Sex neutralization of heavy pigs from Iberian Peninsula breeds: solutions and limitations

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THE PRODUCTION SYSTEM AND PRODUCTS
- After weaning pigs are mostly raised in free-range system (Charneca et al., 2017; Lopez-Bote, 1998)
- For the certification of high grade dry-cured products like the hams, the animals can only be slaughtered with an age of at least 14 months and a bodyweight ranging from 145-210 kg.
- During the fattening period pigs have access to acorns and grass from the Mediterranean forest usually from November to March (photo 3).
- Products from these pigs are raw meat and dry-cured products which the most famous is the “Pata Negra ham” (photos 4 and 5). Quality of the products is related to the age, weight and diet of animals (Daza et al., 2007; López-Bote, 1998).

THE BREEDS
- Alentejano (AL, in Portugal, photo 1) and Iberian (IB, in Spain, photo 2) pigs are native breeds of the Iberian peninsula. Recent studies show that both breeds are genetically related (Muñoz et al., 2017).
- Although variation exists morphologically these animals are characterized by: short and jowled neck, medium length trunk and arched ribs, pointed snout and extremities are very narrow and short, with pigmented hooves of uniform colour.
- Both breeds present: low prolificacy (Charneca et al., 2012; Fernandez et al., 2008) and low growth rate, but compensatory and relatively high growth rate (Freitas, 1999; Daza et al., 2005) during the fattening/finishing phase called “Montanera” in Portuguese and “Montanera” in Spain.

THE RESULTS OF IC IN MALES
In most cases, for intensive pig production, a 2 doses protocol is effective until slaughter (Zamaraskaia and Rasmussen, 2015). The extended effects of IC (Zamaraskaia et al., 2008) up to 22 weeks after 2nd administration, are not enough to assure immunization in heavy Iberian males. Although some 3 doses protocols can have variable efficacy (as shown in Hernandez-Garcia et al., 2018), Late immunocastrated Control Group), in the same study an optimized 3 doses protocol for IB pigs has been developed.

Higher growth rate of IC males vs SC males (Sequier et al., 2017)
Overall, the effects on IC males carcasses and meat traits are limited but some effects are described:
Possible effects on meat colour and drip loss of IC males at 100Kg (Nieto et al., 2017)
IC males with leaner carcasses, less intramuscular fat, higher shear force and rancidity than SC males (Martinez-Macipe et al., 2016)
Some studies on fresh products from IC males (e.g. García-Gudiño et al., 2017)
No studies on dry-cured products (including sensorial)

THE RESULTS OF IC IN FEMALES
3 doses pre-pubertal IC of Iberian gilts have long-term successful effects (ovarian quiescence). Protocol is relatively easy to apply at farm as it allows gender mixing before immunization and doesn’t include vaccination during “Montanera” (Images from: Hernández-García et al., 2013)

No adverse effects of IC females on performance and carcass traits (Gómez-Fernández et al., 2013, Martínez-Macipe et al., 2016)

PRESENT SITUATION
• High age and weight at slaughter
• Usual gonadectomy of males (avoid boar taint and aggressive and sexual behaviour)
• Usual gonadectomy of females (avoid heat and mating by wild boars)
• Foreseen voluntary end of surgical castration (SC) without pain relief

OPTIONS
• SC with pain relief needs the development of a feasible and economically worthwhile procedure
• Use of Immunocastration (IC) protocols

PROBLEMS AND RISKS
• Difficulties on animals manipulation (usually - extensive raising areas, poor facilities, low manpower, etc)
• Effectiveness of IC protocols for long periods until slaughter
• Attitudes of industry towards IC males (presence of testsis even if atrophied)
• Effects of IC on carcass, meat and dry-cured products characteristics (including sensorial)

THE ABSENCE OF POSSIBLE DETRIMENTAL EFFECTS OF IMMUNOCASTRATION OF FEMALES ARE MORE “CLEAR” THAN IN MALES

THE BREEDS

NO STUDIES ARE AVAILABLE ON ALENTEJANO BREED ANIMALS AND ONLY FEW EXIST ON CONSUMERS ACCEPTANCE OF IMMUNOCASTRATED ANIMALS PRODUCTS

TAKE HOME MESSAGES

SEXUAL NEUTRALIZATION IS NEEDED IN ALENTEJANO AND IBERIAN PIGS

THE ABSENCE OF POSSIBLE DETRIMENTAL EFFECTS OF IMMUNOCASTRATION OF FEMALES ARE MORE “CLEAR” THAN IN MALES

NO STUDIES ARE AVAILABLE ON ALENTEJANO BREED ANIMALS AND ONLY FEW EXIST ON CONSUMERS ACCEPTANCE OF IMMUNOCASTRATED ANIMALS PRODUCTS

Information: all literature used in this poster can be requested to the correspondent author. The Iberian breed boar photo was kindly provided by AECERIBER.
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