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ANALYSIS OF ATTITUDES OF HONEY CONSUMERS IN THE MUNICIPALITY OF NOVI GRAD (BOSNIA AND HERZEGOVINA)

SUMMARY

Beekeeping is one of the important branches of animal husbandry, and it is also important in the municipality of Novi Grad in Bosnia and Herzegovina (BaH). Honey producers should be interested in what consumers think of honey and which factors are crucial for their commitment to purchase honey. Therefore, there has been a study of honey consumer attitudes conducted by a survey of 100 randomly selected consumers. The subject of the survey was to determine the consumers' attitudes regarding the amount of honey they consume, honey types, prices, quality, purchasing and other characteristics. Systematization of data from surveys and their statistical processing led to the result that more than a half of consumers consume honey every week, with a high average consumption of 1.33 kg per month. Women consume honey more often than men, older people more frequently than younger ones. The largest number of consumers purchase honey directly from beekeepers. The commitment of consumer's choice to buy honey is greatly influenced by the quality of honey, and it is followed by the price. These and other attitudes of consumers of honey are compared with the attitudes of consumers of similar studies in other countries and it was found that there is sometimes a greater or lesser coincidence among them, and sometimes there are significant differences. Honey producers, taking into account the views and preferences of consumers, should focus their future marketing activities for better promotion of their products and look ahead trying to establish direct contacts with consumers.

Keywords: honey consumption, the price of honey, honey types, quality, honey, consumer attitudes, Novi Grad

INTRODUCTION

Honey is one of the oldest sweets, and beekeeping is one of the activities which were dealt with before the new era. Honey is still present in the human diet, and beekeeping is an important source of income for rural households.

Novi Grad municipality is located in north-western Bosnia and Herzegovina. Climate and geographical characteristics of the municipality Novi Grad are favorable for the development of beekeeping. Honey production is the main activity of the majority of beekeepers, but only a small number of experienced beekeepers produce pollen, royal jelly and propolis. For the purpose

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of institutional organization of beekeepers of Novi Grad municipality and in order to facilitate implementation of the rights towards the institutions of the Republic of Srpska and other organizations that are ready to help to improve beekeeping the Association of Beekeepers of "Novi Grad" was founded in 1997.

On the territory of the municipality of Novi Grad, according to the Department of Economy and Agriculture of the Novi Grad, there are 56 beekeepers that have 4 000 hives. Honey production in 2013 amounted to 35 tons, while the average production per hive was 8.8 kg, which is less than the national level (Republic of Srpska).

In the municipality of Novi Grad, every year, there is an event called "Days of beekeeping, fruit growing and our village" in the organization of Beekeepers Association promoting bee products and beekeeping as production with great opportunities.

For the purposes of this study, the data of statistical organizations that deal with the movement and development of beekeeping, as well as the survey with the use of a questionnaire by which the data on the habits and attitudes of consumers regarding the consumption of honey in the area of the municipality of Novi Grad were collected.

Some previous researchers have dealt with research of chemical characteristics of honey as Dimitrevska-Stojković *et al.* (2016) and Milošević *et al.* (2013), or bee influence on pollination as Jacimovic *et al.* (2012). Methods of market survey and consumer perception of honey can be found in published survey results of domestic and foreign authors. Similar surveys as this on honey consumer behavior were made by the following scholars: Arvan-Vanyi *et al.* (2011) in Hungary, Saner *et al.* (2007) in Turkey, Ismaiel (2014) in Saudi Arabia, Gyau *et al.* (2014) in Congo, Pacol *et al.* (2007) and Pacol (2011) in Romania, Pidek (2001) in Poland, Ćirić *et al.* (2015) and Otović and Miličić (2014, 2015) in Serbia, Špoljarić (2010) in Croatia, Ostojić *et al.* (2010) in Bosnia and Herzegovina. Certain results from the aforementioned surveys are associated and compared with the results of this study in the discussion section.

MATERIALS AND METHODS

The survey topic is the analysis of key trends and market conditions, the purchase and consumption of honey, and the comparison and evaluation of the results obtained in market survey in the area of the municipality of Novi Grad. The aim is to establish the basic parameters that affect the supply, purchase, perception and behavior in the consumption of honey in the municipality of Novi Grad.

