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The Impact of Organic Products on the Romanian Entities and Consumers Compared to the European Union

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Abstract

Today, people live in an era governed by emergence, sustainability, and continuous changes in every sector of our lives. Nowadays, every individual desires to change their lifestyle to a healthier one. Therefore, organic or bio products have captured everyone's attention, becoming more and more used by every individual determined to lead a healthier life. This trend puts pressure on economic entities, especially on the processes carried out, such as production and sale of these products.

The aim of this paper, first, is to analyse the market for organic products in the European Union in general and in Romania in particular. The purpose of this analysis is to observe whether the same diversity of organic products can be encountered in both the European Union and in Romania, or if it is necessary to import some of them. Second, the most important producers from Romania are analysed to determine the issues that might occur in the production process when dealing with the consumers' needs. To this extent, a questionnaire is put forward for discovering if the consumers from Romania are buying bio products and which products, and, as well as, if they are buying from the local producers or from the imported ones. Thus, descriptive statistics and sentiment analysis are used to observe the problems of local producers compared to the producers from the European Union. The purpose of this analysis is to come up with a solution for the local producers for better meeting the consumers' demand. Moreover, following the application of the questionnaire, as expected, most Romanians are determined to lead a healthier life by consuming more organic products, especially from local producers.

Keywords: sustainability, organic products, sentiment analysis.

JEL Classification: C83, O13, Q00, Q18.

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1. Introduction

In the past few decades, consumers have become especially interested in social and ethical considerations in areas such as eco-friendly, organic, or bio products, or energy consumption. This increased interest and feeling of responsibility has led to an exponential development of the global market for eco-friendly products, while at the heart of this trend being situated the desire of consumers' for living a healthy lifestyle.

This study aims to analyse the consumer's preferences for organic or bio products and to establish that consumers prefer to buy bio products for the health benefits. To determine this, it is necessary to apply a questionnaire specially designed for this study and to discover minimum 50 % of respondents that prefer these products especially for the health benefits. In addition, it is desired to determine whether organic product producers might face issues in satisfying the consumer's preferences expressed in the questionnaire and to discover this problem, we should analyse the responses to the questionnaire as well as the products marketed by local producers.

So, to satisfy the consumers' preferences, producers had started to expand the organic agriculture, this kind of agriculture providing a more sustainable kind of farming. Therefore, to determine the perception of consumers on bio products and their health and environmental impact, this study focuses on a questionnaire applied on 101 Romanian consumers.

In this proposed approach, the paper is structured into three chapters. The first chapter, entitled "Literature review" presents the evolution of the demand for organic or bio products, what is organic agriculture and the biggest countries involved in this kind of agriculture, the evolution of prices and the concept of willingness to pay associated with these expensive goods.

The second chapter of the paper, entitled "Research Methods" presents a literature review of the techniques applied in the third chapter, while the third chapter of this paper, entitled "Results" presents two stages of analysis. The first part is carried out by conducting a statistical survey, while the second part is carried out by applying the technique of sentiment analysis. Both analyses were developed using a questionnaire specially designed for this study. In this sense, the IT solution used is RStudio.

Finally, at the end of the study is added a section of conclusions through which the deductions made following the analysis of the literature and the questionnaire are presented.

2. Literature Review

The demand of organic or bio products in the last year has increased faster due to environmental and health concerns. Customers' feelings and purchasing tend to sustainable and organic products, so producers try to seek know-how into the methods that describe sustainable marketing to access the commercial marketplaces. Being at an all-time best interest, the sustainability awareness caused an entire

new fight, more precisely the fight to market and produce services and products that are eco-friendly (Rambabu, 2022).

This eco-friendly situation occurred especially because of the environmental impact on the planet that cannot be questionable looking at the waste and mass production of useless and non-healthier products. Moreover, this intention satisfies the 12th sustainable development goal of the United Nations that refers to a responsible production, as well as consumption, and conducted to a higher purchase of this type of food (Santos et. al., 2021).

