

## SAFETY AND QUALITY OF PORK ON AGROFOOD MARKETS OF ODESSA REGION

Ludmila Tarasenko<sup>1</sup>, Maria Khimich<sup>1</sup>, Olha Piven<sup>1</sup>, Valentyna Savchenko<sup>1</sup>

<sup>1</sup>Odessa State Agrarian University, Ukraine

### Abstract

*The article presents the results of monitoring of safety and quality of pork which sale in conditions of Odessa region. Analysis of reporting of questions of experimental research issues that on the modern stage operating control system for the safety and quality of pig slaughter products in the districts of Odessa region cannot fully guarantee the safety of slaughter products for the consumer. Carcasses came to the agrofood markets with different stages of freshness: 91.11 % – fresh and 8.89 % – dubious fresh. Total microbial contamination exceed the allowable level in 21.43 % cases and 64.29 % carcasses of dubious fresh. Coliforms and salmonella plated from the surface in 14.29 % of fresh carcasses; 57.14 % and 35.71 % carcasses with dubious fresh. 21.43 % fresh carcasses and 71.43 % carcasses with dubious fresh showed the toxicity.*

**Key words:** pork, quality, safety

### INTRODUCTION

Meat plays a big role in human nutrition. It is a significant part of his diet. Meat industry provides the population with a wide range of products. On the territory of Ukraine the main bulk of meat is pork [1, 10, 11].

In recent years the question of safety and quality of Ukrainian products has become extremely acute. A well-developed and practically functioning control system in modern conditions proved to be ineffective. It can't guarantee safety and quality since it almost does not take into account the preventive effect. Control is still taking place mainly at the last stage – when a product arrives for sale. This problem is most urgent in the conditions of agrofood markets [2, 9].

So we put the aim to define the safety of pork on agrofood markets of Odessa region, considering the actuality of this question.

### MATERIAL AND METHODS

Veterinary reporting (form № 5-vet and № 2a-vet) for 2014–2016 and 90 carcasses of pigs that came to agrofood markets for sale were the materials of researches.

Work was carried out on two stages. On the first stage we analyzed the veterinary reporting. On the second stage we determined the safety indexes of pig's carcasses that came for sale on agrofood markets.

The reporting documentation was processed statistically. In the determination of pork's safety used the organoleptical, physical, chemical, microscopic, bacteriological and toxicological methods of researches [3-5, 7, 8].

### RESULTS AND DISCUSSION

On the first stage we investigated the dynamics of sale of products of pig's coalface on agrofood markets in districts. Also we analyzed the results of veterinary-sanitary examination in conditions of state laboratories of veterinary-sanitary examination on markets after 2014–2016 (fig. 1).

Determined that 7629 carcasses of pigs came for sale on agrofood markets of districts for experience years. Also set a tendency in relation to decrease the number of coalface's products that come for sale. Soin 2014 came 37.57 %, in 2015 – 32.58 % andin 2016 – 29.85 % from the general amount of products.

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\*Corresponding author: tarasenkola1965@gmail.com

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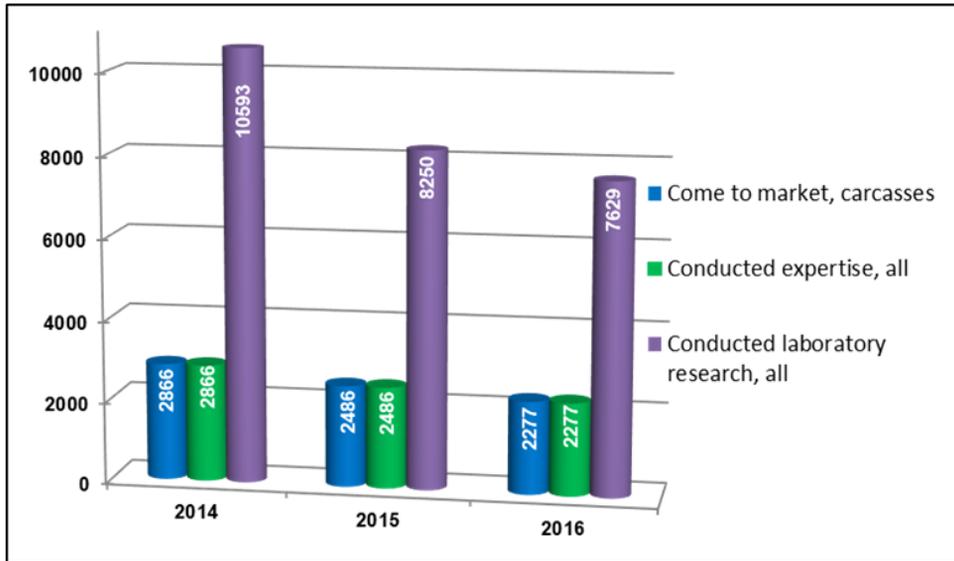


