

Consumer attitudes about purchasing and consuming vegetables in the Republic of Srpska

Aleksandar Ostojić, Luka Vračar, Nemanja Jalić¹

¹University of Banja Luka, Faculty of Agriculture, Banja Luka, Republic of Srpska,
Bosnia and Herzegovina

Abstract

The main goal of the research was to investigate the consumer attitudes when buying and consuming vegetables. Primary data collection was carried out in the second half of 2022. A survey of 100 people was conducted with a structured questionnaire that included socio-demographic questions and questions that were directly related to attitudes towards buying and consuming vegetables. To calculate and determine the associations between certain characteristics of the sample, the *Chi-Square* (χ^2) test was also applied. The results showed that vegetables are most often bought in supermarkets (49%) and green markets (25%). According to the results, 70% of consumers spend less than 100 BAM per month on buying vegetables and 30% more than 100 BAM. The most important factors when buying vegetables are freshness, quality, smell and taste, and the origin of a product. The size and appearance of vegetables and the vicinity of the selling place are less important factors. Consumers with a lower income spend less on vegetables on a monthly basis. The monthly expenditure on vegetables and the frequency of purchase are interconnected. Respondents whose households spend less on vegetables buy them more often in mini and supermarkets, while those who spend more buy them more often at the green market. Male respondents think that their households spend less on vegetables compared to the opinion of female respondents.

Key words: consumer attitudes, vegetables, purchase factors, money allocation

Introduction

The growing consumer interest in sustainable food systems regarding production and consumption increases the potential impact of sustainability considerations on consumers' purchase decisions and emphasizes the role of sustainability as a product attribute in consumers' evaluation of products (Dhaoui et al., 2020). The main goal of the research was to determine the main attitudes of consumers when buying and consuming vegetables. Vegetables are a group of agricultural plants that have multiple importance in nutrition, prevention, and treatment of many diseases of modern humans (Todorović et al., 2020). In the saturated market environment, distribution channels, marketing activities, diversification strategies, and food quality are increasingly important (Vukasovič, 2015). In addition, consumers have become more concerned about the nutrition, health, and quality of food they eat (Gil et al., 2000). A change in dietary preferences, socio-demographic factors, increased awareness about the health benefits of fruit and vegetables, and the food industry's marketing policies have been driving the fruit and vegetables market in Europe. However, it has also been reported that the growth of fresh fruit and vegetables sales by supermarkets tends to lag behind the growth of sales of processed food products. Most households continue to buy fruit and vegetables from traditional retailers even though they may shop at supermarkets for other products (Chen et al., 2005). While quantities of fruit and vegetables sold by supermarkets can be accurately calculated, in most countries it is almost impossible to calculate the quantities of fruit and vegetables being sold through traditional marketing channels (Clay et al., 2005). In developing economies with growing per capita income, there have been changes in the consumers' preferences for food attributes such as safety, freshness, appearance, and texture (Hadi et al., 2010).

A change in dietary preferences, demographic factors, increased awareness about the health benefits of fruit and vegetables, the food industry's marketing policies, and trade liberalization over the past two decades have been driving the fruit and vegetables market in India (Sharma & Jain, 2011). Consumer attitudes when choosing, buying, and consuming vegetables are very heterogeneous. Consumers are looking for different types and varieties of vegetables in different periods of the year, which means that the producers and distributors cannot easily satisfy them. According to Ubiparip Samek et al. (2021), consumers consider vegetables tasty, easy to use, and healthy for consumption. Herath (2019) explored the major factors influencing the purchase of vegetables: selection of outlets, constraints faced, attitudes towards organic and environmentally friendly

vegetables, post-purchase losses, and cultivation of vegetables in the home garden. Buyers' motivations are quite complex and vary according to gender, age, culture, ethnicity, regional affiliation, etc. Kapoor and Kumar's (2015) study showed that consumers pay more attention to credence attributes than to search and experience attributes while making their purchase decisions. Family income and consumers' education have a significant influence on the consumers' willingness to pay for graded and packaged products. Factors affecting the consumers' behaviour are both endogenous and exogenous. Endogenous or internal factors include needs and motives, learning, self-concept, personalities, and attitudes whereas culture, reference group, family, and socio-economic situation are considered to be exogenous or external factors (Anuradha, 2015). The consumers' preferences for different market attributes indicate that the preferred attributes for vegetables are market convenience and availability of quality products with choices (Kapoor & Kumar, 2015). Consumers buy different types of vegetables at different time intervals. About 50% of consumers bought less-perishable vegetables (e.g., potatoes) on a weekly basis and more-perishable vegetables (e.g., cabbage) twice a week, with perishable vegetables being bought in greater quantities during a given period (Mahaliyanaarachchi, 2007). People from the same social group tend to have similar behaviour and living styles, thus they buy similar products from the same types of outlets.