The rapid evolutions in technology provided a great green revolution for organic agriculture, proposing complementary inputs like synthetic pesticides and fertilisers or high-yielding crop varieties, that are mandatory for growing the production of organic goods. The global area specialised in organic agriculture increased from 15 million ha to 51 million ha until 2015 especially in the developed countries, but 88 % of the organic farmers are from India, Ethiopia, and Mexico (Meemken, Qaim, 2018).

Organic agriculture produces organic goods that are defined as more natural because it is free of chemicals and does not irradiate. The consumption of these goods is deemed beneficial for one's health due to the absence of the chemicals in the cultivation and production process (Jyoti, Justin, 2017). Moreover, this kind of farming can improve soil health, water pollution, and increase biodiversity. The consumption of this food is influenced by both external and internal factors like subjective and personal norms (Gomiero, 2018).

Organic food, as already discussed, had formed a global market amounting to more than 92 billion euros. The benefits of this kind of good does not come for free, neither for the producers, nor the consumers. This good tends to be sold at a higher price because of the benefits and because of limited availability. Although consumers are willing to pay this high price (Katt, Meixner, 2020).

The most products that consumers are more inclined to buy are bio fruits or vegetable, the organic meat, eggs, or dairy products that are derived from animals raised without hormones or antibiotics, do not produce interest. (Kamboj et. al., 2023) In Romania, this presumption can be applied as well, products like milk, yoghurt, eggs, meat, cheese, or nuts being at the end of the ranking. Even though products like baby food or kefir are starting to become the most popular, getting a percentage of 72.4 % and 13.1 % and being ranked in the top of the rating for the most profitable imports consumed.

On the other hand, the number of certified domestic producers is increasing exponentially, but organic crop plantations have reached only 2.9 % of the total agriculture area, which is almost insignificant compared to Austria, Czech Republic, or Latvia. Now, 80 % of organic products in supermarkets are imported to create diversity for consumers. So, analysing this situation, we can conclude that the willingness to pay for healthier products is higher and represents a real business opportunity as well (Akcenta Cz, 2023).

3. Research Methods

Survey research is a type of social scientific research that focuses on people's vital facts, beliefs, attitudes, opinions, behaviour, and motivation (Mathiyazhagan, Nadan, 2010). This research is defined as a collection of information from a group of people through responses to questions. It allows several methods to recruit respondents, collect structured or unstructured data, and use various methods of analysis. For the best result, it is mandatory to correctly identify the population of interest and to select the best option of data collection depending on the population that is going to be studied, the most common options being questionnaires or interviews (Ponto, 2015).

The principle mean used to collect data is the structured questionnaire, which has to follow four elements, more precisely: length, complexity, layout, and wording. The length criteria are extremely important, so in order to keep the survey within reasonable boundaries, you have to think of six functions that it has to fulfil: provider of a basis for data processing, the interviewer should see it as an easy task, the interviewer should be helped to give the best answers, the interviewer should be kept intrigued and cooperative, and should feel like it is communicating to the interviewer. On the other hand, the complexity is important as well, so the questionnaire should go from easy to more complex questions to keep the interviewer engaged. Third, layout and wording elements involve using an error-free and simple language and various types of questions, including write-in type or scaling (Baker, 2003).

Another type of analysing the questionnaire is Sentiment Analysis or Opinion Mining. Sentiment can appear in a text as explicit when a person expressed a direct opinion, or implicit when the text implies the opinion. The most usual topic of sentiment analysis are film or books reviews, and political commentaries or news, because of the simplicity of the sentiments expressed, which are more explicit (Mejova, 2009).

This kind of method shows the computational study of opinions, emotions, and attitudes of people towards a specific problem by identifying sentiments that are expressed in a text. Sentiment Analysis can be used on three main levels, such as document, sentence, or aspect. The document-level presents an option to analyse an entire document as a unit to extract positive or negative sentiments and opinions. The sentence-level offer an option that classifies the sentiments in each phrase, firstly by identifying if it is objective or subjective and after this by deciding if it's positive or negative. The third option provides a classification of sentiments respecting both the entities, and the aspects (Medhat et al., 2014). Comparing feelings and applying the sentiment lexicon on every level, this analyse can be achieved through software like RStudio, Python or Microsoft Excel (Feldman, 2013).

