



# CUTTING CASTRATION

## The proof of the pudding is in the eating

If consumers have a poor meat quality experience, they are likely to think twice before buying their next cut of pork. So while it's important that the industry optimises production processes from farm to fork, this shouldn't be done at the expense of meat quality; ultimately, the proof of the pudding is in the eating. Boar taint is a factor that plays a role in pork eating quality.

How much taint is too much? For Australian Pork Limited (APL), the association representing the country's pig producers, the answer is clear: anything that risks a reduction in meat quality is unacceptable. And the association speaks from experience. Dr Darryl D'Souza, General Manager Research and Innovation at APL, says since the Australian pork industry stopped castration in the 1970s, there has been a significant drive to improve leanness and feed efficiency. Since then slaughter weights have also increased to around 103kg live weight (21-22 weeks).

During that time, consumers reported unsatisfactory eating experiences, resulting in a plateauing in local consumption and a reduction in exports to the lucrative Asian market. In particular, Singapore refused the non-castrated boars and demanded to be supplied exclusively with gilts – leaving the Australian domestic market with a surplus of boar meat. Of course, little in biology is black or white, and sensory panels in different countries differ in their judgement of boar taint because factors such as ethnicity, gender, meat handling and preparation all play a role in consumers'

perception of meat quality. And while a certain percentage of the population is innately insensitive to boar taint, Dr D'Souza suggests that a significant proportion will have a poor eating experience – even if the pork has been produced from lightweight carcasses.

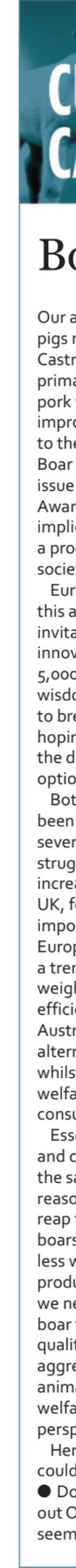
"We have done some consumer research and our fail rate – that is when consumers eating pork said there is an unacceptable level [of boar taint] – is around 30%. So we have some big issues."

Unfortunately, boar taint detection at the slaughterline is both inaccurate and impractical. According to recent research, the human nose method to detect boar taint as used in some of the major slaughterhouses processing boars, has 60-70% accuracy with a repeatability of 20-30%. With such scores, tainted meat is certain to find its way to consumers.

Together, these factors constitute a significant risk to meat quality – a risk that Dr D'Souza says is not worth taking. He suggests other markets should heed the warning from the Australian experience: anything that risks a reduction in meat quality should be avoided. After all, consumers will soon let their buying power do the talking if they have a tainted experience of pork.

*References available by request*

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## Boars will be boars

Our ancestors started castrating pigs more than 5,000 years ago. Castration was carried out primarily because it produced pork with a better taste and improved nutritional value thanks to the increased amount of fat. Boar taint started to become an issue in the middle ages. Awareness of the animal welfare implications of castration is really a product of our modern day society.

Europe's resolution to abandon this age-old tradition is an invitation to develop new and innovative solutions. Ignoring 5,000 years of accumulated wisdom by simply switching back to breeding entire boars, and hoping consumers will not notice the difference, is a high risk option.

Both Australia and the UK have been non-castrating markets for several decades and are struggling to compete in an increasingly global market. The UK, for example, is the only net importer of pork in Western Europe. With rising feed costs and a trend to increased slaughter weights for improved production efficiency, both the UK and Australia will have to find an alternative way of raising boars whilst meeting the quality and welfare expectations of their consumers.

Essentially, the non-castrating and castrating markets are facing the same issues, but for different reasons. We need to find a way to reap the benefits of raising adult boars: better feed conversion and less waste per kg of meat produced. But at the same time we need to avoid the drawbacks: boar taint, very lean (poor eating quality) carcasses, and the aggressive behaviour of mature animals (both from an animal welfare and an economic perspective).

