

## STUDY OF GAME MEAT CONSUMPTION AMONG HUNGARIAN CONSUMERS

BODNAR KAROLY\*<sup>1</sup>, KUN LEVENTE LASZLO<sup>1</sup>

<sup>1</sup>*Hungarian University of Agriculture and Life Sciences, Szarvas, Hungary*

\*Corresponding author's e-mail: bodnar.karoly.lajos@uni-mate.hu

***Abstract:** A questionnaire survey was conducted among the population about game meat consumption habits. In addition to demographic data, they were asked about, among other things, the species consumed, the frequency of consumption, the place and method of purchase. Among the respondents, hunters were overrepresented. They declared their preference for meat, which species they would like to try, and what types of dishes are often prepared from game meat. Hunters have already eaten many game species, but many people want to try species considered exotic and even hardly suitable for human consumption. Game meats are generally considered a healthy food.*

***Keywords:** consumption pattern, game meat, marketing, hunting, health*

### INTRODUCTION

The main determinants of per capita meat consumption are per capita income, natural resources, culture, religion, traditions, economic and social background and meat prices [10].

The conditions for wildlife management in our country are particularly good. Hunting companies sell 80% of the game they shoot to game meat processors. Domestic game meat utilization has been constantly changing in the past period. In domestic game meat sales, lower quality goulash meat and mincemeat often appear. The processors often sell the more valuable parts abroad.

The annual consumption of game meat per capita is less than 1 kg. Consumers prefer to buy the meat of domestic animals because they know it, but it is not necessarily cheaper, they do not have information about the specific nutritional benefits of the meat of wild species [2]. During a research, it was found that the majority of interviewed residents consumed game meat, and most of them consider game meat to be of better and more special quality than the meat of domestic animals.

The hunter assesses the health of the game before shooting it. If its meat is intended for human consumption, then in order to reduce the health risk, the hunting persons must have sufficient knowledge and practice on the post-mortem examination of the animal and the pathology of the game, as well as on-site treatment of the body after the hunt [3].

In recent years, the public's demand for the consumption of healthy and organic products has increased, so it is increasingly expected that there is understandable and reliable data about the purchased products, but also about their producers and suppliers, which results in the creation of trust between consumers, processors and between traders [8]. The meat must be suitable for consumption and free of metals. The packaging label must state, among other things, the species, the origin of the product and the content of nutrients. The widest possible range of relevant information helps to strengthen consumer confidence [11].

Some men consider game meat to be a high-quality and healthy type of meat, however, since they are not aware of its internal values, the majority of people cannot justify why game meat is better than the meat of domestic animals. Those belonging to this group, with a relatively low level of social literacy, usually consume fatty products, such as sausage, and their diet contains health risks. Marin et al. [9] categorized them as Big monotonous consumers.

The habits and attitudes of consumers regarding hunted wild game meat are strictly related to the geographical context for various reasons (the species that can be hunted, cultural differences, the perception of hunting, etc.) [1]. Game meat has specific

characteristics that make it desirable for modern people, although market access is limited and food safety standards are not balanced enough. In the ten examined European countries, the consumption of game meat was influenced by the geographical location (the population of South-Eastern European countries eat more of it than that of Central European countries). Men and older residents eat more game meat than women or younger age groups. Based on the quality of wild game meat, consumers prefer it compared to other types of meat based on its effect on health and nutritional properties [14]. In Central Europe, the younger generation is more influenced by price and sensory properties (taste, smell, quality). The population of Romania is increasingly consciously emphasizing the consumption of high-quality meat and meat products for the sake of a healthy lifestyle. They are willing to pay up to 30% more for high-quality meat, but traceability of the product's origin is an expected factor when purchasing [13]. Game meat is most often consumed in Bulgaria, as it is a significant part of the region's gastronomic traditions. In Spain, the consumption of red partridge, red deer and wild boar is significant, and the popularity of rabbit meat among hunters in general is outstanding [12]. The nature and environment protection, rural development and health sectors play a role in managing the consumption and demand for tropical game meat, for the sake of sustainable hunting [6].

It is the responsibility of professionals to modernize traditional recipes and develop new recipes that can even be used in public catering [15]. The family also has a responsibility to educate children's taste by example, as well as to dare to experiment and show new tastes in everyday life.

According to Fantechi et al. [5], the relationship with animal welfare and hunting determines the affinity for game meat. Marescotti et al. [7] also found that people who eat game meat pay more attention to animal welfare.