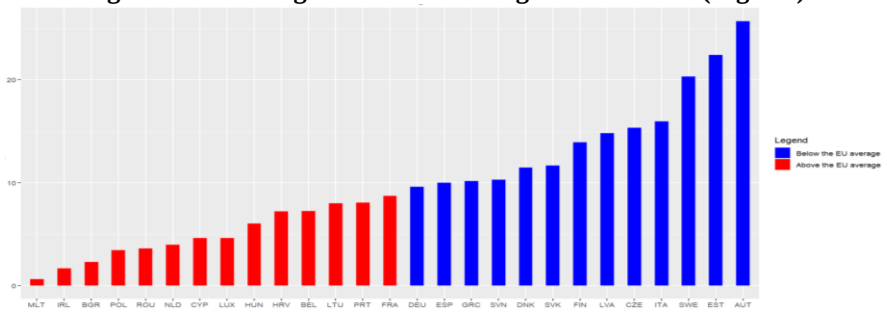
4. Results

In this paper, aspects related to the production of organic products will be discussed, and then, about people's perception of the consumption and usefulness of organic products.

4.1 European Production and Description of the Main Romanian Companies

In this stage, the European context regarding organic agriculture will be described and the main Romanian producers will be presented.

Figure 1. Percentage of total utilised agricultural area (organic)



Source: Own research using data from Eurostat.

Figure 1 shows the percentage of agricultural land on which products that are or are to be certified organic are grown. It is noted that Romania is the fifth country with the lowest percentage, which did not even reach the value of 5 % in 2020.

Table 1. Turnover and Profit of Romanian Producers (2018)

Company	Turnover	Profit	Company	Turnover	Profit
Emiliana West Romania	60	5500	Apiprodex	7.9	0.1
Agricola Alba	23	7600	Premium Fruct	0.8	loss
Orgapic	10.5	642	Agri Mondo	69.8	432
Primagra	2.8	995	Biochem Organics	40	900
Ecofruct	5.9	645			

Source: Financial Intelligence.

Table 1 shows the most relevant producers of organic food in Romania. Orgapic, Agricola Alba, and Emiliana West Romania produce organic grains. Primagra is an exporter and producer of sea buckthorn fruit, Ecofruct collects organic forest fruits, medicinal plants, and mushrooms, Apiprodex produces bio honey, Premium Fruct is a producer of bio fruit juices, Agri Mondo sells organic cereals and seeds, and Biochem Organics sells organic goods like wheat, corn, sunflower, coriander, or barley. As shown, organic agriculture in Romania is not very developed, so most of the products in supermarkets are originated from export.

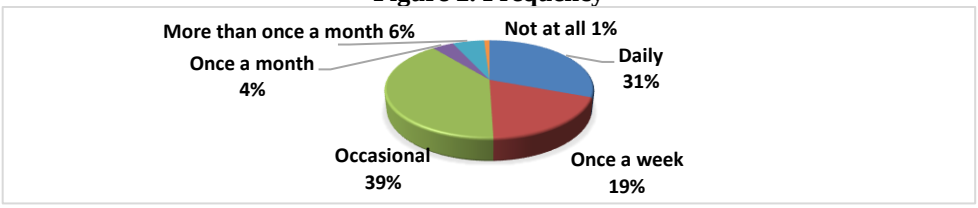
4.2 Consumers' Perception of Organic Products

In this subsection, information related to the description of the respondents, the frequency, and sources of procurement of organic products, the main reasons why they buy or not buy this type of products, and the ability to identify them by recognising the logo will be discussed.

For conducting the analysis, a series of questions have been addressed to Romanian respondents, as discussed in the following. The questionnaire has been applied between March and April 2023 and has been made available through the use of online social networks. A total number of 101 respondents have participated in the survey.

The ratio between the respondents is balanced, with 57 % female and 43 % male. Most of them (about 60 %) are aged between 18 and 24, followed by 35-44 years with 16 % and 25-34 years with 13 %, the rest being over 45 years old. Also, 75 % of the respondents come from urban areas, 23 % of them have an income between 0 and 1000 lei, 33 % have an income of more than 6000 lei, and the rest have amounts between 1000 and 6000 lei. Regarding education, 47 % of them have completed high school as their last form of education, 24 % have completed a master's program, and 17 % have a bachelor's degree. The remaining 12 % either completed post-high-school studies, postgraduate, or Ph.D.

