# THE INFLUENCE OF SOCIO-DEMOGRAPHIC CHARACTERISTICS ON AGRI-FOOD CONSUMPTION BEHAVIOR IN THE CONTEXT OF EUROPEAN POLICIES

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*Abstract*

*In the global context of sustainable development and facilitating the transition from production and consumption models to more sustainable ones in relation to environmental resources but also to the health of the population, consumer behavior on agri-food markets is represented in most policies and directions of action. The 2030 Agenda for Sustainable Development, the European Green Deal and the Farm to Fork Strategy, as well as the European directives on various characteristics of agricultural production, transposed at national level, are just some of the official reference documents for this research subject. The paper aims to identify optimal solutions for the effective promotion of sustainable agri-food product behavior. In this approach, one of the key specific objectives is outlined, which is to determine the influence that some socio-demographic characteristics exert within the purchasing process on reference markets, at the level of consumers in Romania. In order to identify the synergy between the independent and dependent variables, a series of marketing studies were conducted at the level of 4 product groups, namely nuts, whole grains, berries and green vegetables. In order to achieve the main goals of this work, specific methods were used, both from qualitative and quantitative research field. To determine the current context at the level of the studied markets, several publications were analyzed (previous studies related to the topic, official documents included in European legislative framework, statistical data published in official databases (Eurostat, FAO, NIS). Also, among the Romanian consumers, a questionnaire was applied, in order to determine their behavior on nuts, whole grains, berries and green vegetables markets. The research results interpretation highlights a trend of consumers towards a balanced lifestyle, and a relevant awareness degree regarding the benefits of introducing the mentioned categories into the daily diet. However, it is also observed the link between the socio-demographic characteristics of respondents (income level, professional status and gender) and the consumption behavior. Consumers perception, childhood habits, the awareness degree cultural factors should also be mention as important independent variables related to the research topic.*

*Key words*: *From Farm to Fork Strategy, consumer behavior, sustainable agri-food products*

## INTRODUCTION

Starting from FAO definition for the sustainable diets concept, it can be observed that all the three dimensions of the sustainable development (economic, ecological and social) [22]: "sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources" [13]. Although there is no universal definition for the sustainable diet, it can be observed the essence of this concept: ensuring the balance between the well-being of agricultural producers, the optimal health of the population and the preservation of the environment [16].

Raising consumers awareness related to the sustainable food choices, replacing conventional food products with healthier options and ensuring natural resources conservation [6] are one of the main objectives identified at the European level, within the strategies and policies in force related to the topic [10;11].

Promoting sustainable food consumption and facilitating the transition to healthy, sustainable diets represents the core element included into the Farm to Fork Strategy [10]. Regarding this direction, the population's food intake habbits are still described as "unsustainable", in terms of natural resource

conservation but as well from human health protection [17].

Current consumption habits identified at the level of European member states reflect a reduced consumption compared to the recommendations of nutrition specialists [14, 23] at specific categories such as *nuts, whole grains, fruits and vegetables* [8,12].

At national level, in Romania, there are various publications spotlighed on the consumers behaviour, focusing on the relation between the eating habbits and the food safety and security maintenance [5].

According to previous studies, there is a significant improve regarding the food products consumption patterns in Romania [9]. However, statistical values place the national context below the European average values, at several categories, such as fruits, vegetables, whole grains and nuts [15].

This study presents the main results obtained in the quantitative research conducted among Romanian consumers on the target markets: nuts, whole grains, berries and green vegetables. By completing the specific objectives, the goal is achieved, which is to substantiate proposals regarding strategic measures in order to facilitate the transition to sustainable food consumption, in relation with European directives.

## MATERIALS AND METHODS

In order to carry out this work, specific techniques were used, both from qualitative and quantitative research [7].