During the work started, an answer was sought to the question of the acceptance of game meat among the hunting and non-hunting domestic population, the frequency of consumption, the popularity of different game species, and what factors hinder the increase in consumption.

## MATERIALS AND METHODS

This work is part of a series of investigations planned for several years at the Szarvas Site of MATE SZIC, which has already started, and which aims to explore the opinion of the population about game meat, the information available to consumers, as well as customs related to the consumption of game meat and possible reasons for refusing to eat it. According to expectations, the time span of the investigation will also provide an opportunity to detect changes in consumer habits.

The data was collected by online questionnaire survey in Hungary. The questionnaire was created using the Google Form software. The questionnaire was distributed on an online social platform using the snowball method. The questionnaire collected the following data:

- personal information from the interviewed persons (age, gender, place of residence, hunting activity);
- opinion on the consumption of game meat (reasons for consumption or rejection);
- frequency of consumption;
- opinion on the meat of the most important hunted species in our country (preference, enjoyment value);
- ways and sources of buying game meat.

The results are presented with the frequency distribution of the answers, and individual opinions were also collected.

## RESEARCH RESULTS

240 fully completed, evaluable questionnaires were collected. The relatively low number of completed questionnaires did not allow reliable statistical tests to be performed. The results of the investigation so far cannot be considered representative.

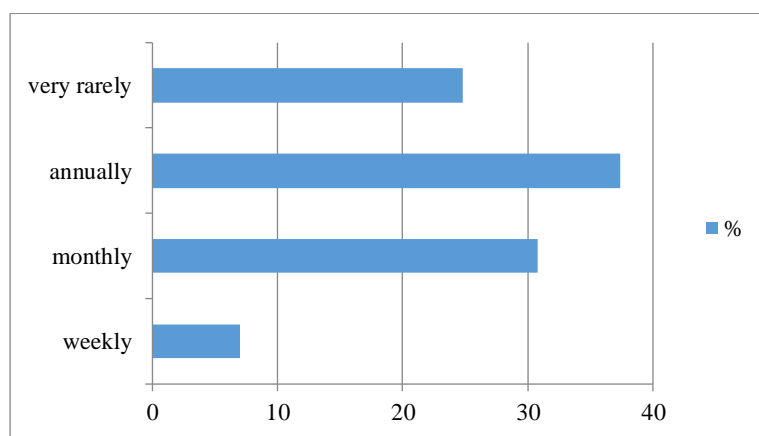
The distribution of the persons participating in the survey according to age and gender was as follows. 58.8% of the respondents were women. The majority of respondents belonged to the active adult age group (18-65 years: 94.2%), perhaps thanks to the fact that the survey did not aim to address the younger age group (only 2 people under the age of 18 filled out the questionnaire). The age group over 65 was represented by only 5%.

According to place of residence, the majority of respondents were urban residents. Responses were received from all counties, but Nógrád County was overrepresented by 47.1% compared to the proportion of the population.

Based on the perception of income, the majority (70.4%) considered their income situation to be average. The majority of those who chose the above-average category (19.6%) also hunt. 22.1% of the respondents hunt. This ratio is higher than the ratio of hunters to the Hungarian population, as only 0.5% of the population hunts. There were only two ladies among those engaged in hunting activities.

The vast majority of respondents have already consumed game meat (95.4%). Only 11 people claimed that they had never eaten game to their knowledge. We observed differences in the frequency of consumption (Figure 1). They consume only 7% per week, of course they were all hunters. 30.8% eat venison every month (among them there were also hunters and those who get venison from relatives or acquaintances. 37.4% only eat venison 1-2 times a year, at significant family events. Out of 240 people surveyed, only 11 refused the consumption of meat and/or game meat.

There are those who do not have enough information about the properties of the meat of different game species, and there are those who do not know where to buy it (despite the fact that domestic distribution is also constantly expanding). Most often, the emotional reason was indicated. Only one person expressed concern about the hygienic condition of game meat and zoonoses. Specifically, the respondent mentioned his fear of wild boar trichinellosis and the general hygienic condition of the meat of hunted animals.