For the purpose of this survey, the questionnaire was used for testing of the poll of honey consumers in the area of municipality of Novi Grad, and the probing was used as method by personal surveys. The survey included 100 respondents. The questionnaire had 27 questions. The questions in the questionnaire were open or closed. There were four open type questions in the survey and their aim was to find out what we associate with honey, the reasons for consumption of honey, honey price and size of monthly consumption, while there were 23 closed type questions. Through the survey, there were the following data collected: age and number of family members, the reasons for the

consumption of honey, mode of consumption, types of honey consumed, characteristics that are important to them when buying honey and much more. The use of questionnaires has enabled the collection of primary data on the facts, motives and attitudes of consumers, as well as the further processing and linking of interesting factors affecting honey market.

Honey consumer evaluated characteristics were analyzed through general linear mixed models ($p < 0.05$). Analysis and graphical presentation of data was done and R 3.1 (RDCT-crane, 2016) and SPSS Statistics 22 (IBM 2013). Dependent variables were related to the respondents' age, gender, education, family size and number of children.

RESULTS AND DISCUSSION

Honey production in Bosnia and Herzegovina

While the number of hives in recent years in Bosnia and Herzegovina (BaH) moderately and continuously increased, the amount of honey produced has varied significantly from year to year, largely depending on the availability of "pastures" or favorable agro-ecological conditions. The most significant example is seen in two Novi Grads in a row 2014 (a bad year) and 2015 (best year).

Table 1: Number of hives and honey production in Bosnia and Herzegovina

Year	2008	2009	2010	2011	2012	2013	2014	2015
Hives (000)	334	347	367	382	384	393	392	393
Honey (tons)	2 571	3 261	3 340	3 059	3 107	3 644	2 678	4 926

Source: Agency of Statistics of BaH.

Socio-demographic characteristics of respondents

The data on the following socio-demographic characteristics of the sample were collected through the survey: respondents' gender, age structure, level of education, status in the household, employment status and the amount of monthly income (Table 2).

Table 2: Socio-demographic characteristics of the sample

Characteristic	Variable	Percentage
Sex	Male	56%
	Female	44%
Age	≤ 20 year	4%
	21-35	31%
	26-50	29%
	>50	36%
Education	Elementary school	1%
	Secondary school	52%
	Higher or University	47%
Monthly household income (€)	Up to 250 €	36%
	251 - 500 €	39%
	> 500 €	25%

Source: Own research.

Honey consumption

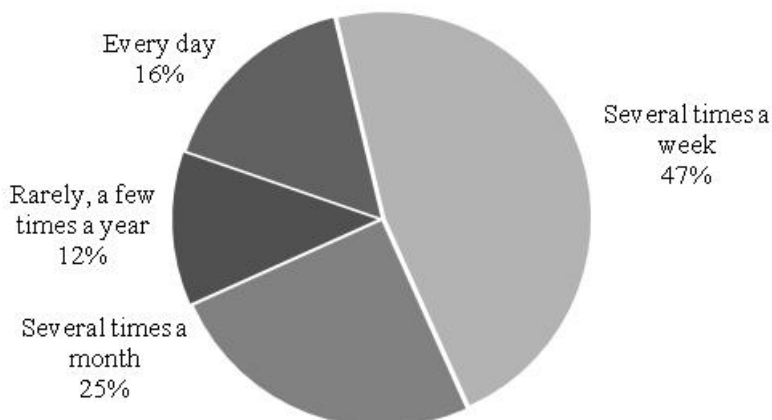
Consuming honey in the municipality of Novi Grad is very frequent. The largest number of respondents, i.e. 47% gave the answer that they consume honey several times a week. Daily consumption of honey was declared by 16% of respondents, and it can be concluded that this consumption represent the habit for these consumers, while 12% of respondents said that they eat honey very rarely, a few times a year, while 25% of them stated that they consume honey several times a month (Graph 1).

Respondents in Novi Grad municipality usually prefer two types of honey (Meadow grass 42%, and Acacia 44%). Other choices were mainly chestnut honey, which was preferred by 12% of respondents, Tilia honey and Salvia honey 1% of respondents. Majority of respondents said that they would like to consume Salvia honey, because they believe that it is very good, but that a lack of honey on the market and the very high cost, prevent them to buy it in most cases.

Consumers generally consume less amounts of honey, from 1 kg to 2 kg per month (78% of respondents), followed by 18% of the respondents who declared to use up to 0.5 kg per month, while 4% of the surveyed consume more than 2 kg of honey per month (Graph 2).

One of the best measures of honey consumption is how many kilograms were consumed in average. In general, the respondents consumed 1.33 kilograms of honey per month.

