

The incidence of sexual odour of male and cryptorchid pigs in the practice of Kapuvári Hús Rt.

Dr. Péter Keresztény¹, veterinarian, Róbert Roszkos², biologist, Dr. István Szabó², veterinarian

¹Kapuvár Meat Share Holding Company, Kapuvár, Hungary

²Pfizer Kft., Budapest, Hungary

Abstract- Male pigs slaughtered without castration pose a significant risk to the quality of pork due to potential sexual odour. Available estimates put the incidence in slaughtered male pigs at 5-30%. We could not find information for cryptorchid animals.

We assessed the presence of sexual odour in accidentally not-castrated male pigs and pigs found to be cryptorchid arriving from several E.U. states at a Hungarian slaughter line using a cooking test performed to Hungarian standards. These animals were at same age (6-7 month) and body weight (105-120 kg) as 348355 other pigs slaughtered at this abattoir during 2010.

66 (19.2 %) of 343 boars had pronounced sexual odour when slaughtered, as did 48 (9.2%) of 523 cryptorchid animals.

Our study demonstrates that additional sensory testing is indispensable for pigs found to be boars or cryptorchid at slaughter, since perceptible boar taint occurs in the meat from these animals in a proportion that makes it impossible to guarantee pork and pork products of an appropriate quality for consumption.

Keywords- Male pigs, sexual odour, slaughter line

I. INTRODUCTION

A basic requirement for producing quality pork products is that the meat processed should be completely free of sexual odour (especially the so-called boar taint occurring in male animals). The only procedure employed for this purpose at pig farms in the past was to castrate male animals after birth. However, the growth and feed conversion efficiency, the quality meat content, that is, the profit-producing capacity of castrated animals are inferior to those of pigs who are raised as male throughout or in a significant part of their lives. At the same time, castration performed inappropriately, without anaesthesia, causes the animals considerable pain, thus it runs counter to modern animal welfare regulations. For this reason, more emphasis has been placed lately on raising male animals and vaccinating them against boar taint (Improvac, Pfizer).

It is important to know, however, that male pigs slaughtered without castration or Improvac treatment pose a significant risk to the quality of pork due to

potential sexual odour. Pronounced sexual odour results in the confiscation of the entire carcass, thus it causes significant loss and economic damage both to the animal's owner and to the meat manufacturer. Although the compounds which cause boar taint are not harmful to humans, they destroy the enjoyment value of the meat.

A. The Abattoir

Our examinations were carried out in the practice of the Kapuvári Hús Zrt.

The productivity of the firm in 2010:

- slaughtered animals altogether: 349,221
- animals from Hungary: 206,654
- animals from abroad: 142,567
- appropriate to human consumption: 348,328
- inappropriate to human consumption: 893 (Hungarian: 698, non-Hungarian: 195)

Kapuvári Hús Zrt., operates in a small town of 10,000 inhabitants in the Rábaköz area close to the western border of Hungary and has a long history and significant traditions. The factory, initially called Rábaközi Meat Product Factory, was founded in 1924 by Duke Pál Eszterházi, and bore the name of.

Following nationalization and merger with the Győr and Sopron factories, by the 1970s it became one of the largest companies in the country as regards revenues, technological and hygienic standards. As a result of specializing in the slaughter and processing of swine, and of continuous development, the Kapuvár factory obtained export rights to the USA as early as 1966. Its initial exports consisted of canned ham and canned bacon. In 1981 the veterinary committee of the EU found it eligible to export into its member states.

In order to maintain competitiveness, a new plant was built at Kapuvár in 1989 with funds from the World Bank. The building housed a ham processing plant with a capacity of 450 tonnes/year, an evisceration and deboning unit with a capacity of 1600 pcs/day and a cold storage facility with a capacity of 1000 tonnes. The modern processing lines, servicing and storage units of the American-designed plant meet

even the strictest hygienic requirements currently in effect.

It kept its important export markets for refrigerated and frozen meat, and it also supplies several types of products for the Japanese and Korean markets.

It succeeded in fulfilling all requirements, with the help of the **ISO 9002** quality assurance system adopted in 1995 and the **HACCP** food safety system employed since 1998. The **ISO 9001** and **IFS** systems were certified in the past years, and they introduced a complete quality management system. Their tracing system ensures to use raw materials of certified origin.

II. MATERIALS AND METHODS

Available estimates put the rate of incidence of sexual odour in slaughtered male pigs at 5-30% [1],[2],[3]. On the other hand, we could not find information on the incidence of sexual odour during the slaughter of cryptorchid animals.

We examined the presence of sexual odour in non-castrated males and cryptorchid pigs (animals with a body weight of 105-120 kg and 6-7 month old) arriving from several states of the European Union at a Hungarian slaughter line. In the course of the examination we used a cooking test performed according to the Hungarian standard to detect sexual odour.

A. Procedure established at the slaughter house for the elimination of animals with boar taint.

1. Following the arrival of the animals at the slaughter house, the official veterinarian or his assistant performs the first examination at the livestock accommodation (ante mortem examination). If they detect intact males, they record it and inform their colleague at the slaughter line, but do not mark individual animals at this stage. Since slaughter is performed in groups, the official staff knows exactly which group the males belong to. Cryptorchid animals sent to the slaughter house cannot be identified in the course of the first examination, since their testicle(s) are situated in the abdominal cavity.
2. After bleeding and suspending of the animals pronounced boar taint can be detected immediately during evisceration. Regardless of this, if there are animals which have both testicles and were not treated with Improvac, or if the testicle(s) is found in the abdominal cavity during

evisceration, the animals are marked, a sample is taken from the blade shoulder, and the carcasses are stored in an officially supervised refrigerator chamber for 24 hours. The official veterinarian staff places the samples in the refrigerator designated for this purpose for 24-hour storage, then performs the cooking test.

