



Towards entire male pigs in Europe: A perspective from the Spanish supply chain



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ABSTRACT

In pig production, surgical castration is primarily performed to avoid boar taint and for management purposes. The European Commission plans to end surgical piglet castration voluntarily by 2018. The aim of this study was to assess the opinions and attitudes of Spanish stakeholders from the entire pork chain regarding this plan. Two methodologies were used: focus groups with 26 participants (qualitative method) were conducted with representatives of farmers, the meat industry, government institutions, retailers (including butchers), HORECA and consumers, and 127 face-to-face surveys at butchers (quantitative method) were carried out. These include an analytical hierarchical process to assess the determining factors when purchasing fresh pig meat. The results showed that a potential end of pig castration in Europe is not anticipated to affect conventional pig production in Spain. However, butchers are worried of negative effects on high quality meat and meat products, where surgical castration of pigs plays an important role.

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1. Introduction

Pig production is the most important livestock activity in Spain; 40 million pigs are slaughtered every year, which represents 16% of European production (FAOSTAT, 2013). A percentage of male pigs are castrated according to legislation (Directive 2001/93/CE), primarily for quality purposes. In 2009, an estimated 79% of male pigs in Europe were castrated, 33% in Spain (Fredriksen et al., 2009). Currently, although no official data are collected, this percentage has dropped to between 15% and 20% in Spain according to the pig industry. In 2013, the exportation rate in Spain was approximately 30%, and the importation rate was approximately 2% (DataComex, 2014). One of the primary retailers of pork meat is butchers, selling 25% of the fresh pork meat in Spain (MAGRAMA, 2013).

The practice of castration avoids the presence of boar taint produced by androstenone and skatole in the meat (Bonneau, 1982; Bonneau et al., 2000). The presence of boar taint in meat may affect the acceptability of pork by consumers (Bonneau and Chevillon, 2012; Desmoulin et al.,

1982; Diestre et al., 1990; Font-i-Furnols, 2012; Meier-Dinkel et al., 2013). While skatole is perceived by 99% of consumers (Weiler et al., 1997), approximately 40% of consumers are anosmic for androstenone, which means that they are unable to smell this compound (Blanch et al., 2012; Panella-Riera et al., 2010). Therefore androstenone sensitivity also affects boar meat acceptability (Blanch et al., 2012; Font-i-Furnols et al., 2003; Weiler et al., 2000). A study performed in Switzerland determined that part of the population experienced the presence of boar taint in meat (Huber-Eicher and Spring, 2008). Another reason for castrating piglets is meat quality; meat from castrated males has more intramuscular fat, which affects its acceptability (Aluwé et al., 2013; Bañón et al., 2004; Gispert et al., 2010).

The practice of castration has generated a debate due to its negative impact on animal welfare, resulting in the European Declaration on alternatives to surgical castration of pigs (DG-SANCO, 2010). This declaration was drafted by representatives of European farmers, the meat industry, retailers, scientists, veterinarians and animal welfare NGOs under the management of the European Union. The plan is to end the surgical castration voluntarily (with or without anaesthesia) of pigs in Europe by 1 January 2018.

Several studies in different countries evaluated attitudes and opinions regarding alternatives to surgical castration: for Norwegian consumers castration without anaesthesia was unacceptable (Fredriksen et al., 2011); Swiss consumers did not accept immunocastration as an alternative to surgical castration and preferred castration with anaesthesia (Huber-Eicher and Spring, 2008); and Flemish pig farmers

Abbreviations: AHP, analytical hierarchy process; FG1, focus group 1 with representatives of farmers, the pig meat industry, slaughterhouses and Government; FG2, focus group 2 with representatives of restaurants and caterings, supermarkets, butcheries and consumers associations; NGO, non-governmental organization; PGI, protected geographical indication; PGO, protected designation of origin; TSG, traditional specialities guaranteed.

