

THE ATTITUDES OF TABLE EGG CONSUMERS IN SERBIA ON THE WELFARE OF LAYING HENS

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Abstract: In order to examine the attitude of egg consumers about the poultry welfare and their willingness to spend more money to buy eggs produced in accordance with animal welfare principles, 529 consumers were surveyed in three regions of Serbia (Belgrade, region of Šumadija and Western Serbia and South and Eastern Serbia region). Through the survey questionnaire, consumers have stated how important the welfare of laying hens is to them and if they are willing to spend more money on eggs produced according to principles of animal welfare. The answers of the surveyed consumers were analyzed by gender, age, education, number of children in the family and the environment in which they live. According to the results of the survey, it can be concluded that in Serbia, poultry welfare is moderately important to 28.17% of egg consumers and very important to 50.77% of consumers, while not at all or little to 21.13%, and that there are differences between individual regions. The willingness to pay more for eggs produced according to welfare principles was expressed by 78.53% of consumers, on average for all three regions. The analysis of data within the category of consumers for which the poultry welfare is very important, revealed that 54.15% are women and 44.02% are men, and that the welfare is more important for consumers with higher education (52.66%) compared to middle school (47.67%), also, for consumers in the 35-55 age group (55.60%) compared to younger and older respondents and those with three or more children in the family (52.94%) compared to families with fewer children. The survey results indicate that consumers in Serbia attribute more importance to the welfare of laying hens, and show their willingness to pay more for eggs produced in compliance with the welfare principles. In the coming period, the education focusing on the increase of consumer awareness of the importance of the welfare of laying hens and the connection with the quality of the product will be necessary.

Key words: welfare, laying hens, consumer, eggs, survey, Republic of Serbia

Introduction

In the European Union, the welfare of laying hens is defined by EU Directive 1999/74/EC, which bans the rearing of laying hens in conventional cages in all EU countries since 2012. However, implementation of this legislation has varied across countries, depending on the influence of manufacturers, retailers, consumers, law-makers, the media, and public opinion in general (*Appleby, 2003*). Research indicates that animal welfare is given greater importance in countries in northern Europe than in countries in the south and in the newly acceded EU member states (*European Commission, 2005*). According to *Frewer (2005)*, the responsibility for introducing a system of livestock rearing that complies with the principles of welfare is shared by producers, lawmakers, various stakeholders in the food chain, as well as consumers.

Consumers have a very important role, on the one hand, through the expression of opinions and influence through public opinion, and on the other hand, by their decision to buy or not to buy certain products, they can significantly influence the market. Research indicates that European consumers generally have similar views on the welfare of farm animals and agree that welfare should be raised to a higher level, however, there are differences between countries due to varying degrees of knowledge about farm animals and different willingness to pay more money for the purchase of products obtained according to welfare principles (*European Commission, 2005; Martelli, 2009*). Some authors point to the need for better information availability and education of consumers about the importance of the welfare of farm animals (*Autio et al., 2017*), which would increase awareness of the importance of food production according to the animal welfare principles and the impact of animal welfare on the quality of animal products.

Attitudes about the welfare of laying hens have been the subject of much research, pointing to gender, education, and other socio-demographic differences among respondents (*Bejaei, 2009; Vecchio and Annunziata, 2011; Kehlbacher et al., 2012; Heng et al., 2013*). Part of the consumer attitude survey is the willingness to pay more money to purchase table eggs produced in cage-free production systems and other unconventional production systems (*Heng et al., 2013*), which is of great importance as the application of welfare standards results in increased production costs, and as stated by *Rodić et al. (2010)* eggs from cage-free systems can only be competitive provided that there is a willingness on the part of consumers to pay a higher price for eggs produced in this way.

