

The effect of housing system during pregnancy on locomotory ability and claw lesions of sows in farrowing crates



J. A. Calderón-Díaz^{1,2}, J. O'Doherty², L. Boyle¹

¹Pig Development Department, Teagasc, Moorepark Research Centre, Fermoy, Co. Cork, Ireland

²School of Agriculture and Food Science, University College Dublin, Belfield, Dublin 4, Ireland

Introduction

- Gestation stalls are the most common housing system for pregnant sows worldwide
- In Europe around 70% of gestating sows are individually housed in stalls (Hendricks *et al.*, 1998)
- Concerns about animal welfare have resulted in a partial ban on gestation stalls in the EU from Jan 2013
- Although loose housing has several welfare benefits it also has disadvantages mainly associated with the aggression that occurs at mixing and during feeding

Introduction

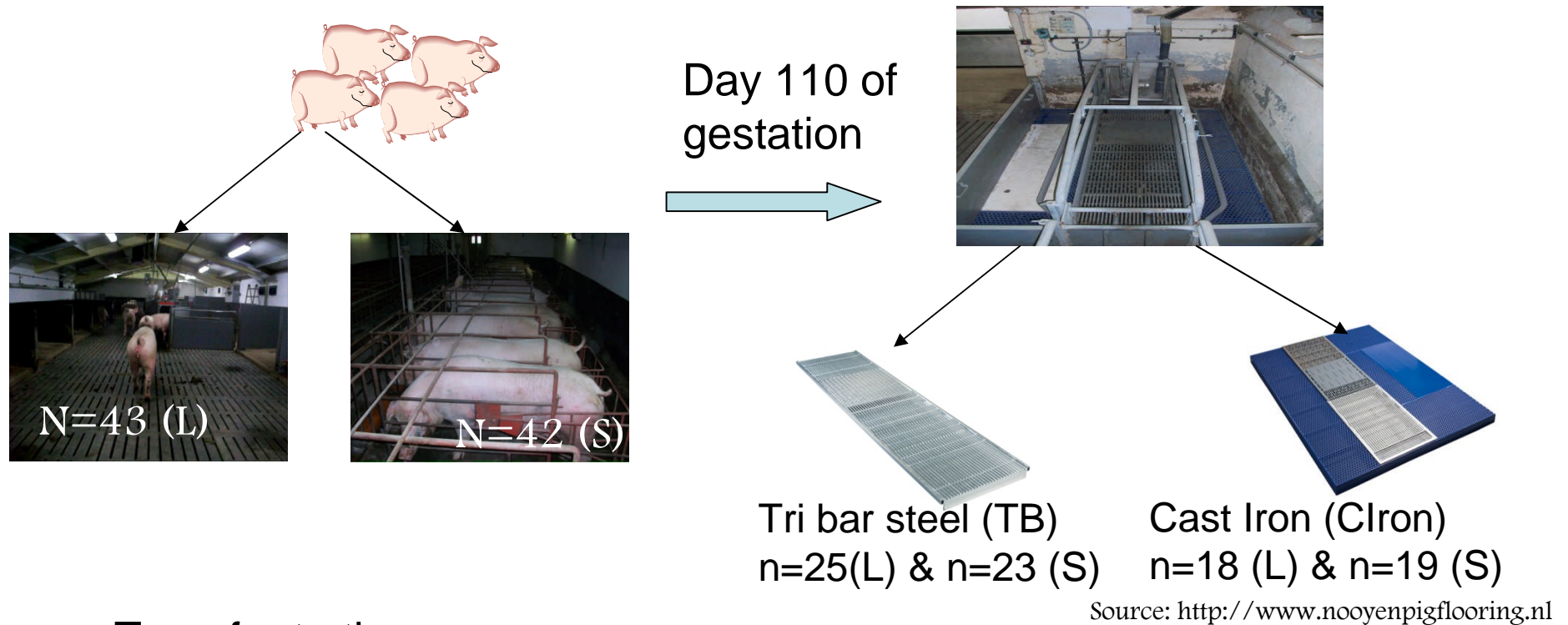
- Claw lesions are more prevalent in loose than in stalled sows (Gjein and Larssen, 1995)
- Claw lesions are reported as a major cause of lameness when loose housed sows are kept on concrete slatted flooring without bedding (Schulenburg *et al.*, 1986)
- Sows housed loose on slatted floors during gestation could sustain claw damage leading to abnormal posture during lactation (KilBride *et al.*, 2009)
- This has implications not only for sow welfare but also for piglet mortality

