# PURCHASE PATTERNS OF CHICKEN MEAT IN SOUTHEAST EUROPE

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**Abstract – This study investigates perceived quality and purchase behavior towards chicken meat in seven countries of Southeast Europe. The data were gathered in 2015 with a questionnaire directed at consumers of Southeast Europe countries (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, FYR Macedonia, Montenegro, and Serbia). The information was obtained from a questionnaire that was answered by 2,368 chicken meat consumers. A cluster analysis identified four consumer segments. These segments are 'safety and environment sensitive', 'well informed and interested', 'visual and safety sensitive' and 'indifferent' chicken meat consumers.**

**Key Words – perceived quality, chicken meat, cluster analysis.**

## I. INTRODUCTION

Quality cues of chicken meat are grouped into intrinsic (such as color and fat content) and extrinsic (for example origin and quality labels), as these information provide basis for purchase judgment [1]. Chicken meat color is substantial characteristic at the point of purchase and consumers use color to predict experienced sensory quality [2]. Consumers perceive chicken to be healthier and with less fat than pork and as an important part of their diet, in terms of proteins and vitamins intake [1;3;4].

Unsustainable environmental and animal welfare practices can be valid arguments against chicken meat consumption and may cause negative opinions [5]. Chicken meat safety is connected to the risks and benefits of chicken meat consumption [1].

The purpose of the study was to identify purchase patterns of chicken meat consumers in seven countries of Southeast Europe. Limited number of research is found related to consumer-perceived patronage motives towards chicken meat. There are papers targeting consumer-perceived quality characteristics about chicken meat in certain European countries [5;6;7], but there is evident lack of studies concerning Southeast Europe.

## II. MATERIALS AND METHODS

The data were gathered in 2015 with a questionnaire directed at 2,368 consumers of seven Southeast Europe countries (Albania, Bosnia and Herzegovina (BiH), Bulgaria, Croatia, FYR Macedonia, Montenegro, and Serbia). The sample comprises 55.1% women and 44.0% men and remaining 0.9% of respondents did not give answer concerning their gender. With regard to age 28.6% of the respondents stated they were 24 or younger, 19.8% were between 25 and 34 years old, 29.0% were between 35 and 49 years old, 17.7% were between 50 and 64 years old, 4.2% were 65 or older and the remaining 0.7% did not give answer concerning age (Table 1).

Ranking questions were used to evaluate the importance that consumers assign to a series of aspects related to the quality of chicken meat at

Table 1 Socio-demographic profile of the sample (N=2,368, frequency, percentage in brackets)

| Country | | Gender | | Age (years) | | | | |
|---|---|---|---|---|---|---|---|---|
| | N(%) | Female | Male | ≤24 | 25-34 | 35-49 | 50-64 | ≥65 |
| Albania | 250 (10.6) | 169 (67.6) | 81 (32.4) | 42 (16.8) | 60 (24.0) | 79 (31.6) | 50 (20.0) | 19 (7.6) |
| BiH | 250 (10.6) | 128 (51.2) | 122 (48.8) | 20 (8.0) | 73 (29.2) | 86 (34.4) | 61 (24.4) | 10 (4.0) |
| Bulgaria | 368 (15.5) | 204 (55.4) | 164 (44.6) | 304 (82.6) | 16 (4.3) | 26 (7.1) | 22 (6.0) | 0 (0.0) |
| Monte-negro | 300 (12.7) | 147 (49.0) | 153 (51.0) | 38 (12.7) | 54 (18.0) | 131 (43.7) | 69 (23.0) | 8 (2.7) |
| Croatia | 400 (16.9) | 241 (60.3) | 159 (39.8) | 138 (34.5) | 81 (20.3) | 108 (27.0) | 64 (16.0) | 9 (2.3) |
| FYR Mace-donia | 300[a] (12.7) | 140 (46.7) | 142 (47.3) | 61 (20.3) | 65 (21.7) | 104 (34.7) | 45 (15.0) | 21 (7.0) |
| Serbia | 500[a] (21.1) | 277 (55.4) | 222 (44.4) | 84 (16.8) | 121 (24.2) | 154 (30.8) | 108 (21.6) | 33 (6.6) |
| Total number | 2,368[a] (100) | 1,306 (55.1) | 1,043 (44.0) | 677 (28.6) | 470 (19.8) | 688 (29.0) | 419 (17.7) | 100 (4.2) |

[a]Not all of the respondents gave answers concerning gender/age.

the time of the purchase and while choosing the producer whose chicken meat to buy. A five-level Likert scale (from (1) completely irrelevant (2) irrelevant (3) no opinion (4) relevant to (5) very relevant) was used to quantify the significance of each characteristic. The scale was used to record the importance of certain chicken meat characteristics (color [6;8;9], freshness [6;8], the slaughter date, fat content [6;8], type of cut [6], nutritional value [6], organic origin and country of origin [6;9]) and while estimating what kind of chicken meat respondents want to buy (chicken meat that contain less fat, that is rich in vitamins, and rich in proteins) [6].