The purchase of groceries, fruit, and vegetables is distance-sensitive and most of the respondents prefer the availability of these products within a radius of one km (Ali et al., 2010). Unless a consumer lives close to a supermarket, green markets are more convenient for consumers used to walking to make daily purchases of fruit and vegetables (Clay et al., 2005).

Material and Methods

The survey was conducted online using Google questionnaires that probed respondents' attitudes. The sample included 100 respondents randomly selected from the Republic of Srpska who regularly consume and buy vegetables. There were no specific consumers targeted for surveying. Vukasović (2015) created a survey questionnaire for the study which had questions representing three different components of the study, namely, the socioeconomic profile of consumers, their buying behaviour of fruit and vegetables, and the various products and market attributes. This research is very similar, where the first part of the questionnaire refers to basic socio-demographic questions, while the second part of the questionnaire includes questions related to the place of purchase, frequency, satisfaction with available products as well as factors that influence the purchase of vegetables. The conducted Google Forms survey contained many questions, and only the key ones for this research were selected

for processing. The questions and answers were mostly asked in the form of a Likert scale, which is often used in consumer attitude surveys. The research and analysis are primarily based on collected data. The data is presented in the form of tables and graphs. Basic statistical indicators of measures of central tendency (mean, median, mode, range, frequency) were performed in Microsoft Office Excel and used to describe and display the age and number of members in the household. The participation of categories within gender, income, and place of residence was calculated and their relative relationship presented.

In addition to the basic descriptive statistical indicators, and in order to calculate and determine the relationship between certain characteristics of the sample, the *Chi-Square* (χ^2) test was also applied. This non-parametric test was carried out in the IBM SPSS Statistics 22 program. For statistical reliability, a significance level of 0.05 was selected and in the results and discussion section, only significant relationships were shown. In addition, for statistically significant relations, those that are less significant than 0.05 according to the Fisher exact test were used for a matrix of 2x2 (this case is marked in the table) (Zar, 1987). During the application of these methods and tests, it turned out that there was too much dispersion of the answers, and for that reason, the variables were recoded into new different variables, that is, the respondents' answers were aggregated. In this way, the dispersion was reduced and made it possible to fulfill the conditions of the Chi-Square test in which at least 80% of the cells could have the expected values of 5 or more cases.

Results and Discussion

Socio-demographic characteristics of the sample

After collecting the survey answers, the processing of socio-demographic questions was initially started in Microsoft Excel, and the results obtained are shown in Table 1. The variables used to stratify the population by social class or group normally included age, income, occupation, education, behaviour, and family size. Therefore, it is useful to examine these consumer characteristics (Anuradha, 2015).

The gender, age, number of household members, monthly household income, and the place of living were selected as relevant for this research. The survey included a smaller number of males, 27%, compared to females, 73%, which are typically buying vegetables. Brajesh and Mohit (2010) reached similar results in their analysis, namely that 72% of consumers who purchase fruit and vegetables were females. The choice of vegetables, household size, income, and

the location of purchase are a few factors that can influence this variation in weekly expenditure on vegetables among the respondents (Herath, 2019).

Tab. 1. Descriptive characteristics of the research sample

Variables	Value
Sex	
Female	73%
Male	27%
Age	
Mean	34.20
Median	35
Mode	21
Range	20-73
Household members	
Mean	3,56
Median	3
Mode	3
Range	1-8
Household monthly income (BAM)	
up to 600	6%
600 to 1200	18%
1200 to 1800	32%
1800 to 2400	21%
2400 to 3000	14%
more than 3000	9%
Monthly expenditure for vegetables (BAM)	
Up to 100	70%
More than 100	30%
Place of living	
Village	22%
City	64%
Suburb	14%

Source: Authors' calculation

The average age of the respondents was 34.2 years, the median was 35 years and the mode was 21 years, with a very large range, 53 years. The average number of household members was 3.56. According to monthly income, most households had an income of 1,200 to 1,800 BAM (32%), followed by an income of 1,800 to 2,400 BAM (21%). Monthly allocation for vegetables was summarized in two ranges, although the questionnaire offered more options for potential responses. The reason for this is the applied chi-square test

methodology, the condition of which is that at least 80% of the cells within the crosstab have at least 5 cases. This process allows a better application of the chi-square test. In 70% of the sample up to 100 BAM per month were spent on vegetables and more than 100 BAM in 30%. Cities take the biggest share according to the consumers' place of living (64%).

