Overcoming the barriers to uptake of best welfare practice by sheep farmers: using the example of footrot

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BACKGROUND

o Interest in understanding how farmer personality, attitudes and behaviour influence uptake of new managements to improve animal welfare

o Lameness in sheep causes pain and reduces productivity: In 2004 90% of UK lameness was caused by footrot (FR) [1]

o Recent clinical trial demonstrated that treating individual sheep lame with FR promptly with topical and long acting systemic antibacterials without foot trimming reduced flock level lameness from 8% to 2% within 5 months [2]

o Historically, individuals with FR were treated by foot trimming and topical disinfectant. Recommended control measures were whole flock procedures such as routine foot trimming and foot bathing; recent studies indicate these methods are ineffective [2 & 3]

OBJECTIVES

1. To empirically identify different classes of farmers based on their behavioural response in the treatment of FR
2. Examine how these classes differ with respect to lameness levels and personality and attitudes

METHODS

o Questionnaire sent to 4000 sheep farmers in England and Wales, 1200 respondents measured:

Farmer personality & attitudes towards FR (e.g. empathy and the Big-Five personality domains)
Management of lameness (e.g. treatment of individuals, groups)
Flock information (flock size, prevalence of lameness)

o Latent class analysis in MPlus 7 to class farmers based on their practices of treatments of footrot

o Multinomial logistic regression used to model relationships between latent class membership and farmer personality and attitudes

RESULTS

FARMER CLASSIFICATION

o Latent class analysis produced 3 classes (Figure 1)

o Latent class 1 (LC1) - Proactive, using best practice (9%)
o Latent class 2 (LC2) - Rarely use best practice, do not cull for lameness (59%)
o Latent class 3 (LC3) - Slow to treat, still use foot trimming, cull for lameness (32%)

o Geometric mean prevalence lameness LC1= 3.0%, LC2 = 3.6%, LC3 = 4.1%

FARMER ATTITUDES, LATENT CLASS MEMBERSHIP & LAMENESS

o Feelings of hopelessness towards lameness/FR in their flock: higher relative risk of being in LC2 (RRR 1.3) or LC3 (RRR 1.5) compared with LC1

o Poor knowledge of disease process: greater relative risk of being in LC2 (RRR 2.9) or LC3 (RRR 2.0) compared with LC1

o Poor knowledge of disease transmission: greater relative risk of being in LC3 compared with LC1 (RRR 1.6)

o Empathic concern for other humans: greater relative risk of being in LC2 compared with LC1 (RRR 1.2)

Figure 1 - Estimated probabilities for the occurrence of farmer behaviours to prevent and treat lameness in a three-class model
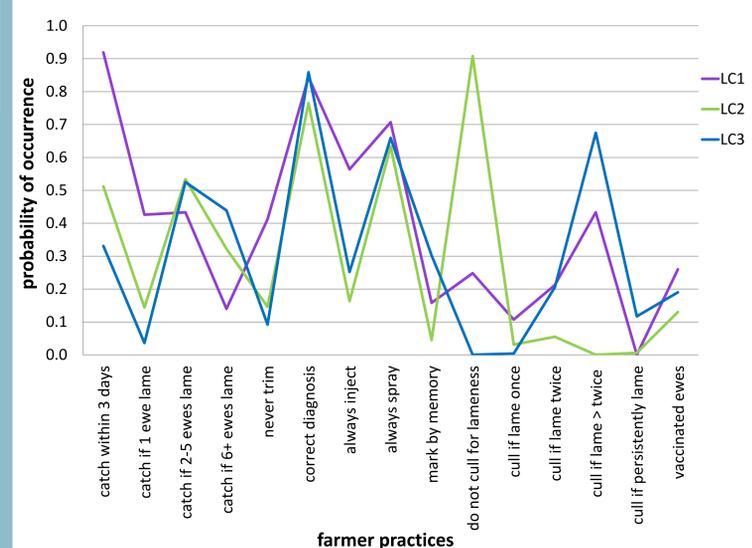
FURTHER WORK...

Randomised control trial of intervention messages to investigate:

1) whether the framing of intervention messages affects uptake of best practice

2) whether farmer attitudes and personalities influence their decisions to change practices and in turn affect the success of intervention messages

[1] Kaler J and Green LE 2008. Naming and recognition of six foot lesions of sheep using written and pictorial information: A study of 809 English sheep farmers. *Preventive Veterinary Medicine 83*: 52-64. http://dx.doi.org/10.1016/j.prevetmed.2007.06.003
[2] Wassink GJ, Hawker EM, Grogono-Thomas R, Brown JC, Moore LJ and Green LE 2010. A within-farm clinical trial to compare two treatments (parenteral antibacterials and hoof trimming) for lame sheep with footrot. *Preventive Veterinary Medicine 96*: 93-103. http://dx.doi.org/10.1016/j.prevetmed.2010.05.006
[3] Kaler J, Daniels SLS, Wright JL and Green LE 2010. A randomised factorial design clinical trial to investigate the impact of parenteral long acting oxytetracycline, foot trimming and flunixine meglumine on time to recovery from lameness and foot lesions in sheep lame with footrot. *Journal of Veterinary Internal Medicine 24*: 420-425. http://dxdoi.org/10.111/j.1939-1676.2009.0450.x

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