

Consumers and pork

Part 1 – consumers can taste the difference

What does a consumer do when he or she cooks a piece of meat and it does not smell or taste as good as it should? Go back to the shop and complain? Perhaps. Never buy that type of meat from that retailer again? Probably.

Consumers are fickle creatures. We live in an age of consumer choice; and consumers love nothing more than exercising that choice. Companies spend half their time encouraging brand loyalty among existing customers, and the other half encouraging product switch among other companies' customers. And nowhere is the competition for new customers more vigorous than in the food sector.

Not only can a bad experience taint the retailer in the consumer's mind, it can also taint the type of meat being bought. If a consumer buys a lamb joint that turns out to be tough or tasteless, then next time she might be more inclined to pick up a beef joint or a chicken.

Boar taint

The value of effective, continual quality control is obvious. For the majority of fresh meat supplies, achieving that goal is relatively straightforward, if not easy, as the parameters that affect quality are fairly apparent to the butcher. Pork suppliers, however, have an additional, hidden quality issue that other meats do not have: boar taint.

Boar taint is the unpleasant smell and flavour that may be detected in pork from some male finisher pigs when it is cooked.

The taint is essentially due to two compounds, androstenone and skatole, which may increase in concentration when male pigs mature sexually.

The amount of androstenone and skatole present in the meat at slaughter varies from boar to boar. In addition, the sensitivity of consumers to the resulting taint in meat varies from person to person and from country to country.

Irrespective of these differences, studies have confirmed that as the concentration of boar taint compounds increases, so does the general dislike for pork among consumers.

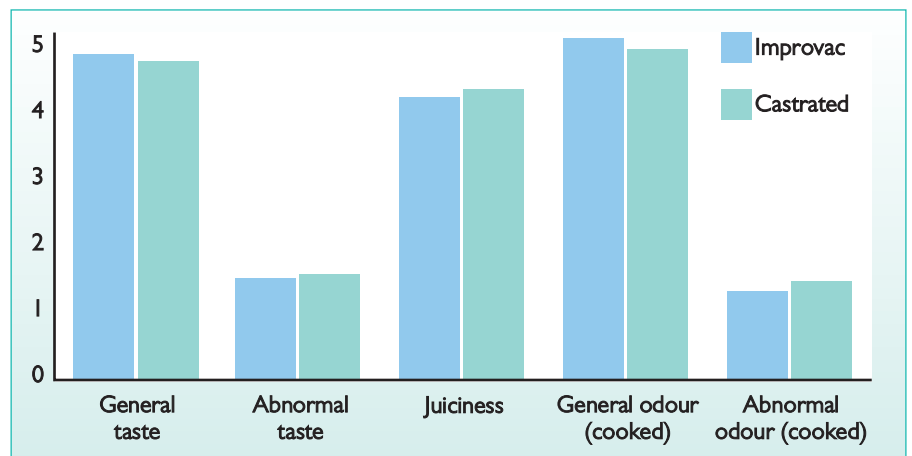


Fig. 1. Consumer rating of pork.

Only a small proportion of consumers are aware of boar taint: in most countries it is largely controlled by the castration of male piglets in the first week of life and is therefore not a common problem; most of them would not be able to identify it and would ascribe it to another cause. For decades, no commercially viable method of raising entire boars to finished weights without boar taint has been realised.

However, physical castration has major drawbacks. Firstly, castrates do not grow like boars as castration affects their metabolic efficiency for the whole of their life.

They produce a carcass that has more fat with a higher proportion of saturated fatty acids: both are defaults in the eyes of consumers looking for lean meat and healthier food.

Secondly, physical castration is being increasingly questioned on welfare grounds, particularly in the EU. For pork producers and retailers, selling tainted meat is not an option: whatever alternative is adopted in place of physical castration, they need high quality carcasses to make taint free pork products that satisfy the demanding consumer.

Farmers and pork producers now have the means to deliver taint free, quality meat and at the same time meet the welfare standards that consumers demand, thanks to vaccination against boar taint with Improvac.

The use of this vaccine has become the first alternative to physical castration outside

of Europe and is now progressively being adopted by European farmers.

The European Commission granted market authorisation to the vaccine on recommendation of the CVMP (Committee for Medicinal Products for Veterinary Use).

Extensive studies have consistently proven that it does indeed reduce the occurrence of boar taint in pork as effectively as castration.

Sensory testing

Laboratory assays are all well and good but, as with all food products, the final arbiter of quality has to be the consumer. With this in mind, pork from Improvac vaccinated pigs has been tested under controlled conditions by consumers and expert sensory panels around the world.

Sensory testing of food products is a well developed science. The expert panels use people who are selected on the basis of their ability to detect particular attributes – in this case, boar taint. Their responses are calibrated through discussion, sample presentation testing and re-testing over a 2-3 week period. Food samples are prepared in a uniform manner under strictly controlled conditions and in short, the aim is to reduce variables as far as possible. The panellists may also be asked to rate the intensity of the attribute on a scale, say from 1-10.

