

Abstract:

Resistance to thiabendazole (TBZ), fenbendazole (FBZ) and levamisole (LVM) in naturally acquired gastrointestinal nematode parasites in sheep was investigated on a farm where anthelmintic resistance was suspected. This was measured by both the *in vitro* egg hatch assay, and reductions in faecal egg and worm counts in treated animals. In the egg hatch assay, nematode eggs were incubated in various concentrations of either TBZ or LVM. The level of resistance was expressed as the drug concentration inhibiting 50% of the eggs from hatching (LC50). The nematode population had LC50 values of 0.26 $\mu\text{g ml}^{-1}$ TBZ and 3.12 $\mu\text{g ml}^{-1}$ LVM. In the faecal egg and worm count reduction test, naturally infected sheep were treated with either TBZ (88 mg kg⁻¹), FBZ (10 mgkg⁻¹) or LVM (15 mg kg⁻¹). Faecal egg and total worm counts from these sheep were then compared with counts from untreated sheep. TBZ, FBZ and LVM failed to reduce the faecal egg counts and total worm counts by more than 90%. Based on the identification of larvae from faecal cultures, the most predominant nematode species in the resistant population were *Haemonchus* (62%) and *Trichostrongylus* (28%). TBZ reduced faecal egg counts for both species by less than 90%. FBZ and LVM also reduced *Haemonchus* spp. eggs by less than 90%. Other nematode species numbers did not satisfy criteria for the determination of efficacy