CULTURED MEAT - CONSUMERS OPINION ON THE SUSTAINABILITY OF PRODUCTION

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Abstract. Capacity for meat production in the world is limited. The world is approaching a point where it will be impossible to further increase livestock numbers for protein production. In order to solve this problem, new sources of protein are being sought (artificial meat, insect proteins, vegetable proteins and others). In recent years, visible results have been achieved in the research of cultured meat. Earlier researches indicated a vague attitude of consumers towards the possibility of consuming this type of food. In Bosnia and Herzegovina, very little research has been conducted in this area, which is why the authors decided to examine consumer attitudes about the sustainability of the production of cultured meat and the consumption of finished products made from it. In the paper, an online survey was conducted during which data was collected on consumer attitudes about the production and use of cultured meat. Respondents were offered a questionnaire with 7 questions. During data analysis, descriptive statistical analysis (mean value, standard deviation, Kruskal Wallis test) and Pearson's correlation coefficient were applied. For this purpose, the software package SPSS was used. Differences at p < 0.05 were considered significant. More than a third of respondents stated that livestock breeding and the meat industry cause ethical (38.46%) and environmental problems (30.77%). On the other hand, half of the respondents (53.85%) did not have a clear decision about the impact of the production of cultured meat on the environment. 38.46% of respondents believe that the production of cultured meat negatively affects the traditional way of meat production, while half of the respondents believe that cultured meat is an unnatural product (46.15%), that it is not as tasty as natural meat (38.46%) and that its production distances people from nature (38.46%). 7.69% of the respondents believe that the production of cultured meat is a sustainable process, 15.38% that it is an unsustainable process, while 38.46% of the respondents do not have a clear opinion on this issue. The results of the survey showed that consumers in Bosnia and Herzegovina still do not have enough information about cultured meat, but they are aware that it is necessary to look for new sources of protein, including cultured meat.

Key words: Artificial meat, Cultured meat, Sustainability of production, Consumers, Bosnia and Herzegovina

Introduction

According to the predictions of the Food and Agriculture Organization (FAO), by 2050 the number of inhabitants on Earth will increase to 9 billion and it will be necessary to produce 70% more food than the amount of food that is produced now

[1]. With the existing resources for food production, food production in the required quantities cannot be achieved [2]. In the coming decades, problems related to the lack of protein of animal origin will come to the fore. Producing protein-rich foods is expensive and has a serious impact on the environment. In order to solve this problem, in the last ten years, research has been carried out, the result of which should be alternative sources of protein that have less negative impact on the environment [3, 4].

Among possible alternatives to meat and sources of protein in general, the greatest attention is focused on research into the so-called "cultured meat" (also called as: artificially grown meat, *in vitro*, artificial or laboratory grown meat). In the existing literature [2, 3, 5] a number of advantages that this product has are listed: similarity to conventional meat, improvement of animal welfare, saving of natural resources, reduction of greenhouse gas emissions, improvement of public health and food safety, provision of protein in an amount sufficient to meet the demand for food and meet the needs of a rapidly growing population. Cultured meat, according to the proponents of its production, represents a sustainable alternative for consumers who want to be more responsible towards the environment, but at the same time are not ready and do not want to change their diet [6, 7]. This technology will enable sustainable meat production for the population on planet Earth, while at the same time reducing the suffering of animals used in meat production [8].

The results of several studies in the world on the public's perception of cultured meat have been published. Bryant and Barnett (2018) [9] found that consumers have certain reservations about the concept of cultured meat. According to the consumer statement, the reluctance to accept cultured meat stems from its alleged unnaturalness and concern for food safety. Many consumers react with disgust to the concept and did not recognize the personal benefit in the new product [10, 11]. On the other hand, many consumers in the world recognize the potential ethical and ecological advantages of cultured meat [12]. In Bosnia and Herzegovina, very little research has been conducted in this area, which is why the authors decided to examine consumer attitudes about the sustainability of the production of artificially raised meat and the consumption of finished products made from it. In order to obtain relevant data on consumer attitudes, the authors prepared and conducted an online survey during which data were collected on consumer attitudes about the production and use of cultured meat.

