

## EVOLUTION OF TRICHINOSIS CASES IN MEAT SAMPLES TESTED IN THE BIHOR COUNTY IN 2008 AND 2009

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### Abstract

*The area of authority and surveillance of the DSVSA has proved to have a high potential for trichinosis (1.18%) when it comes to meats from sylvan sources, whereas traditional slaughtering implies a relatively low potential for trichinosis; however, the incidence of 0.14% positive cases recommends that the program of surveying this meat category through trichinosis testing be continued. The fact that the potential for trichinosis is very low in meat obtained in slaughterhouses, therefore the risk level being practically zero, the existence of a potential for trichinosis in other meat categories would not justify giving up tests for detecting trichinosis.*

**Key words:** meat samples, trichinosis, farms, venison, population's homesteads, positive cases.

### INTRODUCTION

Our study was performed on samples sent for analysis to the laboratory and to all the divisions covered by the authority of the Sanitary-Veterinary and Food Safety Department.

Following the analysis of the sanitary-veterinary evidence, including data resulted from monitoring the numbers and configurations of meat samples tested in the county, we were able to obtain significant data regarding the evolution of trichinosis in a Romanian county.

The extent and intensity of *Trichinella* infestation are influenced by: its presence and degree of infestation of aliments important in the transmission of trichinosis to human beings; the habit of consuming raw, smoked or insufficiently cooked meat; the lack of prophylactic-curative measures or their inefficiency; poverty and the population's lack of sanitary education.

A person's receptiveness to *Trichinella* infestation is not influenced by race, gender, age, education, social and economical status or season.

### MATERIAL AND METHODS

The material used for the present paper is made up of the evidence regarding trichinosis tests, data collected by the division of Epizootology of the Sanitary-Veterinary and Food Safety Department; the facts were gathered over a period of two years, 2008-2009, in all the regions under its

authority and concern the examination of samples in order to diagnose trichinosis both in domestic swine meat and in venison.

## RESULTS AND DISCUSSION

The obtained data was statistically processed in order to evaluate the frequency of positive cases compared to the total number of tested samples during 2008 and 2009.

The positive cases revealed and described some of the morphopathological aspects that characterize the potential for trichinosis of the surveyed area.

**In the year 2008** a total number 21973 pigs were examined concerning trichinosis, out of which 10633 samples were analyzed in slaughterhouses; 507 samples from wild boars were tested, as well as 10833 samples coming from traditional slaughters.

The following graph reveals that: pigs slaughtered in farms and slaughterhouses account for 10633 of the analyzed samples, which means 48.39% of the total of examined pigs. In 2008, a number of 507 wild boars were tested, representing 2.31% of the total. Domestic swine slaughtered in people's homesteads account for 10833 of the samples, which represents 49.30% of the total number of pigs tested in 2008.

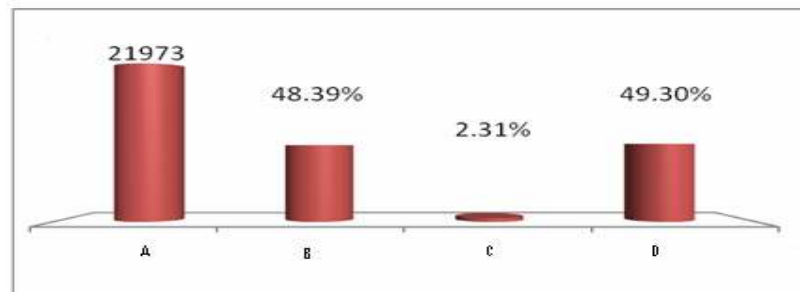


Fig. 1 Percentages of swine slaughters in various locations in 2008: A-Total of slaughtered swine, B – farms or slaughterhouses, C- wild boars, D- people's homesteads.

The above graph shows that the number of samples from slaughterhouses is approximately equal to that of samples from traditional slaughters.

**In 2009** a total of 30718 swine samples were analyzed, out of which 9792 in slaughterhouses, 326 wild boars were hunted and tested, whereas homesteads accounted for 20600 samples of domestic pigs.

A number of 9792 samples of pigs coming from slaughterhouses and farms were analyzed, which represents 31.87% of the total number of examined pigs. In 2008, 326 samples from hunted wild boars were tested, representing 1.06%, and 4 samples came from bears, accounting for 0.01%

of the total. As to pigs from people's homesteads, a total number of 20600 samples were tested, that is 67.06% of the total number of analyzed samples in 2009.

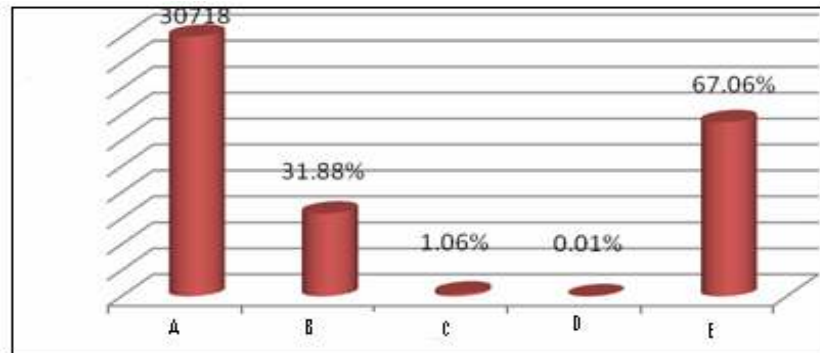


Fig. 2 Percentages regarding slaughters of domestic and wild swine during 2009: A- Total slaughtered swine, B – farms or slaughterhouses, C- wild boars, D- bear, E- people's homesteads.

