Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development
Vol. 22, Issue 3, 2022
PRINT ISSN 2284-7995, E-ISSN 2285-3952

CHANGES IN THE BEHAVIOR OF VEGETABLE CONSUMERS IN BUCHAREST AND THE NEIGHBORING AREAS CAUSED BY THE COVID-19 CRISIS

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Abstract

Romania ranks third in the hierarchy of vegetable growing countries in Europe. This study focuses on the determinants of the decision to buy fresh and canned vegetables and on the satisfaction of buyers on these purchases. The quantitative survey was used as a method of collecting information, and the investigation technique was used as an investigation technique, structured in the form of an opinion poll. The opinion poll applied is a questionnaire-based survey that provided information on the situation of vegetable consumers and the change in consumption behavior caused by the COVID -19 health crisis. Most respondents prefer buying directly from the market, buying between 1-3 kg per purchase. If in previous years taste and provenance were the basic criteria in the purchase of vegetables, the economic crisis caused by the health crisis COVID-19, brought the price in the first place, due to the decrease of buyers' incomes or other financial problems. The need for consumption/family, however, did not suffer, the quantities purchased being comparable to those of previous years, buyers turning to vegetables with a low degree of perishability. The study provides results on consumers' criteria for selecting vegetables and their hierarchical changes during the COVID-19 health crisis.

Key words: *consumer behavior, vegetables, Covid -19, Romania*

INTRODUCTION

As is well known, the horticultural sector is of strategic importance to agriculture and consumers, generating direct and indirect employment in many regions of the European continent. Romania ranks third in the hierarchy of vegetable growing countries in Europe, producing 3.2% of the total amount of vegetables produced in the European Union, on an area that represents 9% of the total vegetable areas in the EU [6, 7, 8].

Panic buying is "the action of buying large quantities of a particular product or commodity due to sudden fears of a forthcoming shortage or price increase". For instance, when consumers start panic buying dry pasta, eventually, the whole supply chain with raw and auxiliary materials, involving eggs, flour, wheat, is affected [9].

The impacts of COVID-19 pandemic on food systems can be divided between direct impacts of the virus outbreak, and indirect impacts derived from containment measures (e.g. lockdown, mobility restrictions, shops closure) adopted at different levels, from local to global.

While all food systems across the globe have been affected by the pandemic, it is argued that vulnerability is different for different types of food systems. Long food supply chains have been particularly affected by COVID-19 crisis; however, it is important to avoid universalization of impacts and responses as agri-food systems are characterized by a huge diversity and heterogeneity [13].

The significant increase in the average energy density of solid foods consumed by participants was not reflected in changes in fruit and vegetable intake, expected to decrease, or snack food intake, expected to increase [12].

The pandemic led to various transformations in the food retail industry, including changes in consumers perception and behavior. Although the pandemic has a situational nature, such transformations could have both temporary and long-lasting effects on reforms of the grocery retail industry [17].

The aim of the study is to emphasize the determinants of the decision to buy fresh and canned vegetables, the degree of satisfaction of buyers in Bucharest and surrounding areas, highlighting their behavioral changes caused by the Covid-19 health crisis.

MATERIALS AND METHODS

The fact that food consumption is vital for human well-being makes this an important area to investigate in terms of the impact of COVID-19. This research was carried out to investigate the changes in consumers' food consumption behaviour and habits during the COVID-19 pandemic and determine the factors that explain these changes [4].

The first research method used in this study is ”the bibliographic analysis”. Its purpose is to extract official data that exists in the research sphere of the study. The data collection has been made by accessing the data base of The National Institute of Statistics, of Eurostat and WHO, of the Ministry of Agriculture and Rural Development, news published on the MARD site, Romanian Government publications. The second method used is the quantitative survey in order to collect information, structured as an opinion survey. The opinion survey is based on an enquiry that provided information about the situation of vegetable consumers and the change of the consumption behavior caused by the COVID-19 health crisis. As a method of gathering information we used the quantitative inquiry and as an investigation technique, the enquiry. A total of 932 responses were collected, out of which 46 were eliminated due to incomplete forms. As a sampling method we have used the quota sampling method that consist of respecting the sample representativity principle compared to the entire researched collectivity. The representativity is followed through independent criteria: gender, age and income. The justification of using the quota method resides in the hypothesis according to which if the sample is a fair sample then the researched population from the point of view of the criteria taken under consideration within the sampling, it will be representative also regarding other features like habitudes, behaviors and attitudes, etc. Thus, the research results can be extrapolated on the entire researched population. The entire population is Bucharest and its bordering areas population, that being the main outlet for canned vegetables from manufacturers in the region. At a total population of 2,155,240 people, with a level of trust of 95%, the size of the calculated sample has been of 858 people.

