to be important criteria when purchasing agri-food (Fig. 1).

Through their food choices, consumers can lower their personal impact on the environment and can transmit a strong message to producers encouraging them to adapt their food offer. The purchase decision of agri-food products is influenced

by various factors, of different origins and with different outcomes on climate. Identifying the most common beliefs about local agri-food products and main attitudes towards a series of dietary changes for helping the environment represents an important step in order to understand the awareness and openness degree to sustainable consumption in a developing area. Accordingly, responders were asked to specify their level of agreement on several statements in four points: ranging from 1 (I totally agree) to 4 (I totally disagree) (Table 3). Results show that when buying local agri-food people believe they benefit of fresher (58.6% total agreement), tastier (43.1% total agreement) and healthier (42% total agreement) products at a lower price (12.5% total agreement, 51.3% partial agreement). Also, the act of purchasing local agri-food is regarded as an act of help for local economy and local farms – 59.2% of respondents totally agree on this matter (Table 3).

Table 2. Frequency of consumption of local vs. imported agri-food products

Production place	Occurrence	Freq.	%	Place of production	Occurrence	Freq.	%	Production place	Occurrence	Freq.	%
Agri-food products produced in Iasi County	Frequently	151	44.0	Agri-food products produced in Romania	Frequently	187	54.5	Agri-food products produced in other countries	Frequently	118	34.4
	Very Frequently	83	24.2		Very Frequently	124	36.2		Very Frequently	30	8.7
	Rarely	89	25.9		Rarely	28	8.2		Rarely	139	40.5
	Very Rarely	20	5.8		Very Rarely	4	1.2		Very Rarely	56	16.3
	Total	343	100		Total	343	100		Total	343	100

