Sheep scab in UK flocks: modelling optimum strategies for improved management

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Project description:
Animal husbandry has been an important contributor to agricultural development, food security and the rural economy in the UK for many hundreds of years. Domestic sheep, have played a particularly important role in this because they are hardy and well-adapted to marginal grazing and harsh climates. However, they suffer from a wide range of parasite problems, one of the most persistent and damaging of which in the UK is psoroptic mange, known as scab. Scab is caused by infestation by a parasitic mite, Psoroptes ovis. The mites cause a debilitating and destructive clinical disease. There are believed to be over 7,000 outbreaks of scab in UK flocks each year costing the UK sheep industry over £8 million per year from mortality and reduced weight gain. Despite a number of recent scab education campaigns, there is no evidence that scab prevalence has been reduced. Recent research at the University of Bristol has highlighted the risk factors associated with scab outbreaks, quantified the prevalence of the disease and suggested that regional or local scab management programmes may be a more effective use of time and resource than any attempted national eradication programme. However, at present there is considerable confusion about the best approaches to scab management, both in terms of the compounds to apply, when to apply them in relation to seasonal husbandry practices and in terms of farm/region scale effects. In recent research we have modelled scab transmission from farm to farm, incorporating known risk factors (Nixon, unpublished). The models developed form a valuable basis for further research, particularly in relation to identifying optimum management approaches to scab control under specific husbandry regimes. Building on the existing models to identify improved approaches to regional scab management would be the primary aim of this project.