The study of the consumer preference for vegetables and canned vegetables is very important, aiming at increasing the efficiency of capitalization by increasing consumption, decreasing losses in the pathway, supplying the market without syncope [15, 16]. The necessary information for this study is grouped under:

– information regarding the surveyed people: number, gender, age, income level;

– information regarding the consumption behavior: „who is eating?”, „where does the eating take place?”, „when do they eat?”, „what do they eat?”, „how much do they eat?”;

– information regarding the people’s mentality (needs, motivations, desires, expectations).

In order to set the research objectives, assumptions have been made based on the results of previous researches as well as on a documentary study conducted previously, based on the analysis of the demand on longitudinal section.

The aims and assumptions of our research are:

- to identify the number of vegetables and canned vegetables consumers;
- to identify the average consumption rate of vegetables and canned vegetables;
- to identify the average consumption of vegetables and canned vegetables;
- to identify the place of purchase of vegetables and canned vegetables;
- to identify the consumer preference regarding the origin of vegetables and canned vegetables;

- to identify the source of provenance of vegetables and canned vegetables;
- to identify the average budget allocated for purchasing vegetables and canned vegetables;
- to rank the criteria of selection of vegetables and canned vegetables: taste, provenance and price.

The survey has 16 closed questions. After is has been developed the survey had been tested on 24 people, in order to collect feed-back regarding question comprehension and thus improve the research quality. The questions relate to information regarding the socio-demographic traits of the respondents, the so-called population identification questions from the sample, questions regarding the pattern of purchase, needs and preferences of consumers regarding the purchase of vegetables and canned vegetables, their choosing criteria, the assigned budget for these products, etc.

The variables used to study the vegetables and canned vegetables market are:

– variables dependent on: consumers preference for fresh vegetables and canned vegetables,
– independent variables: gender, age, income.

The survey was conducted using the google forms platform. The questionnaire was sent by e-mail or on whatsapp to younger people. People over the age of 65 answered the phone. The survey was conducted between July and August 2021. The duration of the survey, ie the time required for participants to complete the survey, was approximately 10 minutes, and the average length of the telephone interview ranged from 15 to 25 minutes.

The survey has been completed by 858 respondents sampled according to certain criteria, as shown in Table 1.

Table 1. Sample structure by gender

Variable	Sample	
	Frequency	Percent (%)
Men	206	24
Women	652	76
TOTAL	858	100

Source: Questionnaire data.

All the subjects of the survey are of Romanian nationality. Of all the respondent people more than a half are women, respectively 76%, the difference of 24% being men (Table 1).

Table 2. Sample structure by age groups

Variable	Sample	
	Frequency	Percent (%)
18 – 35 years	172	20
36 - 49 years	343	40
50 – 65 years	206	24
Over 65 years	137	16
TOTAL	858	100

Source: Questionnaire data.

Sorted by age groups the largest ratios belong to the people between 36-65 years, as they have together 64% of total respondent people which is natural given the fact that this age segment coincides with their active period (Table 2).

The sample has all the categories of professional status from student to retired. 76% of respondents are active people (employees) (Table 3).

Table 3. Sample structure according to professional status

Variable	Sample	
	Frequency	Percent (%)
Student	33	4
Entrepreneur	0	0
Employee	652	76
Unemployed	33	4
Retired	140	16
TOTAL	858	100

Source: Questionnaire data.

Table 4. Sample structure according to family income

Variable	Sample	
	Frequency	Percent (%)
Below 1,500 lei	0	0
1,501-3,000 lei	178	21
3,001-4,500 lei	143	17
Over 4,500 lei	537	62
TOTAL	858	100

Source: Questionnaire data.

