



# CEFood

**Congress**

Novi Sad, Serbia  
23 - 26 May, 2012

## PROCEEDINGS

of 6th Central European  
Congress on Food



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Technology



**CEI**  
CENTRAL EUROPEAN INITIATIVE

Central  
European  
Initiative

**ISBN 978-86-7994-027-8**

**6TH CENTRAL EUROPEAN CONGRESS ON FOOD, Novi Sad 2012, SERBIA**

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University of Novi Sad, Institute of Food Technology  
Bulevar cara Lazara 1.  
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***Printed by***

“Futura” – Novi Sad, Serbia

***Number of copies***

600 copies

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## CONSUMER ATTITUDES TO BROILER MEAT AND PRODUCTS

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**ABSTRACT:** The aim of this paper was to select the most acceptable housing system of broiler meat production evaluating consumers attitudes and to investigate quality of raw type sausages made of chicken meat, applying quantitative descriptive sensory analysis.

Based on the survey conducted among consumers of different sex, age and education, it was concluded that majority of consumers of both sexes finds that the price of broiler meat produced in free range production is justifiably higher because of the quality of meat provided. Meat should be labelled according to production system and quality of meat should be controlled by scientific institution according to the opinion of female consumers, whereas male consumers stated that meat quality should be controlled by producers and inspection. Compared sausages samples are made with different chicken meat type: A – commercial broiler, B – commercial broiler and Naked Neck chickens (50:50 ratios) and C – Naked Neck chicken. In all three variants of sausages 20% of pork fat was added. Sensory evaluation was done after roasting. System of 9 points was used for sausages quality attributes (parameters) scoring: 1-exceptionally unacceptable to 9-exceptionally acceptable. Following attributes were evaluated/scored: external appearance, cross-section appearance, colour, smell, taste and texture. Thirty untrained panellists participated in scoring. The appearance of all examined sausage was very good. The colour of group B and C were evaluated as acceptable, but not the usual for this sausage type. Sausages from group A had lighter colour than expected and assessed as too pale. Group B had the highest scores for smell and taste. As a result of conducted sensory analysis, sausages from variant B were selected as the best of compared samples, with overall scores of 7.87.

**Key words:** *Broiler meat, product, consumer, attitudes*

## INTRODUCTION

It is general knowledge that in each production chain the most important is the last link – consumer. For every production it is very important to know why the consumers are purchasing the product and what are their preferences in that regard. In countries with developed poultry production, first and few studies of the consumer attitude towards poultry products appeared in the sixties. However, in the eighties, these studies have become more prominent and intensive, so, today, topics dealing with consumer attitudes have the most prominent place on all poultry meetings.

Favourable circumstance is that in our country, considerable attention was paid on studies of the consumer attitudes towards poultry products. From seventies to late eighties, there were several studies focused on different directions. The questionnaire poll was used as investigation method, which included predominantly consumers from Belgrade as the largest market of poultry products in our country (Mašić and Pavlovski, 1984; Mašić and Pavlovski, 1991; Pavlovski, 1981a; Pavlovski, 1981b; Pavlovski, 1982; Pavlovski and Mašić,1993; Pavlovski et al., 1980; Pavlovski and Mašić,1994; Pavlovski et al., 2002). Studies of the consumer attitudes towards poultry meat originating from extensive rearing system in our country were carried out by Rodić et al., 2003.

The aim of this paper was to select the most acceptable housing system of broiler meat production evaluating consumers' attitudes and to investigate quality of sausages made of chicken meat, applying quantitative descriptive sensory analysis.



## MATERIAL AND METHODS

Study of the consumers attitudes towards poultry meat coming from free range system of production comparing to the commercial broiler included survey of consumers of different sex (100 female and 100 male), ages 21-64 years, and level of education (high school-HSE and faculty-FE). Survey was carried out on the territory of the city of Belgrade on a simple random sample of 200 respondents using a questionnaire. Data were analyzed by SPSS 15.0.

The aim of the second part of investigation was to select the most acceptable raw type sausage made of chicken meat (from free range system), applying quantitative descriptive sensory analysis. Compared sausages samples are made with different chicken meat type: A – commercial broiler, B – commercial broiler and Naked Neck chickens (50:50 ratios) and C – Naked Neck chicken. In all three variants of sausages 20% of pork fat was added. Sensory evaluation was done after roasting. System of 9 points was used for scoring: 1-exceptionally unacceptable to 9-exceptionally acceptable. Acceptability of following attributes was valued/scored: external appearance, cross-section appearance, colour, smell, taste and texture. Thirty untrained panellists participated in scoring. Data bases were analyzed using software program SPSS 15.0. All significant differences established based on variance analysis were evaluated using T test.

## RESULTS AND DISCUSSION

In regard to the question "How important in the process of production are the following: welfare, environment, profit? (offered answers were: very important, important, not important, no opinion)", male respondents answered that the environment were very important (76.9%), also animal welfare (46.1%), whereas 46.2% answered that profit was important. Respondents of female sex found animal welfare to be important (62.5%) and environment very important (50.0%) and important (41.5%), whereas the profit was on second place with score (54.2%). Based on analyzed answers of male and female respondents, it could be concluded that the influence of sex/genus, age and level of education on what could not be established.

In regard to the question "Which type of poultry meat, coming from which system (floor system with free range, organic production) should be the most expensive or the cheapest from conventional system or floor system without range?" Respondents of different sex, age and level of education answered in following way: 100% of male respondents and 83.4% females, age from 21-35 years (100%) and high education level (92.4%) thought that the meat produced in the organic system should be the most expensive. Interesting is that lot of respondents of both sexes (46.2 % males and 29.2% females) from 51-64 years of age, 50% and 45,4% of respondents of medium education level, had no opinion about the production system from which the poultry meat should be the cheapest.