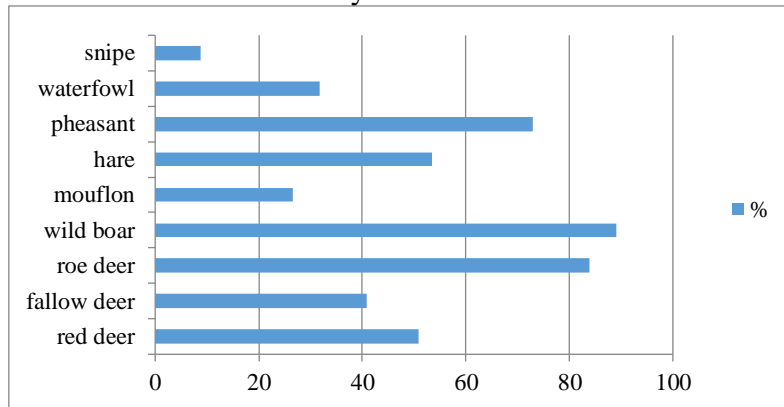


**Figure 1. Distribution of respondents according to frequency of consumption**

*Source: authors*

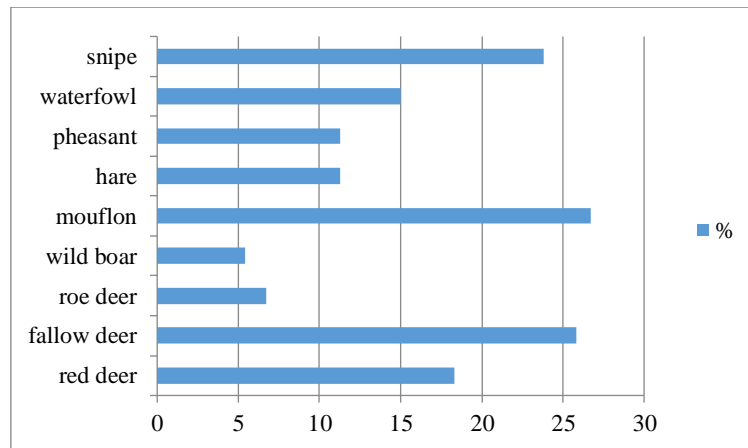
Figure 2 illustrates the distribution of game meat in terms of the species of the main game consumed. It was possible to mark several answers to the question, so the number of answers exceeds 100%. The three most commonly eaten game are wild boar, roe deer and pheasant. It was possible to mark other animals under the other item, where we encountered the following species: badger, grouse, fallow deer, antelope species, chamois, beaver, bear,

Balkan gerbil, ringed pigeon, partridge, wild goose, elk, marmot, quail. Some of these species are assumed to have been tasted by the interviewees abroad.



**Figure 2. Distribution of the main wild game consumed by species**  
*Source: authors*

The two groups of respondents responded differently to the question of which species of meat they would like to try if they had the opportunity. Non-hunters usually marked domestic huntable species (Figure 3). And the hunters mostly entered species that they had not yet had the opportunity to shoot down, such as: elk, reindeer, bear, cougar, grouse, grouse, chamois, mountain goat, kaffir buffalo, beaver, and African species of antelope, bison, and crocodile.



**Figure 3. Distribution by species of the main game to be consumed**  
*Source: authors*

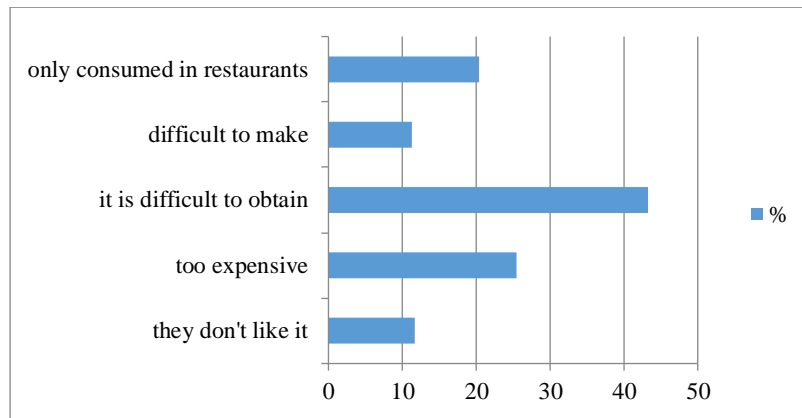
The popularity of each game species was determined by most respondents based on the price, quality and appearance of the product. The majority of the respondents ranked primarily based on price (some indicated two species: a small game and a large game), but the popularity and predominance of pheasant, wild boar and roe deer in the answers indicates that these species can be obtained relatively often, easily and at a reasonable price.