Among the *qualitative research methods*, we mention, without limiting ourselves to: content analysis of published specialized studies relevant to the studied topic, official documents that are components of the European legislative framework and not only, as well as the interpretation of statistical data published in official databases (Eurostat, FAO, NIS). The purpose of implementing these qualitative techniques was to determine the current context at the level of the studied markets.

The instrument used in the quantitative research was a questionnaire, applied to consumers in Romania, for each of the mentioned categories: nuts, whole grains, berries and green vegetables.

The marketing studies conducted among Romanian consumers had as general objective the determination of the level of awareness of Romanian consumers regarding the benefits brought by the consumption of products from the reference categories. Among the specific common objectives outlined at the research level, the determination of consumption trends on the reference market at the level of the investigated sample as well as the identification of independent variables that significantly influence the frequency of responses to the questions in the questionnaire are mentioned.

All three questionnaires applied were structured in a similar manner, however, including certain specific questions depending on the typology of the products studied. The average number of the questions included in the questionnaire was 24, divided in three section: questions related to the consumers perception regarding the research subject, questions regarding the consumption patterns regarding the fresh products preferences and questions regarding the processed products preferences.

The questionnaires were completed by consumers using the Google Forms platform and the sampling method used was random [15]. Research result were centralized, codified and interpreted using the statistic software program SPSS [24].

## RESULTS AND DISCUSSIONS

As a general approach, without a universally accepted definition in the specialized literature, *consumer behavior* can be defined "as a multidimensional concept, as the specific result of a system of dynamic relationships between the processes of perception, information, attitude, motivation and effective manifestation". During consumer behavior studying process, regardless of the products nature, establishing the determining factors that influence the way in which the individual acts has represented one of the key points of this field [2].

There are numerous studies in the specialized literature on consumer behavior in the agri-food market that test the influence that the individual's socio-demographic variables exert in the purchasing decision-making process [3]. Among the most common socio-demographic characteristic, respondent's age, gender, income and education level, social and marital status are often mention in marketing studies conducted at the consumer level [4; 20]. Other more recent studies place acceptance on consumer motivations, beliefs, perceptions and environmental awareness as a determining factor in purchasing agri-food products process [21].

During consumer's preferences investigations regarding the consumption of nuts, whole grains, forest fruits and green vegetables we included as independent variables respondents socio-demographic characteristics, such as *age, gender, income and education level, professional status, marital status*. In table one it can be observed the sample dimension and the structure by gender.

The sample size and the structure by gender and is presented in Table 1.

Also, regarding the level of income and education of the respondents who were included among this research, it is mentioned that most of them are graduates of higher education, with medium or high incomes. Thus, it is considered that the sample is representative for this study.

Through the main research objectives several expected outcomes can be mentioned, without resuming at this list:

(i)determining the current consumption habits on the reference market, both for fresh and processed products;

(ii)determining the reasons and barriers to consumption at the level of specific product categories;

(iii)identifying the degree of awareness of the benefits brought by the consumption of sustainable products with a low degree of processing;

(iv)identifying the consumers' perception on the reference subject;

(v)projecting consumer trends on the reference market,

(vi)identifying the basic criteria in the purchase decision.

Table 1.Sample size and structure by gender and age

| Target products | Sample size | Sample structure by gender (%)* | Sample structure by age (%)** |
|---|---|---|---|
| Nuts | 140 | F-65%; M-35% | 18-25 y.o. - 8.6% 26-34 y.o. - 14.3% 35-42 y.o. - 34.3% 43-52 y.o. - 25.7% 53 – 60 y.o.- 11.4% over 60 y.o - 5.7% |
| Whole grains | 126 | F-74%; M-26% | 18-25 y.o. - 38.1% 26-34 y.o. - 42.9 % 35-42 y.o. - 19% |
| Forest fruits and Green vegetables | 126 | F-80%; M-20% | 18-25 y.o. - 10% 26-34 y.o. - 40% 35-42 y.o. - 20% 43-52 y.o. - 20 % 53 – 60 y.o.- 10% |

*F-female, M-male; ** y.o. - years old
Source: sample structure based on the respondents answers.