**Table1.** Question "Should the meat on the market have the indication of the system of origin?" and answers grouped according to the sex, age and education level

Question/Answer		Sex		Age			Education level	
		M	F	21-35	36-50	51-64	HSE	FE
Should the meat on the market have indication of the rearing system	yes (%)	92.3	83.3	80.0	86.7	87.5	81.8	88.5
	no (%)	7.7	16.7	20.0	13.3	12.5	18.2	11.5

**Table 2.** Question " Who should issue the certificate of origin of meat?" and answers grouped according to the sex, age and education level

Question/Answer	Sex		Age			Education level		
	M	F	21-35	36-50	51-64	HSE	FE	
Who should issue the certificate of origin of meat	Producers	7.7	4.2	0	0	12.5	0	7.7
	Producers but with present inspection	46.1	12.5	40.0	33.3	12.5	9.1	30.8
	Government inspection	0	12.5	20.0	6.7	6.2	0	11.5
	Specialized certification firms	23.1	20.8	0	13.3	31.3	27.3	19.2
	Scientific inspections	23.1	50.0	40.0	46.7	37.5	63.6	30.8

From table 1, it is obvious that 92.3% of male and 83.3% of female respondents, 87.5% from 51-64 years of age and 88.5% of respondents of high education (faculty degree) thought that meat placed on the market should have the indication of the system of production .

Table 2 shows answers to the question: „Who should issue the certificate of origin"? Most of male respondents (46.1%) thought that producers with present inspection should issue the certificates of origin, whereas 46.7% of female respondents thought that scientific inspections should be responsible for this.

**Table 3.** Consumer attitudes on meat from free range system

Question/Answer	Sex		Age			Education level		
	M	F	21-35	36-50	51-64	HSE	FE	
Is the meat produced in free range system healthier than meat produced in conventional system	yes	61.5	50.0	60.0	26.7	75.0	63.6	50.0
	no	30.8	20.8	20.0	46.6	6.2	18.2	26.9
	no opinion	7.7	29.2	20.0	26.7	18.8	18.2	23.1
Should the price of meat coming from different production systems also be different	yes	69.2	79.2	100	66.7	75.0	54.5	84.6
	no	15.4	8.3	0	20.0	6.2	9.1	11.5
	no opinion	15.4	12.5	0	13.3	18.8	36.4	3.9
Reasons for difference in prices	Meat quality	53.8	50.0	40.0	33.3	68.7	63.6	46.2
	Production costs	30.8	25.0	60.0	26.7	18.7	19.2	30.8
	Quality and costs	15.4	8.3	0	20.0	6.3	9.1	11.5
	No opinion	0	16.7	0	20.0	6.3	9.1	11.5

Consumers prefer poultry meat produced in free range system. In regard to the question: „Is the meat produced in free range system healthier than meat produced in conventional system“, 61.5% of male and 50.0% of female consumers thought that it was, 60.0% of consumers from 21-35 years of age and 63.6% of consumers with high school education. 69.2% of male and 79.2% of female consumers thought that prices of poultry meat from different production system should differ and this attitude was mostly influenced by the age (21-35) and education level (FE).

Quality of meat was the most important factor influencing the difference in prices of meat produced in different production systems.

The appearance of all examined sausages was very good. The colour of groups B and C was evaluated as acceptable, but not the usual for this sausage type. Sausages from group A had lighter colour and assessed as too pale. Group B had the highest scores for smell and taste. As a result of conducted sensory analysis, sausages from variant B were selected as the best of compared samples, with overall scores of 7.87.

**Table 4.** Results of sausages sensory evaluation (mean  $\pm$  standard deviation)

Sensory characteristics	A	B	C
External appearance	6.59 <sup>a</sup> $\pm$ 0.52	7.62 <sup>b</sup> $\pm$ 0.47	7.83 <sup>b</sup> $\pm$ 0.63
Cross-section appearance	6.91 <sup>a</sup> $\pm$ 0.44	7.37 <sup>b</sup> $\pm$ 0.62	7.25 <sup>b</sup> $\pm$ 0.38
Colour	4.88 <sup>a</sup> $\pm$ 0.21	6.14 <sup>b</sup> $\pm$ 0.18	6.57 <sup>c</sup> $\pm$ 0.25
Smell	7.93 $\pm$ 0.62	7.56 $\pm$ 0.74	7.74 $\pm$ 0.77
Taste	8.29 <sup>ab</sup> $\pm$ 0.76	8.61 <sup>b</sup> $\pm$ 0.51	7.88 <sup>a</sup> $\pm$ 0.45
Texture	7.35 $\pm$ 0.89	7.76 $\pm$ 0.62	7.80 $\pm$ 0.92
Overall acceptability	7.03 <sup>a</sup> $\pm$ 0.20	7.87 <sup>b</sup> $\pm$ 0.32	7.56 <sup>b</sup> $\pm$ 0.35

Means within rows bearing different letters are significantly different at  $P < 0.05$

## CONCLUSIONS

Sex of respondents had no significant influence on the consumers attitudes towards meat produced in different production systems, Age and education level influenced different attitudes of consumers. Group B had the highest scores for smell and taste. As a result of conducted sensory analysis, sausages from variant B (commercial broilers and naked neck) had the highest scores for smell and taste and were selected as the best of compared samples, with overall scores of 7.87.

## ACKNOWLEDGMENTS

This paper is a part of the Project EVB: TR – 31033 financial supported by Ministry of Education and Science of the Republic Serbia.

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