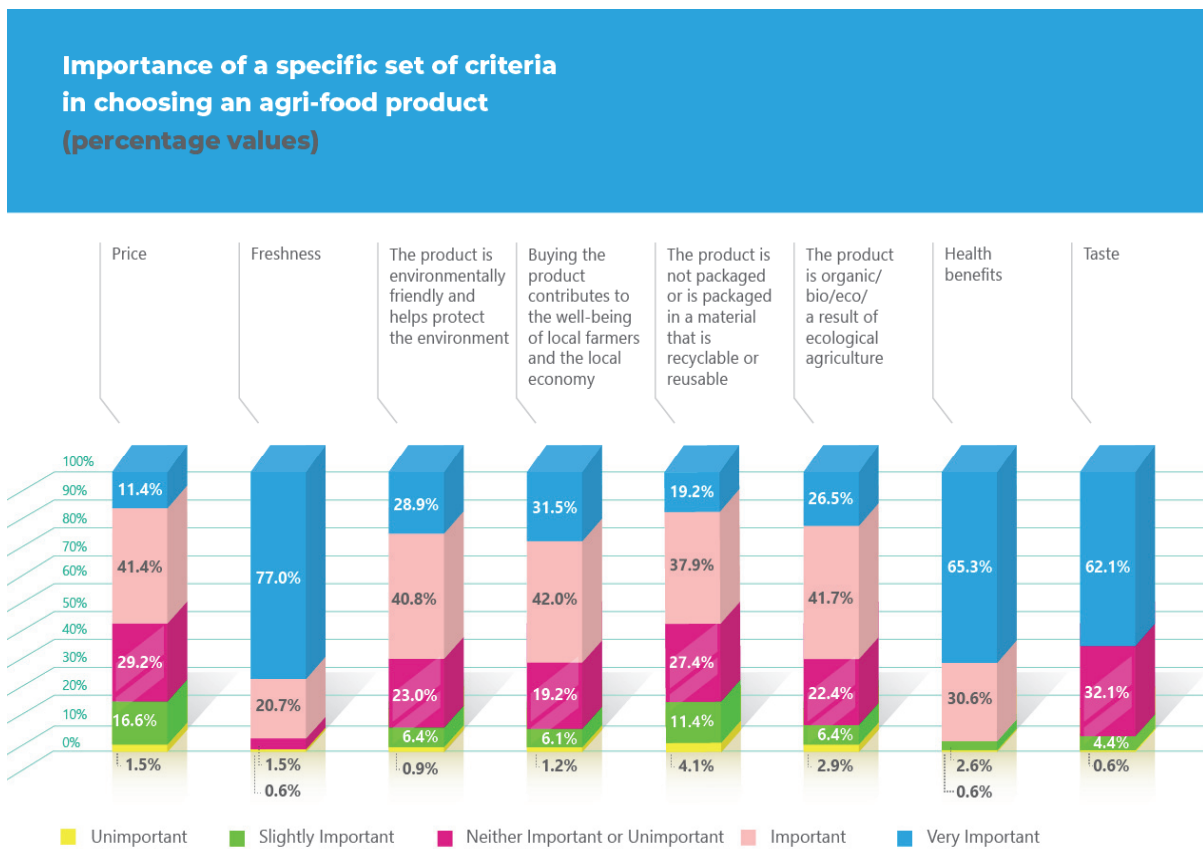


Fig. 1. The most important factors that determine the choice of agri-food products

Table 3. Attitudes towards local agri-food products and sustainable dietary changes

<i>Statements</i>	<i>Total agreement (no. resp/%)</i>	<i>Partial agreement (no. resp/%)</i>	<i>Partial disagreement (no. resp/%)</i>	<i>Total disagreement (no. resp/%)</i>
I usually buy local agri-food products because they are tastier	148 43.1%	168 49%	22 6.4%	5 1.5%
I usually buy local agri-food products because they have a lower price	43 12.5%	176 51.3%	97 28.3%	27 7.9%
I usually buy local agri-food products because they are fresher	201 58.6%	128 37.3%	13 3.8%	1 0.3%
I usually buy local agri-food products because I think they are more environmentally friendly and help protect the environment	106 30.9%	174 50.7%	55 16%	8 2.3%
I usually buy local agri-food products because I consider them to be organic / bio / eco / come from ecological agriculture	94 27.4%	182 53.1%	54 15.7%	13 3.8%
I usually buy local agri-food products because I want to support the local economy and local farmers	203 59.2%	115 33.5%	22 6.4%	3 0.9%
I usually buy local agri-food products because they are healthier	144 42%	170 49.6%	24 7%	5 1.5%
When I buy agri-food products I prefer to buy those that have no packaging at all or have ecological packaging, which can be recycled or reused	100 29.2%	166 48.4%	64 18.7%	13 3.8%
When I buy agri-food products, I choose those whose mode of production and transport affects the environment less	86 25.1%	172 50.1%	67 19.5%	18 5.2%
If I knew that some agri-food products pollute more than others, I would buy more often those that pollute less	190 55.4%	115 33.5%	27 7.9%	11 3.2%
I am willing to reduce the consumption of meat and meat products if I know that their production pollutes more than other agri-food products.	96 28%	160 46.6%	66 19.2%	21 6.1%
I am willing to reduce the consumption of eggs if I know that their production pollutes more than other agri-food products	66 19.2%	167 48.7%	82 23.9%	28 8.2%
I am willing to reduce the consumption of milk and dairy products if I know that their production pollutes more than other agri-food products.	61 17.8%	150 43.7%	99 28.9%	33 9.6%

In reference to the environmental concern, people tend to consider that local agri-food pollute less, being more eco-friendly (30.9% total agreement, 50.7% partial agreement), and organic/bio/eco/coming from ecological agriculture (27.4% total agreement, 53.1% partial agreement) (Table 3). On the subject referring to the disponibility of changing the most important consumption habits of agri-food products, the majority of respondents showed willingness in reducing polluting products consumption at a larger degree if they would know what kind of products are more harmful to environment (55.4% totally agree and 33.5% partially agree). Between the most polluting products, people are more willing in reducing meat consumption (28% totally agree and 46.6% partially agree). Eggs and dairy consumption is also taken into consideration when it comes to reduce their daily intake in the name of environmental benefits (Table 3). However, as concerns other sources of pollution involved in the process of capitalizing agri-food products, such as packaging and transport, people do not tend to take these into account (Table 3).

In general, regardless the age, people are sensitive to the environmental aspects when choosing local agri-food products. They consider local products

are eco-friendly and contribute to protecting the environment.

The possibility of recycling or reusing packaging tends to rise in importance for people over 45 years old. Respondents between 35-44 years old and over 65 years old are the most interested in the way food is produced, transported, and in its degree of pollution (67.3% of respondents aged between 35-44 years old partially agree, while 47% of respondents aged over 65 years old totally agree, 41.2% partially agree).

