

POTENTIAL IMPACT OF THE FUTURE PIG WELFARE POLICY IN EUROPE ON THE SPANISH SECTOR.

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Abstract

Castration in pig production is mainly performed to avoid boar taint and for management purposes. The European Commission is considering a future ban on surgical pig castration by 2018 which may affect markets and consumers preferences. The aim of this study was to assess the opinions and attitudes of Spanish stakeholders from the whole pork chain regarding this policy change. Four focus groups in Barcelona and Madrid with 26 participants were carried out with representatives of farmers, the meat industry, government institutions, retailers (including butchers), HORECA and consumers. In addition a face-to-face surveys with 127 butchereries were carried out mainly to assess the determining factors when purchasing fresh pig meat using the Analytical Hierarchical Process (AHP). Results showed that a potential end of pig castration in Europe is not considered to have a significant effect on conventional pig production in Spain. However, concerns may arise due to the potential negative effect on high quality production systems where pig castration is fundamental and plays an important role.

Key words: Boar taint, Butchers, Focus group, Pig castration, Analytical Hierarchy Process.

Introduction and objectives

Pig production is the most important livestock activity in Spain; 40 millions of pigs are slaughtered every year which represents 16% of European production (FAOSTAT, 2012). A percentage of male pigs are castrated according to legislation (Directive 2001/93/CE) mainly for quality purposes. In 2009, castration was estimated to be performed on 79% of male pigs in Europe, 33% being in Spain (Fredriksen *et al.*, 2009) and from 15-20% in Spain according to the pig sector.

The practice of castration avoids the presence of boar taint produced by androstenone and skatole in meat (Bonneau and Chevillion, 2012). The presence of boar taint in meat may negatively affect the acceptability of pork by consumers (Font i Furnols, 2012). Moreover, castrating piglets improve meat quality as more intramuscular fat is obtained which positively affect its acceptability (Bañón *et al.*, 2004).

However, the practice of castration has generated a debate in the European Union due to its negative impact on animal welfare: The EU is considering a future ban on surgical pig castration by 1 January 2018 (EC, 2010). The European changes in the animal welfare regulations and policies, in particular the pig sector, have been the results of an increasing societal pressure to seek for more humane production systems (EC, 2007). The European Declaration on alternatives to surgical castration of pigs (DG-SANCO, 2010) is one of the most recent potential change. According to this declaration, surgical castration of pigs will be banned in Europe by 1 January 2018.

Many alternatives to castration have been explored: a) genetic selection and gender selection for 'low-taint' pigs (De Campos *et al.*, 2015), b) different management and rearing strategies (Bonneau & Lebret 2010; Wesoly *et al.*, 2015), c) slaughter at a younger age and lower weight (Von Borell *et al.*, 2009), d) detection of boar taint at slaughter line (Vestergaard *et al.*, 2006), e) mixing of tainted with untainted meat (Walstra, 1974) and f) masking unpleasant odours and flavours with the appropriate masking strategy such as spices, marinades or heat treatment (Mörlein *et al.*, 2015) and if the castration is applied, the immunocastration is one of the recently most studied alternatives (Gamero-Negrón *et al.*, 2015). In this context, boars' production is one of the most acceptable alternative in Spain. Thus, it is relevant to evaluate the limitation of boar meat commercialization and if meat industry, retailers, consumers are able to accept meat from entire males.

In this context, the aim of this study was to assess stakeholders' opinions of the Spanish pork supply chain, the attitudes of retailers towards the potential market of the production of entire male pigs and the impact of a potential mandatory banning of piglet castration. In addition, we analysed the determinants factors of fresh meat purchasing for butchers, as the main retailers in the Spanish pork chain supply (MAGRAMA, 2013).

Methodology

Our methodological framework was based on two main approaches to analyse the opinions and attitudes of the main stakeholders in the pork meat supply chain (farmers, industry, government, retailers and consumers). Firstly, the focus group as a qualitative methodology was applied to analyse opinions towards the production of entire male pigs and the impact of potential banning of piglet castration in Spain (Figure 1). Secondly, a face-to-face survey for butchers was carried out to identify the determining factors for purchasing pig meat, using the Analytical Hierarchy Process (AHP) in order to assess the relative importance of pig castration within their decision. Focus groups were organized in two different Spanish regions (Barcelona and Madrid). Two kinds of focus group sessions per city were organized with the following stakeholders: Focus group 1 (FG1) included representatives for farmers, the pig meat industry, slaughterhouses and the government; and Focus group 2 (FG2) included representatives of HORECA, supermarkets, butcheries and consumer associations. They were developed on with 26 participants in total, 5-8 in each session, and 1-2 participants per stakeholder and session. The discussion questions were: a) Potential impact of banning castration on pork production in Spain – Boar taint, b) European Declaration on alternatives to surgical castration of pigs, c) Differences in quality between castrated and entire males, d) Exportation – QS Quality Assurance, e) Quality criteria when purchasing pork meat, f) Animal welfare and g) Standard market (entire males) and high quality products.