Objectives

To determine the:

- Effect of housing system during pregnancy on locomotor ability of sows prior to farrowing
- Effect of housing system during gestation and flooring during lactation on the prevalence and severity of claw lesions prior to farrowing and at weaning
- Association between claw lesions and locomotor ability

Material and Methods



Transfer to the
crate (-5d)

Prior to weaning (28d)

1. Locomotor ability

2. CL: Heel overgrowth/erosion (HOE);
Heel sole crack (HSC) White line (WL)
damage; Wall cracks (WC) and Dew
Claw Injuries (DCI)

CL: HOE; HSC; WL;
WC and DCI

Material and Methods

Data were analyzed using SAS V9.2

PROC MIXED was used to investigate the relationship between CL and housing system. The model included housing (L vs. S), period (-5d vs. 28d), floor (TB vs. SC) and their interactions

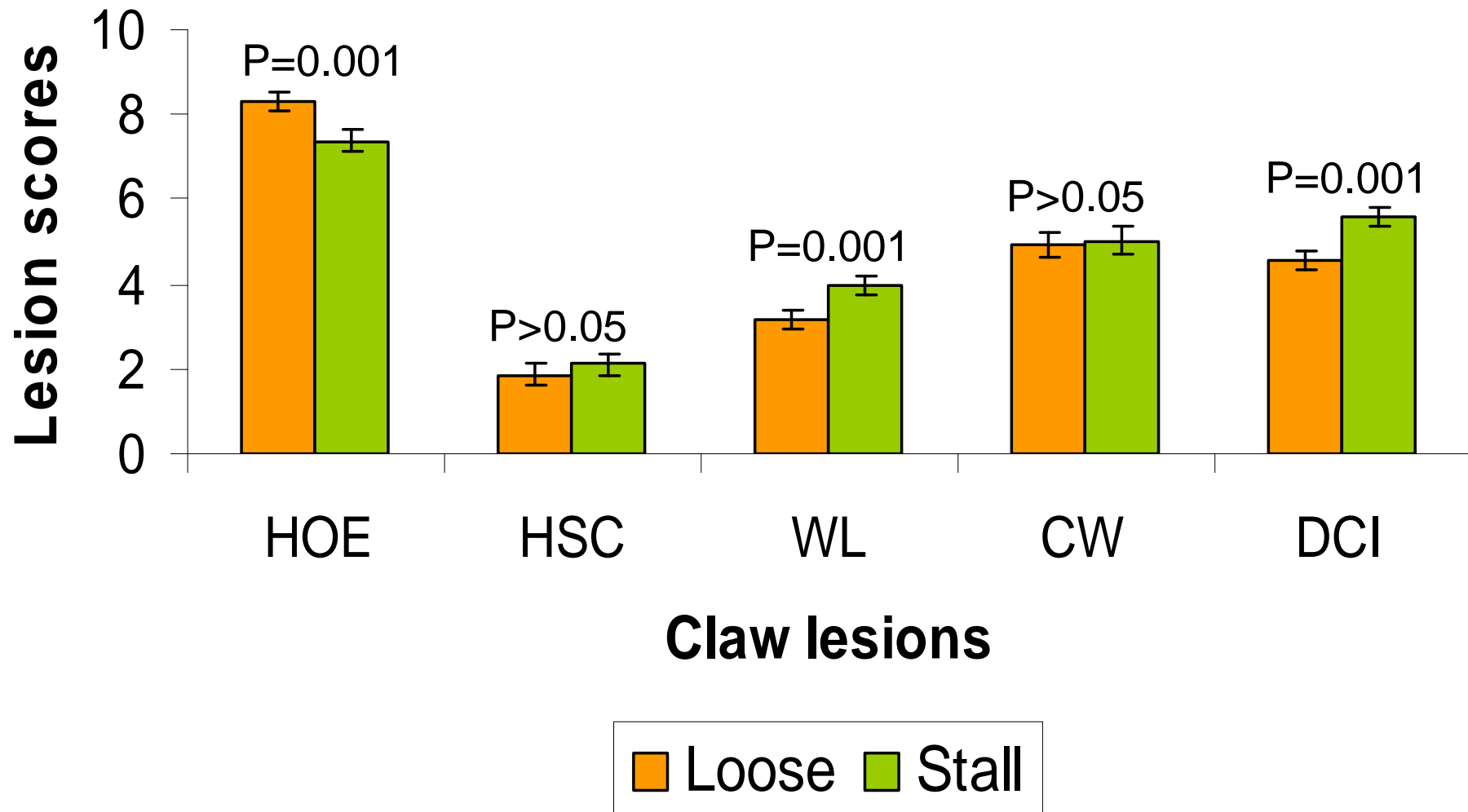
Locomotor ability was analyzed using PROC LOGISTIC. The model included housing and HOE, HSC, WL, WC and DCI