Here are four solutions that could be considered:

- Do nothing and hope it turns out OK. The only country that seems to be somewhat successful

in following this strategy is Spain where 40% of all the pork is exported. Gilt meat mainly goes to Asian markets and pork from entire boars ends up in various European markets as a cheaper and low quality product. If we want to sell our pork at 5-10% below current European market price then we could consider this route.

- New swine management techniques, such as reducing stocking density, modified nutrition, etc may help to a certain extent but will only address the boar taint issue. The economic and welfare implications of boar behaviour remain.

- Genetic selection against boar taint may have some long term potential, but the stumbling blocks are considerable. The smelliest boar is probably also the strongest. The genes coding for boar taint and the genes coding for fertility and growth are closely linked. Selecting against boar taint can be prone to downgrading more desired traits at the same time.

- Reduce the presence of boar taint compounds (especially androstenone and skatole) by vaccinating against them. Such a product exists, is marketed worldwide and applied successfully in several important pork producing markets. The downside here seems to be fear of the unknown, even though the product has a safety and efficacy record in the commercial setting which goes back more than a decade.

Except for the first option, which is a sure recipe for disaster, all the others deserve to be tested and given due consideration. Let's not forget that it is precisely from trying new technologies that innovation is born. That is how the market grows, how win-win situations are created, not for the immediate short term profit of one company, but for long term, sustainable progress for the whole stakeholder chain.

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## Raising entire boars

Is raising entire boars a realistic alternative to castration? Let's answer that by considering some basic principles:

### **Eating quality.**

It is an undeniable fact that meat from entire boars is not acceptable to the fresh market in some countries. In others, it is reserved for further processing, or only accepted if slaughter weights are low. Retailers are very sensitive to the risk of losing consumer confidence because of a bad eating experience with boar meat. So how can we end castration and raise entire males without damaging the reputation of pork?

### **Taint detection.**

One option is to detect poor quality carcasses on the slaughter line and re-direct them to less sensitive market sectors. A great deal of research is being conducted in the hope of finding a commercially viable system for boar taint detection which will allow this to happen. This is despite the fact that there is currently no agreement on which compounds should be tested for, let alone what levels should be considered unacceptable. More worryingly, a recent review of boar taint detection methods presented at a European Commission meeting on swine castration, concluded that there had been little progress in this area in the last two years.

### **Boar behaviour.**

Although animal welfare concerns have largely driven the decision for Europe to end castration, little attention has been paid to the negative welfare aspects of raising entire males to full slaughter weights. Housed together, full-grown males cause each other considerable injuries, especially leg problems, as a result of aggressive and mounting behaviour. Raising entire males will simply swap one welfare issue for another.

### **Better genetics.**

Breeding low-taint boars and/or better behaved boars is an obvious option to consider. Again, research is being conducted with this goal in mind, and genetic sequencing is being used to try to identify the genes responsible for taint. Past experience has taught us that breeding for one particular characteristic is likely to mean losing some other desirable trait elsewhere – so there may be a performance price to pay. But so far, there has been no breakthrough that suggests European herds will be re-populated by low-taint pigs in the near future.

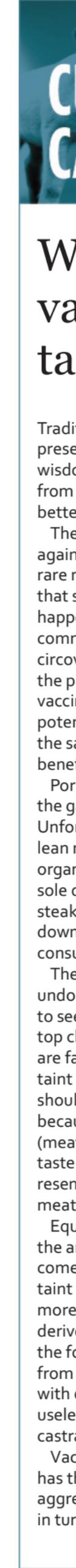
### **Better diet.**

Researchers are looking at the potential for nutritional supplements which might reduce taint. The current situation is not encouraging. Furthermore, if better diet means more expensive diet, then 'better' quickly turns to 'worse'.

### **Economics.**

The advantages of raising boars are simple and well known: better feed conversion and less waste. The disadvantages include a leaner carcass, less intramuscular fat and the potential for a poorer eating experience. If only we could get the efficiency of a boar but with a fat distribution a little more like a castrate. In fact, there is one way to get just that, namely through using a vaccine that reduces boar taint and aggressive boar behaviour. Vaccinating to reduce boar taint and aggressive behaviour meets all the basic goals for an alternative to castration. Boars grow like boars but behave like castrates, and the meat they produce is untainted and of good eating quality. So raising entire boars is an option after all – as long as they are vaccinated.

