Risk factors for lameness on dairy farms in the UK

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Introduction

Lameness is recognised as the third largest production disease on UK dairy farms and has negative effects on both animal welfare and animal health economics. The term 'lameness' encompasses a range of diseases which affect mainly the feet and legs of the animal.

This paper presents aspects of housing that are risk factors for raised locomotion score

Methods

Study Design

- 53 Farms in England and Wales were visited 4 times in 2003-2004
- Herd Size ranged from 27 to 450
- All cows locomotion and hock scored
- Hoof lesions recorded by farmer at trimming
- Management and environmental data recorded

Statistical analysis

- Linear models produced for locomotion score data
- Poisson analysis of lesion data with herd size offset

Locomotion Score (scored 1-3)

Flat posture

Arched posture

Hock Score (scored 1-3)

1=No hock damage

2=Exposed skin, mild swellings

3=Severe swellings, open wounds

Results

- Mean locomotion and hock scores were 1.78+0.02, 1.29±0.02 respectively
- Mean sole ulcer rate (SU) was 4.81±0.95
- Mean digital dermatitis rate (DD) was 6.89±0.99
- Locomotion score model constructed (table 1)
- Poisson models constructed for hoof lesion rates
- Increased locomotion and hock score with mats and sawdust compared with all other bedding type (figure 1)
- Increased locomotion and hock score with automatic scrapers compared with tractor scraping (figure 2)

Multivariable models for risk factors for increased locomotion score during winter housing

		Coef.	S.E. Mean	P-value	Lower CI	Upper CI
*Bedding type: Reference = Sawdust on Mats (10)	All other combinations (40)	-0.10	0.05	0.04	-0.20	-0.01
*Scraping method: Reference =Automatic scrapers (8)	Slatted floors (2)	-0.17	0.01	0.08	-0.36	0.02
	Tractor Scrapers (40)	-0.10	0.05	0.05	-0.20	-0.00

Table 1. Multivariable model for risk factors for lameness in milking cows, *correlated with herd size

Exposure to cubicles with sawdust on mats for milking cows was associated with a mean increase in locomotion score of 0.1

Mean locomotion and hock scores for bedding type and scraping method variables

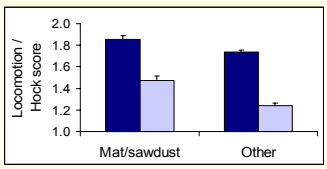
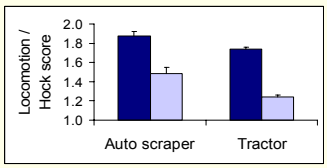


Figure 1. Mean and standard errors of locomotion score and hock score by bedding type



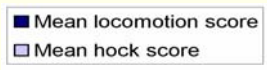


Figure 2. Mean and standard errors of locomotion score and hock score by manure scraping method

Tractor scraping of milkers' accommodation was associated with a reduced locomotion score of 5% when compared with automatic scrapers, but an increase in SU and DD rate of 0.33 and 0.36 per 100 cows per year, respectively.

Conclusions

- The combination of sawdust on mats in cubicle beds was a risk factor for increased locomotion scores in both milking and dry cows. Given the association with raised hock scores, this may be because of the abrasive nature of a shallow sawdust bed
- Automatic scrapers were associated with increased locomotion scores compared with manual scraping with tractor however the risk of SU and DD was decreased with the use of automatic scrapers
- The relationship between herd size and the risks factors identified is not fully understood and needs further investigation

Acknowledgments

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