Fig. 1 The dynamics of sale and veterinary-sanitary examination of products of coalface of pigs in State Laboratories of Veterinary-Sanitary Examination on markets after 2014-2016

According to the results of analysis of statistical data established that on the markets were examined and conducted 26472 laboratory researches by specialists of state laboratories of veterinary-sanitary examination. All carcasses of pork that came for sale were investigated organoleptically (including breakdown of cooking), trichinelloscopy, researches for finnosis and other parazitoses were performed. At the same time determination of physical and chemical indexes and bacterioscopy of carcasses was conducted not always. The radiological researches were not conducted at the accounting period.

The analysis of the data got on the first stage of researches generated a question concerning ability of the conducted veterinary-sanitary examination on markets to provide the assured safety of products for a consumer. Obviously, that such system of monitoring does not provide the exposure of all risks.

On the second stage we conducted the definition of indexes of pork's safety according to current state requirements [6]. In the beginning we studied the stage of pork's freshness. The obtained results some differed depending on the method used (Tab. 1).

Table 1 Comparative evaluation of the results of determination of pork's freshness depending on the method used (n=90)

Object of research	Investigated samples	Organoleptical research						Biochemical and microscory research, pH					
		fresh		dubious freshness		not fresh		fresh		dubious freshness		not fresh	
		quantity	%	quantity	%	quantity	%	quantity	%	quantity	%	quantity	%
Pork	90	84	93.33	6	6.67	-	-	82	91.11	8	8.89	-	-

By results of organoleptic studies 84 carcasses were fresh, 6 – dubious fresh. It presented on table 1. Not fresh carcasses did not reveal. According the results of laboratory

research (pH, amount of volatile fatty acids, reaction to peroxidase, reaction with CuSO<sub>4</sub>, bacterioscopy of smears prints) two carcasses from fresh category were categorized as

dubious fresh. The results indicate that for the final evaluation it is necessary to use biochemical or microscopy methods.

Further we determined the microbiological indexes and general toxicity of pork. We selected 8 carcasses from categories «fresh» and «dubious fresh» for this purpose.

From carcasses recognized as fresh total microbial contamination were more than the allowable level plated from 21.43 %, coliforms and salmonella – from surface of 14.29 % carcasses according to the results of bacterioscopy research.

As for carcasses of dubious fresh total microbial contamination exceeded the allowable microbial contamination exceeded the allowable level in 64.29 % cases, coliforms plated from the surface in 57.14 % cases, salmonella – from 35.71 % carcasses. Microflora was not isolated from the muscle mass.

21.43 % of carcasses recognized as fresh and good quality showed low toxicity during determining total toxicity. As for carcasses from dubious fresh category the toxicity was in 71.43 % cases: 21.42 % showed moderate toxicity and 50.01 % – low toxicity.

## CONCLUSIONS

Operating control system for the safety and quality of pig slaughter products in the districts of Odessa region cannot fully guarantee the safety of slaughter products for the consumer at the present stage:

1. Carcasses came to the agrofood markets with different stages of freshness: 91.11 % – fresh and 8.89 % – dubious fresh.

2. Total microbial contamination exceeded the allowable level in 21.43 % cases and 64.29 % carcasses of dubious fresh. Coliforms and salmonella plated from the surface in 14.29 % of fresh carcasses; 57.14 % and 35.71 % carcasses with dubious fresh.

3. 21.43 % fresh carcasses and 71.43 % carcasses with dubious fresh showed the toxicity.

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