The samples derived from traditional slaughters are predominant in 2009 (representing 67.06%), followed by pigs from authorized slaughterhouses (a percentage of 31.88%), while venison samples are very few (percentage of only 1.07%).

From the total of 52695 samples analyzed during 2008 and 2009, 76 samples were diagnosed positive, infected with *Trichinella spp.*, which represents a percentage of 0.14% positive samples.

In **2008** a total of 21973 samples were analyzed and 27 samples tested positive, which means 0.12%, while in 2009, a percentage of 0.15% was recorded, which stands for 49 positives out of a total of 30722 samples.

It is important to point out the fact that none of the samples from **slaughterhouses** came back positive during the studied period.

In 2008, out of the 507 samples of **venison** that were tested, there was only one positive, leading to a percentage of 0.19% positive, but in 2009, out of the 330 tested venison samples (326 wild boars, 4 bears) 6 samples were diagnosed positive for *Trichinella spp.*, of which 50% were wild boars and 50% bears. The percentage of positive samples recorded a value of 1.18% of the total 330 analyzed samples.

If we were to have a comparative look at the positive venison samples recorded during the two studied years, the situation would be as follows: out of the total of 837 analyzed samples, only 7 were diagnosed positive; during the first and third trimesters of 2008 and 2009, there were no cases of positive diagnoses, on the other hand, in the second trimester of 2009 a sample coming from a bear tested positive, the highest number of positive venison samples being analyzed in the fourth trimester of 2009, and consisting of 5 samples

Table 1

Frequency of positive venison samples				
YEAR	Trimester	Number of samples	Positive	Total
2008	I	101	-	507
	II	-	-	
	III	47	-	
	IV	359	1	
2009	I	138	-	330
	II	2	1	
	III	26	-	
	IV	164	5	

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Regarding the samples derived from **traditional slaughtering**, the following values were recorded: in 2008, out of the total of 10833 analyzed samples, 26 were diagnosed positive for *Trichinella spp.*, which represents 0.24%; in 2009 out of a total of 20600 samples, 43 were diagnosed positive, representing a percentage of 0.20%.

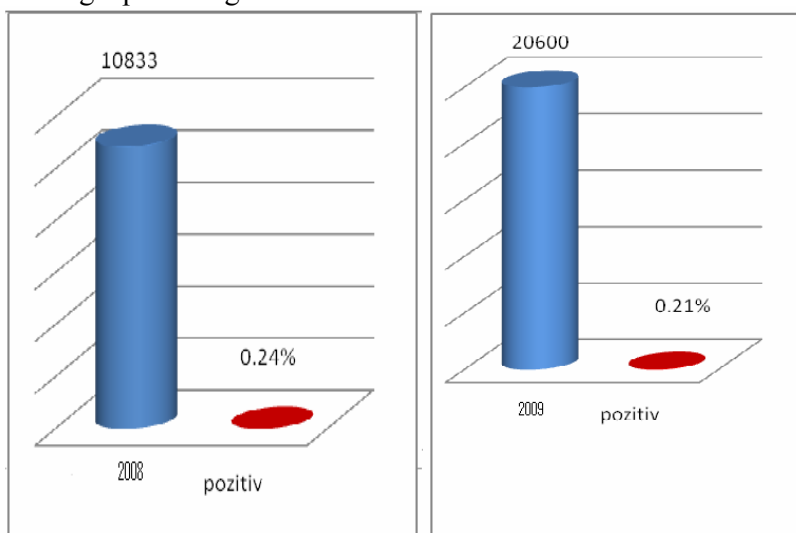


Fig. 3 Frequency of positive cases coming from people's homesteads

In 2008 and 2009 positive samples coming from people's homesteads were distributed quarterly as follows:

Table 2

Trimester distribution of positive samples from homesteads

2008	Analyzed samples	Positive	Percent
Trim. I	1490	15	1%
Trim. II	1328	6	0.45%
Trim. III	1019	3	0.29%
Trim. IV	6996	2	0.02%
2009			
Trim. I	684	10	1.46%
Trim. II	958	2	0.20%
Trim. III	555	5	0.90%
Trim. IV	18403	26	0.14%

When we compare the positive cases recorded during the two years of study, the situation is as follows: out of the total of 31433 analyzed samples, 69 were diagnosed positive; 21.74% samples were diagnosed in the first trimester of 2008 and 14.49% in the first trimester of 2009; in the second trimester of 2008, we had a percentage of 8.70% of the total, but during 2009, the percentage of positive samples was lower, that is 2.90%, whereas in the third trimester of 2008, the percentage decreases compared to that of the second trimester, reaching a value of 4.35%, while in 2009 it reaches 7.25%. During the 4<sup>th</sup> trimester of 2008 the percentage of positive analyses is 2.90%, while during the same trimester of 2009 the percentage is at its highest, reaching 37.68%.

## CONCLUSIONS

1. In the area of authority of the D.S.V.S.A. (Sanitary-Veterinary and Food Safety Department) studied in this paper, **a large number of samples (52695)** was tested, which leads to the conclusion that it is an area where the consumption of pork from slaughterhouses, homesteads and venison is extended.

2. The quantity of meat obtained in slaughterhouses is roughly equal to the quantity of meat from traditional slaughtering.

3. There is a seasonal character that balances the extent of traditional slaughtering.

4. As to venison, there is a seasonal character noticeable during the first and fourth trimesters, due to the period in which the hunting of species that are potentially infected with trichinosis (wild boars and bears) is not allowed.

5. Out of the total of 52695 analyzed samples, 76 were positive, which represents a percentage of 0.14%; this means that the area does not have a high potential for trichinosis, but the fact that 1.18% of venison

samples tested positive in 2009 shows that the sylvatic area holds a high risk regarding trichinosis and must be monitored.

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