Considering the high recovery prices of the vegetables they are purchased with a 79% percentage by people with a family income higher than 3,000 lei/month (Table 4), and the families generally consist of 3 members (Table 5).

Table 5. Sample structure according to family size

Variable	Sample	
	Frequency	Percent (%)
2 people	251	29
3 people	358	42
4 people	251	29
5 people	0	0
Over 5 people	0	0
TOTAL	858	100

Source: Questionnaire data.

RESULTS AND DISCUSSIONS

The agricultural production of a country is the main source of providing the national food security. The degree in which it's achieved from own production shows the degree of food self-sufficiency. Around the world there are gaps between countries regarding food self-sufficiency. In the European countries and USA, agriculture provides the demand for food to satisfy human needs. In the Emirates for example, the demand for food is insured at a 10% rate from intern resources and the rest comes from export.

According to WHO [18], the recommended vegetable consumption is of 400 grams per day per person, respectively 140 kg per year. According to data provided by NIS [10] and [11], the average annual vegetable consumption per inhabitant in our country has varied in the last 10 years, between 75.5 kg/inhabitant/year and 96.9 kg/inhabitant/year. Compared with this average, in Romania the average consumption has been of 142.5 grams per day per person, respectively 54 kg per year [14].

Results that in Romania the annual average consumption is 61.43% of WHO recommendations [18].

All the respondents (858) eat fresh and canned vegetables all year round, not only during the season, for health reasons, or because they appreciate their remarkable taste. As seen in Figure 1, 720 people (84%) purchase vegetables and canned vegetables from the supermarket/hypermarket assessing that in those locations there's a higher degree of product control, but 652 (76%) subjects keep on going also on the classic version – purchasing from the market.

Only 172 people (20%) eat vegetables and canned vegetables from their own garden. 103 people (12%) have refocused supplying straight from the manufacturer through orders or purchasing straight from the farm's door.

Those who constantly make supplies of vegetables and canned vegetables didn't form a habit of purchasing products from a certain manufacturer (96% respondents). Very few, only 4% (34 people) chose to supply from the same manufacturer, the majority being driven by momentary instinct and considering especially the price.

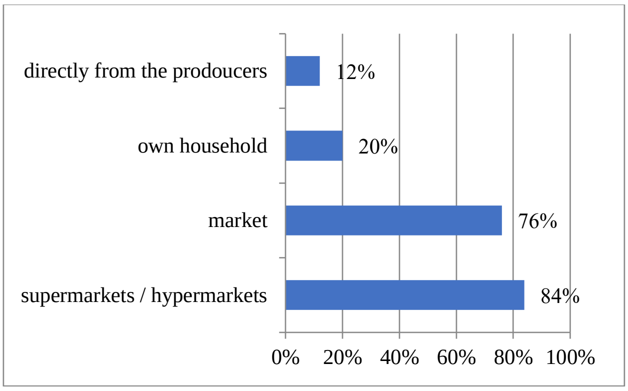

Fig. 1. Provenance of consumed vegetables and vegetable products
Source: Questionnaire data.

As seen in Figure 2, 500 people (58%) out of respondents make supplies of vegetables and canned vegetables usually weekly with larger quantities (over 5 kg/week), in order to meet the family's needs for the whole period.

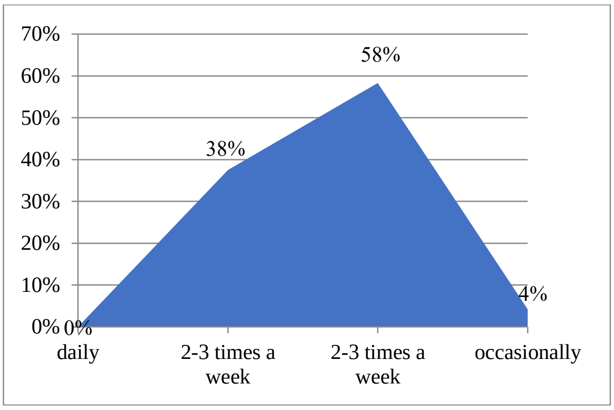

Fig. 2. Supplying frequency
Source: Questionnaire data.