Material and methods

In order to collect data on consumer perception, an online survey was conducted in the paper. For the purposes of this survey, a questionnaire was designed based on the questionnaires from similar research conducted in France, Brazil and Croatia [12, 13, 14, 15]. The questionnaire contains 7 questions, which are divided into two groups: demographic data and consumer attitudes regarding ethical and environmental issues regarding the production of cultured meat. The survey questionnaire was distributed via e-mail. In the e-mail message that was sent to

potential respondents, a brief introduction and context of the research was given. Students of the College of Health Sciences in Prijedor were asked to share the survey link with their contacts on social networks. Others interested in this topic could share the questionnaire further. This research was conducted in accordance with the current regulations, which includes the ethical approval of the Ethics Committee of the College of Health Sciences Prijedor (No.07-773/22, 08.09.2022).

At the end of the survey, 114 responses were collected. One hundred and ten completed questionnaires were used for data analysis, while 4 respondents were excluded due to incomplete answers. Descriptive statistical analysis was used for data research. *Microsoft Excel* software was used for this purpose. Analysis of variance was performed in SPSS in order to determine consumer attitudes regarding ethical and environmental issues regarding the production of cultured meat. Pearson's correlation coefficient was performed in SPSS to assess whether any linear relationships could be found between the respondents' socio-demographic parameters (gender, age, education) and the answers to the questions. Differences at p < 0.05 were considered significant.

Results and discussion

A total of 110 responses were collected through an online survey for the population of students and employed staff of the College of Health Sciences Prijedor (Table 1). The first part of the survey served to collect demographic data. The number of female persons (78.2%) and the number of male persons (21.85%) reflects the gender ratio of the examined population. As for the age of the respondents, the majority are young people between 18 and 24 years old (65.5%), slightly smaller number of people between 25 and 34 years old (20.9%). The share of people over 55 is significantly lower (only 4.5%). This was to be expected due to the fact that the research was conducted online and that young people are superior in using modern communication technologies [16]. Regarding the level of education, 58 persons (52.7%) were students. 22.7% of people have higher education, and 17.3% of people have secondary education. 3.6% have a Master's degree, and 2.7% of the respondents have PhD. Regarding the financial situation, the largest number of respondents stated that their financial situation is average (55.5%), 32.7% of respondents are in a good situation, 9.1% are in a very good situation, and 2.7% of respondents are in a bad financial situation.

Table 1. Demographic profile of respondents (N=110)

		N (%)
Candan	Male	24 (21.8)
Gender	Female	86 (78.2)
	18 - 24 years old	72 (65.5)
	25 - 34 years old	23 (20.9)
Old aga	35 - 44 years old	3 (2.7)
Old age	45 - 54 years old	7 (8.4)
	55 - 64 years old	3 (2.7)
	over 65 years old	2 (1.8)
	PhD	3 (2.7)
	Magister/Master's degree	4 (3.6)
Old age Education Financial situation of the household	College education	25 (22.7)
	High school	19 (17.3)
	A student	58 (52.7)
	Very bad	0.00
	Bad	3 (2.7)
	Average	61 (55.5)
	Good	36 (32.7)
	Very good	10 (9.1)

Respondents were asked to express their views on several ethical and environmental issues related to the production of cultured meat. In doing so, they could give their answers by choosing a value from 1 to 5 on the Liket scale (1 – the worst, 5 – the best). The answers to this question are shown in Table 2. Respondents gave a predominantly positive attitude (grade 5) to the following questions: Q₄ -Production of artificial meat means the decline of traditional breeding of domestic animals (38.46%) and Q₆ - Production of farmed meat distances people from nature (38.46%). The survey participants expressed their disagreement with the proposed statement with a score of 1. From Table 2. it can be seen that such an attitude was expressed by the respondents in the case of the following statements: Q₁ - Livestock breeding and the meat industry cause some ethical problems (38.46% of respondents). The respondents were completely divided into two groups when answering the question O_6 . The production of cultured meat distances people from nature (38.46%). Rating 3 represents a neutral or undefined attitude, which is most pronounced when accepting the following statements: Q₅ - The technology of artificially grown meat production is possible and realistic (61.54%), Q₃ - The production of cultured meat does not have a negative impact on the environment" (53 .85% of respondents), Q₂ -Livestock breeding and the meat industry cause some environmental problems (46.15% of respondents) and Q₇ - Farmed meat production is a sustainable form of meat production (38.46%).