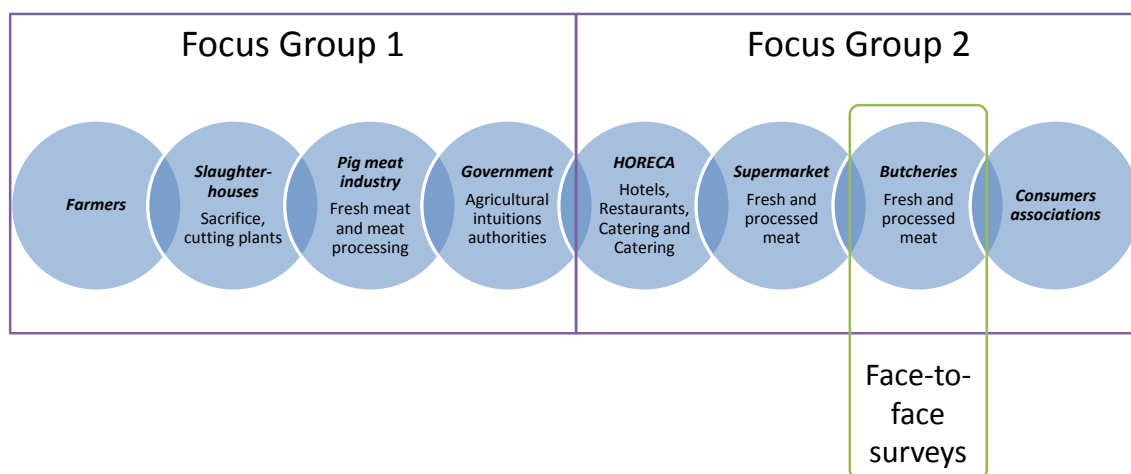


Figure 1: Focus groups of the main stakeholders in the pig supply chain

On the basis of the qualitative information gathered, a semi-structured questionnaire was designed. Face-to-face surveys with butchers were carried out with a sample consisted of 127 surveys (72 in Barcelona and 55 in Madrid). A list of all the butcheries was provided by the professional association of butchers of each region. The selection of butcheries was made randomly using the postal codes of each region as a variable of stratification

The survey collected extensive information on butchers' characteristics, butchery physical and economic characteristics and attitudes and opinions about pig castration. The determining factors when purchasing fresh pig meat were analysed using the AHP. The AHP is a technique (Saaty, 1977) to support multi-criteria decision-making in discrete environments. In its application, the first step is to clearly define the main attributes that butchers take into consideration when purchasing fresh pig meat. We relied on prior research performed on fresh pig meat (Font i Furnols and Guerrero, 2014; Kallas *et al.*, 2013). The attributes identified were discussed in the applied focus groups. The final set of attributes included was: origin of the meat, external fat content, intramuscular fat content, pig gender, colour of the meat. Price is not included in the comparison since our study tries to assess the relative importance of non-monetary attributes (Kallas *et al.*, 2011). As commented by Pedersen *et al.* (2011), in an unforced choice like ours using AHP, utility of attributes and levels are not affected and the rank order remained the same when a price attribute was included or not. Each attribute was divided into three different levels to be also valued.

To mitigate the order effect in applying the AHP, we followed a design based on ordering change within the AHP attributes as advised by Chrzan (1994). The randomness was based on two types of ordering changes: (a) the order of the different pair wise comparison; and (b) the order of levels within each pair wise comparison (i.e. sometime levels are presented on the right of the pair wise comparison others on the left).