Results

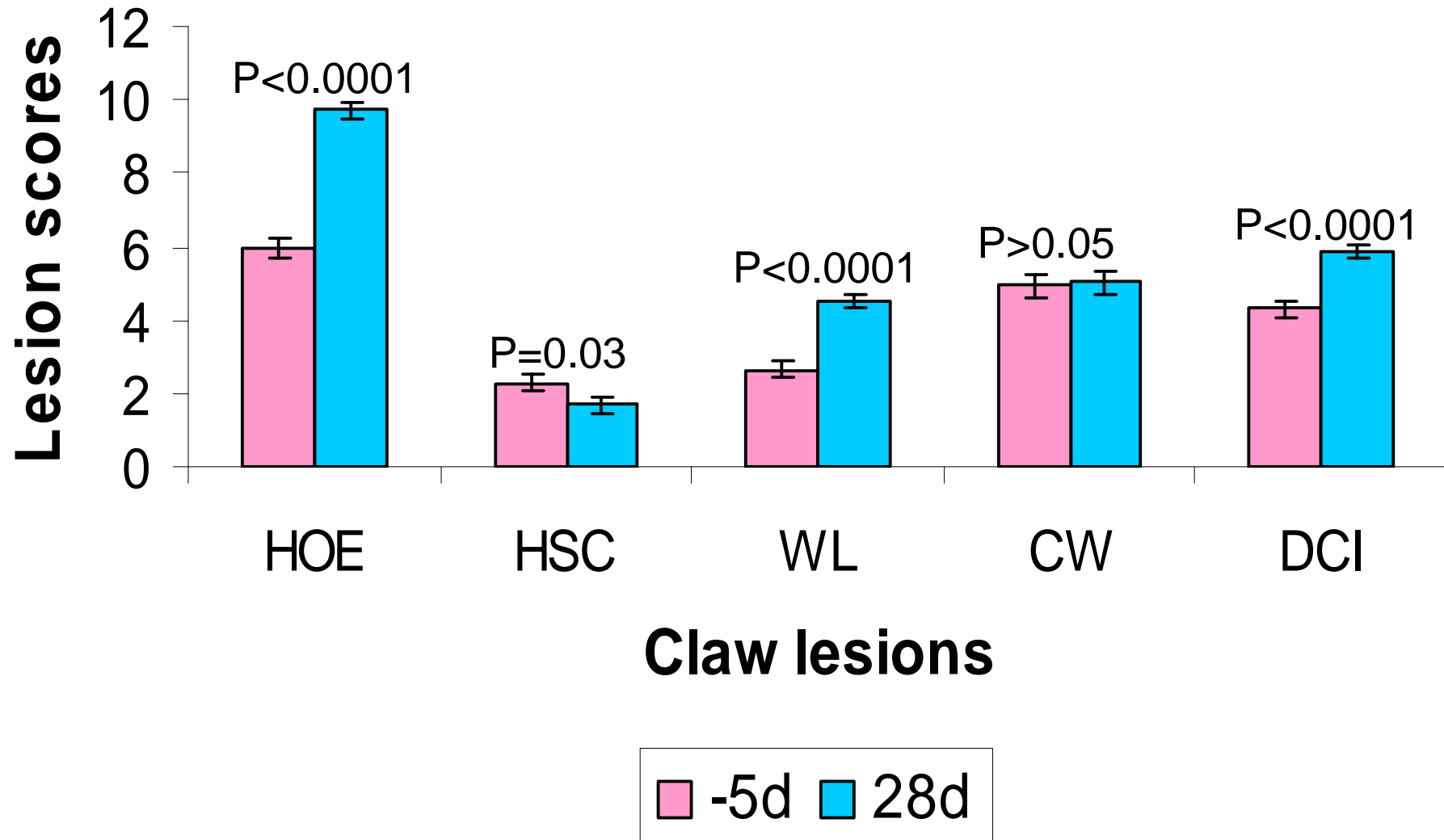
**Effect of housing system during pregnancy
(loose vs. stall) on claw lesions across two
inspections**