Table 2. Distribution of respondents' answers to questions from the survey questionnaire (1 - worst, 5 - best)

	Response percentage (%)				
	1	2	3	4	5
Q ₁ - Livestock farming and the meat industry cause some ethical problems (animal suffering, slaughter)	38.46	0.00	30.77	15.38	15.38
Q_2 . Livestock farming and the meat industry cause some environmental problems (high water consumption, greenhouse gas emissions)	30.77	7.69	46.15	0.00	15.38
Q ₃ - The production of cultured meat does not have a negative impact on the environment	7.69	15.38	53.85	7.69	15.38
Q ₄ . The production of artificially grown meat means the decline of traditional breeding of domestic animals	0.00	7.69	15.38	23.08	38.46
Q ₅ - The production technology of artificially grown meat is possible and realistic	15.38	7.69	61.54	7.69	7.69
Q ₆ - The production of cultured meat distances people from nature	38.46	0.00	15.38	7.69	38.46
Q ₇ . The production of artificially grown meat is a sustainable form of meat production	7.69	30.77	38.46	7.69	15.38

The conducted statistical analysis showed that there is no significant influence of age and education on the answers given by the respondents regarding the ethical and ecological attitudes of the production of cultured meat. This is confirmed by the conducted statistical analysis (Chi square and Kruskal-Wallis test). The obtained significance values range between 0.079 and 0.870 (for age), that is, between 0.293 and 0.862 (for education) (Table 3).

Several studies in the world have shown that it is more likely that young and educated consumers will accept cultured meat in the coming period [12, 17].

Table 3. Age and education *ethical and environmental issues related to the production of cultured meat

		A	ge		Education					
A question	Chi-square		Kruskal - Wallis			quare	Kruskal - Wallis			
	X^2	p	kw	p	X^2	p	kw	p		
\mathbf{Q}_1	18.015	0.586	3.013	0.698	15.445	0.750	0.772	0.979		
\mathbf{Q}_2	26.463	0.151	9.457	0.092	13.344	0.862	3.861	0.570		
\mathbf{Q}_3	17.393	0.627	9.569	0.613	22.922	0.293	3.040	0.694		
Q ₄	29.476	0.079	8.348	0.138	21.830	0.350	1.633	0.897		
\mathbf{Q}_{5}	13.150	0.870	4.476	0.483	22.632	0.307	7.953	0.159		
Q_6	18.992	0.522	2.475	0.780	18.417	0.560	3.138	0.679		
\mathbf{Q}_7	24.007	0.242	8.765	0.119	21.009	0.397	3.659	0.600		

 Q_1 livestock breeding and the meat industry cause some ethical problems (animal suffering, slaughter,...); Q_2 - livestock breeding and the meat industry cause some environmental

problems (high water consumption, greenhouse gas emissions); $\mathbf{Q_3}$ - the production of cultured meat does not have a negative impact on the environment; $\mathbf{Q_4}$ - the production of artificially grown meat means the decline of traditional breeding of domestic animals; $\mathbf{Q_5}$ - the production technology of artificially fattened meat is possible and realistic; $\mathbf{Q_6}$ - the production of cultured meat distances people from nature; $\mathbf{Q_7}$ - the production of artificially grown meat is a sustainable form of meat production

According to our results and despite the sociological differences of the respondents, students and employees at the College of Health Sciences are concerned about possible ethical and environmental problems that may arise during the production of artificial meat. A large part of them (45.6%) [5] believe that reducing meat consumption could be a solution to current problems as previously stated by Hocquette et al. (2015) and Bryant et al. (2020) [13, 17]. However, more than half do not think that "cultured meat" would be more ethical and environmentally responsible than "conventional meat". Thus, our research confirms the results of a previous research [13] which indicated that the vast majority of French people (60% to 70%) would rather choose to consume less meat than to consume cultured meat. Similar results were obtained by researchers in Brazil [18, 19], where the majority of Brazilians stated that they preferred to reduce the amount of meat consumption in their diet and that they would thus contribute to solving the shortage of meat in the world.

When the results of the responses are analyzed in relation to the age of the survey participants, our results agree with previously published research conducted in France and Germany. According to Hocquette et al (2022), there is a strong generational influence on the responses of respondents from France regarding ethical and environmental issues related to the production and consumption of cultured meat. Young people have a clearer idea of potential and more easily accept new solutions of scientific discoveries. The results of research conducted in Germany and France [17] confirms that older people are more cautious when accepting new forms of food and reject cultured meat to a greater extent.

