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Session 56. Pig, poultry and rabbit husbandry for improved product quality

Date: Friday 4 December 2020; 9.00 – 11.45
Chair: Stadnicka / Millet

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Impact of immunocastration of gilts on instrumental and chemical traits of Teruel dry-cured hams

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In a previous trial carried out with gilts intended for the Protected Designation of Origin (PDO) 'Teruel dry-cured ham', a positive impact of immunisation against GnRH was detected on carcass fat thickness. According to the Regulation of this PDO, more than 16 mm of fat depth over the gluteus medius muscle are required to favour salting and avoid excessive drying of pieces. Nowadays, a study was carried out with 32 dry-cured hams of Duroc × (Landrace × Large White) gilts to evaluate the effects of immunocastration on weight losses during the dry-curing process and on instrumental and chemical characteristics. Half of them belonged to intact gilts (IG) and the other half to immunocastrated gilts (IMG). All pigs received the same management in the farm and in the abattoir. Hams were weighted several times during the dry-curing process (lasted 19 months). Once cured, colour, texture and chemical composition by near-infrared spectroscopy (NIR) and by classical analyses were determined in the biceps femoris muscle of 10 hams per treatment chosen at random. Data were analysed using the GLM procedure of SAS. The fresh-ham weight and the dry-cured-ham weight were used, when significant, as covariates for weight losses and for instrumental and chemical characteristics, respectively. Total ham weight losses during the dry-curing process tended to be lower (P=0.058) in IMG than in IG, leading to hams from IMG tended to be heavier (P=0.057). Yellowness (P=0.055) and chroma (P=0.017) were lower in IMG than in IG. Hams from IMG presented lower moisture (P=0.001) and water activity (P=0.015), higher intramuscular fat content (P=0.049 by classical analyses and P=0.077 by NIR) and tended to show higher ashes proportion (P<0.10) than those from IG. Under our experimental conditions, it can be concluded that immunocastration improves some parameters related to the quality of Teruel dry-cured hams of gilts.
This work was funded by MINECO (Project AGL2016-78532-R) and by FITE and FEDER, through the operative programs 'Construyendo Europa desde Aragón'.

Sensory differences of Vinhais (Portugal) meat sausages with 3 ripening times

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This work aimed to evaluate the effect of 3 (6, 9 and 12 days) ripening times on the sensory characteristics of Vinhais meat sausages produced according to the PGI specifications, to investigate the possibility of creating a new PGI product: Vinhais meat sausage to roast. Twenty-four appearance, odour, texture and taste attributes were evaluated by a qualified taste panel. The data were submitted to the product characterisation procedure. The results show that 13 of the 24 assessed attributes have significant discriminatory power over the sausages with different ripening times. The sausages with 12 days of ageing were firmer and harder, had a darker colour, more difficult chewability, and had a higher flavour intensity and persistence, also presented more spots in the exterior. Sausages with nine days of curing showed higher brightness, and also, not significantly different from 12 days sausages, darker colour after cooked, and not significantly different from 6 days sausages less firmness. Sausages with six days of ripening showed smaller values for most of the attributes. They were more tender, more homogeneous, and presented the lowest values of firmness, colour, chewability, brightness, flavour persistence, lighter muscle colour, more opaque aspect of the fat, fewer spots, more pink muscle colour and more intact wrapping.

Effect of immunocastration of male pigs on instrumental and chemical traits of Teruel dry-cured hams

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Pigs intended for Teruel dry-cured ham elaboration must reach a high slaughter weight (around 130 kg) to meet the desirable quality. Therefore, castration of male pigs is necessary to avoid boar taint. Traditionally, it has been carried out surgically, but considering piglet welfare, alternatives are being researched; among them, immunisation against GnRH stands out. Thus, a study was carried out with 14 dry-cured hams of Duroc × (Landrace × Large White) male pigs to evaluate the impact of immunocastration on weight losses during the dry-curing process and on instrumental and chemical characteristics. Half of them belonged to surgical castrated males (SCM) -during the first week of life- and the other half to immunocastrated males (IM) -by three doses of Improvac® at approximately 20, 60 and 80 kg of body weight-. All animals received the same management in the farm and in the abattoir. Hams were weighted several times during the dry-curing process (lasted 19 months). Once cured, colour, texture and chemical composition by near-infrared spectroscopy (NIR) and by classical analyses were determined in the *Biceps femoris* muscle. Data were analysed using the GLM procedure of SAS. The fresh-ham weight and the dry-cured-ham weight were used, when significant, as covariates for weight losses and for instrumental and chemical characteristics, respectively. There were no differences in weight losses during the dry-curing process (salting, post-salting, drying, aging and total period), neither in chemical composition (moisture, ash, protein and intramuscular fat proportions) nor in Warner-Bratzler shear force (hardness) between hams from IM and those from SCM (P>0.10). Only some colour variables were affected; yellowness (P=0.045) and chroma (P=0.015) were lower in IM than in SCM. Under our experimental conditions, it can be concluded that the type of castration has scarce influence on the quality of Teruel dry-cured hams of male pigs.
This work was funded by MINECO (Project AGL2016-78532-R) and by FITE and FEDER, through the operative programs ‘Construyendo Europa desde Aragón’.

Scrotal morphometry of Bísaro pig males treated with two or three administrations of Improvac®

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Seventeen male Bísaro (BI) pigs were treated from 13 weeks of age with two (n=6; Grp1) or three injections (n=11; Grp2) of Improvac® (Zoetis), 4-weeks apart. Animals were reared in intensive conditions and fed *ad libitum*, until 29 (Grp1) and 33 (Grp2) weeks of age. Scrotal dimensions (total width; average height and width of the left and right scrotal sac) were measured every 4 weeks from the first injection (FI) until the 16th week post-administration, and the variation between every measurement were calculated in order to surveil the immunosuppressive effects of the vaccination protocols. Variation were also compared with the normal scrotal growth in non-treated, age-matched animals (GrpC; n=24). Variation of scrotal dimensions did not differ significantly between treated and control groups, from the first to the 2nd administration of Improvac. After the 2nd injection, however, the variation and the absolute scrotal dimensions differ between treated and control groups (P≤0.001). When comparing between treated groups, the decrease was higher in Grp1 for total width (P=0.074) and average height (P=0.0025). The decrease is reverted between the 8th and the 12th week post FI for Grp1, even though the overall dimensions of the scrotum remained significantly lower than in Grp2 and GrpC, and below the initial values for the group. Animals in Grp2 continuously registered a decrease in the scrotal width until the last observation (16 weeks after FI). The size of the scrotum for both treatment groups remained significantly lower than the control group by the end of the evaluation. This study showed that in prepubertal Bísaro pigs, the immunocastration protocol with three administrations of Improvac allows a more consistent and prolonged suppression of the reproductive axis, as reflected by the subsequent decrease in the scrotal dimensions. This protocol seems to better match the foreseen for the Bísaro system, where producers sought to attain one-year old animals at the time of slaughter.