The Efficacy of Zolvix Plus® (monepantel + abamectin) and a Combination of Abamectin and Oxfendazole in Young Farmed New Zealand Deer

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Anthelmintic resistance has become an issue in farmed red deer (Cervus elaphus) in New Zealand. The main focus of control when the industry started in the 1970s was for lungworm Dictyocaulus eckerti [1]. At that time, it was considered that gastrointestinal nematodes were of secondary concern, and were controlled by the treatments given for lungworm. Since their release onto the market in the 1980s, control has largely relied on use of macrocyclic lactones (MLs) [2]. Early research indicated that levamisole was not highly effective against lungworm [3], and whilst benzimidazoles were used this declined after the release of the MLs. In recent years, there has been growing evidence that gastrointestinal nematodes are important [4] and that commonly used anthelmintics were no longer as effective as previously observed [1, 5]. On this farm, there is a history of resistance to the MLs by Ostertagia leptospicularis and Spiculopteragia asymmetrica [5]. The anthelmintic that had been used in young deer during the year in question was a combination of abamectin and oxfendazole but there was some doubt as to its efficacy, which prompted this particular study. The aim of this study was to assess the efficacy of Zolvix Plus® (monepantel + abamectin) and a combination of abamectin with oxfendazole using a faecal egg count reduction test combined with larval cultures.

Animals were rising one-year-old red deer with a mean weight of 65kg (range 50kg to 78kg) and of both sexes. These deer were pasture grazed. They were arbitrarily allocated into two groups. Faecal samples were collected, then one group (n=24) was treated with Zolvix Plus® (2.5mg/kg monepantel, 0.2mg/kg abamectin) and the other group (n=19) with two separate treatments given at the same time being abamectin (0.2mg/kg; Mectin Drench for Sheep®) and then oxfendazole (9mg/kg; Bomatak C®). All samples were subject to a modified McMaster egg count where each counted represents 50 eggs/g. Faeces were also cultured by mixing with vermiculite and incubating for at least 14 days. In addition, a modified Baermann procedure was conducted to count the number of lungworm larvae. Post treatment samples were obtained 14 days later and subject to the same tests.

Faecal egg counts were allocated to genera based on larval morphology. However, as it was not possible to separately identify between those larvae of Ostertagia leptospicularis, Spiculopteragia spiculoptera and Spiculopteragia asymmetrica they were included together as Ostertagia-type and their efficacy calculated the same way. The efficacy against Ostertagia-type parasites was 87% for Zolvix Plus® and 65% for the abamectin and oxfendazole combination. Both were highly efficacious against Dictyocaulus with no larvae found in the post-treatment samples. The commonly defined definition of anthelmintic resistance is 95% reduction in faecal egg counts. Neither treatment was found to achieve this level of efficacy. These findings indicated that further work is required to determine if an appropriate dose of Zolvix Plus® can be determined for use in deer.

References