Figure 2. Frequency



Source: Own research.

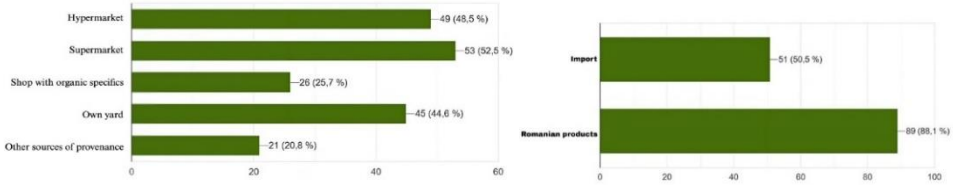
For the frequency of organic products consumption, it can be seen in Figure 2 that 31 % of the respondents stated that they consume daily this type of product, 39 % occasionally, and 19 % once a week.

Figure 3.The most used words and their grouping according to negative or positive feelings (definition)

Source: Own research.

When asked if they could give a definition of organic products, the participants said that they are natural, without pesticides, additives. Those are healthier and do not contain harmful chemicals. In the image on the right of Figure 3, the words are grouped in the form of positive vs negative, organic products being friendly, healthy, being compared to other products that can be toxic, harmful.

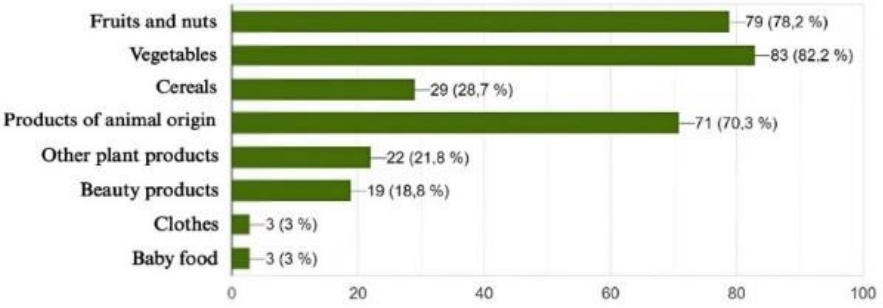
Figure 4. Source of purchase



Source: Own research.

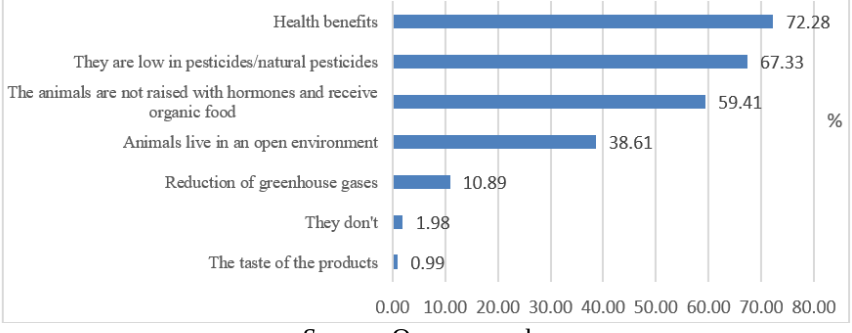
Regarding the place from which they purchase these foods, it is noted that most of the respondents chose Hypermarket or Supermarket (Figure 4), but also their own yard (even if they do not have a certification). Most of the respondents prefer to consume organic products from the country, 50% of them admitting that they also buy imported products.

Figure 5. Products categories



Source: Own research.

Figure 6. Reasons to purchase organic products

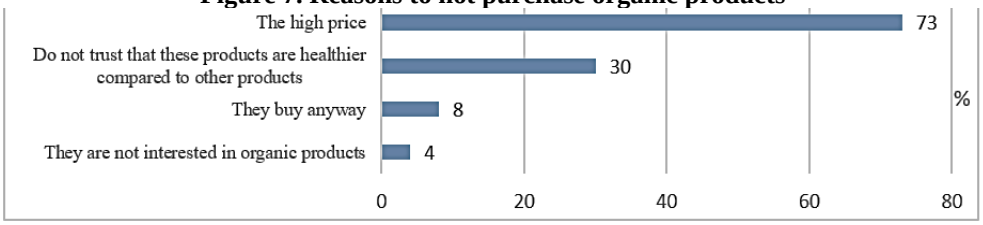


Source: Own research.