There were also questions related to aspects that may affect the quality perception of chicken meat at the time of purchase such as: region of origin [8;9], quality [8], production that respects animal welfare [5;8], animal feeding [8], environmentally friendly production [5;7;8] and direct appraisal [8]. The questionnaire included group of questions related to aspects which, at farm level, may affect quality of chicken meat such as: animal feeding [8], animal breed [7], production system [7], environmentally friendly production [5;7;8], correct disease control [5;7;8], production that respects animal welfare [5;7;8], hygiene practices on the farm [5;7;8] and implementation of HACCP or similar food safety control system.

Principal Component Analysis (PCA) was used in order to gain a better understanding of the overall correlations in the data set and the three principal components with eigenvalues > 1 explained more than 50% of the overall variance. A cluster analysis was conducted (using SPSS 20.0) in order to classify respondents according to relevance level they attach to chicken meat characteristics at the time of purchase. The number of the clusters and the centers of each cluster were decided using a hierarchical method (Ward's method, squared Euclidean distance).

## III. RESULTS AND DISCUSSION

Cluster 1 is the largest of the clusters and it comprised 1,019 respondents. It is characterized by having a highest percentage of females, as well as respondents from Croatia. This cluster assigned the highest importance to all of the items in comparison to other clusters. Its respondents consider freshness, color, correct disease control, the slaughter date, hygiene practices on farm, implementation of the HACCP and environmentally friendly production as important (Table 2). Based on the profile described above, Cluster 1 members can be characterized as 'safety and environment sensitive' chicken meat consumers. This is in accordance with the findings that the food safety concern is positively connected to universalism (concerning care to the environment) which is positively linked with female gender [10]. Cluster 2 comprised 440 respondents. In comparison to other clusters it has the highest percent of males, as well as respondents from Bosnia and Herzegovina and FYR Macedonia. Answers to all of the questions are leaning towards 'Relevant' and the highest importance is assigned to quality, richness in proteins, organic origin of chicken meat and disease control (Table 2). According to these findings Cluster 2 members can be characterized as 'well informed and interested' chicken meat consumers with certain healthy-diet attitudes. This can be explained by the fact that in this cluster most

respondents were 35 to 49 years old which is in accordance to the findings that these consumers have higher interest in meat characteristics in comparison to younger consumers who are inexperienced buyers [11].

Table 2 Description of the four clusters in terms of chicken meat characteristics at the time of purchase (N=2,366, mean value[*,a] ± standard deviation)

