Effect of oral biotin supplementation on white line lesions observed in a lowland sheep flock

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Introduction

Lameness is a common welfare issue for UK sheep flocks and causes significant production losses. White line separation is often found during routine ovine foot examinations but little is known about the pathogenesis of the condition. In dairy cattle oral biotin supplementation has been shown to reduce the prevalence of white line lesions (WL). The aim of this study was to evaluate the effect of oral biotin supplementation on the percentage and severity of white line lesions in one sheep flock.

Method

A randomised split flock trial was conducted in a commercial North Country Mule flock with a history of WL. At the start of the study animals with WL in one or more feet and those without WL were randomly allocated to one of three groups:

- Control (C) – no supplement
- Zinc – (Z) zinc-based rumen bolus (releasing 82 mg available zinc/day)
- Biotin – (B) a biotin and zinc bolus (releasing 5 mg biotin and 82 mg zinc/day)

Thereafter, the feet of 302 ewe lambs were repeatedly scored every four months (Table 1) for one year.

Table 1. WL scoring scale

Score	Description
0	No lesion observed/lesion healed
1	Minor separation of white line
2	Moderate separation of white line
3	Major separation of white line
4	Discrete lesions with no separation
5	Active infection of white line

Score 1

Score 3

Performance of lambs born in 2013 has also been monitored.

Results

- 86% of the sheep were observed with WL at the start of the study
- Few were recorded with severe lesions at any assessment visit (Figure 1).
- In feet observed with WL in January 2012 there was some reduction in the percentage of WL across all treatment groups, although significant differences were not observed (Figure 2).
- Logistic regression analysis identified no significant difference ($p>0.05$) between the proportion or severity of WL scores recorded in C, Z or B groups at any visit
- In feet with no lesions in January 2012 29% developed WL by the end of the study with no significant treatment differences observed.

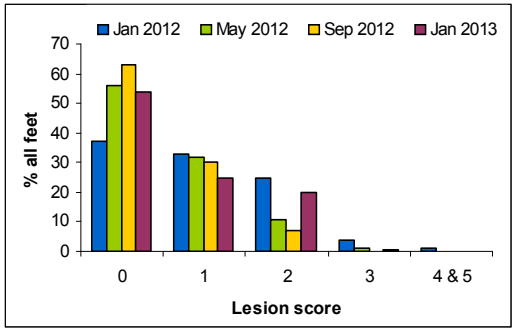

Figure 1. Distribution of WL scores at each assessment visit

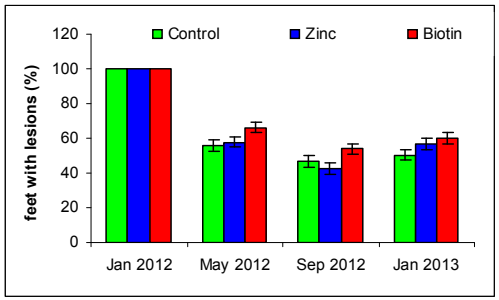

Figure 2. Feet with WL at the first assessment and the % of these recorded with WL at subsequent assessments

Conclusion

Compared to control animals, four-monthly oral supplementation with a bolus releasing 82 mg/day available zinc only or 5mg/day biotin and 82 mg/day zinc did not have a significant effect on the severity of WL scores observed in this study flock.

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