As regards the tendency to dietary changes for helping the environment, there are no noteworthy differences between age segments, but an interesting dissimilarity can be observed between genders, women being more likely than men to reduce consumption for meat and meat products (Fig. 2) and milk and dairy (Fig. 3). As it can be seen, women are more willing to buy agri-food products that pollute less (60.6% of women totally agree in buying fewer polluting products, while only 43.1% of men are willing to do the same) (Fig. 4). These gender differences in purchase decisions are interesting, considering the fact that usually women are more often in charge with choosing and buying food products in a household.

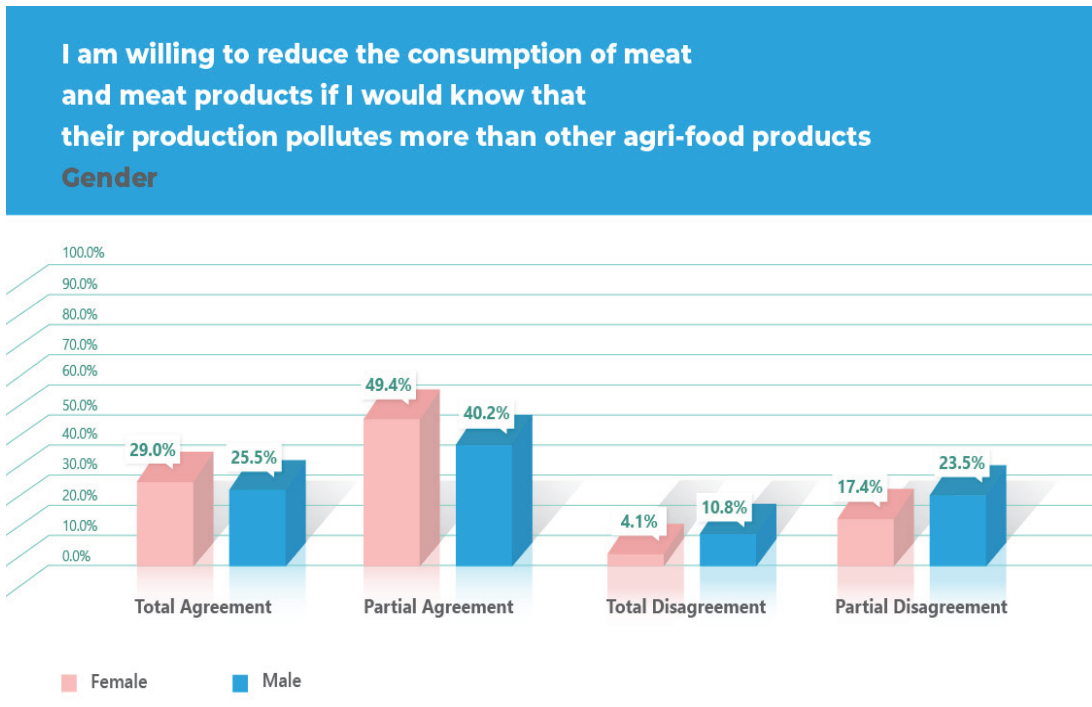


Fig. 2. The willingness of reducing the meat and meat products consumption by gender of respondents