**Consumers behaviour on nuts market – main findings**

The consumers participating at this research have a predominantly favorable perception regarding the consumption of nuts, consuming mainly *walnuts, pistachios, almonds and hazelnuts*. However, they are not familiar with the products obtained from the processing of nuts such as milk, vegetable butter or oil. They prefer to eat them fresh and the main reason they do it is because they like their taste. Although consumers are aware regarding the benefits given by nuts consumption related to reducing the risk of medical conditions, such as cardiovascular disease or diabetes, they don't consume them at the urging of medical specialists. Nuts are eaten throughout the year, but in larger quantities, during the fasting period or when they prepare homemade sweets, such as cakes or baklava. Thus, the influence of traditions, customs on the consumption of agri-food products can be observed, even in this case. The main criteria underlying the purchase process are: *quality/price ratio, taste and freshness of nuts*. *Price* is also a major factor in the purchase process, even if this is not explicitly mentioned by the respondents, however the preferences regarding the choice of the manufacturer on this market demonstrate the importance of prices (the

choice especially of the own brands of some hypermarkets) [18].

## Consumers behaviour on whole grains market – main findings

The Romanian consumer is informed about the concept of whole grains, the types of whole grains and the main differences between conventional and whole grains and correctly identifies the health benefits brought by their consumption. From the price point of view, respondents have not thought about this aspect on the whole grain market and those who have thought about it consider that the reference price is high. Related to conventional cereals conventional, it can be seen that bakery products are preferred by respondents, while the whole grain market, pasta and rice are mainly chosen by respondents. Bread is also consumed by respondents very frequently, regardless of its type or presentation. Most respondents choose whole grain products for breakfast or snacks and do not take into account when cooking whether the raw material is based on whole or refined grains. Most of the respondents choose whole grain products to diversify their diet when fasting or dieting. For a small percentage of respondents, the taste differences felt in the consumption of whole grains made them give them up. Paradoxically, although respondents do not use smart apps to shape their eating lifestyle, the Internet, including social media, is still the main source of information. This shows the undeniable usefulness of campaigns or short articles on the ways of using and the benefits of the mentioned profile applications, possibly on communication channels such as Facebook or Instagram, social networks more accessible to consumers, regardless the age or level of education. An important share declares that the source of information is represented by health experts, which is positively appreciated. Thus, against the background of the diversification of the typology of information found on the internet, viral marketing ("word of mouth") loses its effectiveness, a small percentage of the sample having family members or friends as a source of information [19].

## Consumers behaviour on forest fruits and green vegetables market – main findings

The majority of respondents have a very favorable perception regarding the consumption of fruits and vegetables, stating that they include these types of products in their daily diet. Apples, citrus fruits, pears and berries are consumed more frequently by respondents. Regarding the consumption of vegetables, the respondents' choices confirm the hierarchy resulting from the interpretation of the statistical data [15], resulting in a higher frequency of consumption for potatoes, onions and cabbage and lower for cauliflower, mushrooms, spinach and zucchini. On the vegetable market, the lowest frequency of responses is identified at the level of asparagus while on the fruit market at categories such as apricots, cherries, cherries and plums.

A high influence of product characteristics such as seasonality, shelf availability and price can be observed, in terms of consumers' choice of reference questions. Consumers' choices are based on preferences related to taste, texture, childhood habits and the presence of the mentioned products on the reference markets. Following the centralization of the respondents' answers, it can be said that they consume green vegetables more often than berries. At the level of berries, consumers' preferences regarding the consumption of raspberries, strawberries and blueberries are identified, and as regards the categories of green vegetables proposed, cabbage and lettuce were predominantly chosen. Product quality, the supply location, the local origin and the internal use of the fruits and vegetables studied are mainly the characteristics that positively influence the consumers' decision, while the high price level and availability, accessibility of the products in terms of the distribution strategy remain the main barriers in fruits and vegetables consumption. Supermarkets and hypermarkets remain the preferred locations for purchasing fruits and vegetables, followed by agro - food markets. The prices in the reference markets are mostly perceived by consumers as being too high. Most of consumers eats fresh berries,