According to 43.3%, it is difficult to obtain, 25.4% consider it excessively expensive. When increasing consumption, it must be taken into account where people primarily consume game (Figure 4). 62.1% prepare it at home, while 47.9% are only willing to eat it in a restaurant or guest house.

More individual opinions on what influences their habits:

- he has never tasted it before,
- until now he has eaten often and is bored,

- not eat more often, because he want to eat a varied diet,
- rarely eats meat anyway,
- rejects game for ethical reasons,
- doesn't make it more often because other family members don't like it,
- rarely gets around to cooking.



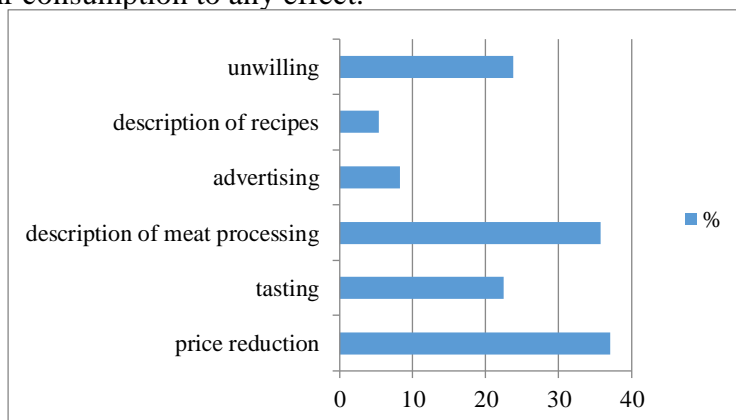
**Figure 4. Main reasons for rejection**  
Source: authors

When examining the access to game meat, the experience was that, of course, if the respondent hunts himself, or if the hunter lives in his environment, it is easier to get game meat, or he obtains the game meat directly from those entitled to hunt. 16.7% buy it in traditional butcher shops, while it is hardly sought after in the refrigerators of supermarket chains. Several commented that they preferred fresh pre-chilled products over frozen.

Comparing the price of game meat with the price of domestic animals' meat, consumers could give a score of 1-5 (1 – much cheaper, 5 – it was much more expensive). The average score of 4.1 points means that people consider game meat much more expensive compared to other types of meat.

From the point of view of increasing demand, it is important to know to what effect the consumer would be willing to increase their consumption (Figure 5).

Reducing the price could significantly increase consumption. Many would like to know more about the processing and preparation of wild game (35.8%). The cooking programs seem to be relatively ineffective, and almost a quarter of the respondents would not increase their consumption to any effect.



**Figure 5. Factors influencing the increase in consumption**  
Source: authors

In relation to the above, additional individual opinions have appeared:

- Several people complained that when they shop at a butcher shop, they know relatively little about the animal's age, sex, and habitat.
- Some consumers objected to the high price of game meat, especially deer meat.
- There were few people who knew more than two or three recipes.
- Many people either don't know how to prepare game or consider it too complicated, time-consuming and "problematic".
- The majority attribute favorable properties to the products: they are healthy, rich in protein and minerals, an almost organic product, and contain little fat compared to the meat of domestic animals.
- There are those who explained the decrease in their consumption by the decrease in their standard of living: "because of the price, they buy chicken instead of pork".

### CONCLUSIONS

The main findings of the survey can be summarized as follows:

- Based on their income situation, the respondents feel that they have an average and above-average income rather than a below-average one. (The data was collected before the strong increase in inflation.)
- The hunters participating in the study eat game meat regularly and willingly, and do not complain that it is difficult to obtain. These results agree with the research results of other authors [4].
- The most commonly consumed wild game are the more common domestic big and small game species, while the wishlists of consumers (including hunters) include many exotic game and species that we do not usually find suitable for food.
- The majority consider game meat to be particularly tasty and healthy food, and do not consider its consumption to be a concern from a hygienic point of view.
- Those who can prepare game are also happy to cook game. Those who are not familiar with kitchen techniques can get game food from relatives, acquaintances and restaurants. Some of the housewives consider the processing of game to be tiring.
- Among those who reject game meat, there are (unfortunately) several people who do not eat it for ethical and emotional reasons, and some even do not eat meat at all.
- The increase in consumption is primarily expected from price reductions and least from advertising.
- Consumers prefer fresh, pre-chilled venison to frozen meat.

The research will continue in the future in order to create a more accurate picture of the relationship between game meat and consumers in Hungary.