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## Why breeding boars vaccinated against boar taint is a good idea

Tradition is important, its preservation mostly an act of wisdom. That is, unless it keeps us from evolving to something better.

The discovery of the vaccine against boar taint is one of these rare moments when one can feel that something good is about to happen for everyone; like the commercialisation of good circovirus vaccines, which saved the pig industry, the boar taint vaccine can really unlock all the potential of breeding boars and at the same time preserve all the benefits of breeding barrows.

Pork deserves to be on top of the gastronomic meat ladder. Unfortunately, over-selecting for lean meat resulted in an organoleptic disaster, with shoe-sole dry chops and watery PSE steaks resulting in an inevitable downgrading of pork on the consumers' popularity charts.

The industry has worked hard to undo these mistakes and it is a joy to see pork back on the menu of top chefs. Several among them are familiar with pork from boar taint vaccinated animals, which should not come as a surprise because its eating quality (meat/fat content, tenderness, taste and juiciness) strongly resembles the quality of gilt-meat.

Equally appealing to chefs are the animal welfare benefits that come with using pork from boar taint vaccinated animals. There is more than just a feel good factor derived from the realisation that the food on our plates originated from animals which were treated with due respect and spared the useless suffering of physical castration.

Vaccination against boar taint has the extra benefit of reducing aggressive boar behaviour, which in turn reduces bite wounds and

injuries to the animals and economic losses as a result of damaged carcasses.

For the slaughterhouses, profits come from having no boar taint in their carcasses (no need for expensive human or electronic 'noses' on the slaughterline), from a more homogenous end product and better quality prime cuts (hams and bellies are much closer to castrates than to boars and therefore more likely to be accepted by the world markets).

It is a healthy reflex to scrutinise and test any new technology for hidden flaws. Also the boar taint vaccine is not without weaknesses. For starters, pigs need to be healthy and correctly vaccinated.

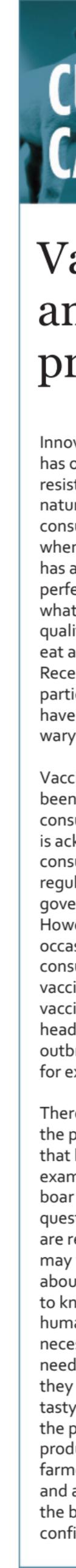
Also in the slaughterhouse some adaptations are needed to properly process boar carcasses. Finally, tweaking the vaccination schedule to optimise the desired final product is sometimes necessary because of different end quality demands (fatter vs leaner) in the various international markets. But by and large, the vaccine has shown both the flexibility and sturdiness needed to address these issues.

A few countries are already in full adoption mode, while others are expanding their experience on increasingly larger volumes of animals.

The vaccine is a straightforward product, approved by all EU authorities and globally accepted as a safe, reliable and tested technology.

With over one million servings of Improvac meat reaching consumers every month worldwide, and not a single consumer complaint recorded, here is a deserving proposal to help address the increasingly pressing questions around sustainable global pig production.

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## Vaccination of farm animals has been practiced for centuries

Innovation in food technology has often been met with some resistance. Depending on the nature of the innovation, consumers may be apprehensive when confronted with food that has a novel element. This is perfectly understandable, after all what's more important than the quality and safety of the food you eat and provide to your family? Recent food scandals, in particular those affecting meat, have made consumers ever more wary about their purchases.

Vaccination of farm animals has been practiced for centuries and consumption of vaccinated meat is acknowledged as safe for the consumer by veterinary medicine regulatory bodies and government health departments. However, the meat industry has occasional concerns over consumer acceptance of vaccinated meat, especially when vaccination has been in the headlines due to disease outbreaks amongst farm animals for example.