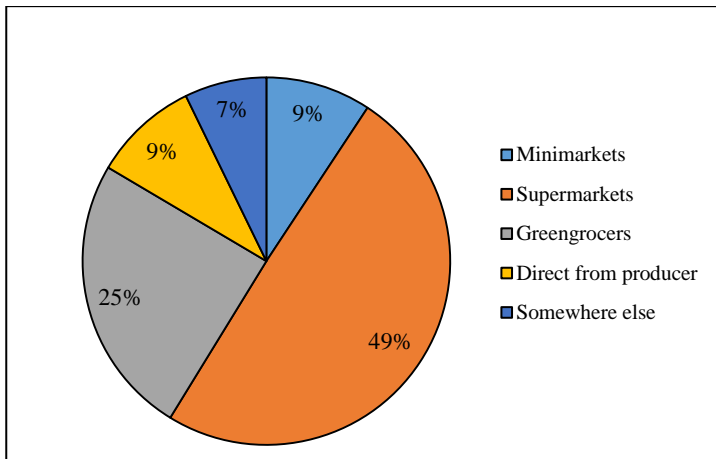


Figure 1. Places of purchase

According to research of Herath (2019), greengrocers (green market) were visited by 76% of consumers which was the common location, 31% of respondents selected supermarkets, 44% used small retail shops and 32% purchased vegetables at fairs. In comparison to the above results on the frequency of purchases at different sale places, based on the conducted research and the results on the graph above, the dominance of supermarkets is obvious, with a share of 49% in total purchases. Greengrocers have the second largest share, as a quarter of consumers buys vegetables most often in that way. Minimarkets and purchases directly from the producer have a share of 9% each. Other ways of purchase have a share of 7%. When applying statistical methods (Chi-square test), it was necessary to "condensate" the answers. This was done by unifying vegetable purchases in two groups, shops and in green markets, and 59% of respondents are in the first category and 41% in the second. Herath (2019) showed that most respondents visited more than one location to purchase vegetables. Kristić et al. (2022) determined that the most important thing for customers is the information about vegetable price, appearance (size, shape, colour), and the origin of products.

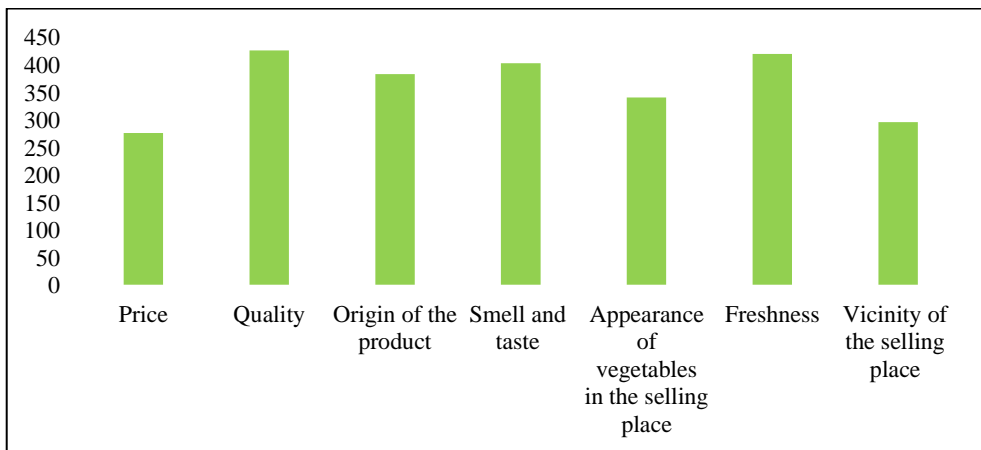


Fig 2. The most important factors when buying and consuming vegetables

Consumer attitudes do not follow a uniform pattern (Anuradha, 2015). In order to analyze the most important factors when buying and consuming vegetables, the respondents followed the purchase factors shown in Figure 2. Based on the dispersion of responses for each single factor, the importance of the selected factors was determined. The most important factors (with the highest sum of answers value) when buying vegetables are freshness, quality, smell, taste, and the origin of the product. The appearance of vegetables in selling places and the vicinity of the selling place are less important factors. Similar results were found by Jiménez-Guerrero et al. (2012), where freshness was the most important intrinsic factor for purchasing vegetables.

