A SURVEY OF ANTHELMINTIC RESISTANCE AND PARASITE MANAGEMENT PRACTICES ON SHEEP FARMS IN NEW ZEALAND

A DISSERTATION PRESENTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF VETERINARY STUDIES (VETERINARY PARASITOLOGY) AT MASSEY UNIVERSITY

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ABSTRACT

The occurrence of anthelmintic resistance in sheep nematodes in New Zealand was conducted by using DrenchRite and Inhouse larval development assays (LDA) on 25 randomly selected farms. Samples from 6 farms were put onto both DrenchRite and Inhouse LDA plates and were available for comparison. Both showed a similar LC_{50} and LC_{50} well for benzimidazoles but not for levamisole. Including results from both assay systems it is concluded that anthelmintic resistance in *Trichostrongylus* (either suspected or high level) was demonstrated in 60% of the farms (9/15) to benzimidazole (BZ), resistance to levamisole (LEV) in 66% of farms (10/15), combination drench (BZ+LEV) on 43% of farms (3/7) and avermectin on 1 of 8 farms. For those farms where *Trichostrongylus* was the predominant genus there was resistance to at least one anthelmintic on all tested farms (n=12). A survey of parasite control procedures over 2002/2003 was conducted on 38 farms. The principle findings were: about 58% farmers (n=37) performed quarantine drenching of brought-in sheep for which a majority of farmers (52%) used macrocyclic lactones alone or in combination with other anthelmintics; about 78% (n=37) of farmers followed a 5-6 drench programme to lambs/hoggets; the annual frequency of anthelmintic treatments (n=38) were 6.1 drenches to lambs/hoggets, 1.4 to two-tooths and 1.8 to mature ewes; about 71% farmers used macrocyclic lactones for lambs/hoggets on at least one occasion either alone or in combination with other anthelmintics; a majority (61%) of farmers followed a planned annual drench family rotation; about 76.5% (29/38) farmers had never carried out a test for drench resistance and about 57% (4/7) of those farmers who had tested did identify resistance on their farms to either the benzimidazole or combination (benzimidazole + levamisole) drench. Worms were considered "very important" by 55% farmers (n=38) for the cause of economic losses in their farm, whereas 42% farmer considered it "important". Drench resistance was considered as a "serious problem" today for the industry by 47% farmers (n=38), whereas, 34% farmers believe it as a problem but "not serious one today" for the industry.

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