

CONSUMERS' OPINIONS ON BOVINE MILK, ESPECIALLY ON RAW MILK SOLD DIRECTLY

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Abstract: *In the study, the situation of raw milk consumption was examined from the consumer side. The answers obtained during the online questionnaire survey (n=270) were analyzed using the methods of cross-tabulation and correlation analysis. Data were processed by the IBM SPSS ver. 27 software. The majority of respondents insist on consuming canned UHT milk and buy it in supermarket. Consumers who choose raw milk usually do not have enough information about the producer, the milk and its quality parameters. It is a surprising result that a relationship between the consumption of raw milk (directly sold by producers) and urban residents also was found ($r=0.228$; $p=0.002$). Most raw milk is sold in plastic bottles, but half of consumers would like to use a redeemable glass bottle.*

Keywords: *bovine milk, raw milk, consumers' attitudes, product information, environmental awareness*

INTRODUCTION

Among basic foods, bovine milk is one of the most complex food sources for the human body due to the proteins, fat, vitamins, and minerals it contains [8]. Based on a research Spanish citizens consumed approximately 3 liters of milk per week in 2012. This amount is about 60 liters per year and capita in Hungary. However, among the answers, the researchers also found that there are people who visit the markets once or twice a month or once a week and obtain the required quantity, in contrast, a smaller group was formed, whose members are all days they go to buy milk at the store [11]. Romania ranks 29th in terms of milk exports and 19th in terms of imports on the global market. The neighboring country has run into problems such as its significantly reduced cattle population, and incoming cheaper imported milk [3].

The milk can be easily incorporated into the daily ingredients of any diet, which can also promote a healthy lifestyle (except for those who suffer from intolerance). The consumption of raw milk does not have any negative effects on the human body [4]. The microbes that may appear in milk have different effects, which can be beneficial but also detrimental to the human body [2]. Based on the needs of people, three types of offers can be found on store shelves in most countries, as a result of which ultra-pasteurized, pasteurized and raw milk are available [3]. With regard to the dairy sector, Italy says that a chaotic situation is forcing farmers to develop the widest possible range in order to meet all the needs of customers [13].

Every time you make a purchase, you should pay attention to the condition of the product, including its integrity, warranty, and any additional information that may be important to consumers [1]. The taste, smell, touch of the packaging/product still means a lot, which express different emotions for us, and these have a great influence on our decisions [5]. The studies mostly dissected the visual sides of the packaging, thus finding out what influence they have on consumers when shopping [14]. Based on that, the research concludes that 1 liter red box packaging with positive "message" graphics is most preferred. Research published by Karatapanis et al. builds on the evolutionary change in

the senses, which was mostly based on Greek shelves, so the idea started from the pasteurized milks found there [10]. The main focus of the study was on how the packaging protects the smell and taste of the product, looking for the material that best protects and does not change the original condition of the milk, but preserves it for as long as possible. Based on the study Dörnyei and Pethő (2018) presented the importance of time, layout, advertising, product offerings, and how many factors influence our shopping habits and how they can change preferences [7]. This is when the size of the packaging is really taken into account, as its shelf life can be consumed for a limited time we definitely need a shape that fits comfortably in the refrigerator [9]. We can acquire conscious customers, so the costs originally intended for this can be redirected to another, which may improve the quality of the product, the packaging or the design, thus making the consumers even more satisfied. Kurajdova and Tábořecká-Petrovicová (2015) in their study of milk purchasing habits examined human behavior aimed at meeting need, as mapping this is becoming increasingly important today [12]. Contini et al. emphasize the significance of the communication methods, which have the goal of “shortening” the relationship distance between producers and consumers, forming a more direct connection [6].

Based on an examination of the milk sales automation system, Pereira and colleagues approached the survey from two main sides based on their studies. It was approached primarily from a marketing perspective, while secondarily from a logistics perspective. In terms of marketing, it is important to take into account what customers prefer according to their demand, they prefer a vending machine or the shelves of an already well-proven shopping center. From a logistical point of view, by drawing the two main sides in parallel, we can observe it from the point of view of transport, packaging and recycling [15].

This survey sought answers to what consumers buy and how much milk, what they think about raw milk and how important product information and packaging is to them.

MATERIALS AND METHODS

The online questionnaire survey was chosen for the primary data collection. In this, the questions can be divided into two groups, so the first part deals with demographic data, while the second has summarized more questions related to milk. The questions included both open-ended and closed-ended questions. A Likert-scale ranging from 1 to 5 was used to measure consumption-related attitudes. The data of the completed questionnaires were processed using IBM SPSS STATISTICS ver. 27 with correlation analysis and cross-tabulation analysis.

