

Poster presentation

Early and reliable detection of boar taint and its genetic predisposition

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Boar taint is a distinct and unpleasant odour, flavour or taste that can be present in pork products originating from entire male pigs. It is mainly perceived when the fat fraction in the meat is heated. Two main compounds are presumed to cause this phenomenon, although the extent of their relative contribution to boar taint is still disputed: androstenone (physiologically acting as a pheromone) and skatole (metabolite of amino acid tryptophan).

Apart from the impact boar taint has on the pork industry, this phenomenon also brings along a major welfare problem regarding the production of male pigs. Until now, surgical castration of male piglets is the most common and widespread method to prevent the occurrence of boar taint. This practice, however, is controversial because of the obvious negative impact on the welfare and integrity of the animal. Calls for a ban on surgical castration of pigs are gaining increasing support in many EU countries. Such a ban, however, requires the development of alternative solutions to surgical castration.

The purpose of this research project is to investigate the feasibility of reducing the occurrence of boar taint and of timely detecting its presence. This would enable the production of entire male pigs which is a neat alternative to castration from both an animal welfare and a zootechnical point of view.

The research will focus on three main strategies:

1. Reducing boar taint by altering management strategies. Feed ingredients, genetic background combined with

slaughter weight and hygienic status of the animals will be related to the presence of boar taint in the meat and fat, in several successive experiments.

2. Finding a reliable predictor that will permit an early detection of boar taint in live animals. This would make timely identification of pigs prone to develop boar taint possible, allowing specific measures (immunocastration, early slaughtering,...) to be taken to prevent these animals from developing boar taint. Hence, we will investigate whether the intensity of boar taint can be predicted by measuring the development of physical parameters (e.g. testis size), by observing the sexual/social behaviour as well as by other measurements such as skin lesions and hygiene status.

3. Post-mortem detection of boar taint to prevent tainted meat from reaching the consumer. Several detection systems will be implemented to determine whether or not boar taint is present in meat or fat samples. The presence of skatole, indole and androstenone levels will be quantified using a liquid chromatography-mass spectrometry technique. An expert panel will be trained to detect and characterize boar taint compounds. Based on the assessments of pork samples by a consumer panel, the threshold level at which Belgian consumers find the amount of boar taint unacceptable will be determined. This threshold will be used to fine-tune the e-noses and train sniffer pigs to detect boar taint in meat and fat samples.

Results

This project started in June 2005 and will take 4 years to complete. The feed experiment including different dietary ingredients has started and samples of meat and fat are taken to perform analyses as described above. Training of the sniffer pigs is currently in progress. Observations of behaviour and related measurements in fattening pigs are being carried out in order to detect differences between boars that develop boar taint and boars that do not. The first results will be reported in 2006.

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