In this category there are generally young people, employees that have extended working hours. 38% (322 people) make

Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development
Vol. 22, Issue 3, 2022
PRINT ISSN 2284-7995, E-ISSN 2285-3952

supplies of vegetables and canned vegetables 2-3 times a week (1-2 kg per purchase). In this category there are the ones who prefer to buy as much as they eat on one or two meals and elders who purchase what they need from shops that are close to home. Among the respondents there are 36 people (4%) that buy vegetables and canned vegetables occasionally.

Depending on the number of members from which the family is made of, on their eating habits and on income, the price that they pay for their weekly vegetable cart has varied between 9-56 lei, the majority of the respondents (583 people, meaning 68%) spending between 11-25 lei/week (Figure 3).

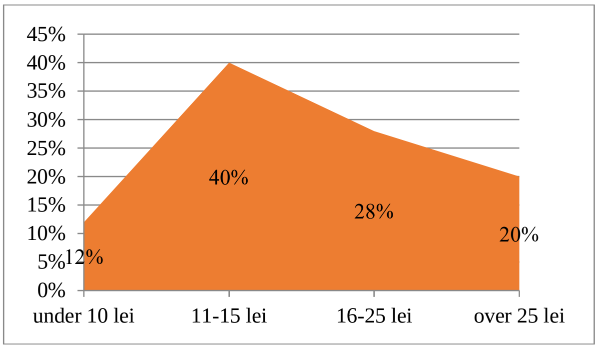

Fig. 3. The paid price for the weekly vegetable cart
Source: Questionnaire data.

The degree of satisfaction regarding the purchased vegetables and canned vegetables is over 84% (12% very satisfied, to which we add the 72% satisfied) (Figure 4), the consumers having their own criteria for selection: vintage, taste, price, origin (Figure 5).

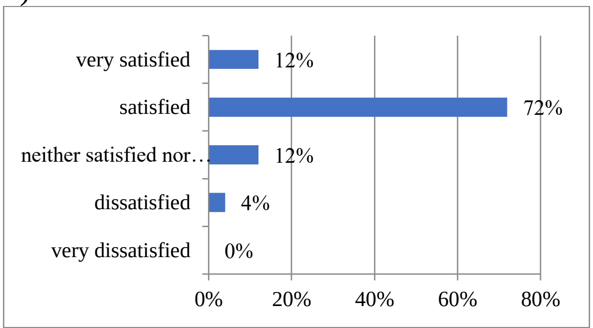

Fig. 4. The degree of satisfaction regarding vegetables and canned vegetables purchased usually
Source: Questionnaire data.

Until 2020, based on the previous surveys taken by vegetables and canned vegetables consumers, the main criteria had been the country of origin, the majority of the respondents back then preferring Romanian vegetables for their taste and appearance. The health crisis, through its imposed restrictions, had enhanced the deepening of the economic crisis, which led to the reduction of income to certain categories of people. Which is why in 2021, the main selection criteria is the price, as the buyers don't take into account the country of origin anymore. However, the vegetables taste remains important, even though it's no longer a priority (Figure 5).

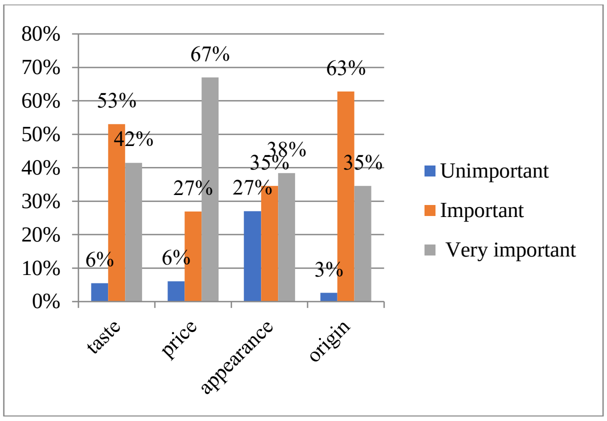

Fig. 5. The selection criteria of vegetables and canned vegetables
Source: Questionnaire data.