**100% of the sows
had at least one claw
lesion**

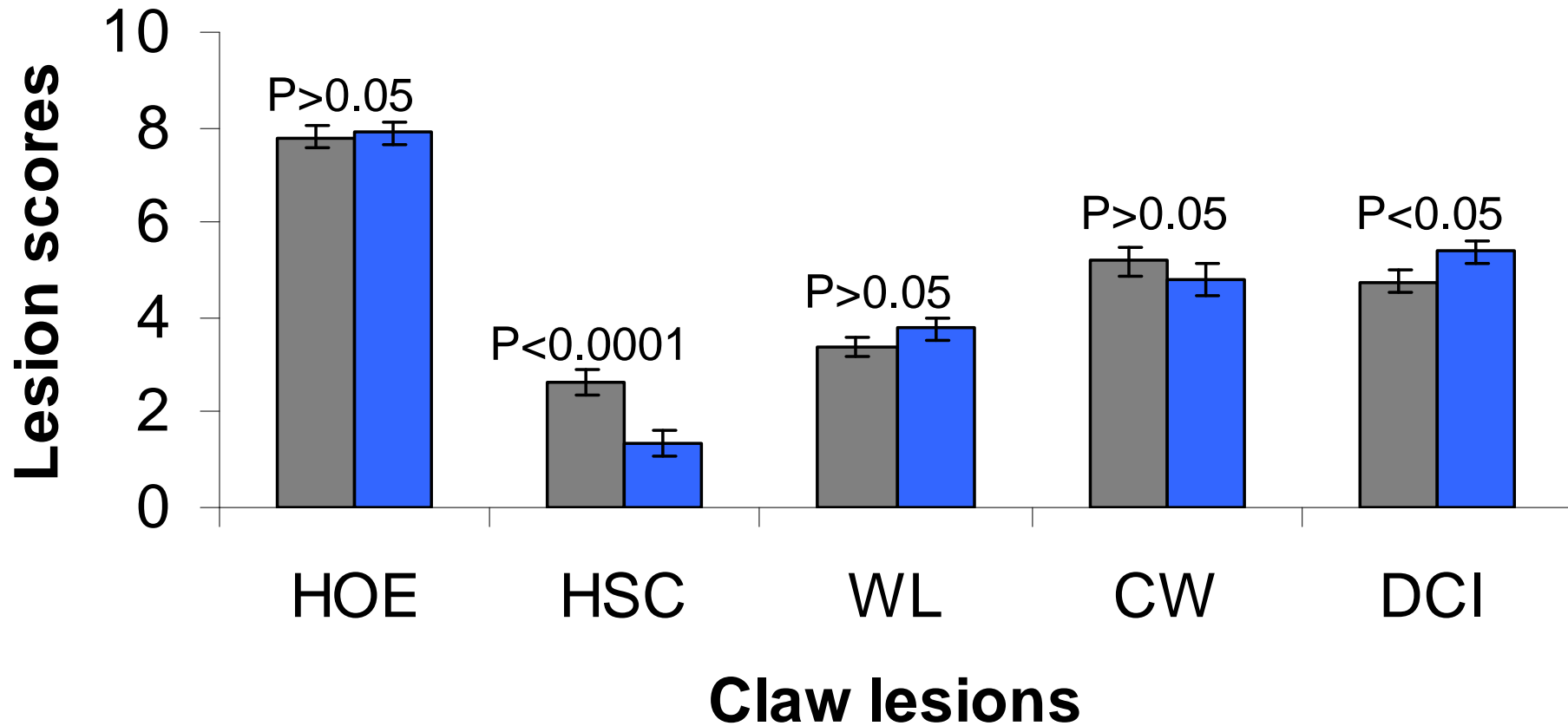
Effect of housing system during pregnancy (loose vs. stall) on claw lesions across two inspections



Effect of time spent in the farrowing crates on claw lesion scores of sows loose or stall housed during gestation