Gender affects concerns about ethical and environmental issues caused by the announced "changes in the meat industry", which is reflected in opinions about meat consumption and the overall perception of cultured meat [19]. Pearson's correlation coefficient shows a negative weak correlation between the variables (gender of respondents and answers to questions Q_2 , Q_3 , Q_4 , Q_5 and Q_7). This could be related to women's sensitivity to animal welfare and environmental issues related to agriculture, and the fact that they are more likely to adopt a diet with less meat [20].

Our results confirm the results of Faletar and Cerjak [21] who determined different consumer opinions related to the moral and ethical concerns of consumers in Croatia about cultured meat and their perception of the impact of cultured meat production on the economy.

Finally, we assessed whether any linear relationships could be found between the respondents' socio-demographic parameters (gender, age, education) and the answers to the questions. As can be seen from Table 4, a good positive correlation was

observed between the age and the level of education of the respondents (R=0.696; P = 0.000). Similarly, a good positive correlation was observed between answers Q_1 (Livestock farming and the meat industry cause some ethical problems) and Q_2 (Livestock farming and the meat industry cause some environmental problems) (R= 0.645; P =0.000). Likewise, a weak correlation was observed in the answers to the questions from the questionnaire: between Q_1 and Q_5 (R= 0.353; P =0.000), between Q_1 and Q_2 (R= 0.256, p=0.07), between Q_2 and Q_4 (R = 0.253; P =0.008), between Q_2 and Q_3 (R = 0.452; P =0.000), between Q_3 and Q_4 (R = 0.354; P =0.000), between Q_4 and Q_5 (R = 0.335; P =0.000) and between Q_5 and Q_7 (R = 0.367; P =0.000). In all other cases, no connection was observed between the socio-demographic parameters of the respondents (gender, age, education) and the answers to the questions.

Table 4. Correlation matrix between demographic data and ethical and environmental attitudes

		Gender	Age	Education	Financial situation	Qı	\mathbf{Q}_2	Q_3	Q4	\mathbf{Q}_5	Q ₆	Q 7
Age	Pearson R	-0.115	/	/	/	/	/	/	/	/	/	/
	p-values	0.231										
Education	Pearson R	-0.086	0.696**	/	/	/	/	/	/	/	/	/
	p-values	0.372	0.000									
Financial	Pearson R	0.079	-0.218	-0.198*	/	/	/	/	/	/	/	/
condition	p-values	0.410	0.022	0.038								
0	Pearson R	0.032	0.008	0.021	-0.054	/	/	/	/	/	/	/
\mathbf{Q}_1	p-values	0.743	0.931	0.829	0.574	-						
	Pearson R	-0.095	0.054	0.073	0.050	0.645**	/	/	/	/	/	/
\mathbf{Q}_2	p-values	0.321	0.574	0.446	0.601	0.000	-					
0	Pearson R	-0.101	-0.011	0.075	-0.023	-0.083	-0.055	/	/	/	/	/
\mathbf{Q}_3	p-values	0.293	0.907	0.438	0.808	0.389	0.569	_				
Q4	Pearson R	-0.002	0.050	0.091	0.099	0.023	0.253**	0.062	/	/	/	
	p-values	0.981	0.606	0.345	0.304	0.810	0.008	0.519				
0	Pearson R	-0.111	0.026	0.190*	0.002	0.353**	0.452**	-0.049	0.335**	/	/	/
Q 5	p-values	0.248	0.790	0.047	0.983	0.000	0.000	0.608	0.000			
0	Pearson R	0.076	0.044	0.089	0.000	0.119	0.192*	-0.061	0.271**	0.200*	/	/
Q_6	p-values	0.429	0.646	0.353	0.999	0.214	0.045	0.528	0.004	0.037	_	
0	Pearson R	-0.062	0.030	0.095	0.060	0.256**	0.354**	0.226*	0.176	0.367**	0.074	/
\mathbf{Q}_{7}	p-values	0.517	0.756	0.322	0.530	0.007	0.000	0.017	0.066	0.000	0.443	

R - Pearson correlation coefficient; p - statistical significance; (-) negative correlation , (+) positive correlation