### REFERENCES

- [1]. ANNAFRANCESCA C., ELENA M.M., EUGENIO D., ANNA G., 2022, Consumers' perceptions and attitudes toward hunted wild game meat in the modern world: A literature review, *Meat Science*, 108955. DOI: 10.1016/j.meatsci.2022.108955
- [2]. BODNÁRNÉ SKOBRÁK E., BODNÁR K., 2014, Main traits of the wild boar meat in its marketing, *Lucrări Științifice Management Agricol*, 16 (2), 81-86
- [3]. CRĂCIUNESCU A., STANCIU S., MOATĂR M., 2014, Research on European Union regulations regarding meat from hunted animals, *Journal of Agroalimentary Processes and Technologies*, 20 (2), 116-121
- [4]. CZARNIECKA-SKUBINA E., STASIAK D.M., LATOCH A., OWCZAREK T., HAMULKA J., 2022, Consumers' perception and preference for the consumption of wild game meat among adults in Poland, *Foods*, 11 (6), 830. DOI: 10.3390/foods11060830

- [5]. **FANTECHI T., CONTINI C., SCOZZAFAVA G., CASINI L.**, 2022, Consumer preferences for wild game meat: evidence from a hybrid choice model on wild boar meat in Italy, *Agricultural and Food Economics*, 10 (1), 23. DOI: 10.1186/s40100-022-00231-w
- [6]. **INGRAM D. J., COAD L., MILNER-GULLAND E. J., PARRY L., WILKIE D., BAKARR M. I., ABERNETHY K.**, 2021, Wild meat is still on the menu: Progress in wild meat research, policy, and practice from 2002 to 2020, *Annual Review of Environment and Resources*, 46, 221-254. <https://doi.org/10.1146/annurev-environ-041020-063132>
- [7]. **MARESCOTTI M. E., CAPUTO V., DEMARTINI E., GAVIGLIO A.**, 2019, Discovering market segments for hunted wild game meat, *Meat Science*, 149, 163-176. DOI: 10.1016/j.meatsci.2018.11.019
- [8]. **MARIN D.**, 2016, Research regarding the frequency of meat consumption according of origin species. *Lucrari Stiintifice Management Agricol*, 18 (3), 5-11
- [9]. **MARIN D., PETROMAN C., CIOLAC R., IOSIM I., DINCUI A. M., VĂDUVA L., OKROS A.**, 2022, Research regarding the types of eating behavior of consumers in European area, *Lucrari Stiintifice Management Agricol*, 24 (1), 69-74
- [10]. **MILFORD A.B., LE MOUËL C., BODIRSKY B. L., ROLINSKI S.**, 2019, Drivers of meat consumption, *Appetite*, 141, 104313. <https://doi.org/10.1016/j.appet.2019.06.005>
- [11]. **NIEWIADOMSKA K., KOSICKA-GĘBSKA M., GĘBSKI J., GUTKOWSKA K., JEŻEWSKA-ZYCHOWICZ M., SUŁEK M.**, 2020, Game meat consumption—Conscious choice or just a game?, *Foods*, 9 (10), 1357. DOI: 10.3390/foods9101357
- [12]. **SEVILLANO MORALES J., MORENO-ORTEGA A., AMARO LOPEZ M. A., ARENAS CASAS A., CÁMARA-MARTOS F., MORENO-ROJAS R.**, 2018, Game meat consumption by hunters and their relatives: a probabilistic approach, *Food Additives & Contaminants: Part A*, 35 (9), 1739-1748. DOI: 10.1080/19440049.2018.1488183
- [13]. **TARPIAN D.I., TARPIAN N. D., BUTNARU B. D., VOICU G. O., PEȚ E.**, 2021, Study regarding meat consumption, *Lucrari Stiintifice Management Agricol*, 23(3), 113-117
- [14]. **TOMASEVIC I., NOVAKOVIC S., SOŁOWIEJ B., ZDOLEC N., SKUNCA D., KROCKO M., DJEKIC I.**, 2018, Consumers' perceptions, attitudes and perceived quality of game meat in ten European countries, *Meat Science*, 142, 5-13. DOI: 10.1016/j.meatsci.2018.03.016
- [15]. **VERESNÉ B.M., LICHTHAMMER A., ORBÁN CS., TÁTRAI-NÉMETH K.**, 2014, A szarvashús étrendbe illesztésének új lehetőségei. *Acta Agraria Kaposváriensis*, 18 (1), 87-95