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Authors: Kim Hamer, Dave Bartley, Amy Jennings, Alison Morrison, Neil Sargison



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## Lack of efficacy of monepantel against trichostrongyle nematodes in a UK sheep flock.

Kim Hamer<sup>a</sup>, Dave Bartley<sup>b</sup>, Amy Jennings<sup>a</sup>, Alison Morrison<sup>b</sup>, Neil Sargison<sup>a\*</sup>.

- a. University of Edinburgh, Royal (Dick) School of Veterinary Studies and Roslin Institute, Easter Bush Veterinary Centre, Roslin, Midlothian EH25 9RG.
- b. Moredun Research Institute, Pentlands Science Park, Edinburgh EH26 0PZ, UK

\* Corresponding author. Tel.: +44 131 650 6229

E-mail address: neil.sargison@ed.ac.uk (N.D. Sargison)

### Highlights

- Monepantel was found to be less than 80% effective
- The predominant resistant nematode was *Trichostrongylus vitrinus*.
- The first report of monepantel resistance in the United Kingdom
- Resistance developed despite attempts to use monepantel responsibly
- Concern for the sustainability of pharmaceutical control of ovine roundworms

### Abstract

Monepantel resistance was diagnosed during routine monitoring of the effectiveness of a farm's roundworm control strategy. Weaned lambs had become ill thrifty and developed diarrhoea, despite the routine use of monepantel. This clinical presentation was caused by trichostrongylosis. The faecal egg count reduction was 76.7% (95% CI: 55.1 – 82.2%) following treatment with 2.5 mg/kg monepantel. Predominantly *Trichostrongylus vitrinus* along with small proportions of *Oesophagostomum venulosum* and *Trichostrongylus vitrinus* were identified by deep amplicon sequencing of pools of larvae recovered from pre and post monepantel treatment coprocultures and on postmortem examinations. The undifferentiated FECRT showed resistance to monepantel, but not to levamisole, ivermectin, or moxidectin. Examination of farm anthelmintic treatment and animal movement records suggested that treatments before movement onto silage aftermaths,

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