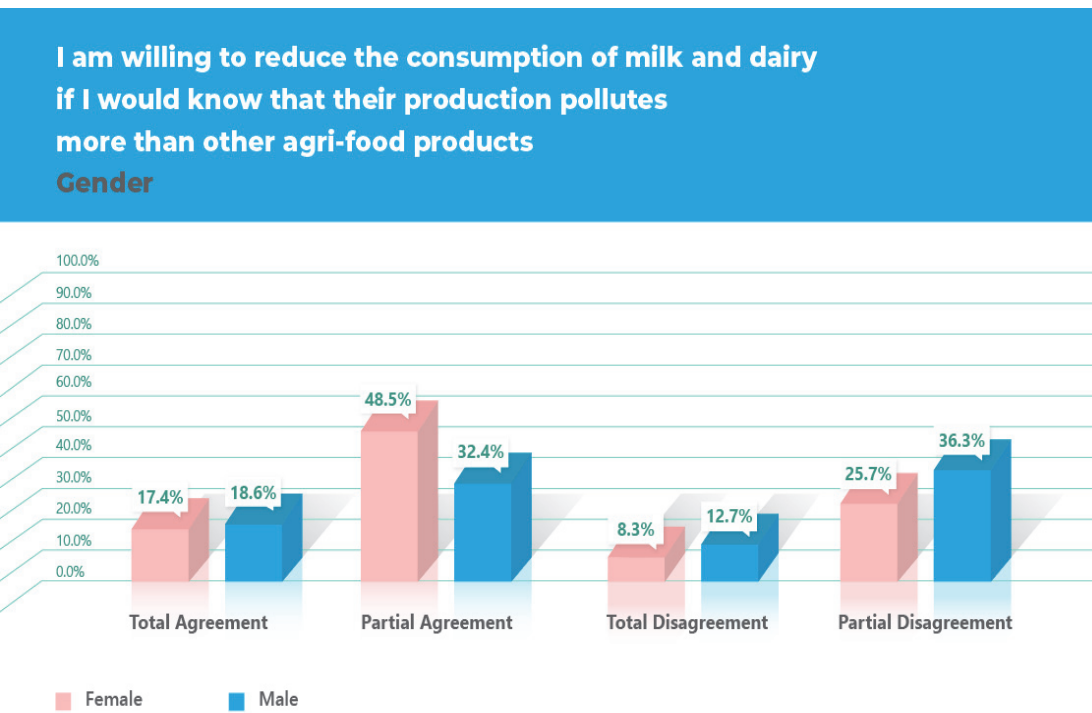


Fig. 3. The willingness of reducing the milk and dairy consumption by gender of respondents

According to a Pew Research Center analysis, in U.S. households consisting of married or cohabiting parents and one or more children under the age of 18, 80% of women declare they are the primary grocery shopper in the family and also, the same percent declare they are in charge with cooking. 71% of women say they primarily handle both chores (Pew Research Center, 2019).

Other studies show women often have primary responsibility for food related decisions in family households, and that women and men may interact differently with their food environments, females being more responsive to promotional elements, discounts, prices, hygiene and the convenient location of the grocery store compared to males (Mortimer and Clarke, 2011).

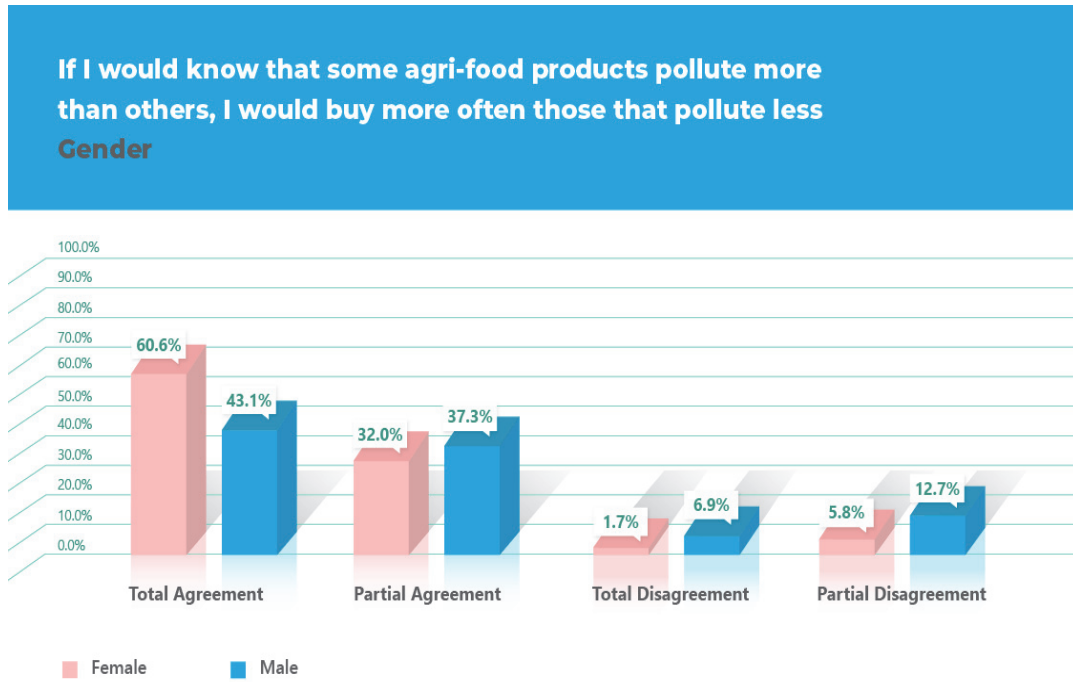


Fig. 4. The willingness of reducing the consumption of agri-food products which pollute more by gender of respondents