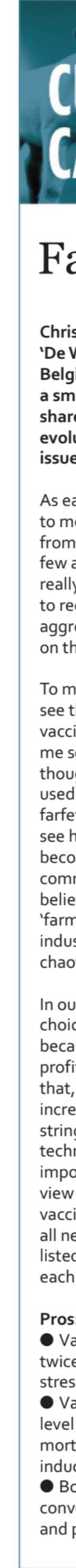
There have been few studies on the public acceptance of meat that has been vaccinated (for example against Circovirus or boar taint), and in fact it is questionable whether consumers are really interested. Consumers may well be more concerned about welfare and generally want to know that animals are treated humanely and have received all necessary health care. They also need to be assured that the meat they buy is safe, healthy and tasty. This is the responsibility of the professionals in the production chain, from pig farmers to retail quality managers and all steps in between. This is the bare minimum for consumer confidence.

There is agreement that consumer education based on scientific fact from independent research organisations is vital for market acceptance of novel products. Consumers need to be able to make informed decisions in order to have confidence in the food they buy. Industry members sometimes assume consumers will reject vaccinated meat, but this fear is based purely on gut instinct, with no real research to back it up: vaccinated meat is successfully sold all over the world and has been for many years.

There is no published scientific evidence that vaccinated meat has any effect on the human consumer. Furthermore, vaccine producers are required to demonstrate safety of their product before marketing authorisation is given, to ensure that both animals and humans are protected from any ill effects of these products. Fears of consumer rejection may be unfounded and this risk can be eliminated by educating consumers with the facts.

With the correct approach, the benefits of vaccination (consistent meat quality, improved animal welfare, and better feed efficiency) are favourable when compared to more traditional approaches of rearing boars.

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# CUTTING CASTRATION

## Farmer's logic

**Chris Peeters is the owner of 'De Wolkenhoeve' pig farm in Belgium. His farm also includes a small butchery shop. He shares his thoughts about the evolution of the pig castration issue over the last few years.**

As early as 2010 it became clear to me that I wanted to get away from castration. It was one of the few activities on the farm that I really disliked. When the vaccine to reduce boar taint and aggressive boar behaviour came on the market, I didn't hesitate.

To my astonishment however, I see that many people oppose this vaccination technique, which to me seemed an obvious solution. I thought many of the arguments used against it were very farfetched. I am also unhappy to see how the whole discussion has become increasingly political and commercially motivated, where I believe that simple logic, I'd call it 'farmer's logic', would serve our industry much better than the chaotic situation we are in now.

In our profession making the right choices quickly is paramount, because our work is hard and our profit margins are tiny. On top of that, restrictions and regulations increase in number and in stringency. So, if a new technology comes along, it is important that we can get a clear view quickly. So, when the vaccine was approved, I gathered all necessary information and listed the pros and cons next to each other.

### Pros:

- Vaccination, although done twice, is still less work and less stress than castration.
- Vaccination can reduce the level of antibiotics used and mortality due to castration induced infections.
- Boars have a better feed conversion compared to barrows and produce leaner meat. These

factors more than pay back the cost of vaccination.

- Vaccinated animals do not fight and are free of boar taint.
- Better feed conversion means less manure, which in turn reduces waste management costs.

### Cons:

- Piglets are best separated by sex at weaning, especially if the intention is to feed the boars with a special boar nutrition.
- The testicles and the somewhat larger intestines slightly reduce dressing percentage when compared to barrows.
- It is important that every pig receives both shots of vaccine correctly.

The cons really didn't outweigh the benefits, so I gave it a go and after a few adaptations to my system, I made the technology work to my advantage. I'm happy to confirm that my boars are making me more money now than I have put down my castration knife. On top of that, I can offer higher volumes of prime quality pork to my customers because of the better eating qualities of vaccinated boars compared with castrated barrows.

Vaccinating my piglets against boar taint has improved the efficiency of my farm. It has also made me realise that I can make more profit from the products that I process and market myself compared to what I sell through retailers. This has led me to a new and drastic restructuring decision. I have sold half of my sow stock and I'm now producing only what I can market myself either in my own butcher shop or to the restaurants and delicatessen shops that I service by myself. My costs are down, my profits are up.

It's just farmer's logic, nothing more, nothing less.

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