regardless of their weight management efforts. Secondarily, they buy berries for making fruit preserves at home (jam, jelly). Most respondents perceive fresh berries as beneficial, based on quality/price considerations or to avoid food waste. The majority of respondents state that they include green vegetables in their daily diet more often during periods when they are on a diet or fasting, preferring seasonal, locally sourced green vegetables. They rarely use green vegetables for making cream soups or preserves at home, preferring other types of vegetables in such cases. In this instance, the choice of frozen green vegetables is not considered beneficial by the research sample, but rather inefficient, due to the loss of properties like taste and nutrient content after consumption. On the market for processed fruit and vegetable products, respondents more frequently purchase juices, jams, jellies, frozen fruits, and vegetable preserves, such as tomato paste or pickles. The quality/price ratio, as well as the brand reputation, are the main criteria applied by respondents when choosing industrial products made from vegetables and fruits. Regarding consumer preferences related to the range of juices available in specialized markets, apple juice and berry juice are predominantly identified within the sample.

In Figure 1 it is presented a brief summary of the preliminary analysis of the research outcomes related to the target markets.
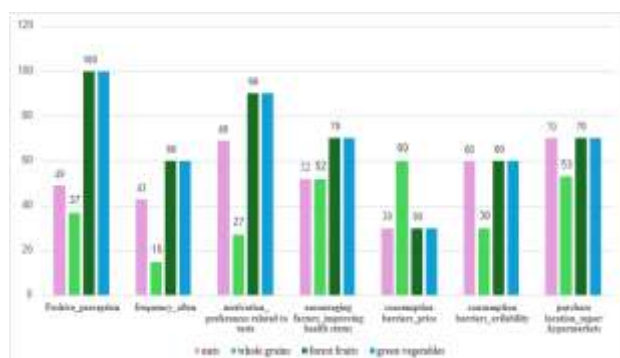


Fig. 1. Research preliminary results on the target markets related to consumers perception and consumption patterns (% sample share)
Source: author's processing based on the results obtained from running the univariate analysis in SPSS.

**Testing the correlations between the socio-demographic characteristics and the research outcomes on target markets**
Using the SPSS program, the values of the chi-square test were calculated to determine if there is a relationship between the dependent and independent variables (*for values < 0.005*), and the contingency coefficient was calculated in order to determine the strength of the relationship between the two variables [1].
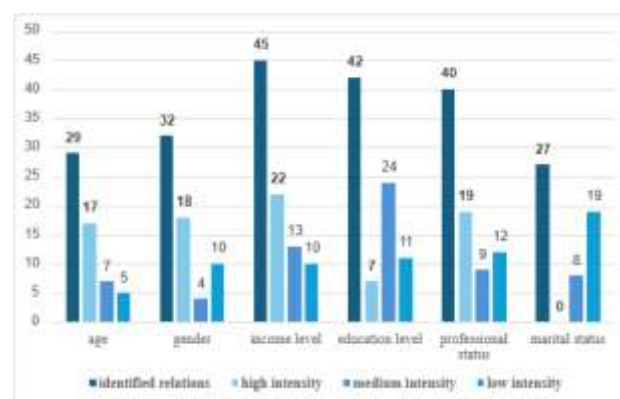


Fig. 2. Identified correlation between independent and dependent variables by intensity type (number)
Source: author's processing based on the results obtained from running the bivariate analysis in SPSS.