RESEARCH RESULTS

The questionnaire has so far been completed by 270 people in an evaluable form. Our test sample is not representative. Respondents are best characterized by the following demographics:

69% of the returned questionnaires were returned by women and 31% by men. Their average age was 37.6 years, so the youngest was 15 and the oldest was 76. It can be said that each of the respondents had an address in Hungary. As a result, the online questionnaire was filled in by 59% of urban, 38% of rural and 3% of urban residents from Budapest. The survey participants had almost the same proportion of people with a secondary (48.9%) or higher education (44.8%), while primary education was not very common (6.3%) among the respondents. According to marital status, nearly three-quarters of the respondents were married. In addition, we also examined economic activity, based on which 65% of employees filled in our questionnaire, so their sense of income was marked as average in most cases (68.8%).

Of the 270 responses received, 91.5% consume milk, while 8.5% do not consume milk. It seems that the consumption of long-life (UHT) milk has become the most popular among consumers (Figure 1) and few like raw milk purchased from a smallholder.

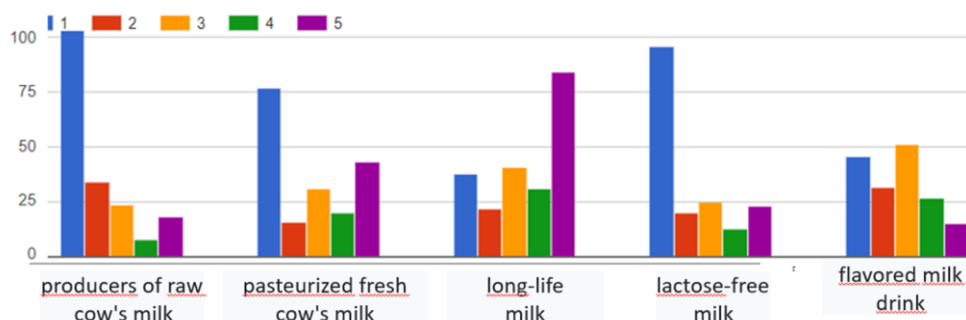


Figure 1. Preference for different types of milk

83.6% of respondents consume milk without boiling, presumably because most people already buy heat-treated products. 79.7% of the respondents are satisfied with the quality of the milk, based on which they believe that the quality of the milk they consume is constant, while 20.3% do not consider the quality expected of the product to be unchanged. Regarding the fat content (Figure 2), the most frequently consumed milk was with fat content 2.8% and 1.5% milk, due to the fact that these are the most common in stores.

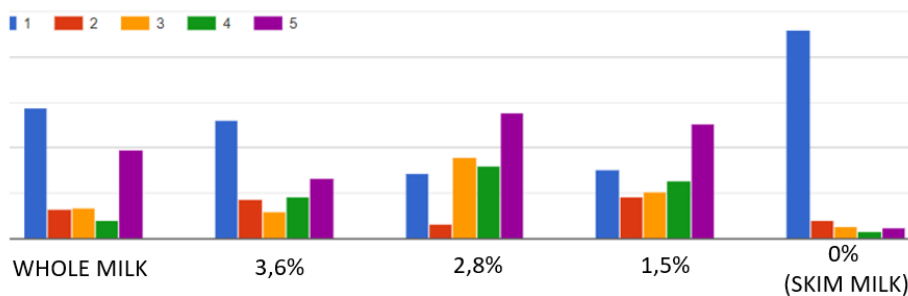


Figure 2. Preference for milk based on fat content

In terms of quality parameters (Figure 3), consumers ranked the taste of milk as the most important, followed by physical purity as the second most important factor. It is interesting to note that the fat content is not considered to be a very important aspect, although its amount significantly changes and even gives the milk its taste and smell.

The majority (62.9%) buy the required quantity on a weekly basis, which is 2 liters in most respondents' households. Large families occasionally buy 12 or 24 liters, which means they don't break the multipack. More than 97% of people buy milk in supermarket chains, with little use of vending machines or home delivery. The consumption of raw cow's milk is not widespread among the surveyed consumers, however, perhaps the reason for this is that they do not have enough access to it (46.3%), but those who choose to buy it consider this milk to be the healthiest (48.2%). One of the main disadvantages of the decline in producers' sales of raw milk on the market is the lack of trust, as consumers are unaware of the cow population (78.2%) and its health status (85.4%) nor the processes of

the milk treatment (66.7%). Thus, in fact, without information 39.7% consider their consumption to be risky for health.

