

K-08-01**Pros and cons of alternatives to piglet castration: Welfare, boar taint and other meat quality traits (#32)**Michel Bonneau¹, Ulrike Weiler²¹ Le Petit Bromedou, Montfort sur Meu, France; ² University of Hohenheim, Stuttgart, Germany**Short Abstract****Introduction**

For ages, farmers have been castrating their piglets surgically with no pain relief. The practice is still common in most countries, but it is increasingly facing strong criticism because of the pain associated with the surgery.

Methods

Review paper

Results**Why are piglets castrated?**

The main reason is the presence of boar taint, an offensive odour and flavour observed in the meat from some entire male pigs, which develops with sexual maturation. Two main compounds are held as responsible for boar taint: androstenone, a testicular steroid, and skatole, a metabolite of tryptophan degradation in the hindgut. Early castration avoids boar taint but increases feed costs, reduces carcass quality and has some impact on animal health. The suffering incurred by the animal during and after the surgical process has been well documented during the last 15 years.

What are the alternatives?

There are currently three possible alternatives: surgical castration with anaesthesia and/or analgesia, raising entire males and immunocastration. Castration with chemicals injected in the testes is too painful and sperm sorting for producing only females is not practically feasible at a large scale in the pig species.

The current situation in Europe

Farmers have been raising only entire males since the sixties in UK and Ireland. Castration was also abandoned in Spain and Portugal for the mainstream standard production while it is still performed in the high quality production systems. More recently, societal and market pressure induced pork production chains to change their practice in the western part of Europe where some kind of pain relief during and/or after surgery is used. Entire male pigs now represent a sizeable part of the production in NL, BE, DE and FR. Immunocastration has been developed to a significant degree only in BE. In most Eastern countries, piglet castration is not an issue yet, although immunocastration is under consideration to reduce feed costs and fat content.

Surgical castration with anaesthesia and/or analgesia

General anaesthesia for piglet castration is administered via inhalation (CO₂, isoflurane) or intramuscularly (Ketamine). CO₂ is cheap but aversive to the animal. Isoflurane is efficient but costly and it can affect workers and the

environment. Ketamine is risky for the animal and requires a lot of monitoring. Local anaesthesia with Lidocaine or Procaïne injected into the testes or the spermatic cord may be effective if carefully performed to avoid pain during the injection and the timing between injection and surgery is correct. The main drugs used for analgesia include Meloxicam, Flunixin and Metamizole. General anaesthesia is effective in preventing pain during castration but not in relieving post-operation pain. Conversely, analgesia is effective post surgery but not during it. Only combined anaesthesia and analgesia is fully effective to avoid pain, but it is a costly procedure, especially if vets are required.

Entire male pigs

Leaving the male pigs entire avoids a cumbersome job, reduces feed costs and increases muscle content. However, some farmers have difficulties in managing the more restless entire males exhibiting mounting and aggressive behaviour. The long lasting reduced welfare of the animals harassed by their dominant pen mates is to be compared with the short duration acute pain experienced by all animals during castration. Penile injuries are also quite common. The increased activity of entire males in the pre-slaughter period results in more frequent carcass lesions and DFD meat. Lower fat content and increased fat unsaturation are detrimental for processing dry-cured products. Finally, boar taint is a serious risk for consumer satisfaction. Boar taint can be reduced to some extent using a combination of genetic, dietary and management methods, but these are not yet efficient enough to guarantee the absence of boar taint. On-line assessment of boar taint is possible. The "human nose" method is simple and cheap but its efficiency to protect consumers from dissatisfaction is not documented in scientific publications. Instrumental methods are close to the market.

Immunocastration

Two shots of anti GnRH vaccination are required to effectively stop sexual development and decrease boar taint. From a few days after the second vaccination, the animals behave like castrates and increase their feed intake. The resulting feeding costs and carcass quality are intermediate between those observed in entire males and castrates. The longer the delay between the second vaccination and slaughter, the closer the performance is to castrates'one. Immunocastration is common in Oceania and South America but its development in Europe is still impaired by a strong reluctance from chain actors, based on assumed rejection of the practice by the consumers.

Conclusion**Notes**

Each alternative has its pros and cons and there is no worldwide or European wide best solution. Depending on the constraints and opportunities from the societal context, the production system and the target market(s), pork supply chains may choose the one that best fits their situation.

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