The influence of socio-demographic variables on the purchase of fruit

In order to see the impact of certain characteristics of the analyzed sample on the purchase and consumption of and expenditure on vegetables, a Chi-square test was conducted. This non-parametric test determined the relationship between the characteristics (responses) of the analyzed sample. Also, after determining a positive relationship between the characteristics, the Chi-square test of independence was applied to investigate what kind of confirmed relationship it was. Based on the implemented methods, the following results were obtained, that is, the connection between the following categories of the sample was read.

Table 2. Chi-square and cross tabulation of Household (HH) income (BAM) and HH allocation for vegetables (BAM)

		HH allocation for vegetables (BAM)	
		Up to 100	More than 100
HH income (BAM)	0-1,200	91.3%	8.7%
	1,200-2,400	70.6%	29.4%
	2,400 and more	47.8%	52.2%
Chi-Square (χ^2) value 30.384		P value 0.006 (Sig.)	

Source: Authors' calculation.

The values shown in the table above confirm the significance of the relationship between HH income and HH expenditure for vegetables. The Chi-Square (χ^2) value amounts to 30.384 and the established relationship is highly significant, P value of 0.006 (Sig.). Based on the test of independence (Cross tabulation), the respondents with a lower income spend less on vegetables on a monthly basis. The respondents whose household has up to 1,200 BAM per month allocate less than 100 BAM for vegetables in 91.3% of cases. Those who have medium-high incomes, 1,200-2,400 BAM in 70.6% of cases allocate up to 100 BAM per month for vegetables, while 29.4% of them allocate more than 100 BAM per month. The consumers that have the highest income in 47.8% of cases spent up to 100 BAM per month on vegetables, and 52.2% more than 100 BAM. Similar results were obtained in the research by Ugur et al. (2014) who concluded that the increase in purchasing power is positively associated with the increase in the monthly budget for vegetables and the variety of places vegetables are bought.

Table 3. Chi-square and cross tabulation of HH allocation for vegetables (BAM) and the purchase place of vegetables

		Purchase place of vegetables	
		Mini and Supermarkets	Greengrocery, Direct purchase
HH allocation for vegetables (BAM)	Up to 100	66.2%	33.8%
	More than 100	41.4%	58.6%
Chi-Square (χ^2) value 5.159		P value 0.023 (Sig.)	

Source: Authors' calculation.

The values in Table 3 show the existence of a relationship between the variables, namely HH expenditure for vegetables (BAM) and the place of

purchase of vegetables. The chi-square (χ^2) value amounts to 5.159 and the significance of the relationship has a P value of 0.023 (Sig.). The test of independence (Cross tabulation) shows that respondents whose households spend less on vegetables monthly buy more often in minimarkets and supermarkets, while those households spending more buy them more often at greengrocery and directly from agricultural producers or have some other channel of purchase. The table shows that 66.2% of household respondents with smaller budgets for vegetables buy them in markets, while 33.8% at green markets. The respondents with larger expenditure on vegetables buy them in mini and supermarkets in 41.4% of cases, whereas 58.6% at greengroceries and purchasing directly from producers.

Table 4. Chi-square and cross tabulation of HH allocation for vegetables (BAM) and the purchase place of vegetables

		Purchase frequency	
		A few times a week	Weekly and rarely
HH allocation for vegetables (BAM)	Up to 100	16.4%	83.6%
	More than 100	79.3%	20.7%
<i>Chi-Square (χ^2) value 35.000</i>		<i>P value 0.000 (Sig.)</i>	

Source: Authors' calculation

The chi-square (χ^2) value amounts to 35.000 and the significance of the relationship has a P value of 0.000 (Sig.). As in the previous cases, the significance of the relationship between the analyzed characteristics was proven, so the allocations for vegetables on a monthly level and the frequency of purchase are interconnected. How they are connected is determined on the basis of cross tabulation. The respondents with vegetable expenditure of up to 100 BAM mostly shop weekly or rarely (83.6%), while only 16.4% buy vegetables a few times a week. The respondents with higher monthly expenditure on vegetables buy them several times a week in 79.3%, whereas 20.7% of the sample weekly and rarely.

The last examined statistical dependence between the variables was the relationship between sex and HH monthly expenditure on vegetables. The males have confirmed that their households spend less on vegetables per month compared to the opinion of the females expressed through the answers in the survey questionnaire. Based on Table 5, the results show that 84.6% of the males believe that their households spend up to 100 BAM monthly and 15.4% more than 100 BAM. The females consider that they spend a little more on vegetables,

i.e. 64.8% consider that they spend up to 100 BAM per month and 35.2% that they spend over 100 BAM per month.