As seen in Figure 6, the consumers preferences go towards vegetables with a lower degree of outage: potatoes (52%), onion (50%), roots (including: carrots, celery, parsnip, parsley root – 46%), garlic (19%), cabbage (15%) and bean/lentil (15%). Even if they are expensive, tomatoes (38%), cucumbers (27%) and peppers (19%) are consumed for their remarkable taste.

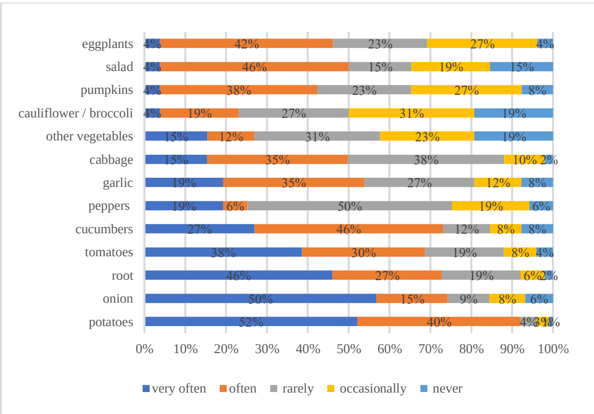

Fig. 6. The preferences of the vegetable consumers
Source: Questionnaire data.

The majority of the respondents, 652 people (76%), prefer to see the fresh vegetables displayed in display cases at the supermarket/hypermarket, so that they can choose themselves. The same goes for the 60% of those who make supplies from the market. 20% (172 people) of the respondents went during this period on specialized platforms, e-mail or websites to see and order vegetables to be brought to their homes (Figure 7).

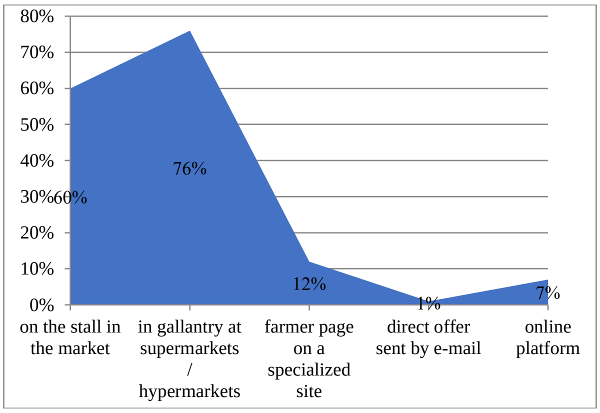

Fig. 7. Consumers preferences regarding the way of displaying fresh vegetables
Source: Questionnaire data.

No matter how they see the vegetables, consumers prefer to choose them themselves, either directly from the market, the supermarket or the hypermarket, either ordering directly from producers/traders, without being compelled by a predetermined cart. 583 (68%) of the respondents rejected the idea of a subscription regarding vegetable supplying (Figure 8).

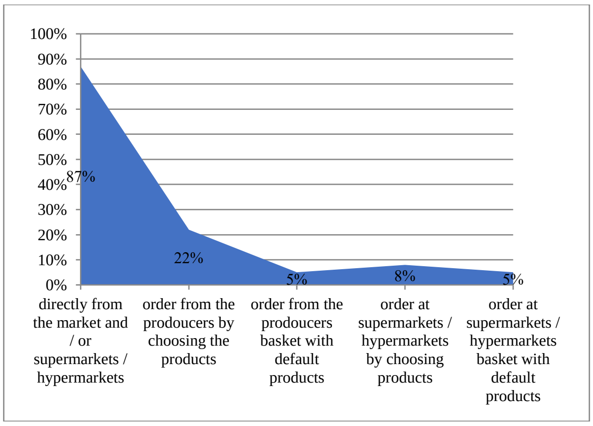

Fig. 8. Consumers preferences regarding the purchasing method of fresh vegetables
Source: Questionnaire data.

Regarding the payment method, 500 people, meaning 58% of respondents, pay for vegetables with cash, while 358 people, meaning 42% of respondents, pay for vegetables using credit card or bank transfer (supermarket/hypermarket or orders on-line).