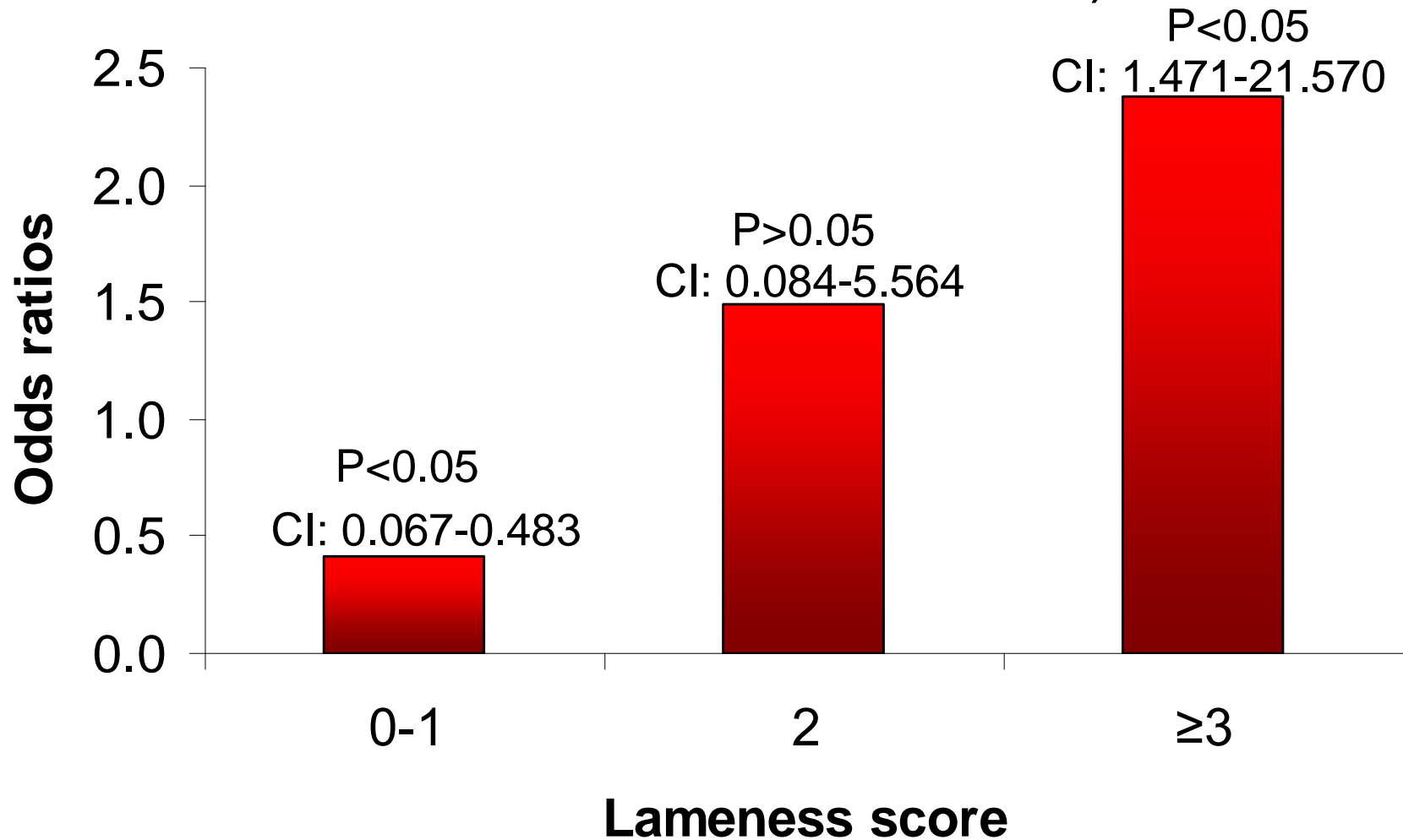


Effect of floor type in farrowing crates on claw lesion scores of sows loose or stall housed during gestation



■ Tri-bar steel ■ Cast Iron

Effect of housing during gestation on the odds of achieving different scores for locomotor ability (odds ratios for loose vs. stall)



There was no significant relationship between lameness and any of the claw lesions (P > 0.05)

Discussion

High prevalence of claw lesions

- Erosion of the heels represented the most severe lesion in both housing systems
- Floor hygiene and quality impacts on the heel region and favours overgrowth and cracks in the heel
- Housing in farrowing crates during lactation detrimental impact on claw health

Loose housed sows had higher odds of receiving poorer scores for locomotory ability prior to farrowing

- Fighting on concrete (solid or slatted) at mixing = major risk factor for lameness
- Thereafter sows have to walk around on concrete (slats) for access to resources (food, water etc.)