It can be seen from Figure 5 that the most used purchased products are fruits and nuts, vegetables, and animal products, followed by cereals and other plant products.

Among the most important reasons why respondents buy organic products are the health benefits, the fact that they do not have pesticides, and also the fact that the animals are raised without hormones and in an open space (Figure 16).

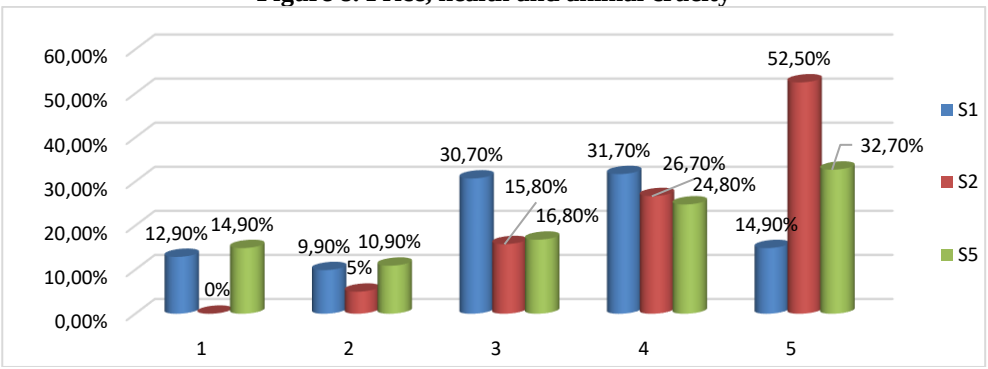
Figure 7. Reasons to not purchase organic products



Source: Own research.

In Figure 7 the main reasons why the study participants said they do not or would not buy organic products are the high price and the lack of confidence that they would be better/healthier compared to other products.

Figure 8. Price, health and animal cruelty



Source: Own research.

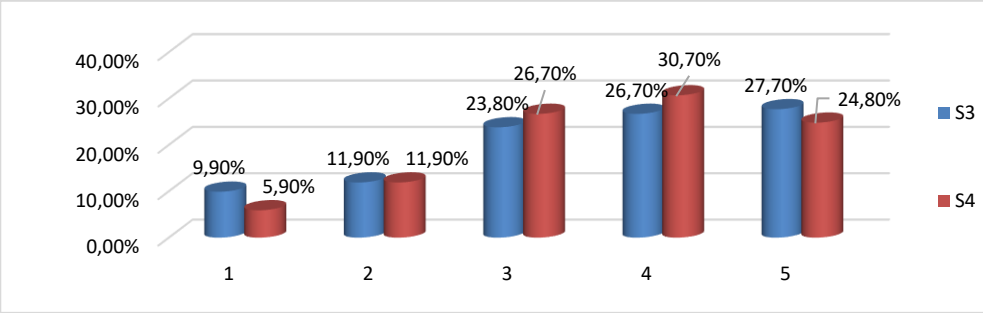
Figure 8 shows the choices made by respondents regarding agreement/ disagreement (ranging between 1-Total Disagreement, and 5-Total Agreement) with certain statements:

- S1: I would give a much larger amount of money to purchase a bio product, although there are cheaper alternatives;
- S2: I am content knowing that what I eat is good for my health;
- S5: I am satisfied with the fact that by purchasing organic products of animal origin I help to reduce animal cruelty.

As can be seen from the received answers, more than 45 % of them would give a higher price, while more than 50 % of them gave a strong agreement that it makes

them happy to know that they eat healthy, and 57.5 % are satisfied that they know that they encourage non-cruelty to animals by purchasing these products.

Figure 9. Comparison with classic products



Source: Own research.

In Figure 9 the following statements are discussed*:*

- S3: Organic products are fresher compared to classic ones;
- S4: The taste of organic products is like the taste of products grown in your own backyard.