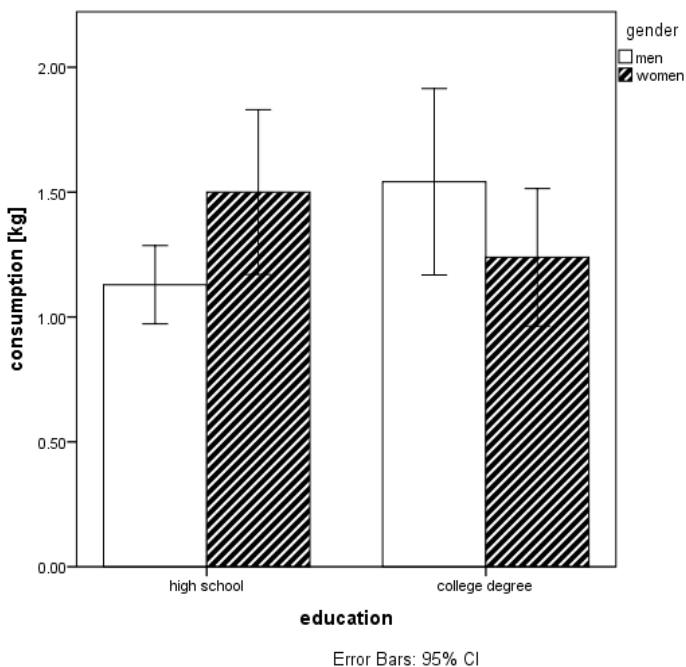
There was a significant interaction between the education and gender ($p=0.028$) in honey consumption. Namely, with higher education honey consumption increases in men population, but decreases in women. There was no statistically significant influence of respondents' age ($p=0.651$) on average monthly consumption of honey.



Graph 1: Honey consumption frequency



Graph 2: Monthly consumption of honey (kilograms)

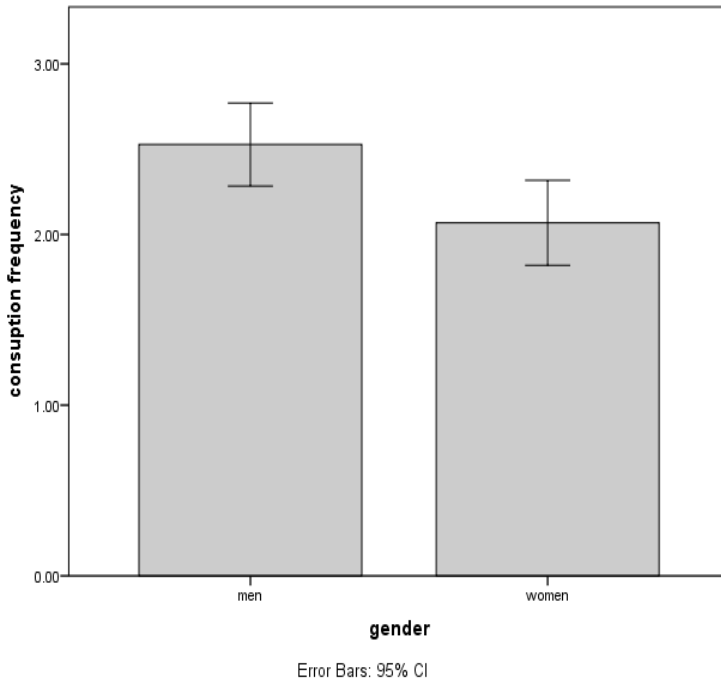


Graph 3. Consumption of honey in kilograms per month based on education and gender categories

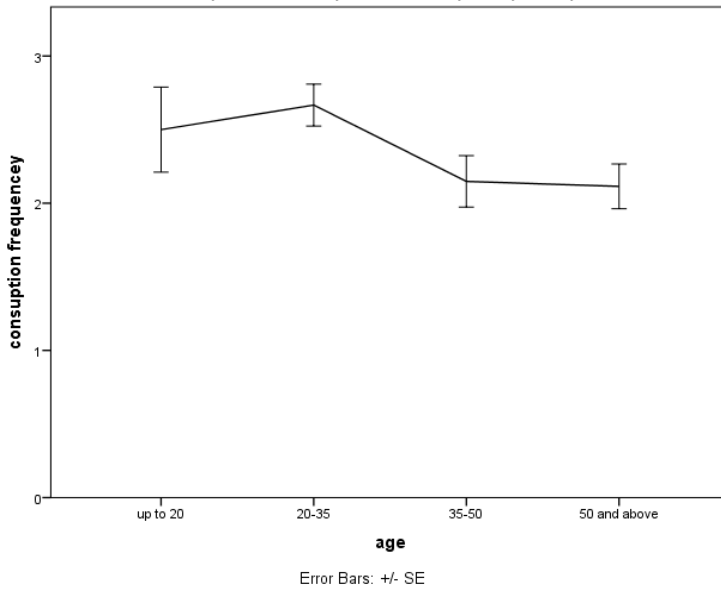
Consumption frequency

It is found that gender ($p=0.018$) and age ($p=0.016$) of respondents influence the honey consumption frequency. Namely, in average men consume honey less frequently than women, and generally younger respondents, up to 35