In general, in Europe, studies show that men are responsible for more pollution than women, their dietary habits being among the main causes. A study on the behaviours of men and women in Germany, Greece, Norway and Sweden, reveal that dietary habits of women affect less the environment (Räty and Carlsson Kanyama, 2010). Although the present study shows that in the future time horizon women are more interested than men to reduce the consumption of certain agri-food products in order to protect the environment, the question regarding the consumption of meat and meat products, milk, dairy and eggs disclose no significant differences between men and women's present consumption habits.

Regarding other demographic aspects, the only considerable difference can be observed between people living in rural versus urban area, with an increased wish of buying local products in rural areas than in urban ones thanks to the lower price (14.4% of people living in rural area declare they totally agree that the habit of consuming local agri-food has a lower price basis, 58.7% partially agree with this). Considering the spreading of farms mainly in rural areas, consuming locally produced agri-food is a common practice there, thanks to the lower prices, the convenient location of sellers and the desire of contributing to local development: 64.4% of people living in rural areas use to buy local agri-food because they want to help local economy and local farms, while 56.9% of people living in urban areas declared the same. Correlating these results with Question 3 regarding the source of most consumed agri-food products, we can see that people living in rural areas consume less imported products than people living in urban areas: only 6.7% of people living in rural area

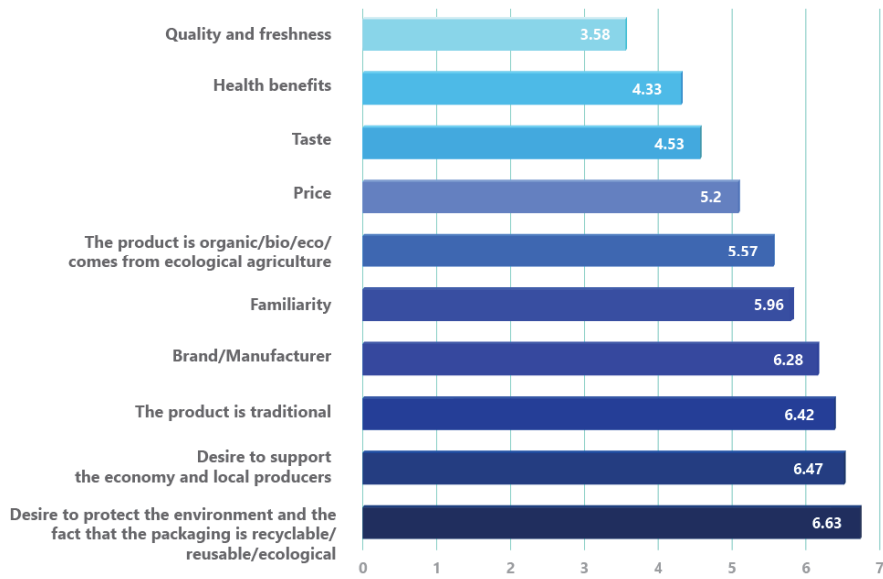
consume very frequently imported agri-food products, 28.8% consume them frequently, while in urban areas 9.6% consume very frequently imported agri-food products, 36.8% consume them frequently.

The next part of the study involved asking respondents to rate by importance from 1 to 10 (1 – the most important; 10 – the least important) the factors they take into account when choosing a local agri-food product. Results show that "quality and freshness" are the most important factors, followed by "health benefits", "taste" and "price" (Fig. 5).

When choosing local agri-food, the aspects that matter less or are not taken into account when choosing a product, are: the traditional characteristic of the product, the desire to support the economy and local producers and the interest towards protecting the environment (Fig. 5). The fact that the product is organic / bio / eco / comes from ecological agriculture is ranked on the fifth place, but correlating this result with the fact that the last criteria is represented by the desire to protect the environment (packaging is recyclable/reusable), we can conclude that the organic/bio/eco characteristic of the product matters because people associate this aspect with health benefits, not with the desire to protect the environment.