^{0.0-0.3 (}weak correlation); 0.3-0.5 (moderate correlation); 0.5-0.7 (strong correlation); 0.7-1.0 (extremely strong correlation); **- correlation is significant at the 0.001 level; *- correlation is significant at the 0.005 level; \mathbf{Q}_1 livestock breeding and the meat industry cause some ethical problems (animal suffering, slaughter,...); \mathbf{Q}_2 - livestock breeding and the meat industry cause some environmental problems (high water consumption, greenhouse gas emissions); \mathbf{Q}_3 - the production of cultured meat does not have a negative impact on the environment; \mathbf{Q}_4 - the production of artificially grown meat means the decline of traditional breeding of domestic animals; \mathbf{Q}_5 – the production technology of artificially fattened meat is possible and realistic; \mathbf{Q}_6 – the production of cultured meat distances people from nature; \mathbf{Q}_7 - the production of artificially grown meat is a sustainable form of meat production

Conclusion

In the paper, research was conducted on the attitudes of the students of the College of Health Sciences on ethical and environmental issues caused by the production of cultured meat. The results of the survey showed that they still do not have enough information about cultured meat, but they are aware that it is necessary to look for new sources of protein, including cultured meat.

References

- [1] United Nations. World Population Prospects 2019: Data Booklet. New York, NY: Department of Economic Social Affairs 2019; p. 1–25.
- [2] Chriki S, Hocquette JF. The Myth of Cultured Meat: A Review. Frontiers in Nutrition [Internet]. 2020;7(7). Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7020248/pdf/fnut-07-00007.pdf
- [3] de Oliveira Padilha LG, Malek L, Umberger WJ. Consumers' Attitudes Towards labgrown meat, Conventionally Raised Meat and plant-based Protein Alternatives. Food Quality and Preferences. 2022 Feb; 99:104573.
- [4] Aiking H. Protein production: planet, profit, plus people? The American Journal of Clinical Nutrition [Internet]. 2014 May 28;100(suppl_1):483S489S. Available from: https://academic.oup.com/ajcn/article/100/suppl_1/483S/4576686
- [5] Grujić R, Obradović M. Attitudes of consumers from Bosnia and Herzegovina towards cultured meat. Congress on Food Quality and Safety, Health and Nutrition – NUTRICON 2023; 209-210.
- [6] Shapiro P. Clean meat: how growing meat without animals will revolutionize dinner and the world. Science. 2018; 359:399. doi: 10.1126/science.aas8716
- [7] Moritz MSM, Verbruggen SEL, Post MJ. Alternatives for large-scale production of cultured beef: A review. Journal of Integrative Agriculture 2015 Feb;14(2):208–16. doi: 10.1016/S2095-3119(14)60889-3
- [8] Schaefer GO, Savulescu J. The ethics of producing in vitro meat. J Appl Philos. 2014; 31:188–202.
 - doi: 10.1111/japp.12056
- [9] Bryant C, Barnett J. Consumer acceptance of cultured meat: a systematic review. Meat Sci. 2018; 143:8–17. doi: 10.1016/j.meatsci.2018.04.008
- [10] Siegrist M, Sütterlin B, Hartmann C. Perceived naturalness and evoked disgust influence acceptance of cultured meat. Meat Sci. 2018;139:213–9. doi:10.1016/j.meatsci.2018.02.007
- [11] Verbeke W, Marcu A, Rutsaert P, Gaspar R, Seibt B, Fletcher D, et al. 'Would you eat cultured meat?': Consumers' reactions and attitude formation in Belgium, Portugal and the United Kingdom." Meat Sci. 2015; 102:49–58. doi: 10.1016/j.meatsci.2014.11.013
- [12] Elise Hocquette, Jingjing Liu, Marie-Pierre Ellies-Oury, Sghaier Chriki, Jean-François Hocquette. 2022. Does the future of meat in France depend on cultured muscle cells? Answers from different consumer segments. Meat Science 188. 2022; 108776
- [13] Hocquette A, Lambert C, Sinquin C, Peterolff L, Wagner Z, Lebert A, & Hocquette JF. Educated consumers don't believe artificial meat is the solution to the problems with the meat industry. Journal of Integrative Agriculture. 2015; 14: 273–84. https://doi.org/10.1016/S2095-3119(14)60886-8