Discussion

No significant relationship between locomotor ability and any of the claw lesions measured

- Lameness caused by reasons other than claw lesions e.g. osteochondrosis?

AND/OR

- Severity scores attributed to the lesions visible on the exterior of the claw may have related poorly to the extent with which they penetrated the corium

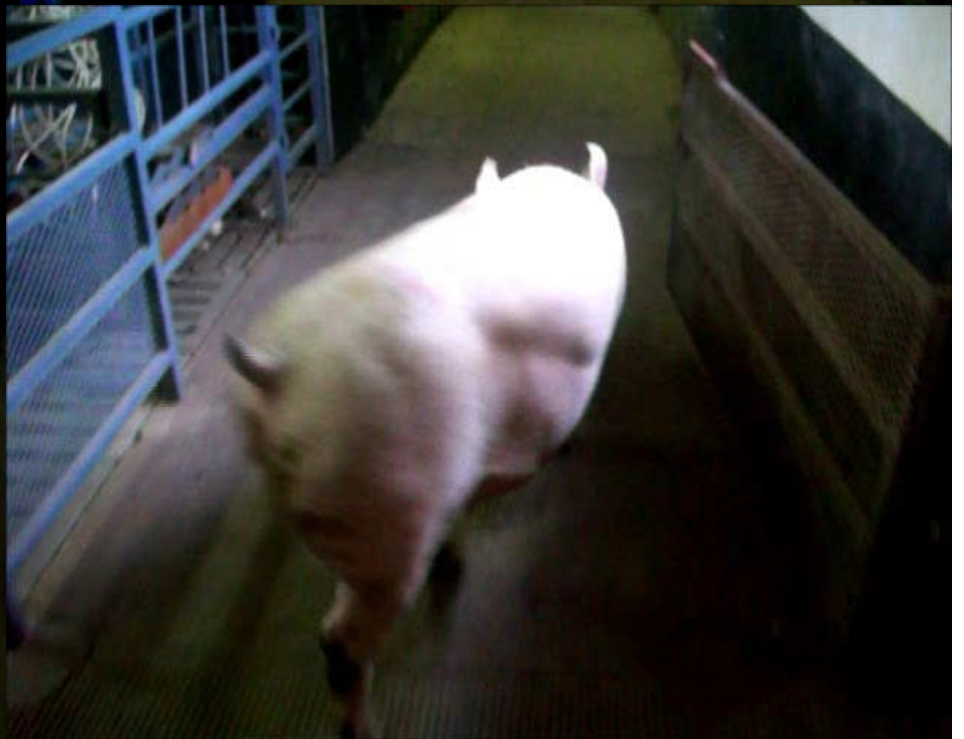
Conclusions

- Although extent of the discomfort they cause requires further investigation the high prevalence of claw lesions irrespective of gestation housing system is a sow welfare concern
- Sows confined in stalls had higher severity scores for white line damage and dew claw injuries but loose housed sows were more likely to be lame prior to farrowing
- Lameness could become more of a problem when we switch to loose housing in 2013
- Housing in the farrowing crate had a negative impact on claw health of sows
- More research required on pathological causes of lameness in sows

Acknowledgements



The Irish Agriculture and Food Development Authority





M&M

Claw lesions

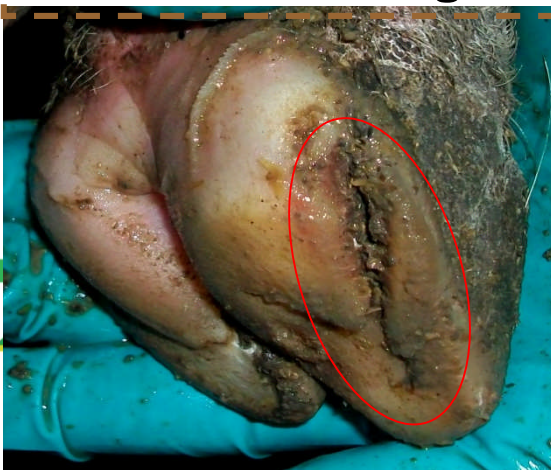
Heel Overgrowth
/erosion



Heel sole crack



White line damage



Cracks in the wall



Dew claw injuries



ity