In Serbia, the Animal Welfare Law (*Official Gazette of the RS, No. 41/2009*) came into force in 2009, and in 2010 a Rulebook on animal welfare

(*Official Gazette of the RS 6/10, Official Gazette of the RS, No. 57/2014-27*) was adopted on the breeding conditions that must be met by the breeders, forcing the producers of table eggs in Serbia to face the transition to cage-free farming of poultry. Some authors (*Pavlovski et al., 2011; Rakonjac, 2016*) point out the need and importance of paying attention to the implementation of new, alternative systems of rearing hens and poultry welfare, with most of the production of table eggs in Serbia being conventional. At the same time, there are few studies on consumer attitudes of Serbian consumers of eggs towards the welfare of laying hens (*Rodić et al., 2010; Stojanović, 2014*).

The aim of this paper is to determine the attitudes of consumers of table eggs in Serbia regarding the importance of the welfare of laying hens, as well as the willingness of consumers to pay more money for eggs produced with respect for animal welfare. At the same time, the paper aims to determine attitudes within a consumer group that considers animal welfare to be very important, based on gender, education, age, and number of children in the family.

Material and Methods

Survey questionnaire included 529 consumers on the territory of the Republic of Serbia, from three regions: Belgrade region (254 respondents), Šumadija and Western Serbia (161 respondents), and Southern and Eastern Serbia region (114 respondents), out of a total of five, according to the regional division of Serbia (*Statistical Office of the Republic Of Serbia, 2018*).

The structured survey questionnaire consisted of:

- a) information about the respondents obtained by completing the offered answers for the following categories: gender (male, female), education (secondary school, higher education), place of residence (entering), age (less than 35, 36-55, over 55); children in the family (no children, one and two, three and more children).
- b) closed-type questions on the nine-point Likert scale - where 1 was „not important to me at all“, and 9 was „very important to me“, applied to the question "How important is the welfare of laying hens when buying eggs?" and the question „How important is the farming/rearing system of laying hens when buying eggs?". The answers are grouped into 3 groups: 1 to 3 - not important/slightly important, 4 to 6 - medium and 7 to 9 - important/very important.

For the group of respondents who stated that the welfare of the laying hens was important/very important (7-9 on the Likert scale), the structure of consumers was determined for individual categories: gender, education, age and number of children in the family. The structure for individual categories was determined by placing in the ratio the number of consumers of a particular group who marked welfare with 7-9 (for example women) within individual category (in this case gender) to the total number of consumers in that group (total number of women).

c) the question with the answers offered was applied to the question "How much are you willing to pay more for eggs produced according to the principles of animal welfare?" and the answers offered are: "I'm not willing to pay more", "I'm willing to pay up to 30% more" and "I'm willing to pay more than 30%."

Standard analysis methods were used in the Microsoft Exel program to process the data.

Results and Discussion

The socio-demographic profile of the respondents is shown graphically (Figure 1). Analyzing the structure of the respondents, it was found that the survey included a large number of women (63.86%), compared to men, in terms of age, the majority of respondents ranged from 35 to 55 years (54.14%), and by education, those with secondary school education (64.96%).