It is noted that the answers to these questions are relatively similar, 54.4 % of respondents believe that organic products are fresher compared to classic ones and 55.5 % say they taste similar to those grown in their garden.

Table 2. Covariance and correlation S1-S5

	S1	S2	S3	S4	S5
S1	1.4730693	0.4004950	0.5987129	0.3632673	0.3012871
S2	0.4004950	0.8178218	0.3836634	0.2376238	0.2863366
S3	0.5987129	0.3836634	1.6524752	0.8321782	0.6575248
S4	0.3632673	0.2376238	0.8321782	1.3483168	0.4278218
S5	0.3012871	0.2863366	0.6575248	0.4278218	2.0324752

	S1	S2	S3	S4	S5
S1	1.0000000	0.3648852	0.3837422	0.2577619	0.1741231
S2	0.3648852	1.0000000	0.3300301	0.2262896	0.2220930
S3	0.3837422	0.3300301	1.0000000	0.5575103	0.3587831
S4	0.2577619	0.2262896	0.5575103	1.0000000	0.2584368
S5	0.1741231	0.2220930	0.3587831	0.2584368	1.0000000

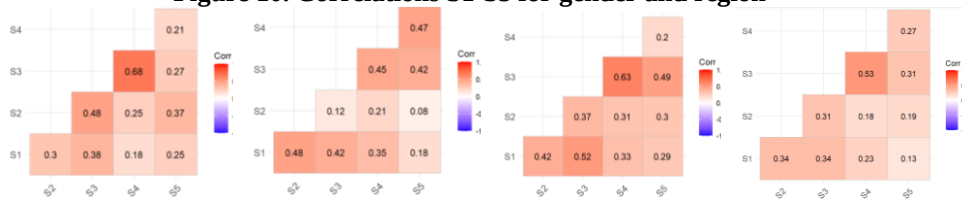
Source: Own research.

From the table on the left, it can be noted the covariance between the agreement with the previously presented statements (S1-S5). The highest values are represented between S3 -S4 and S3-S5. In the right part, the correlations between the variables are represented, it can be noted that they are all positive and that the strongest connection is between S3-S4, of medium intensity; that is, those who agreed with the fact that organic products are fresher than the classic ones, tend to also agree with the fact that their taste is similar to those produced in their own backyard.

Figure 10 shows the correlations between S1-S5 through the prism of gender (g1 - feminine, g2 - masculine) and the environment of origin (r1 rural, r2 - urban). Significant differences in the correlations can be noted depending on the changes made, in the sense that the link between statements S3-S4 defines a strong one (0.68 ~ 0.70) for the female gender and reaching the lower limit of a link of medium

intensity for the male. For the same statements, differences also appear depending on the region of the respondents, those from rural areas having a firmer belief that organic products are fresh and taste like those grown in their own backyard. Also, for the correlation of statements S2 and S3, different opinions are noted according to gender. If for men there does not seem to be a connection between the two statements, for women the opinions regarding the two statements have a connection of medium intensity, a sign that those who believe that organic products bring health benefits will be more inclined to state that the products organic are fresher than classic ones.

Figure 10. Correlations S1-S5 for gender and region



g1 g2 r1 r2

Source: Own research.

Figure 11. The most used words and their grouping according to negative or positive feelings (perspective)

Source: Own research.

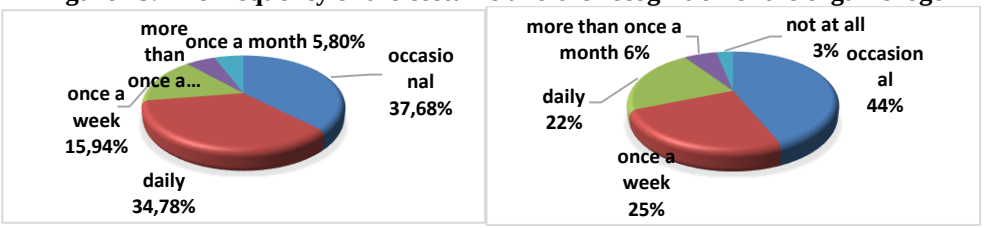
Figure 12. The intensity of feelings generated by organic products

Source: Own research.