Results

Although no official data is known, according to the pig sector the castration rate in Spain is between 15-20%. Participants believed that in Spain there would be no important implication to pig production if castration is banned in the near future, since a large part of the market is already based on entire males. However, participants declared that castration is linked to the product quality: farmers expressed that if it is banned, the new situation may result in a serious problem for the Iberian pig sector., participants commented that boar taint is seldom found in the fresh meat due to the fact that animals in Spain are slaughtered at an early age (6 months old) and that genetic types have changed. They also mentioned that boar taint is more problematic in fresh meat than in processed products because it is easier to mask it. Participants commented that apart from good quality meat, some consumers demand products which come from animals with certain welfare standards. All participants agreed that castration is related to welfare, because animals are castrated with no anaesthesia. However, they considered if pigs are castrated in the same way as veterinarians castrate domestic pets it would not be any welfare problem. A retailer's representative stated that consumers will always say that animals should not be castrated due to welfare issues, but they have no idea that one of the reasons for performing castration is to avoid boar taint. Participants agreed that Spanish consumers are not ready to pay a premium for meat coming from animals raised under higher welfare standard conditions because animal welfare is a comparatively recent issue in Spain.

Focusing on the determinants factors affecting butchers' decision to purchase fresh meat, results showed that pig gender and intramuscular fat are the most important attributes for the butchers, with aggregate weights of 25.80% and 24.98% respectively. The colour attribute occupies third position with aggregate weight of 21.69%, the origin and the external fat attributes with an aggregated weights of 14.89% and 12.65% respectively. Results are in accordance to what obtained from the focus groups. Butchers prefer meat from female pigs with an averaged fat content in particular, intramuscular.

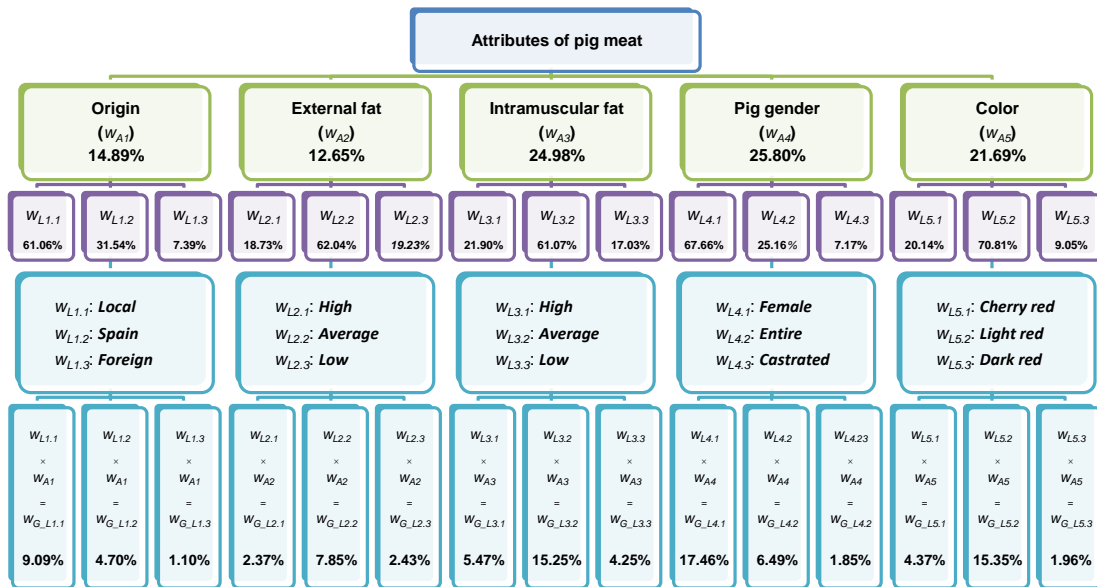


Figure 3: Relative importance of the main attributes when purchasing fresh pig meat

Conclusions

According to Spanish pig chain supply stakeholders, in conventional pig production a potential ban of piglet castration in Europe by 2018 might not be considered a problem since a high percentage of entire males is currently produced. However, for the production of high quality products, mainly the Iberian breed, banning the pig castration may represent a serious problem in this production system, because,

producing high quality products require to castrate pigs in order to obtain an adequate intramuscular fat content and to avoid boar taint. According to the AHP, butcheries considered that the most important attributes of pig meat when purchasing are the intramuscular fat content and the pig gender. They are interested in looking for a moderate content of intramuscular fat and meat from female pigs. Results showed that the policy implications regarding a potential banning of castration in Europe should exclude high quality products, such as PGI, PGO and TSG. These quality schemes must be included as exceptions in the European Declaration on alternatives to surgical castration of pigs, if not, pig sector will be heavily affected.

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