Validation of on-line slaughter checks as a pig welfare diagnostic tool

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Introduction

Traditionally, farm animal welfare has been assessed by examining system inputs (Velarde & Dalmau, 2012), including space requirements, enrichment and floor type. However, only the **potential** welfare state of the animal can be assessed using this method. In response to this issue, novel output-based welfare assessment methods are being explored. The output-based nature of meat inspection (MI) makes it a good candidate for use as an animal welfare assessment tool. The overall aim of this research was to assess the extent to which welfare measures recorded at meat inspection at the abattoir reflect welfare assessments made throughout the life of pigs.

Method

Data were collected between May 2013 and December 2014 from ten batches of pigs (N = 720) reared in conventional intensive housing. 50% of the tail length was docked within 24 hours of birth. Each animal was assessed at 7, 9 and 10 weeks of age (early life), and at 15 and 20 weeks of age (later life). At each timepoint pigs were assessed for;

Tail lesions (TL)

Skin lesions (SL)

Health issues (HI)

Tail lesions were scored using a 5 point scale (adapted from Kritas and Morrison, 2007) that ranged from 0 - "no evidence of tail biting" to 5 - "total loss of tail". Skin lesions were scored using a 5 point scale (adapted from Conte et al., 2012) that ranged from 0 - "no injuries" to 5 - "many very big, deep and red lesions covering the skin area". Health issues (HI) which were recorded at each timepoint included lameness, bursitis, coughing, scouring, rectal prolapse, hernias and aural hematomas. Following slaughter at 21 weeks, each carcass was then scored for tail length (long ≥ 6cm, short ≤ 5cm), tail lesions, loin bruising and fresh (red) and old (non-red) skin lesions. Levels of carcass condemnation were also recorded. Using a one-way Kruskal-Wallis ANOVA, the carcasmeasures of pigs with tail lesions, skin lesions and health issues in 'early life' (present at least once at 7 and 9 weeks only), 'later life' (present at least once in 10, 15 and 20 weeks only) or 'whole life' (present at least once in both early and later life) were compared to their respective controls (C).

Results

Pigs recorded as having tail lesions in early life ($P < 0.05$), later life ($P < 0.001$) or during whole life ($P < 0.001$) had more carcass tail lesions than respective controls (Figure 1). Pigs recorded as having tail lesions in later life ($P=0.001$) and during whole life ($P < 0.001$), but not during early life, had shorter tails on the carcass than C pigs. Pigs recorded as having skin lesions in early life, later life ($P<0.05$) and during whole life ($P < 0.001$) had significantly more healed (non-red) carcass skin lesions than C pigs (Figure 2). Fresh (red) skin lesions to the carcass did not differ between the welfare groups. Levels of loin bruising on the carcass did not differ between any of the experimental groups ($P > 0.05$). In addition, health issues recorded during any stage of life were not reflected in any carcass measures ($P > 0.05$).

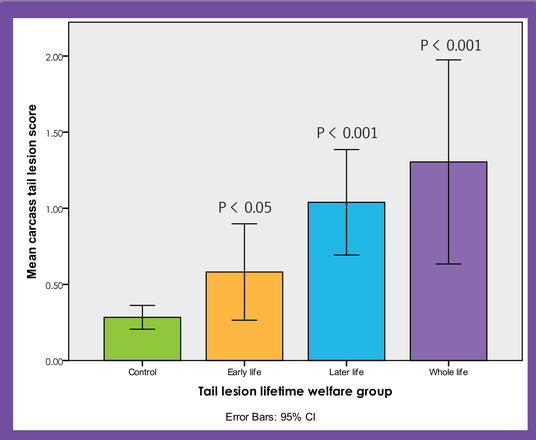

Figure 1 Mean carcass tail lesion scores

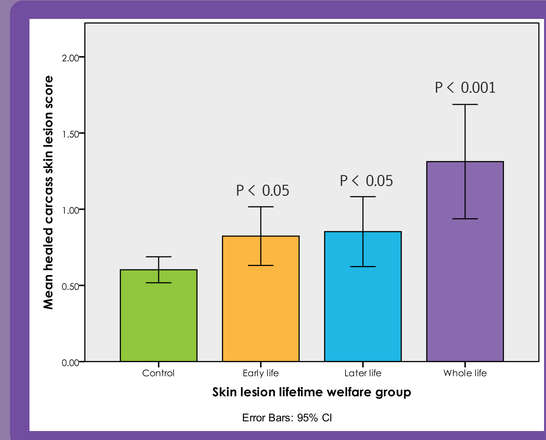

Figure 2 Mean healed carcass skin lesion scores

Discussion

Skin and tail lesions acquired in both early and later life remain visible on the carcass. Healed skin lesions appear to reflect skin damage acquired on farm. The finding that fresh skin lesions did not differ between groups suggests that these lesions may have been acquired during the marketing process. No carcass welfare measures reflected health issues recorded on farm. These issues may be reflected in traditional MI findings. However, there was an insufficient number of carcass condemnations for this to be examined. In conclusion, these findings show that carcass based measures of skin and and tail lesions can be used to detect welfare problems occurring during both the early (growing) and later (finishing) period of pigs lives.

Acknowledgements

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