At the question:"How has your fresh vegetables purchasing behavior been affected by the COVID-19 health crisis?" 500 of respondents said that they purchase the vegetables the same as before the crisis, meaning straight from the market/stores, 330 order from supermarkets/hypermarkets while 28 people order straight from producers. 71% (607 people) expressed their opinion that after the health crisis ends they don't know or they will not continue to order on-line (Figure 9).

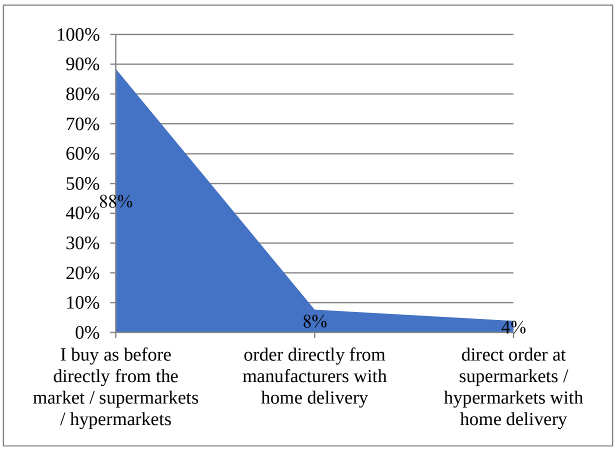

Fig. 9. How has your vegetables purchasing behavior been affected?
Source: Questionnaire data.

Hodbod A. and co-workers found in their 2021 study that the majority of consumers in France, Germany, the Netherlands, Italy, and Spain, where it took place the study, reported that most households consuming "less than before" or "not at all.", ranging from 38 to 66% - depending on the sector. Secondly, households reduce their consumption correlated with severity COVID-19 health crisis and individually, depending on personal experience with COVID-19 [5].

CONCLUSIONS

From the previous studies made by ICEADR [1], it resulted that most Romanian consumers have a conservative behavior, preferring to buy vegetables from the vegetable market and/or hypermerket/supermarket, because this way of direct purchase gives them the opportunity to choose products and give them health safety comfort. As a method of payment, they preferred to use cash. The imposition of a state of emergency has brought about changes in behavior for both producers and consumers. The traffic restrictions imposed in the State of Emergency have determined consumers to resort to modern methods of supply: direct orders to farmers/traders, orders on specialized platforms, telephone orders. These new ways of marketing have imposed new methods of payment, namely the use of the bank card. Uncertainty about the future is also found in the opinions of consumers regarding the continued use of modern ordering and payment methods. In the short term, it were the best solution. It is interesting to see what will happen in the future, whether or not the newly acquired purchasing and payment habits will be maintained. If in previous years taste and origin were the main criteria for purchasing vegetables, the health crisis Covid-19, brought the price to the top. The justification would be the decrease of the buyer's income and various financial problems. The prices on the Bucharest markets are high and very high for imported vegetables as well as for those of Romanian origin, the local ones sometimes exceeding 2-3 times the imported ones. On the Romanian market, there is a sharp concentration of sales of vegetables and canned vegetables through supermarkets and hypermarkets to the detriment of small and medium producers. This is how the Romanian producer arrives quite difficult with the production in the big shopping centers, due to the fact that he produces in a seasonal regime, and the obtained production is very small and does not correspond to the quality requirements imposed by the big operators. This fact explains, to a large extent, the large quantity of imported vegetables and canned vegetables that exist on the Romanian market. In order to increase the current consumption of vegetables and canned vegetables in Romania (54 kg/person/year) and bring it closer to the WHO recommendations (140 kg/person/ year), the state must support producers with appropriate levers to cover their expenses and to encourage them to produce more, but at affordable prices for buyers. Food autonomy is a political goal of all states, but on different levels of importance, depending on the degree of development of the country, depending on its financial resources. In developed countries, this goal is of minor importance because it covers the need for food from our own production. In developing countries, such as Romania, increasing agricultural production and ensuring food autonomy is a key objective.

ACKNOWLEDGEMENTS

Thank you for supporting all the people who answered the questions in the questionnaire. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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