

Inter-observer agreement between foot trimmers on foot lesions in cattle

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Introduction

In order to research the epidemiology and risk factors for specific causes of lameness, a standardised protocol for categorising foot lesions is needed. Furthermore, the use of paraprofessional foot trimmers is becoming increasingly popular, meaning lesion-specific herd management changes and future research studies will rely on their recording ability. The aim of this study was to evaluate the inter-observer agreement between 5 foot trimmers from one vet practice who were regularly recording foot lesions in cattle.

Materials & Methods

The assessment was carried out using a picture quiz including 6 photos each of 13 different lesions. Each observer was compared with a gold standard which was set by a vet at the practice. Percentage agreement (sensitivity), specificity and kappa statistic were calculated for each lesion and the strength of agreement was determined.

Discussion

Finding poor observer agreements is useful in alerting us to the need to improve training for foot trimmers or redefine the categorisation of these lesions. The variable results between the lesions emphasises the importance of recording inter-observer agreement when carrying out studies focussing on specific foot lesions. The specificity of the lesion scoring was high, suggesting that when a lesion is identified, it is identified correctly. The low sensitivity for some lesions suggests that a lot of lesions are missed by the foot trimmer or may reflect the limitations of assessing a lesion by looking at a photo rather than seeing, smelling or touching the foot and observing the pain response of the cow during examination.

Acknowledgements

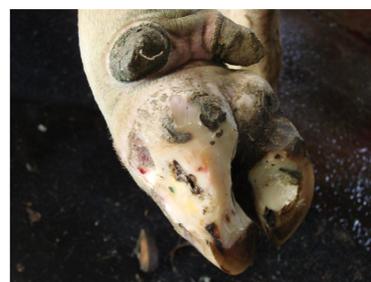
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Results

Table 1. Kappa values, specificity and percentage agreement for each lesion and the strength of agreement according to Burn et al (2009) reliability rating scale. Alternative lesion names recognised Internationally are given in brackets but were not presented to foot trimmers.

Lesion	Sensitivity/ Percentage Agreement (%)	Specificity (%)	Kappa value	Strength of Agreement
Horizontal fissure	93	100	0.94	Excellent
Sole ulcer	90	95	0.7	Substantial
White line	87	95	0.66	Substantial
Toe necrosis	83	99	0.81	Excellent
Sole bruising (sole haemorrhage)	80	99	0.8	Substantial
Sandcrack (vertical wall fissure)	77	99	0.79	Substantial
Bulb infection (deep digital sepsis/heel abscess)	67	98	0.69	Poor
Interdigital growth (interdigital hyperplasia)	67	99	0.7	Poor
Sole separation (double sole)	60	99	0.66	Poor
Sole penetration	43	97	0.47	Poor
Digital dermatitis	40	96	0.37	Poor
Foul (foot rot/ interdigital necrobacillosis)	40	98	0.44	Poor
Slurry heel (heel horn erosion)	30	99	0.38	Poor



Reference

Burn CC, Pritchard JC, Whay HR. 2009 Observer reliability for working equine welfare assessment: problems with high prevalence of certain results. Anim Welfare 18:177-187