years of age, consume honey less frequently than the older ones. There was statistically significant influence of education ($p=0.966$).



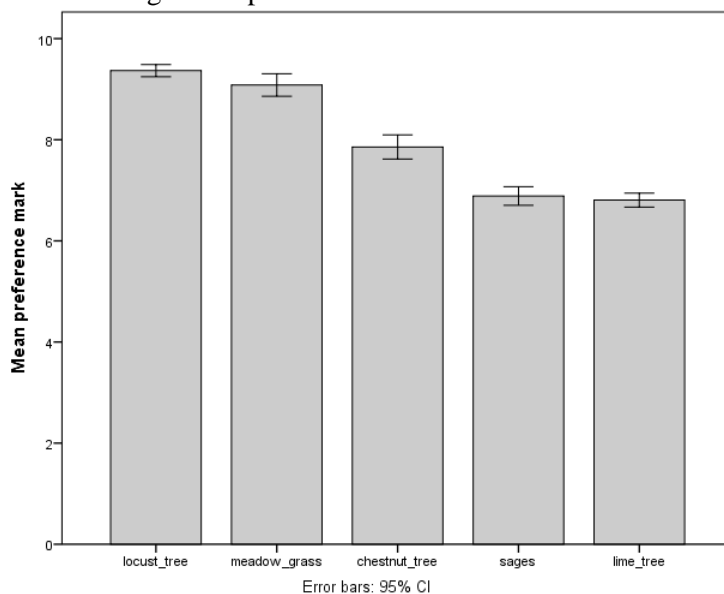
Graph 4. Consumption frequency with regard to gender of surveyed population (1-daily, 2-weekly, 3-monthly, 4-yearly)



Graph 5. Honey consumption frequency in various age categories

Honey type

The respondents were asked which floral source of honey they preferred choosing between black locust tree (*Robinia pseudoacacia* L.), meadow grasses, chestnut tree (*Castanea sativa* Mill.), sage (*Salvia officinalis* L.) or lime tree (*Tillia* sp.). The resulting answers revealed statistically significant difference ($p < 0.001$) in preferences between the given floral sources (Graph 6). Respondents mostly preferred black locust honey. Meadow honey is the second best choice which slightly, but significantly ($p = 0.044$) differed from the black locust honey. There were no statistically significant ($p > 0.050$) influences of gender, education or age of respondents.



Graph 6. Preferences of floral source of honey

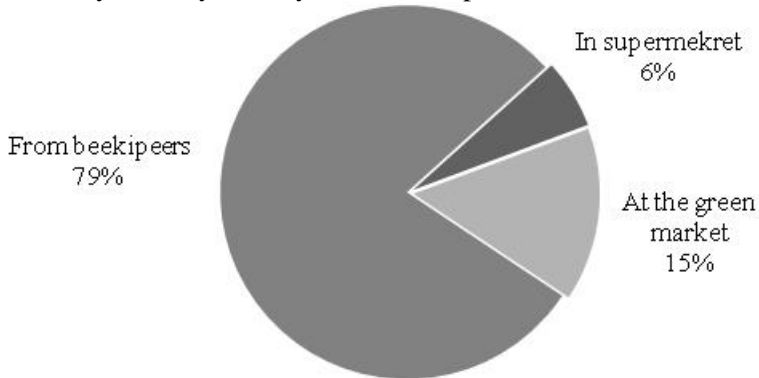
Honey price and place of purchase

When it comes to the price of honey at which consumers buy honey, between 32% of respondents said that a buying price is 6 € 31% of respondents stated that it is a price of 5 € followed by 28% who give the 7.5 € for honey. Comparing this data with the year of 2013, when the honey price was 4.5 € within the territory of Novi Grad, it can be seen that there was a price increase of honey in the previous period.

Although honey price varies between 4 and 7.5 € there was no difference between different respondent's origin and socio-economic status categories, or subsequent interactions. This can be explained with the honey price being not so important in comparison to quality.

