Associations between farmer opinions, emotions and personality and barriers to uptake of best practice by sheep farmers: the example of footrot

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BACKGROUND

- Interest in how farmer personality, attitudes and behaviour influence uptake of best practice to improve animal welfare
- Lameness in sheep causes pain and reduces productivity: In 2004 90% of UK lameness was caused by footrot (FR) [1]
- Best practice: Treat individual sheep lame with FR promptly with topical and long acting systemic antibacterials without foot trimming [2]
- Avoid routine foot trimming [2 & 3]

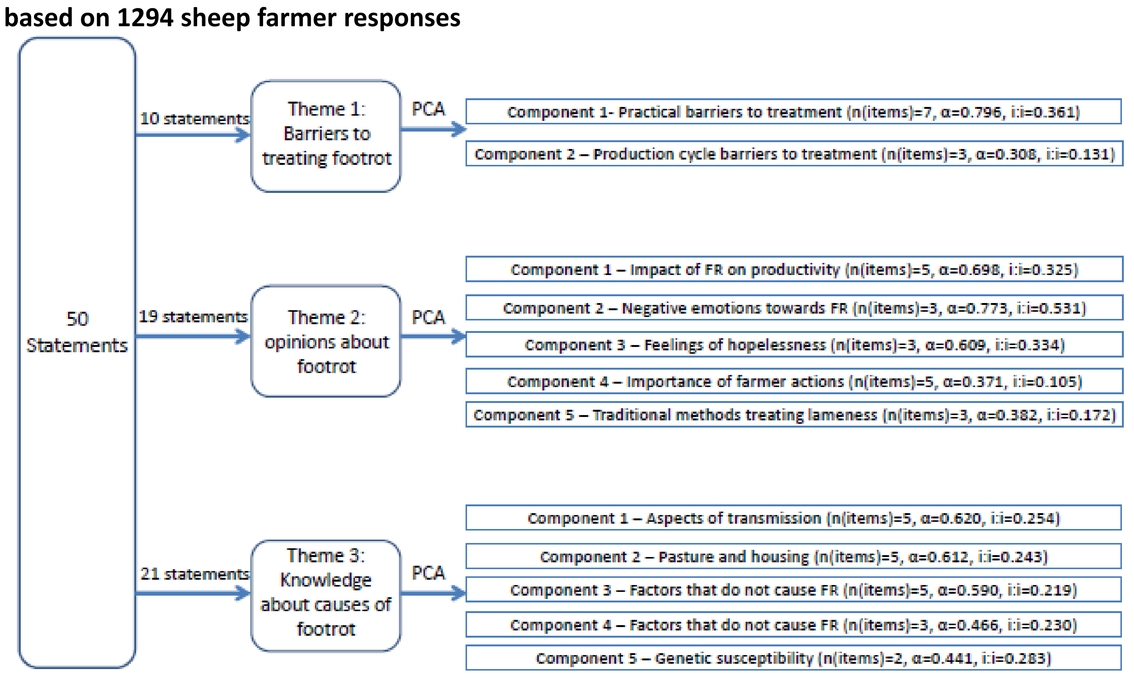
OBJECTIVES

1. Identify whether there are sub-groups of farmers managing footrot differently
2. Test the hypothesis that farmer personality, emotions and opinions are associated with uptake of best practice and consequently prevalence of lameness

METHODS

- Questionnaire sent to 4000 sheep farmers in England, 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)
- Principal component analysis (PCA) produced composite variables of farmer attitudes and emotions (Figure 1)
- Latent class analysis used to subgroup farmers on managements of footrot
- Multinomial logistic regression used to model relationships between latent class membership and farmer personality and attitudes
- Negative binomial regression used to model the relationship between the proportion of lame sheep and farmer personality and attitudes

Figure 1- Flow diagram for the reduction of 50 statements using 3 principal component analyses based on 1294 sheep farmer responses



RESULTS

THREE FARMER SUB GROUPS – FIGURE 2

- Latent class 1 (LC1) – Best practice (11%)
- Latent class 2 (LC2) – Slow to act (57%)
- Latent class 3 (LC3) – Traditional methods (32%)

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

FARMER ATTITUDES & LATENT CLASS MEMBERSHIP

- Production cycle barriers to treating FR: > risk LC2 than LC1 (RRR 1.4)
- Negative emotions towards FR: > risk LC3 than LC1 (RRR 1.4)
- Use traditional methods to treat lameness > risk LC2 (RRR 2.9) or LC3 (RRR 2.2) than LC1
- Knowledge about footrot transmission <risk LC2 (RRR 0.6) than LC1

FARMER ATTITUDES & RISK OF LAMENESS

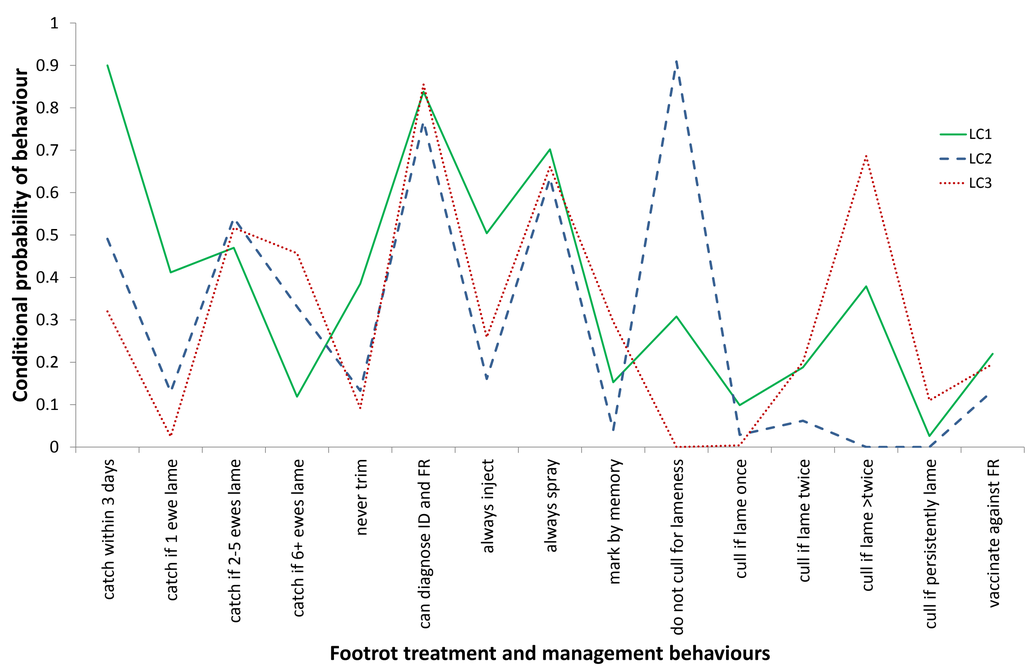
Farmers had a higher rate of lameness in flock if they reported:

- Practical barriers to treating sheep with FR (IRR 1.13)
- Negative emotions towards FR (IRR 1.13)
- Feelings of hopelessness towards FR (IRR 1.20)

Farmers had a lower rate of lameness in their flock if they:

- Considered themselves conscientious (IRR 0.95)
- Identified the importance of farmer actions to control lameness (IRR 0.76)

Figure 2 - Conditional probabilities for FR management behaviours by latent class 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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