Whereas the concern for environmental protection was listed as a last criterion in choosing local agri-food in the previous item, 58% of respondents consider themselves very preoccupied with environmental protection, while only 0.29% are not concerned at all (Fig. 6). In terms of age-related differences, an important finding reveals that, contrary to other countries trends, younger public is less preoccupied in adopting a sustainable behaviour.

The importance of the factors taken into account when choosing a local agri-food product



Note: The place shows the importance of the answer option. The highest place is taken by the most important option. The points represent the total sum of all the answers to this question. The most important answer has the lowest number of points and vice versa.

Fig. 5. Ranking of the most important factors which influence the purchase decision of local agri-food products

Usually, young consumers are considered more willing in consuming eco-friendly products (Annunziata and Vecchio, 2016). Results of the present study do not confirm this theory: respondents under 24 years old are concerned to a rather small extent with the protection of the environment - 51.5%, not at all - 1.5%. Contrariwise, 82.4% of respondents over 65 years old are interested in environmental protection (Fig. 7).

Women and men are concerned with protecting the environment in relatively equal percentages (58%

respectively 57% to a great extent).

Also, for the next question where people were asked to choose an answer regarding what they would do if they would find out that some agri-food products they consume frequently pollute and harm the environment, mainly those with average income and aged over 55 years old are the most concerned about environmental issues in the idea that they would reduce to minimum the consumption of most polluting agri-food products and would be proactive in promoting this dietary habit (Fig. 8).