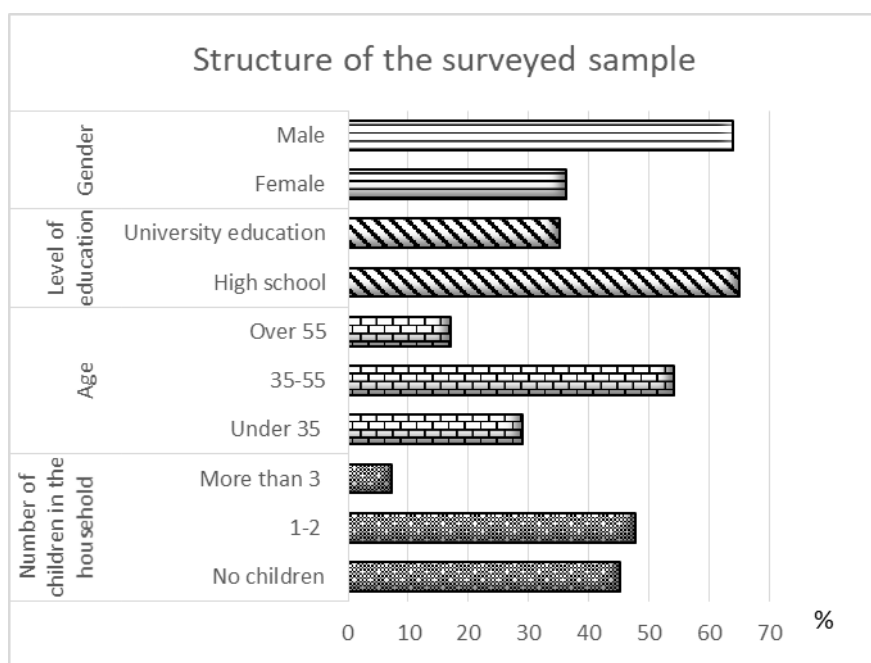


Figure 1. Structure of the surveyed sample

Table 1 shows the results related to the table egg consumers' attitude to poultry welfare in the various regions of the Republic of Serbia. By examining consumer attitudes in Serbia on the welfare of hens (Table 1), it can be concluded that the majority of respondents stated that the welfare was very important, average 50.77%

for all three surveyed regions, with the lowest values in Belgrade (45.84%), and the highest in the region of Šumadija and Western Serbia (60.31%). If the share of consumers for whom the welfare of laying hens is irrelevant is observed, it can be concluded that their share is the highest in the Belgrade (24.11%) region and the lowest in the region of Šumadija and Western Serbia (14.50%).

Table 1. The attitude of table egg consumers in Serbia towards the welfare of laying hens

Respondents' assessments of the welfare of laying hens	Not important / Slightly important	Medium important	Important/Very important
Answers to the question: How important is the welfare of the laying hens when purchasing eggs			
Region			
Belgrade (%)	24.11	30.04	45.85
Šumadija and Western Serbia (%)	14.50	25.19	60.31
Southern and Eastern Serbia (%)	22.12	27.43	50.44
Total (%)	21.13	28.17	50.77

The differences found in this research between regions can be related to studies that suggest differences in consumer attitudes towards welfare, depending on the area in which they live, that is, whether it is urban or rural (*Taylor and Signal, 2009*). The results obtained for Šumadija and Western Serbia region are in line with data provided by the *European Commission (2007)* according to which 62% of European consumers are ready to change their buying habits if they were produced according to the principles of farm animal welfare, while the average values for Serbia are lower. Also, according to a study by *Vecchio and Annunziata (2011)*, it was found that in a survey conducted in Italy, 62% of consumers showed a high level of interest in welfare, while 23% of consumers showed medium level and for 15% it was insignificant/irrelevant.

Table 2 gives an overview of the results related to the attitude of consumers of table eggs towards the hen farming system, that is, the production system of table eggs, by regions of Serbia.

Table 2. Consumers' attitudes in Serbia towards the hen farming system

Respondents' assessments of the farming/rearing system for laying hens	Not important / Slightly important	Medium important	Important/Very important
Answers to the question: How important is the farming/rearing system for laying hens when purchasing eggs			
Region			
Belgrade (%)	31.89	31.89	36.22
Šumadija and Western Serbia (%)	22.70	34.75	42.55
Southern and Eastern Serbia (%)	23.68	33.33	42.98
Total (%)	27.50	33.01	39.49

The analysis of data, reveals, on average, for all three regions, the production system is not important for 27.50% of consumers, while 39.49% considers it very important. Viewed by region, the Belgrade region has the highest share of consumers who find the production system not important (31.89%) and the lowest share of those who find it very important (36.22%).

Grunert et al. (2000) confirms that examining consumer attitudes about the farming/rearing system is one of the four most relevant criteria when considering consumers' attitudes to products: sensory properties, impact on human health, ease of preparation and production system for obtaining products of animal origin. According to *Tactacan et al. (2009)*, one of the factors that led to the development of improved production systems is the concern for the welfare and the need for the hens to exhibit their natural behavior. Also, by analyzing data on the importance of welfare and the farming/rearing system (Tables 1 and 2), it can be concluded that respondents in Serbia attach greater importance to the welfare of farm animals (50.77 %) compared to the rearing system (39.49 %), which opens the question of whether consumers associate the rearing system with the welfare of poultry and whether they understand their conditionality. Authors examining consumer attitudes to welfare point to a lack of consumer knowledge about welfare standards and its relation to product quality (*Nocella, 2010*). Examining consumer attitudes towards animal welfare in Serbia, *Veljković et al. (2015)* conclude that in Serbia there is a low level of consumer information and education, while at the same time there is a great pressure to align production with international and domestic legislation in the production of food of animal origin in accordance with welfare requirements.

