

Lack of efficacy of triclabendazole against *Fasciola hepatica* is present on sheep farms in three regions of England, and Wales

ABSTRACT

The liver fluke *Fasciola hepatica* is a parasitic trematode that has a major impact on livestock production and human health. Control of *F hepatica* is difficult and relies on anthelmintics, particularly triclabendazole, due to its efficacy against both adult and juvenile stages of the parasite. Emergence of triclabendazole-resistant *F hepatica* populations has been reported in a number of countries, including the UK, but the overall prevalence and distribution of triclabendazole resistance is unknown. In this study, the authors established the presence of reduced efficacy of triclabendazole in sheep flocks in England and Wales, using a validated composite faecal egg count reduction test. Seventy-four sheep farms were sampled from Wales, southwest, northwest and northeast England between Autumn 2013 and Spring 2015. *F hepatica* eggs were detected in samples from 42/74 farms. Evidence of a lack of efficacy of triclabendazole was detected on 21/26 farms on which the faecal egg count reduction test was completed, with faecal egg count reductions ranging from 89 per cent to 0 per cent. Regression analysis suggested that both prevalence of *F hepatica* and lack of efficacy of triclabendazole were spatially correlated, with higher faecal egg counts and lower percentage reductions on farms located in the northwest of England, and Wales. Overall, the results show that reduced efficacy of triclabendazole is present across England and Wales, with a complete lack of therapeutic efficacy observed on 9/26 farms.

Keyword: Cfecrt; *Fasciola hepatica*; Resistance; Sheep; Spatial analysis; Triclabendazole