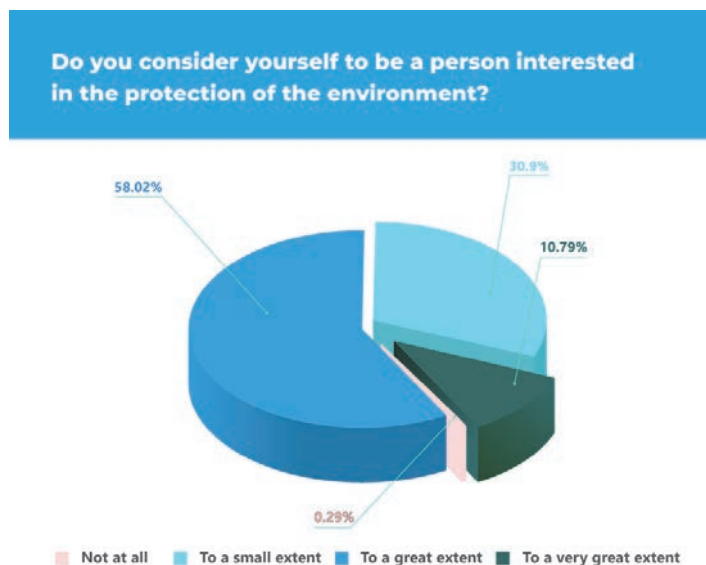


Fig. 6. The interest in environmental protection, % share

The interest in environmental protection

Age

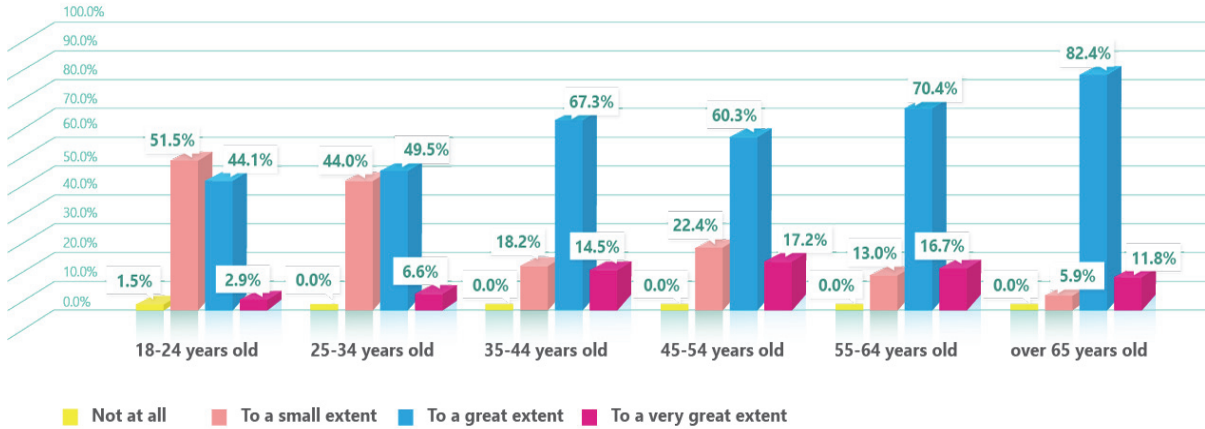


Fig. 7. The interest in environmental protection by age, %

Attitudes towards agri-food products which pollute and harm the environment

Age

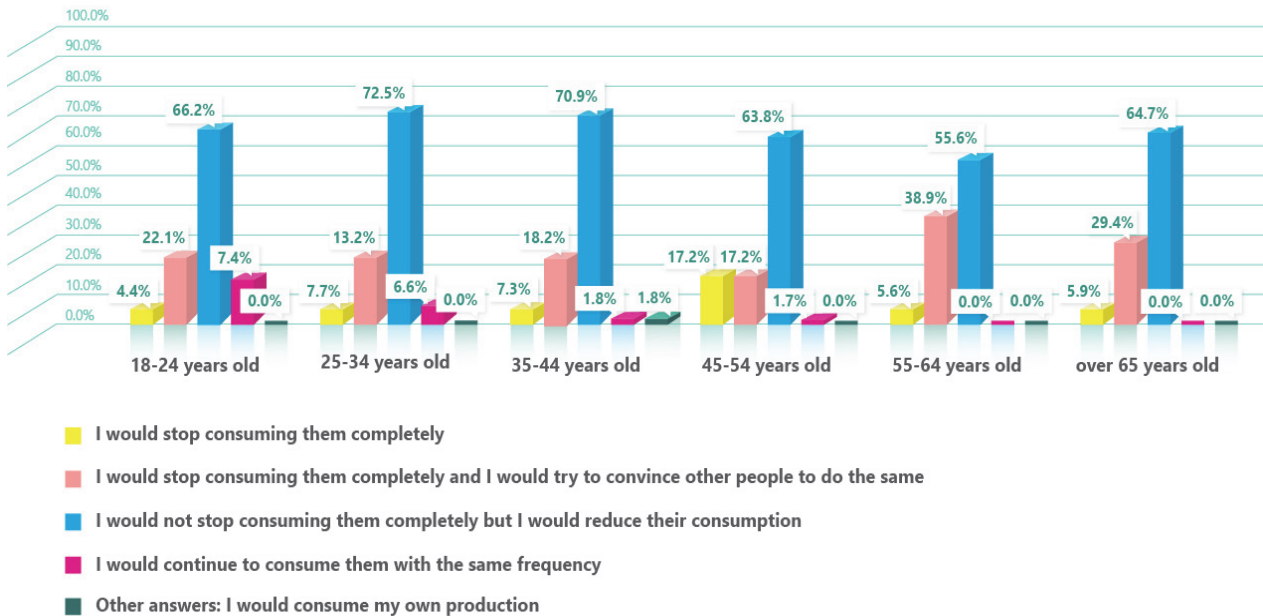


Fig. 8. The willingness of reducing the consumption of most polluting products by age, %

The attitudes towards environmental responsibility are not aligned with the actual consumption of most polluting agri-food products, therefore, communication campaigns should be

implemented in order to inform people about the real influence of their food choices, as studies show that dietary habits may have a greater impact on environment than other actions (Searchinger et al.,

2018).

4. Conclusions

When it comes to agri-food purchase decisions, results show that in Iași County people are most influenced by personal factors, such as freshness, perceived health benefits and taste, rather than sustainable motivations. Helping the local community and economy is also an important aspect which is taken into account and contributes to an increase of locally produced food consumption, but people do not necessarily link the social benefits of a local food system with environmental benefits due to local consumption (such as the reduction of GHG emissions, waste and energy consumption).

Although a series of aspects regarding the environmental sustainability through agri-food consumption do not influence in a major way the purchase of agri-food products (as the type of product and packaging), the fact that the product is organic/bio/eco/a result of ecological agriculture matters in a high degree, this aspect being correlated rather with health benefits than with a sustainable habit. Consumers are progressively aware and more interested in how their food is produced and where it comes from, organic and local products being increasingly preferred. Whereas respondents showed a positive attitude towards purchasing organic agri-food products (the product is organic/eco/bio/a result of ecological agriculture - ranked fifth out of ten in top influencing factors), a reduced number of consumers are actually influenced by the environmental concern in their purchase decision (the willing to protect the environment and the fact that the packaging is recyclable / reusable / ecological - ranked ten out of ten in top influencing factors). The majority of people who participated in the study declared they are preoccupied with environmental protection (58% to a great extent, 10.8% to a very great extent) but the high consumption of polluting agri-food products such as meat and dairy show that they are not aware of the impact their diet has on environment.