The results of the survey, obtained by the analysis within the consumer group which finds the welfare of laying hens to be important/very important, indicate the differences between the individual categories in terms of welfare attitudes (Table 3).

Table 3. Consumer structure within the group which finds the welfare of hens to be very important

Consumer structure within the group which finds the welfare of hens to be very important (7 to 9)				
Region	Belgrade (%)	Šumadija and Western Serbia (%)	Southern and Eastern Serbia (%)	Total (%)
Characteristic				
Gender				
Male	36.49	52.46	44.90	44.02
Female	50.00	63.75	53.85	54.15
Education				
Secondary school	43.00	60.00	48.78	47.67
Higher education	48.30	61.29	51.39	52.66
Age				
> 35	42.27	61.72	31.58	44.76
36-55	52.68	62.96	56.96	55.60
< 55	38.10	58.44	40.00	46.42
Children in the family				
No children	44.96	58.33	43.75	47.85
1 to 2 children	41.57	56.25	51.47	48.87
3 and more children	38.89	70.00	66.67	52.94

Of the female group surveyed, 54.15 % stated that the welfare of the hens was very important to them, which was higher than the male respondents (44.02 %). In the group of those who rate welfare as very important, more respondents were with higher education (52.66 %), ages 35 to 55 (55.60 %) and consumers with three or more children in the family (52.94 %).

Consumers' attitudes in Serbia are influenced by gender, education, age and number of children in the family as determined by *Stojanović et al. (2014)*, who examined consumer attitudes in Serbia towards animal welfare, whose study also included laying hens. According to the results in Serbia, women expressed greater concern for the welfare of laying hens (54.15 %) than men, which is in agreement with *Mulder and Zomer (2017)*, who associate this result with the greater role of women in the household and their caring for children and animals. In this study, consumers who had children attributed greater importance to welfare (52.94 %), compared to those without children (47.85 %). The findings that consumers with higher levels of education show greater concern for welfare have also been confirmed in research by *Maria, (2006)*, *Vermeir and Verbeke, (2006)* and *Vanhonacher et al. (2007)*. Viewed in a broader context, the results of the work can be related to a survey of consumers' attitudes about organic eggs in Serbia (*Tolimir et al., 2019*), which concluded that the highest share of buyers of organic eggs are females, consumers with higher education and consumers in the 36-55 age category, suggesting that the same consumer group in Serbia is interested in the poultry welfare.

Consumers' willingness to pay more money for eggs produced with respect for welfare requirements is shown in Table 4 by region.

Table 4. Consumers' willingness to pay more for eggs produced with respect to poultry welfare principles

Answers to the Question: Are you willing to pay more for eggs produced with respect for welfare principles			
Respondents' answers	No (%)	Yes, up to 30%	30% and more
Region			
Belgrade (%)	20.79	63.12	16.10
Šumadija and Western Serbia (%)	13.33	71.48	15.19
Southern and Eastern Serbia (%)	30.31	62.71	6.98
Total (%)	21.47	65.77	12.76

The share of consumers in Serbia who expressed a willingness to pay more for eggs produced in accordance with the welfare principles compared to conventional eggs was 78.53 %, ranging from 69.9 % in South and Eastern Serbia to 86.76 % in the region of Western Serbia and Šumadija. The results obtained are in line with data reported in *European Commission (2005)*, according to which the willingness of consumers in the EU to pay more for eggs produced according to welfare principles was 81% for a price higher by 5 to 10%. According to *Stojanović et al. (2014)* in Serbia, this share is 63 %, which is lower compared to the results of this research. *Nocella et al. (2010)* and *Heng (2013)* also indicate that there is a willingness on the part of consumers to pay more for food produced in accordance with animal welfare principles, however the *European Commission (2009)* states that while there is a willingness on the part of consumers to pay a higher price, they do not always put it into practice. Also, *Binnekamp and Ingenbleek (2006)* points to market barriers to products that are produced by welfare standards and, when it comes to consumers, cites a lack of complete consumer understanding of the concept of animal welfare and a lack of information on the quality of those products.