Thus, during the SPSS crosstabs analysis a total number of 73 correlations between the research variables were test. Following the simulation of the model a number of links were generated, corresponding to the situation when chi-square values is smaller than 0.005 (Figure 2). After calculating the contingency coefficient values, a higher intensity link is highlighted for income level, professional status and gender and a lower one for marital status.

Continuing the investigations regarding the influence of socio-demographic characteristics regarding the respondent's options related to the research questions, some particularities can be observed among the studied markets (Figure 3).

Thus, the respondents age and gender has a higher influence on nuts and whole grains market, while income level has a significant influence on whole grains consumption habits. In a smaller extension, professional status and education level influence the acquisition consumer decision on nuts and

whole grains market. Therefore, it is observed that women have a higher inclination to try new, healthier products, their motivation being represented both by the improvement of their health condition and correlated with body weight management. They also make up the part of the sample that consumes more types of berries, whole grains, or nuts, including processed ones. A higher level of education is usually associated with a greater degree of consumer awareness regarding the benefits of consuming sustainable products. The age of the respondents influences consumption trends in the studies conducted for the product categories analyzed, in the sense that a higher inclination towards purchasing healthier products is observed at both ends of the age spectrum, namely among younger respondents and those over 50 years old.
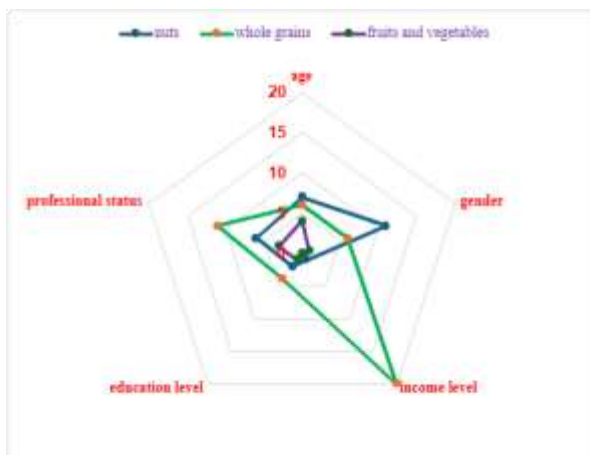


Fig. 3. The number of higher intensity links between research variables by products type
Source: author's processing based on the results obtained from running the bivariate analysis in SPSS.

People active in the labor market consume nuts more frequently as snacks during the day, considering them efficient given the time they allocate throughout the day. Upon interpreting the results, a greater variety of consumption is observed, especially for whole grain-based products, among individuals with higher incomes.

Among all the categories studied, it was observed in the research conducted that socio-demographic characteristics had a less significant influence on the berry market in terms of consumption behavior. The purchasing process in the reference market was mainly influenced by product characteristics such as seasonality or availability in the local market.

## CONCLUSIONS

This paper presents, in a concise form, the results obtained within the project 'Marketing Studies on Sustainable Products Markets in the Context of the From Farm to Fork Strategy,' with a focus on the synergy between the dependent variables (consumers responses) and the independent variables under investigation (socio-demographic characteristics). Using the methodology specific to marketing research, this study joins to other numerous publications in the specialized literature that highlight the influence of age, gender, education level, professional status, and income level of respondents on their consumption behavior, both in the agro-food product markets and beyond. However, the main results shows also that consumers perception, childhood habits and their awareness degree also influence in a significant extent their food products options. Also, cultural factors could be included in shaping the respondents' behaviour, related to their habits concerning the increase in consumption frequency of certain product categories during traditional holidays or fasting periods.

Thus, it is essential to continue public relations campaigns to raise consumer awareness about the health benefits and environmental resource conservation associated with incorporating healthy, minimally processed products. This is even more important given the evident positive effects of the strategic directions implemented at the European level in this regard. However, it is important for ensuring the campaign efficiency to promote a message aligned with the characteristics of the target audience, considering not only socio-demographic factors but also the motivations, aspirations, and attitudes toward the campaign's topic.

## ACKNOWLEDGEMENTS

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