| | Overall | Cluster 1 (n=1019) | Cluster 2 (n=440) | Cluster 3 (n=583) | Cluster 4 (n=324) |
|---|---|---|---|---|---|
| Quality | 4.44±0.701 | 4.64±0.562 | 4.12±0.744 | 4.56±0.550 | 4.05±0.926 |
| Region of origin | 3.71±1.025 | 4.15±0.843 | 3.66±0.955 | 3.46±0.902 | 2.81±1.105 |
| Production that respects animal welfare | 3.71±0.983 | 4.24±0.815 | 3.80±0.776 | 3.30±0.741 | 2.64±0.905 |
| Animal feeding | 3.99±0.870 | 4.46±0.609 | 3.89±0.856 | 3.75±0.741 | 3.06±0.830 |
| Environmentally friendly production | 3.82±0.900 | 4.34±0.660 | 3.95±0.735 | 3.36±0.741 | 2.86±0.798 |
| Direct appraisal of chicken meat | 4.23±0.786 | 4.55±0.567 | 3.80±0.880 | 4.24±0.673 | 3.74±0.908 |
| Producer - Animal feeding | 4.03±0.899 | 4.53±0.588 | 3.88±0.851 | 3.86±0.681 | 2.98±1.014 |
| Producer - Animal breed | 3.88±0.897 | 4.41±0.622 | 3.67±0.905 | 3.55±0.723 | 3.07±0.905 |
| Producer - Production system | 3.82±0.899 | 4.37±0.653 | 3.81±0.715 | 3.49±0.688 | 2.72±0.809 |
| Producer - Environmentally friendly production | 3.81±0.945 | 4.41±0.651 | 3.89±0.725 | 3.38±0.729 | 2.63±0.824 |
| Producer - Correct disease control | 4.31±0.793 | 4.71±0.499 | 4.01±0.682 | 4.38±0.700 | 3.32±0.823 |
| Producer - Production that respects animal welfare | 3.85±0.945 | 4.44±0.628 | 3.84±0.859 | 3.46±0.685 | 2.69±0.857 |
| Producer - Hygiene practices on the farm | 4.23±0.867 | 4.70±0.496 | 3.92±0.774 | 4.20±0.707 | 3.18±1.031 |
| Producer - Implementation of the HACCP | 4.15±0.958 | 4.64±0.613 | 3.90±0.975 | 4.11±0.791 | 3.03±1.018 |
| Color | 4.39±0.744 | 4.72±0.475 | 3.70±0.871 | 4.39±0.691 | 4.32±0.664 |
| Freshness | 4.60±0.646 | 4.93±0.260 | 3.71±0.747 | 4.72±0.457 | 4.59±0.506 |
| The slaughter date | 4.36±0.772 | 4.71±0.544 | 3.87±0.758 | 4.31±0.702 | 4.04±0.968 |
| Fat content | 4.03±0.918 | 4.47±0.634 | 3.73±0.954 | 3.48±0.961 | 4.03±0.856 |
| Type of cut | 3.45±1.116 | 3.91±1.042 | 3.54±0.884 | 2.69±0.929 | 3.27±1.153 |
| Nutritional value | 4.11±0.874 | 4.50±0.687 | 3.83±0.907 | 3.65±0.868 | 4.10±0.821 |
| Organic origin | 3.98±0.938 | 4.45±0.719 | 4.02±0.794 | 3.35±0.875 | 3.55±0.993 |
| Country of origin | 4.05±0.955 | 4.51±0.726 | 3.86±0.915 | 3.62±0.908 | 3.66±1.086 |
| Chicken meat that contain less fat | 3.97±0.990 | 4.29±0.897 | 3.91±1.015 | 3.40±0.879 | 4.08±0.964 |
| Chicken meat that is rich in vitamins | 4.13±0.859 | 4.47±0.724 | 3.90±0.788 | 3.58±0.825 | 4.36±0.804 |
| Chicken meat that is rich in proteins | 4.21±0.893 | 4.55±0.676 | 4.23±0.691 | 3.54±0.973 | 4.31±0.926 |

[*] All differences are statistically significant at $p<0.001$ (Kruskal-Wallis test).
[a] 1 = completely irrelevant, 2 = irrelevant, 3 = no opinion, 4 = relevant, 5 = very relevant.

Cluster 3 comprised 583 respondents and, in terms of age, it included the highest percentage of consumers in three age ranges, from 25 to 64 years old and the lowest percentage of the youngest respondents (≤24) among the clusters. In comparison to other clusters it has the highest percent of respondents from Albania and Serbia. This cluster assigned the importance to freshness, quality, color, correct disease control, slaughter date and direct appraisal of chicken meat (Table 2). These findings support the characterization of Cluster 3 members as

chicken meat consumers to whom standardization of production and visual quality characteristics is of great relevance. This is in correlation with the fact that young consumers are expected to be less interested in meat eating-quality [11] in comparison to 'visual and safety sensitive' older consumers.

Cluster 4 is the smallest of the clusters. It comprised 324 respondents and, in terms of age, it included the highest percentage of young consumers (≤24) among the clusters. In comparison to other three clusters it has the highest percent of respondents from Bulgaria and Montenegro. Answers to majority of questions are leaning towards 'No opinion', but, for the respondents of the cluster, nutritional value, lower fat content and richness in vitamins and proteins is relevant (Table 2). According to these findings Cluster 4 members can be characterized as 'indifferent' chicken meat consumers which is in accordance with the fact that young people experience higher uncertainty during product purchase [12].

## IV. CONCLUSION

Four consumer segments are 'safety and environment sensitive' chicken meat consumers, 'well informed and interested' chicken meat consumers with certain healthy-diet attitudes, 'visual and safety sensitive' chicken meat consumers to whom standardization of production is of great relevance and 'indifferent' chicken meat consumers with a certain interest in nutritional value. Chicken meat producers who place their products on Southeast Europe market should use appropriate marketing techniques to reach specific consumers that this study identified and redesign products in order to fit their needs. Further research should focus on reasons and mode of chicken meat consumption, as well as on frequency of chicken meat purchase and consumption in comparison to other meat types.

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