Asked what their opinion is about organic products and their usefulness, the respondents answered that they are good, healthy, and taste better. In the image on the right of Figure 11, their price is an impediment, but their health benefits are recognised. These are again compared to other products that are not considered as safe.

Among the feelings identified in the answers given to the previous question, the presence of trust, anticipation, and joy stands out (Figure 12).

Figure 13. The frequency of the costume and the recognition of the organic logo



Source: Own research.

In Figure 13, the respondents are divided into two groups (those who recognised the logo of the organic products from Table 1 and those who did not), for which the frequency with which the respondents state that they consume these products is presented. Among the participants, 68.32 % correctly identified the logo associated with organic products, and of these, 34.78 % consume organic products daily, and 37.68 % occasionally. Of the 31.68% of the respondents who did not correctly identify the logo, 44 % stated that they occasionally consume organic products, 25 % once a week and 22 % daily.

Table 3. Logos and definitions

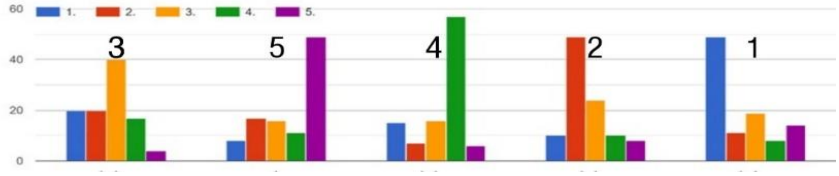
1.	The logo identifies food produced and controlled in accordance with the EU organic farming legislation. Therefore, this organic production and species-appropriate animal husbandry
2.	Represents wood and paper products that are independently certified in accordance with the strict guidelines of the Forest Stewardship Council®. This promotes responsible forest management worldwide.
3.	It is awarded to cocoa, coffee, tea, citrus fruits or bananas grown taking into account ecological, social, and economic requirements.
4.	It represents products that are either vegetarian or vegan. Vegan products do not contain animal ingredients or processing aids such as meat, fish, eggs, and dairy products.
5.	Marks foods that do not contain genetically modified components up to the limit of 0.1 % per ingredient.

Source: https://despre.kaufland.ro/responsabilitate/implicarea-face-diferenta/sigle.html.

For the last question in the questionnaire, respondents were asked to match the logos with the corresponding definitions shown in Table 3.

In Figure 14 it can be noted that the most recognised logo was the one with the number 4 because it is the most intuitive "V" from vegan or vegetarian. The logos for 1 (for organic products), 2 (Forest Stewardship Council), and 5 (Ohne GenTechnik-Siegel) seem to be recognised by an equal number of people, and the hardest logo to guess seems to be 3 (Rainforest Alliance Certified). For this question, only 24 (23.76 %) respondents correctly associated all the logos with their definitions.

Figure 14. Associations between logo and definition



Source: Own research.

5. Conclusions

The evolution of the perception and desire of consumers for bio products has increased exponentially in recent years. More and more people tend to buy these goods to satisfy their utility. The first hypothesis of this study consisted of the argument that Romanians are buying organic or bio goods to live a healthier life. Analysing the organic agricultural land, organic producers, and consumers from Romania, we can only conclude that Romanians are willing to pay a high price for a product that satisfies their desire as well as contribute to their health, as we thought.

The second aim of the study was to determine if the local producers might have a problem because of the high demand and desire of the consumers. After analysing the EU market, the main local producers and the consumers' desires, we have concluded that our producers need to expand their variety of products to decrease the exported products to satisfy the demand.

To sum up, organic or bio products are extremely desired by Romanian consumers as well as the others, but to satisfy their desires, Romania must invest more in the organic agriculture.

The paper has limitations stemming from the nature of the analysis, which relies on questionnaires. Furthermore, since the respondents were exclusively selected from Romania, the study's findings are specifically applicable to individuals residing within the country's borders.

Further research could involve a comparative study that examines the perceptions and preferences of consumers regarding bio products in Romania and similar European Union countries. This would help to better understand local buying behaviour and provide valuable insights for shaping consumer choices in this product category.

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