An interesting result of the study represents the gap between the interest in environmental protection of women versus men. A visible trend is outlined in developed countries, such as United States of America, Germany, Greece, Norway and Sweden, which states that women are more concerned about environmental protection, consuming fewer polluting products and having a more sustainable behaviour. This trend is verified in the present study, and results show that women are more willing to reduce the consumption of polluting products, even if in present their dietary habits are similar with men. This similarity may indicate insufficient education towards the environmental impact of certain agri-food products.

Thus, this study can be the ground for educational campaigns for informing the public about the effects of frequent meat and dairy consume on environment. Through these campaigns, policy

makers should promote and advocate the consume of eco-friendly agri-food products and the more environmental oriented consumption habits, especially among young people and women, since women are usually more in charge with shaping dietary habits in their families. Only through a correct and solid education of new generations, the society will be more oriented towards sustainability in food choices.

The study also reveals interesting age-related differences: younger people are less preoccupied about environmental protection than the elderly, they are not concerned in buying products with a reusable/recyclable package, they consume more polluting products and they are not as willing to reduce the consumption for these products as elderly people. For the young segment, the environmental considerations play a minor role in consumer purchasing decisions, the environmental factor being situated on the last place, over 50% of respondents aged 18-24 years old declaring that they are interested in a small extent in the environmental protection in general, 44% of respondents aged 25 – 34 years old declaring the same, while 80% of respondents aged over 65 years old are interested to a great extent in environmental protection and are more willing to reduce the consumption for most polluting agri-food products. These results convey the idea that older public is more aware of the impact the consumption of agri-food products has on the environment, they are more educated in this field and more open to be involved in creating and maintaining a sustainable environment in comparison to younger people. Considering the significant impact future generations will have on earth, it is imperative to educate them to contribute more to a sustainable environment. Their dietary habits and behaviours towards the planet are currently shaping, therefore proper communication programs should be implemented in order to raise awareness of children, adolescents and young adults. These findings can be the basis of marketing campaigns in order to promote sustainable consumption habits among young public. These campaigns may be useful for both industry practitioners and policy makers, and may include proper media in order to reach this segment of public. Thanks to online communication channels, which are easy to access and widely used by young public, eco-friendly oriented messages can be spread easily, with positive results and low budgets. Opinion leaders, influencers and famous people can be involved in these campaigns, attracting more public awareness on the local consumption of agri-food eco-friendly products, with positive effects on local economy and environment.

Significant choices can be made on a daily basis in our dietary plan in order to protect the ecosystem and biodiversity but the results show that people are not fully aware of the actions they may take in order to reduce their personal impact. The necessity of educational programs about the influence of the most polluting agri-food products became more

stringent. All parties involved in capitalization of agri-food products should be required to respect rules and to implement strategies in order to reduce the impact of their actions on climate. Communication campaigns should inform people about the environmental costs of the agri-food products, at a national level. The taxes and environmental labels should reflect the impact of each agri-food product, in order to be visible when the act of purchase is done.

This study can be the ground of a couple of recommendations in order to determine strategic directions suitable for helping the local market of agri-food products and the environmental dimension of it, implied in the consumption habit of the young population. In a market where the number of products is continuously growing, the success of the economic shareholders lies in the way they understand and relate to the preferences of the target audiences, understanding them, accepting and exploiting their desires, needs and demands. Hence, producers can align their offer according to people preferences of more eco-friendly products and marketing specialists can create campaigns in order to promote a more a sustainable trend.

However, an important consideration to mention is that the extrapolation of the research results is narrowed by several factors. First of all, provided the particular sustainability of the organic food, as presented in the article, the fact that we refer to organic products as examples of sustainable food represents a limitation of our study implications. Moreover, another limitation arises from the type of survey method that we used which was the questionnaire / interview. Namely, this type of survey method is believed to bring larger figures in the results because respondents have the tendency to answer in a rather socially approved manner, which reduces the accuracy of the actual behaviors and hence results. Lastly, the survey took place in and followed Iasi county area and the sample was limited.

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