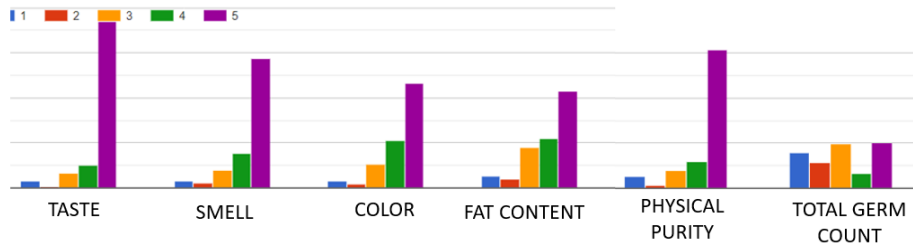


Figure 3. Quality features considered important

Perhaps one of the biggest factors influencing product choice is the packaging of the product, so with this in mind, we also surveyed our group on this, as shown in Figure 4, as TetraPak box convinced consumers for its practicality and simplicity. However, looking to the future, respondents to the questionnaire would not only continue to buy TetraPak cartons as usual, but would be willing to use glass bottles, as illustrated in Figure 5.

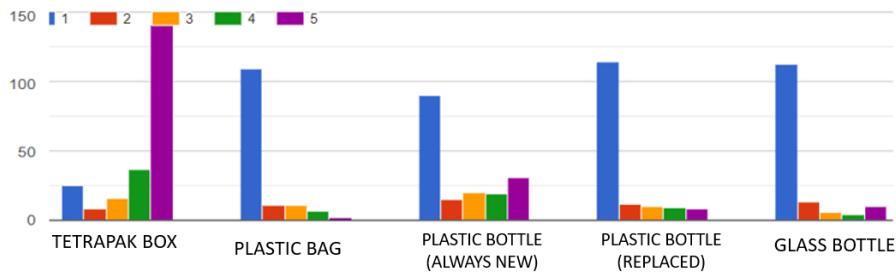


Figure 4. Currently preferred packaging

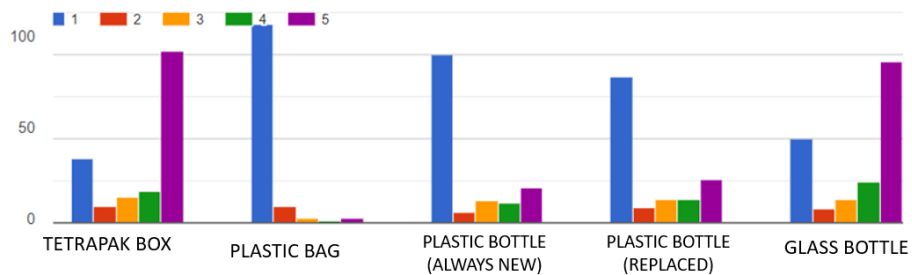


Figure 5. Packaging to be chosen in the future

Studying the relationship between the examined responses and the characteristics, we found that no statistically significant correlation could be detected between most of the factors. We found this particularly surprising in terms of the sense of income and the amount of milk purchased. The closeness of the correlations between the individual properties was characterized by the correlation coefficient and only those where the correlation can be considered significant are shown below:

- There was a weak relationship between the respondents' gender and the person buying milk ($r=0.205$; $p<0.001$).

- There is a similar correlation between female and purchases in the producer market ($r=0.167$; $p=0.039$).
- Consumption of raw milk by producers is more typical for the older age group ($r=0.257$; $p=0.001$).
- Surprisingly, we found a relationship between the consumption of raw milk from smallholders and urban citizens ($r=0.228$; $p=0.002$).
- Those on average incomes are more likely to buy producer milk in new plastic bottles. ($r=0.194$; $p=0.017$).
- On the other hand, it is almost evident that more populous families buy more milk ($r=0.256$; $p<0.001$).

The relationship between the above data can be considered a weak correlation in all cases. It can be assumed that the closeness of the relationships between the individual properties would change in the case of a larger sample, so we intend to continue our data collection work in the future.

CONCLUSIONS

Based on the results, the following conclusions can be made:

- The vast majority of respondents consume long-lasting milk, presumably due to its easy availability.
- In terms of fat content, consumers buy the most milk at 2.8% and 1.5%, probably because this range is the widest on store shelves.
- Preference is given to TetraPak-packed products for their easy and practical storage.
- It is important to note that the introduction of redeemable glass bottle packaging would not be a problem in the market, and several consumers have suggested that to protect the environment.
- 60.3% of respondents believe that consuming raw milk does not pose a health risk.
- 46.3% do not have access to producers' raw cow's milk. In case it would be easier to get it, more people would be happy to buy it.
- As a result of the needs assessment, we have come to the conclusion that the majority of people would benefit from home delivery for raw milk from producers.
- In order to distribute raw milk, the installation of milk vending machines in several settlements should be considered after the assessment of demand.

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