Consumer panels are similar in many ways

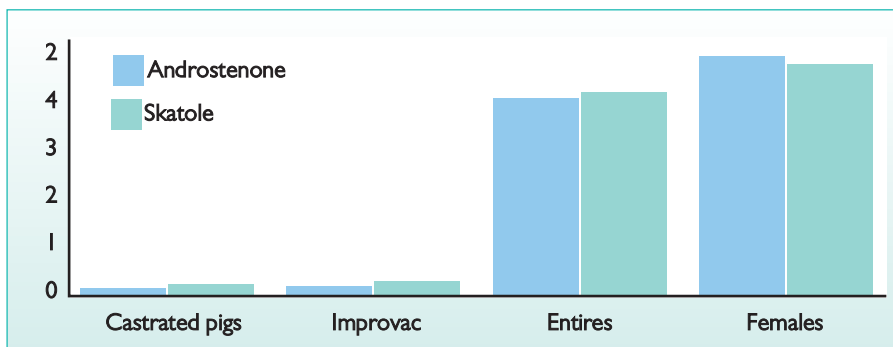


Fig. 2. Assessment of pork taste by trained sensory panellists.

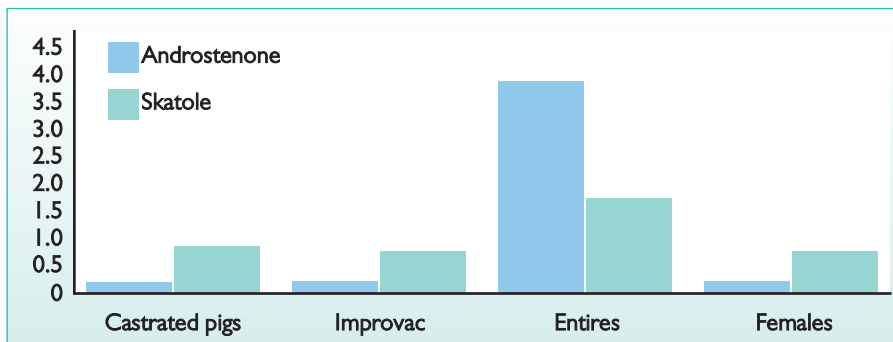


Fig. 3. Assessment of pork odour by trained sensory panellists.

but not as strictly controlled as expert sessions. However, they do provide a 'realistic' view of what is, or is not, acceptable to the target market.

As sensitivity to boar taint varies from person to person and country to country, the effectiveness of Improvac was checked by panels in many different countries.

One review of 18 different sensory panel studies conducted in 13 different countries, included 10 based on consumers, seven on experts and one on both. All 18 studies included pork from Improvac vaccinated boars; 16 compared it to pork from castrates; 11 with pork from non-vaccinated entire males; eight with pork from females.

In 15 of the 16 comparative studies, pork from vaccinated pigs was found to be equivalent to that from castrated pigs, and in the remaining study it was found to be superior.

In all eight studies that included pork from female pigs, there was no difference in eating quality between female pork and that from vaccinated pigs.

The meat from castrated, vaccinated and female pigs was frequently found to be superior to the pork from entire non-vaccinated boars, confirming the importance of controlling the presence of boar taint in pork meat.

In a separate sensory panel conducted in France, 120 regular pork consumers (50% women; 50% men) were asked to score samples of cooked pork chops on a scale of 1 to 7 for general taste, abnormal taste, juiciness, general odour and abnormal odour. Again there were no significant differences between animals vaccinated with Improvac and animals physically castrated.

A study conducted in Spain, in which eight trained panellists and 201 consumers com-

pared cooked pork loins from castrates, females and vaccinated males, found no differences in taste or odour between any of the groups.

However, pork loins from entire males were found to have much higher levels of boar taint odour and flavour than pork from the other groups.

Chemical analysis of the androstenone and skatole content of the meat from different groups correlated well with the assessments by the trained panellists and with consumer preference.

Although the majority (over three quarters) of all male pigs raised in Europe are castrated to avoid boar taint, in some markets, such as the UK, it is normal practice to minimise the risk of boar taint by slaughtering at a younger age.

One study conducted in the UK compared the eating quality of pork loin steaks from

boars slaughtered at 20 weeks (105kg) with those vaccinated with Improvac and slaughtered at the same age.

All the pigs were fed, housed and managed in identical conditions. Loin steaks were randomly selected from 50 vaccinated and non-vaccinated animals and then cooked in the same way. They were then rated by 10 trained assessors on an eight point scale for a range of attributes including odour, juiciness and flavour.

The results revealed an overall preference for the pork from vaccinated pigs in terms of flavour and overall liking. There was no difference in texture or juiciness but pork from vaccinated pigs had significantly higher intensity of pork flavour and lower abnormal odour from the fat. In other words, vaccination had a positive effect on meat quality in boars slaughtered at a younger age.

Summary

The sensory qualities of meat are a key factor in the repeat purchase behaviour of consumers. One bad experience may be enough to trigger a switch to another type of meat or another supplier. The need to supply high quality pork remains irrespective of the changes in production methods brought about by the need for greater efficiency and the need to satisfy consumer and legislator preference for better animal welfare.

In the case of pork meat, vaccination represents the most efficient and animal friendly method to reach all goals consistently. Pork from vaccinated animals perfectly meets the European consumers' expectations for a pleasant eating experience. ■

References are available upon request

The second part of this article in our next issue will take a more detailed look at pork consumer attitudes and behaviour and the importance of applying high welfare standards in pig farming to also meet their expectation with regard to the methods used to produce their food.

Fig. 4. Comparison of eating quality of pork from young entire males and vaccinated males of the same age.