- [14] Faletar I, Cerjak M. Perception of Cultured Meat as a Basis for Market Segmentation: Empirical Findings from Croatian Study. Sustainability 2022; 14: 6956. https://doi.org/10.3390/su14126956
- [15] Chriki S, Payet V, Pflanzer, SB, Ellies-Oury, M.-P.; Liu J, Hocquette É, Rezende-de-Souza, JH. Hocquette, J.-F. 2022. Brazilian Consumers' Attitudes towards So-Called "Cell-Based Meat". Foods. 2021; 10: 2588. https://doi.org/10.3390/foods10112588
- [16] Emily A. Vogels and Risa Gelles-Watnick. Teens and social media: Key findings from Pew Research Center surveys. Pew Research Center. 2024. Dostupno na sajtu (01.05.2024): https://www.pewresearch.org/short-reads/2023/04/24/teens-and-social-media-key-findings-from-pew-research-center-surveys/
- [17] Bryant C, Barnett J. Consumer Acceptance of Cultured Meat: An Updated Review (2018–2020). Applied Sciences [Internet]. 2020 Jul 28; 10(15):5201. Available from: https://www.mdpi.com/2076-3417/10/15/5201
- [18] Chriki S, Payet V, Pflanzer SB, Ellies-Oury MP, Liu J, Hocquette É, et al. Brazilian Consumers' Attitudes towards So-Called "Cell-Based Meat." Foods. 2021 Oct 26; 10(11):2588.
- [19] Heidemann, MS, Taconelli, CA, Reis, GG, Parisi, G., Molento, CFM. Critical perspective of animal production specialists on cell-based meat in Brazil: From bottleneck to best scenarios. Animals, 2020; 10, 1678. https://doi.org/10.3390/ani10091678
- [20] Ruby MB, Heine SJ. Meat, morals, and masculinity. Appetite [Internet]. 2011 Apr; 56(2):447–50. Available from: https://www.sciencedirect.com/science/article/pii/S0195666311000341
- [21] Faletar I, Cerjak M. Perception of Cultured Meat as a Basis for Market Segmentation: Empirical Findings from Croatian Study. Sustainability. 2022 Jun 7;14(12):6956.

VJEŠTAČKI UZGOJENO MESO – MIŠLJENJE POTROŠAČA O ODRŽIVOSTI PROIZVODNJE

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Sažetak. Kapaciteti za proizvodnju mesa u svijetu su ograničeni. Svijet se približava tački kada će biti nemoguće dalje povećanje broja stoke radi proizvodnje proteina. U cilju rješavanja ovog problema, traže se novi izvori proteina (vještačko meso, proteini insekata, biljni proteini i drugo). Posljednjih godina ostvareni su vidni rezultati u istraživanju vještački uzgojenog mesa. Provedena istraživanja ukazala su na nejasan stav potrošača prema mogućnosti da konzumiraju ovu vrstu hrane. U Bosni i Hercegovini provedeno je veoma malo istraživanja u ovoj oblasti, zbog čega su autori odlučili da ispitaju stavove potrošača o održivosti proizvodnje vještački uzgojenog mesa i konzumiranju gotovih proizvoda izrađenih od njega. U radu je provedena onlajn anketa tokom koje su prikupljeni podaci o stavovima potrošača o proizvodnji i upotrebi uzgojenog mesa. Ispitanicima je ponuđen upitnik sa 7 pitanja. Prilikom analize podataka primijenjena je deskriptivna statistička analiza (srednja vrijednost, standardna devijacija, Kruskal Wallis test) i Pirsonov koeficijent korelacije. U tu svrhu korišćen je softverski paket SPSS. Razlike na p < 0.05 smatrane su značajnim. Više od trećine ispitanika je izjavilo da uzgoj stoke i mesna industrija uzrokuju etičke (38,46%), odnosno ekološke probleme (30,77%). Sa druge strane, polovina ispitanika (53,85%) nije imala jasno opredjeljenje o uticaju proizvodnje uzgojenog mesa na životnu sredinu. 38,46% ispitanika smatra da proizvodnja uzgojenog mesa negativno utiče na tradicionalni način proizvodnje mesa, dok polovina ispitanika smatra da je uzgojeno meso neprirodan proizvod (46,15%), da nije ukusno kao prirodno meso (38,46%) i da njegova proizvodnja udaljava ljude od prirode (38,46%). Da je proizvodnja uzgojenog mesa održiv proces smatra 7,69% ispitanika, 15,38% da je to neodrživ proces, dok 38,46% ispitanika nema jasan stav po ovom pitanju. Rezultati ankete su pokazali da potrošači u Bosni i Hercegovini još uvijek nemaju dovoljno informacija o uzgojenom mesu, ali su svjesni da je neophodno tražiti nove izvore proteina, uključujući i uzgojeno meso.

Ključne riječi: Vještačko meso, Uzgojeno meso, Održivost proizvodnje, Potrošači, Bosna i Hercegovina