Table 5. Chi-square and cross tabulation of sex and HH monthly expenditure on vegetables

		HH allocation for vegetables	
		Up to 100	More than 100
Sex	Male	84.6%	15.4%
	Female	64.8%	35.2%
<i>Chi-Square (χ^2) value 3.569</i>		<i>P value 0.047 (Sig.-Fisher exact test)</i>	

Source: Authors calculation

Conclusion

Based on the conducted research, the following conclusions can be made:

- The male respondents were dominant in the sample (73%) and the place of living is the city (64%).
- 70% of consumers spend up to 100 BAM per month on vegetables and 30% more than 100 BAM.
- The majority, 59% of consumers, purchase vegetables in markets (supermarkets and minimarkets) and 41% in green markets.
- The respondents with a lower income spend less on vegetables on a monthly basis.
- The respondents who spend more on vegetables buy them more often at the green market, while those who spend less purchase in supermarkets more often.
- The most important factors when buying vegetables are freshness, quality, smell, taste, and the origin of a product. The size and appearance of vegetables in selling places and the vicinity of the selling place are less important factors.
- The respondents with a lower income spend less on vegetables on a monthly basis.
- The females believe that more money is spent on vegetables compared to the males because they are more familiar with the actual purchase.
- The respondents with higher monthly expenditure on vegetables buy these products several times a week in 79.3% of the sample and in 20.7% of the sample weekly and rarely.

References

- Ali, J., Kapoor, S., & Moorthy, J. (2010). Buying behavior of consumers for food products in an emerging economy. *British Food Journal*, 112(2), 109–124. <https://doi.org/10.1108/00070701011018806>
- Anuradha A. (2015). Analysis on the behavioral Pattern of Organized and Unorganized Vegetable Retail Shoppers. *Bonfring International Journal of Industrial Engineering and Management Science*, 5(2), 90-94. <https://doi.org/10.9756/BIJEMS.8088>
- Brajesh, B. Mohit, J.K.J. (2010). Buying behavior in fruit and vegetable category. *Seminar paper, Somalya Institute of Management Studies and Research*, <https://www.studymode.com/essays/Consumer-Behaviour-In-Fruit-And-Vegetable-624775.html>
- Chen, K., Shepherd, A.W. Silva, C. D. (2005). Changes in food retailing in Asia: implications of supermarket procurement practices for farmers and traditional marketing systems. *Agricultural Management, Marketing and Finance occasional*, (8), Food and Agriculture Organisation of the United Nations, Rome. <https://www.fao.org/sustainable-food-value-chains/library/details/ar/c/266463/>
- Clay, W., Galvez-Nogales, E. Wall, G. (2005). Meeting consumers' needs and preferences for fruit and vegetables. *Agricultural and Food Engineering Working Document*. Food and Agriculture Organisation of the United Nations, Rome. <https://www.fao.org/3/j6856e/j6856e.pdf>
- Dhaoui, O., Nikolaou, K., Mattas, K., Baourakis, G. (2020) Consumers' attitude towards alternative distribution channels of fresh fruits and vegetables in Crete, *British Food Journal*, 122 (9), 2823-2840. <https://doi.org/10.1108/BFJ-05-2019-0342>
- Gil, J.M., Gracia, A. Sanchez, M. (2000). Market segmentation and willingness to pay for organic products in Spain. *The International Food and Agribusiness Management Review*, 3(2), 207-26. [https://doi.org/10.1016/S1096-7508\(01\)00040-4](https://doi.org/10.1016/S1096-7508(01)00040-4)
- Hadi, A. H. I. A., Selamat, J., Shamsudin M.N., Radam, A. (2010). Demand for Food Safety Attributes for Vegetables in Malaysia. *Environment Asia*, 3 (special issue), 160-167. <https://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/7037/demand%20for%20food%20safety%20attributes.pdf?sequence=1&isAllowed=y>
- Herath, U. (2019). Consumer Behavior and Attitudes in Purchasing Vegetables, *Agri Res & Tech: Open Access J*, 20(2), 1-6. <http://dx.doi.org/10.19080/ARTOAJ.2019.20.556123>
- Jimenez-Guerrero, J.F., Gazquez-Abad, J.C., Huertas-Garcia, R., Mondejar-Jimenez, J.A. (2012). Estimating consumer preferences for extrinsic and

