The influence of tail biting on pig carcasses considering different production systems and tail length

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Introduction and Objectives

Tail biting is recognized as a major welfare issue in pig production, associated with great economic losses. The European Union has stated its position regarding tail docking practices through the Directive 120/2008/EC and Recommendation (EU) 2016/336. The directive encourages all Member States to establish standards for the protection of pigs as well as measures to reduce the need for tail-docking and tail biting prevalence. This study aims to evaluate tail biting occurrence in slaughtered pigs, analyse the association of tail lesions with production system and tail length, and explore the relationship between carcass condemnations and tail damage.

Materials and Methods

Information on a total of 9189 pigs from 73 batches from distinct production systems (conventional, conventional without the administration of antimicrobials, organic) and with different tail lengths (undocked, docked mid-length, fully docked) was collected at a Spanish abattoir. Due to the speed of the slaughter line, it was only viable to classify a subset of 3636 animals regarding their tail condition, which was classified into three categories (Figure 1).

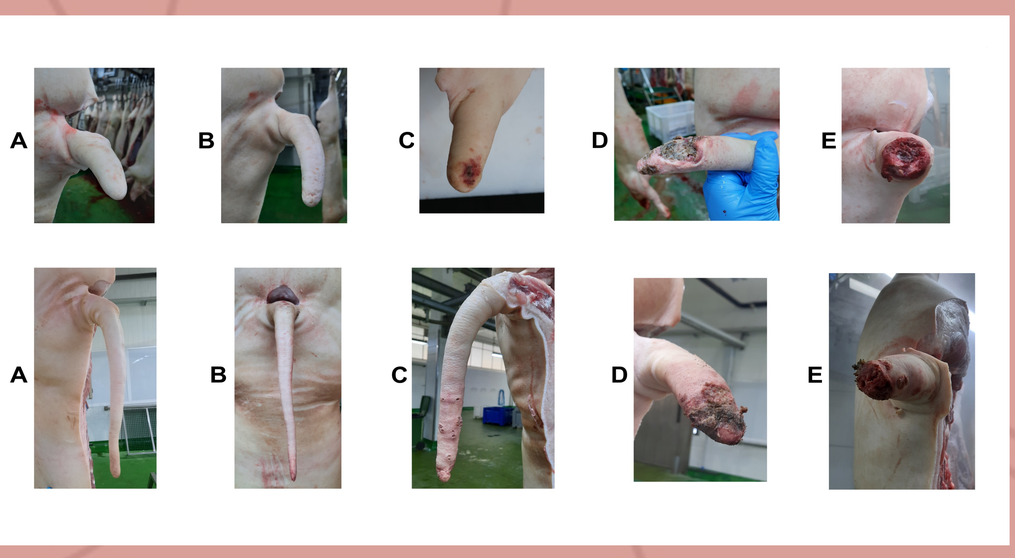

Figure 1. Examples of examined tails. Lesion score: A - no lesions; B and C - mild lesions; D and E - severe lesions.

Results and Discussion

The probability of observing tail lesions only varied with tail length, with undocked pigs having higher odds of showing severe lesions when compared to other lengths (p=0.0001, OR=3.11 and OR=2.10). Batches with higher lesion scores presented a greater chance of total condemnations (p=0.014, OR=1.81) and total condemnations by pyaemia (p=0.013, OR=2.96). Regarding production systems, organic farms had a higher probability of total condemnation when compared to the other two production systems (p=0.0263, OR=2.27 and OR=4.36) (Table 1). Despite being popularly discussed that pigs raised under less intensive conditions, such as organic production, have a higher level of animal welfare, in this study, it was the only production system that showed a statistically significant relationship with condemnations rates. In this type of production, the absence of correct treatment due to the antimicrobials restriction leads to generalised bacterial infection and could explain the higher condemnations rates.

Response variable	Explanatory variable	Statistics	P value	*Odds Ratios*	Estimate	95% CI
Lesion score	Production system	$\chi^{22}=3.13$	0.21			
	Tail length	$\chi^{22}=18.35$	**0.0001**	undocked vs docked	**3.11**	1.83 – 5.30
				undocked vs docked mid-length	**2.10**	1.01 – 4.39
				docked mid-length vs docked	1.48	0.83 – 2.65
TC	Lesion score	$\chi^{21}=5.98$	**0.0145**		**1.81**	1.12 – 2.91
	Production system	$\chi^{22}=7.27$	**0.0263**	organic vs conventional	**2.27**	1.07 – 4.81
				organic vs conventional without antimicrobials	**4.36**	1.38 – 13.7
				conventional without antimicrobials vs conventional	0.52	0.19 – 1.40
	Tail length	$\chi^{22}=0.06$	0.97			
TC due to pyaemia	Lesion score	$\chi^{21}=6.22$	**0.0126**		**2.06**	1.16 – 3.63
	Production system	$\chi^{22}=2.30$	0.32			
	Tail length	$\chi^{22}=0.45$	0.80			

Table 1. Statistical model exploring the relationship between lesion scores, total condemnations (TC) and total condemnations (TC) due to pyaemia with production system and tail length in the total study population (9189 pigs). CI – confidence interval.

Conclusion

This research concludes that there is a clear association between tail lesions and condemnation rates. As tail length influenced the severity of tail lesions, it is imperative to consider the impact of tail length on animal welfare and conduct further studies to determine if a longer resected tail could result in more favourable outcomes compared to a conventional docked tail. Although it is argued that pigs raised under less intensive production conditions (organic) have a higher level of animal welfare compared with pigs raised under conventional production, tail biting and systemic infections can still be observed in organically raised pigs.

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