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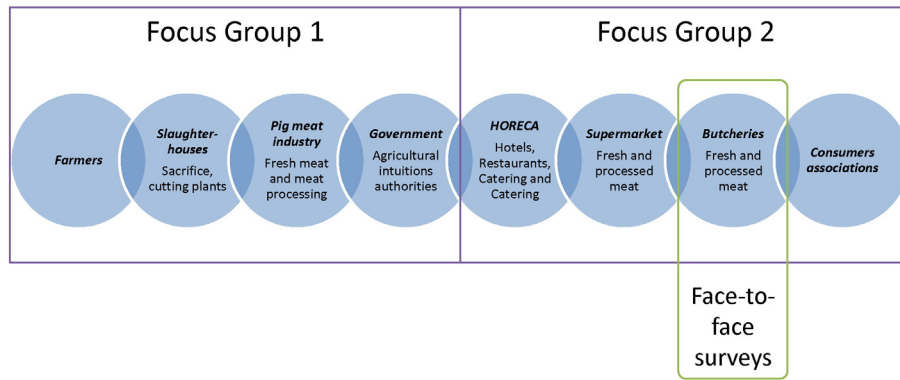


Fig. 1. Methodological approach to analyse the opinions and attitudes of the main stakeholders in the pig supply chain.

considered entire male production as the least profitable strategy while sperm sexing was positively perceived (Tuytens et al., 2012). Regarding the consumers, (Kallas et al., 2013; Kallas et al., 2012) analysed the relative importance of pig castration in 6 European countries: Spain, United Kingdom, The Netherlands, France, Italy and Germany. These researchers concluded that consumers did not have sufficient information regarding the sex of the pig, and few consumers associated pork with castration. This study also demonstrated that there is heterogeneity between countries: in Spain and France, the sex of the animal was relatively less important, while in the United Kingdom and The Netherlands, sex was relatively more important. To evaluate whether further commercialization of boar meat would be a problem, it would be useful to know if the meat industry, retailers, consumers and exporters were able to accept the change in meat if castrated pigs were replaced by entire males.

The aim of this study was to assess the opinions of stakeholders in the Spanish pork supply chain –from farmers to consumers– regarding the impact of a potential mandatory banning of pig castration using focus groups. Another objective was to quantify the opinion of butchers using face-to-face surveys concerning different aspects of entire male pig production, including meat quality, animal welfare and consumer attitudes.

2. Material and methods

Our methodological framework was based on two primary approaches to analyse the opinions and attitudes of the primary stakeholders in the pork meat supply chain: farmers, industry, government, retailers and consumers (Fig. 1). Firstly, the focus group as a qualitative methodology was applied to analyse opinions towards the production of entire male pigs and the impact of a potential ban on piglet castration in Spain. Secondly, a face-to-face survey at butchers was employed as a quantitative methodology. These surveys consisted of different questions regarding pig production, meat quality and consumer attitudes.

The survey also included an Analytical Hierarchy Process (AHP) to assess the relative importance of pig castration within butchers' decisions.

2.1. Focus groups

Focus group methodology allows the exploration of attitudes and perceptions related to concepts, products, services or programmes by interactions with other people. Focus groups are useful when there are power differences between the participants (Krueger, 1994; Morgan, 1993).

2.1.1. Study design

To obtain a broad overview of the opinions of different stakeholders regarding the production of entire male pigs and the potential ban on piglet castration in Spain, focus groups were organized in two Spanish regions (Barcelona and Madrid). Two focus group sessions—including different parts of the pork supply chain—were organized in each city with the following stakeholders: Focus group 1 (FG1) included representatives of farmers, the pig meat industry, slaughterhouses and the government; and Focus group 2 (FG2) included representatives of HORECA, supermarkets, butchers and consumer associations. Focus groups were performed on 21st November 2012 in Barcelona and 12th February 2013 in Madrid, with 26 participants in total, 5 to 8 in each session, and 1 to 2 participants per stakeholder and session. Number of participants in each session is detailed in Table 1.

2.1.2. Description of focus groups

Focus groups were conducted according to standard procedures (Morgan, 1993). The focus group team consisted of a moderator and an assistant. In all the sessions a moderator led the proceedings and obtained answers to the set of questions from each participant. Each focus group lasted 55–60 min. The Focus group sessions were recorded and field notes were taken during the session to later analyse the data. The

Table 1
Number and type of stakeholder in each session.

	Stakeholder	Barcelona	Madrid	Total
FG1	Farmers	1	1	2
	Slaughterhouses/cutting plants	1	2	3
	Meat processing plants	1	2	3
	Government	2	3	5
	Global	5	8	13
FG2	Retailers	2	1	3
	Butchers	2	2	4
	HORECA (Hotels, Restaurants and Catering)	1	1	2
	Consumers	2	2	4
	Total	7	6	13
	Overall total	12	14	26

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