3. Before December 2009 (test slaughter of Improvac-treated animals at the Kaposvár slaughter house) the abattoir performed a separate cooking test on the meat from the blade shoulder with the fat removed, and a separate baking test on the fat of the same cut. Since December 2009, based on the results at the Kaposvár slaughter house, the cooking test is performed in a single step, on the fat-covered meat cut from the blade shoulder. The cooking test lasts for 3-4-5 minutes from boiling, depending on the thickness of the meat, until the upper few centimetres of the meat and the fat are cooked. The official veterinarians and staff on duty perform an olfactory inspection of the samples subjected to the cooking test. When the lid is removed from the container in which the samples are cooking, the concentrated smell of cooking meat/fat escapes from the container. The “smellers” are waiting for this moment to also prepare sections of the sample that contains meat and fat alike and perform 2 organoleptic tests and based on the results they decide whether the sample is affected by boar taint or not.
4. Carcasses of animals with boar taint are confiscated as they are unsuitable for public consumption. As a result of the confiscation carcasses become category 3 by-product, which can be further utilized as foodstuff for animals kept for pleasure.

B. Documentation.

1. The official veterinarian supervising the inspection of the meat is responsible for recording animals subjected to the cooking test on the appropriate form (entitled “FOR ADDITIONAL LABORATORY MEAT INSPECTION”). On this document it is shown the date of slaughter, the name of the owner (slaughter house), the data necessary for the animal’s identification, the name of the material submitted for inspection and the antecedents (cryptorchidism, justification of the cooking test, etc.). In addition to this, another sheet (identification document) has to be filled in,

which contains the accurate data of the supplier and the examined animals (foodstuff tracing).

2. The above two documents are sent to the chief official veterinarian, who, based on these and the results of the cooking tests, issues a RESOLUTION justifying the confiscation of the animals and the diminished value of the meat according to the legal requirements. The official veterinarian also issues a so-called confiscation record (CERTIFICATE) to accompany the resolution. This certificate is necessary for the meat manufacturer in order to be able to settle the accounts with the company or person supplying the animals. The certificate indicates the number and weight of the animals concerned, as well as the justification of confiscation.
3. The half-carcasses of animals isolated in this manner are stored in a confiscation area set up for this purpose, and removed from there in special containers created for this purpose. Half-carcasses are disposed by removal and destruction by ATEV. The meat manufacturers transfer transportation and destruction costs onto the supplier. The manufacturers issue a commercial document to ATEV (which certifies the weight of the animals to be destroyed and states the class of by-product to which the shipment belongs to). Also, a so-called veterinarian's certificate should be attached that is issued by the official veterinarian in which the options of utilization or destruction should be specified as required by the legal provisions.
4. If the carcasses of cryptorchid animals and intact males (above 85 kg) do not have boar taint, the manufacturers pay a considerably lower purchase price to the supplier for warranty failure.

III. RESULTS

Our results are summarized in the following table:

Table 1 Results of cooking tests

	Intact Male		Cryptorchid	
	Positive	Negative	Positive	Negative
Hungary	59	213	37	337
Slovakia	1	3	2	23
Czech Republic	2	24	3	26
Netherlands	3	35	2	54
Poland	1	1	4	34
Germany	0	1	0	1
Sum:	66	277	48	475

The table shows that 66 (19.2 %) out of 343 boar pigs from Hungary, Slovakia, the Czech Republic, Poland and the Netherlands, with a body weight of 105-120 kg, had pronounced sexual odour when slaughtered. The percentage differs in the case of boar pigs originating from different countries, even though this difference cannot be statistically evaluated due to the relatively small numbers.

An important observation was that we detected a pronounced sexual odour in the case of 48 (9.2%) out of the 523 cryptorchid animals arriving at the slaughter line, also with a body weight of 105-120 kg.

IV. DISCUSSION

We conducted an examination to detect sexual odour in all male and cryptorchid pigs arriving at a Hungarian slaughter line in the year 2010. We found a significant number of animals with a pronounced sexual odour among both the slaughtered boars and cryptorchid pigs.

Our tests clearly demonstrated that additional sensory tests (cooking test, baking test, microwave test) performed on each slaughtered animal are indispensable in the case of pigs slaughtered as boars and those found to be cryptorchid at slaughter alike, since detectable and perceptible boar taint occurs in the meat obtained from these animals in such a great proportion which makes it impossible to manufacture pork and pork products of an appropriate quality for consumption, and which can threaten the commitment to quality assurance of the producer, the slaughter house and the distributor.

V. CONCLUSIONS

Altogether, we can say that the presence of sexual odour is a very important issue in pork producing of the world. Although it is absolutely harmless to human consumers, it is able to destroy gastronomical pleasure.

In the dawn of 21st century, that obviously will be very productive concerning animal welfare issues, we have to think seriously about alternative methods to prevent boar taint to physical castration used by centuries.

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