The largest number of respondents, 79% buys honey directly from beekeepers. 15% of the surveyed buys it in the market, while 6% of them buy it

in a supermarket (Graph 7). Respondents claim to have more confidence in the quality of honey that buy directly from beekeepers than in the store.

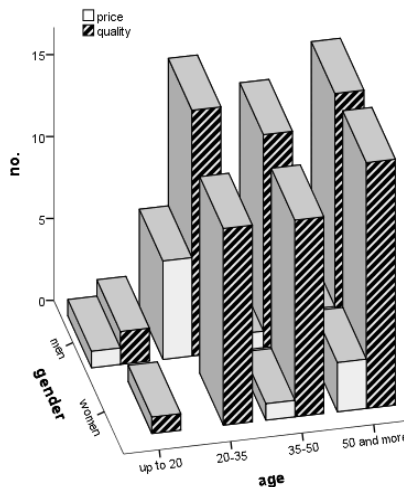


Graph 7: Place of purchase of honey

Respondents who buy honey directly from beekeepers were asked how they come into a contact with them. 73% of respondents declared that they reach beekeepers by recommendation of other consumers, 18% of respondents said they had come to beekeepers by chance, only one 1% of the respondents said that they heard about some the beekeepers through the advertisements.

Honey quality and price perception

In general, 86% of the subjects put the quality above the price. Whether the respondents prefer the quality or the price of the honey is deemed significantly influenced by age and gender interaction ($p=0.05$).



Graph 8. Comparison of number of subjects declaring priority of price or quality of honey with regard to gender and age categories

Namely, younger men up to 35 years prefer price over quality more than young women, though both categories generally prefer quality above the price. Education of the respondents did not have statistically significant influence ($p = 0.24$). None of the respondents put the design features before the quality or the price of honey

Frequency of honey consumption

Data from this survey, according to which 16% of participants consumed honey on a daily basis, 47% several times a week, compared with the results of similar surveys indicates that consumers from the area of Novi Grad consume honey quite often, almost as often as consumers in Poland and Croatia, significantly more often than in Hungary. According to Arvan-Vanyi et al. (2011) consumers in Hungary consume honey occasionally (56.9%), and after that monthly (25.4%) or weekly (9.3%) and 8.4% never. Women in Poland more frequently eat honey than men, and 61.1% women consumed honey more than once a week. Majority of women (45.2%) and men (38.6%) consumed honey every week (Pidek, 2001). According to survey of Špoljarić (2010) in Croatia, 38% of consumers consume honey on a daily basis, and another 18% several times a week. Since the survey has shown that the average consumption of honey in Novi Grad is 1.33 kg per month, this data puts them in the group of consumers that eat a lot of honey. Saner et. al. (2007) reported that in Turkey, an average of 0.82 kg of honey is consumed per capita per year. According to Ismaile et. al. (2014) in Saudi Arabia annual honey consumption per capita is high 4.5 kg, despite of high price per kg, due to relatively high annual average income. By the age, the consumption of honey in Novi Grad increases. Same was found by Pocol (2011) in Romania where old age people (46-60 year) consume honey the most frequently. Males in Novi Grad consume honey much more frequently than females, while for example, in Romania, the opposite behavior was found where women consume honey with a higher frequency than men (Pocol, 2011).

Type of honey

It can be concluded that the type of honey preferred by consumers largely depends on its local offer. In the studied case, most consumers use meadow honey (42%) and acacia (44%), but also chestnut honey (12%), which is precisely characteristic for this micro-region. Specifics of flora influence the type of honey production and consumption, so that in some other regions in Bosnia and Herzegovina (such as Trebinje region) most consumers prefer sage honey (55%) and heather honey (32%) (Ostojić et al, 2011). According to Arvan-Vanyi et al. (2011) consumers in Hungary mostly prefer acacia honey (80%) and poly-flower honey (30%), as their second choice. In Poland, men most prefer multi-flower honey and women honey of lime (Pidek, 2001). Similar but more diverse preferences have honey consumers on Province of Vojvodina, who mostly buy acacia honey (23%) and poli-floral honey (20%) and 18.8% don't buy honey at all (Ćirić et al, 2015). So for example in Congo, according to dominant

beekeeping method, most consumers have an initial preference for forest honey (64%), 7% have preferences for honey from beekeepers (Gyau *et al.*, 2014). In Croatia, according to a study of Špoljarić (2010), meadows (36%), acacia (27%) and chestnut honey (16%) are bought almost exclusively.