Conclusion

Survey results indicate that for 50.77 % of consumers of table eggs in Serbia, the poultry welfare is important/very important, although there are some differences between regions, i.e., in the Belgrade region, the majority of respondents found the welfare of hens to be not important/slightly important (24.11 %) and the least number of respondents who find it important and very important (45.85 %). Educating and informing consumers about the welfare of hens would

contribute to raising consumer awareness of the importance of welfare and the relation between welfare and product quality.

The welfare is of different importance for different categories of consumers, i.e., it is more important for females than men, for consumers with higher than secondary education, in the age group of 35-55 years compared to younger and older groups and for consumers in the family with three or more children compared to those with fewer children, and the results obtained could be significant in determining the target consumer of eggs produced according to hen welfare standards.

More than three quarters of consumers (78.53 %) in Serbia expressed their willingness to pay more for eggs produced in systems that are in compliance with hen welfare requirements, which may be a guideline for producers who are obliged to establish a hen rearing/farming system according to welfare standards, as well as other market players in Serbia.

The paper may be considered as preliminary research in this area and further research should be directed towards examining consumers' attitudes towards welfare, but with the aim of establishing their specific knowledge in the field of rearing method and how it influences the quality of the obtained products.

Stavovi potrošača konzumnih jaja u Srbiji o dobrobiti kokoši

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Rezime

U cilju ispitivanja stavova potrošača konzumnih jaja o dobrobiti kokoši i njihove spremnosti da izdvoje više novčanih sredstava za kupovinu jaja proizvedenih poštujući principe dobrobiti anketirano je 529 potrošača u tri regiona Srbije (Beogradski region, region Šumadije i Zapadne Srbije i region Južne i Istočne Srbije). Kroz anketno ispitivanje potrošači su se izjasnili koliko im je važna dobrobit kokoši i kolika je njihova spremnost da za jaja proizvedena po principima dobrobiti izdvoje više sredstava. Odgovori anketiranih potrošača obrađeni su po polu, starosti, obrazovanju, broju dece u porodici i sredini u kojoj žive. Prema rezultatima anketnog ispitivanja može se konstatovati da u Srbiji potrošačima jaja dobrobit kokoši osrednje važna za 28,17 % i veoma važna za 50,77 % potrošača, dok nije uopšte ili je malo važna za 21,13%, kao i da postoje razlike između pojedinih regiona. Spremnost da plate više za jaja proizvedena po principima dobrobiti iskazalo je 78, 53 % potrošača, prosečno za sva tri regiona. Analizom podataka unutar kategorije potrošača kojima je dobrobit kokoši veoma važna,

konstatovano je da je to kod pripadnica ženskog pola 54.15 %, a kod muškog pola (44.02 %), kao i da je dobrobit važnija potrošačima sa visokim obrazovanjem (52,66%) u odnosu na srednje (47,67 %), potrošačima u starosnoj grupi od 35 do 55 godina (55,60 %) u odnosu na mlađe i starije i onim koji u porodici imaju troje i više dece (52,94 %) u odnosu na porodice sa manjim brojem dece. Rezultati ispitivanja ukazuju da potrošači u Srbiji pridaju važnost dobrobit kokoši, kao i da iskazuju spremnost da plate više za jaja proizvedena uz poštovanje principa dobrobiti, ali je u narednom periodu potrebna njihova edukacija, koja bi doprinela povećanju svesnosti potrošača o značaju dobrobiti kokoši i povezanosti sa kvalitetom proizvoda.

Cljučne reči: dobrobit, kokoši nosilje, potrošač, jaja, anketa, Republika Srbija

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