- intrinsic attributes of vegetables. A study of German consumers. *Spanish Journal of Agricultural Research*, 10(3), 539-551. <https://doi.org/10.5424/sjar/2012103-342-11>
- Kapoor, S., Kumar, N. (2015). Fruit and Vegetable Consumers' Behavior: Implications for Organized Retailers in Emerging Markets. *Journal of International Food & Agribusiness Marketing*, 27(3), 203-227. <https://doi.org/10.1080/08974438.2014.940118>
- Kristić, J., Brus, M., Lončarić, R., Jelić-Milković, S. (2022). The role and importance of promotional activities when buying vegetables. *Agroeconomia Croatica*, 12(2), 44-51. <https://haed.hr/wp-content/uploads/2023/01/AEC-2022-02-05.pdf>
- Mahaliyanaarachchi, R. P. (2007). The impact of the behavioural patterns of vegetable consumers on marketing activities. *The Journal of Agricultural Sciences*, 3(1), 63–74. <http://repo.lib.sab.ac.lk:8080/xmlui/handle/susl/2580>
- Sharma, V.J.V., Jain, D. (2011). *High-Value Agriculture in India: Past Trends and Future Prospects*. Indian institute of management, Ahmedabad, 7(2), 1-51. <https://web.iima.ac.in/assets/upload/faculty/678631189High%20Value%20Agri.%20Working%20Paper.pdf>
- Todorović. V., Lazić, B., Đekić, N. (2020). *Status and perspectives of vegetable development in the Republic of Srpska*. In: Pržulj N, Trkulja V (editors), From genetics and the environment to food. Academy of Sciences and Arts of the Republic of Srpska, Banja Luka, Monograph XLI, 489-544.
- Ubiparip Samek, D., Bajić, A., Pezo, L., Kovač, R., Mastilović, J., Zoranović, T., Vlahović, B. (2021). Exploring consumer preferences and factors associated with vegetable consumption. *Food and Feed Research*, 48(1), 57-68. <https://doi.org/10.5937/ffr0-32587>
- Ugur, A., Gok, Y., Gok Ugur, H. (2014). Impact of socio-cultural and economic factors on vegetable consumption behaviors: case of Giresun Province, Turkey. *Food Sci. Technol, Campinas*, 34(4), 688-693. <https://doi.org/10.1590/1678-457X.6401>
- Vukasović, T. (2015). Attitudes towards organic fruits and vegetables. *Agricultural economics review*, 16(1), 20-34. <https://doi.org/10.3390/su13169440>
- Zar, J.H. (1987). A fast and efficient algorithm for fisher exact test. *Behavior Research Methods, Instruments and Computers*, 19(4), 413-414.

Ставови потрошача у Републици Српској приликом куповине и конзумације поврћа

Александар Остојић, Лука Врачар, Немања Јалић¹

¹ *Универзитет у Бањој Луци, Пољопривредни факултет, Бања Лука, Република Српска, Босна и Херцеговина*

Сажетак

Главни циљ овог истраживања било је да се истраже ставови потрошача приликом куповине и конзумације поврћа. Примарно прикупљање података обављено је у другој половини 2022. године. Спроведено је истраживање на 100 људи са структурираним упитником који је укључивао социо-демографска питања и питања која су се директно односила на ставове о куповини и конзумирању поврћа. Да би се израчунале и утврдиле везе између појединих карактеристика узорка, примијењен је и Хи-квадрат (*Chi-square*) тест. Резултати су показали да се поврће најчешће купује у супермаркетима (49%) и на пијацама (25%). Према резултатима, 70% потрошача троши мање од 100 КМ мјесечно за куповину поврћа, а 30% више од 100 КМ. Најважнији фактори при куповини поврћа су свјежина, квалитет, мирис и укус и поријекло производа. Величина и изглед поврћа и близина продајног мјеста су мање важни фактори. Потрошачи са нижим приходима на мјесечном нивоу троше мање на поврће. Мјесечни издаци за куповину поврћа и учесталост куповине су међусобно повезани на основу проведеног теста. Испитаници чија домаћинства троше мање на поврће чешће купују у мини и супермаркетима, док они који троше више купују чешће на пијаци. Мушки испитаници сматрају да њихова домаћинства троше мање на поврће у односу на испитанике женског пола.

Кључне ријечи: купци, поврће, фактори куповине, алокација новца

Corresponding author: Nemanja Jalić
E-mail: nemanja.jalic@agro.unibl.org

Received: March, 14, 2023
Accepted: August 31, 2023