Honey price

According to statistics, the price of honey in Bosnia and Herzegovina is in the range of 5-9 €/kg. In the study area consumers indicated that they are buying honey in the range of 4-10 €. The average price of honey obtained through the survey is 6.3 €. Otović and Miličić (2015) have come to an interesting conclusion that the financial status of consumers is not critical and has a very little impact on commitment when buying honey. Špoljarić (2010) found that there are significant differences in the price of honey depending on the place of purchase, for example acacia honey in supermarkets is 45 HRK (HRK=Croatian kuna), and on the farm it is 30 HRK, which affects the place of purchase and consumers mainly buy directly from the producers. Saner *et al.* (2007), based on the example of Turkey, drew attention to the consumer price of honey that can be up to three times higher than producer price due to the inclusion of intermediaries. Honey producers are aware that the consumer price of honey is very important and that it, along with the quality, makes the highest rank among their preferences (Otović and Miličić, 2014).

Place of honey purchase

Even 73% of consumers of honey from the area of Novi Grad buy directly from producers because it gives them the highest guarantee of origin and quality of honey, and a slightly lower price (because they do not pay transaction costs and value added tax). Directly through buying honey from beekeepers, or the market is most often present way of getting the honey and in other countries. According to Ismaile *et. al.* (2014) most consumers buy local honey direct from honey producers and in specialized honey stores and supermarkets. In Vojvodina, consumers buy honey mainly by small marketing channels, directly from beekeepers (40.6%) or at the green markets (31.6%) (Ćirić *et. al.*, 2015). Most honey in Romania is purchased in the marketplaces (33%) and much less in supermarkets (8%) and honey stores (7%) (Pacol, 2007). In Hungary honey has been mostly bought in hypermarkets, and after that direct from producers or at green markets (Arvan-Vanyi *et al.*, 2011). Otović and Miličić (2014) conducted a study of the market of honey in the municipality of Vrbas (Serbia). 62% of respondents said that their products are sold on green markets, and 42% are sold on the farm. Most consumers in Croatia purchase directly, 51% directly from the producer, but still 23% buy it on the market (Špoljarić, 2010).

Factors of honey purchase

Consumers have declared that when they purchase honey, one of the most important characteristics is the healing characteristic of certain type of honey.

The second most important characteristic of the respondents is the taste of honey, while the third place takes the price of honey. The size and design of packaging is listed by respondents as the least important item when buying honey. According to Byau et al. (2014) the price has the strongest influence on honey choice, packaging and colour, taste and origin have moderate influence. For consumers of Saudi Arabia, taste is the factor number 1 (66.8%) of quality of honey (Ismail et. al., 2014). In Poland women consume more honey than men (Pidek, 2001). From the perspective of producers and consumers of honey in Serbia for a decision on honey purchase, the most important factor is quality, price and recommendations of friends (Otović and Miličić, 2014). Decision about buying honey in Croatia is mostly influenced by the quality and origin of honey, and its taste (Špoljarić, 2010).

CONCLUSIONS

Based on the study, it can be concluded that the quality of honey is generally the most important factor when buying honey, consumers put it even ahead of cost of honey, which was found to vary considerably, and i.e. There is lower quality of honey offered to consumers so they can choose between the quality and price. This leads to the conclusion that consumers, in the first place, when it comes to selection and consumption of honey first think of health and a healthy diet. Results indicate that older people are more aware of the benefits of honey in the diet than young people. Younger men pay more attention to the price of honey in relation to women, but it can be explained by the fact that they consume it less than women.

Honey preferred by consumers is meadow and acacia, and less of chestnut, which is characteristic type of surveyed area. Other specific types of honey would be bought by the consumers, but they are not available to them due to low supply and high prices, especially *Salvia* honey.

Also, it is important to point out that the design, size and shape of the package are not important in relation to the quality of honey. The reason for this is that most of the respondents purchase it directly from beekeepers. It also further supports the conclusion that the quality of honey is the most important characteristic to the average consumer that do not want to buy easily accessible and even cheaper products in shops and asking for the best possible quality that the buyer believes can be provided by purchasing directly from the producers.

It is obvious that the average consumer of honey does not believe in the quality of honey that is offered in stores. This raises a whole range of activities to sellers of honey, which they could and should deal with. First of all, it is a reliable system of certification that would be acceptable and easily accessible to average consumer. This system is supposed to convince consumers of having stable and high quality of their honey, and even in the case of voluntary quality schemes. There are also activities on promotion and marketing, which should be directed towards direct contact marketing.

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