RESPONSES IN YOUNG SHEEP TO FUNGICIDES APPLIED TO GRAZED PASTURE

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Summary

This paper reports results of 4 trials where the effect on hoggets of applying the fungicide benomyl to grazed pastures was measured. In 2 trials the fungicide has reduced the incidence of visible symptoms of ill health. There has been no clear effect on live-weight gain. A request for further work in this field is made.

INTRODUCTION

HOGGET enzootic pneumonia is widespread and may be associated with hogget ill thrift and poor growth which is reported in the Auckland district during March and April each year (Cumberland, 1971).

Large doses of *Myrothecium* cultures kill sheep rapidly, within 24 hours. Small daily doses over 2 to 3 weeks cause failure to thrive with a depression of the lymphoreticular and haemopoietic systems. It has been suggested that a depression in these systems in sheep may increase the susceptibility to pneumonia.

In vitro growth of *Myrothecium* spp is inhibited by 1 ppm benomyl. Further evidence suggests that benomyl will be effective in limiting the growth in pasture of fungi at this level of sensitivity (di Menna and Parle 1972).

TRIAL DESIGN AND MANAGEMENT

A project was designed to determine the effect of *Myrothecium* spp infected pasture on sheep health. There were 2 treatments.

1. untreated control;
2. benomyl sprayed pastures:

Four trials were conducted—in a randomised block design with 4 to 6 replications of 0.3 ha paddocks. Two trials were conducted on the same site at Pukekawa in 1972 and 2 in 1973—1 at Pukekawa and the other at Wharepapa. Benomyl (0.56 kg/ha in 420 litres/ha of water) was applied at all sites in January and again in March. The basal application of thiabendazole (0.3 kg/ha in 420 litres/ha of water) was applied to all plots (with the intention of preventing facial eczema). Plots were stocked with hoggets at a heavy rate. Sheep were weighed regularly and kept free of parasites. Drought conditions affected all trials in both years and facial eczema symptoms were noted on Trial 1 in 1972.

Fungous Diseases of Pastures

On some occasions sheep were examined visibly for the presence or absence of external signs of ill health—notably “runny nose” and rear end “scouring” symptoms.

Isolating and culturing fungi, in pasture samples, was done by Ruakura microbiologists. *Myrothecium* spp were present in both trials in 1972 and the Pukekawa trial in 1973. (Wharepapa site 1973 was not tested). Because of the complexities of laboratory procedures it has not been possible to demonstrate that benomyl treatment, has definitely reduced the incidence of toxic *Myrothecium* strains.

RESULTS AND DISCUSSION

Liveweight changes of hoggets are shown in Table 1. Trials 1 and 4 showed liveweight differences which achieved significance. These results are of dubious importance, for in spite of basal thiabendazole some animals on trial 1 contracted facial eczema, and in trial 4 a 1 kg liveweight change over a period of 12 weeks is minimal.

TABLE 1: WEIGHT CHANGES OF HOGGETS (kg)

	<i>Trial 1</i> 11/1/72 to 17/3/72	<i>Trial 2</i> 17/3/72 to 24/5/72	<i>Trial 3</i> 23/1/73 to 1/5/73	<i>Trial 4</i> 9/2/73 to 1/5/73
Pasture				
Treatment				
control	3.6 bA	8.4 a	0.5 a	1.1 aA
benomyl	5.2 aA	8.5 a	0.3 a	0.3 bA
MSD	1.8 (1%)	1.2 (5%)	1.0 (5%)	0.7 (5%)

TABLE 2: SCOURING SYMPTOMS (1972 TRIALS)

	<i>Trial 1</i>		<i>Trial 2</i>	
	Scouring	Not scouring	Scouring	Not scouring
Control	20	20	13	27
benomyl	7	33	3	36
	(Chi ² test—sig. 1%)		(Chi ² test—sig. 1%)	

Analyses of ill health symptoms observed in the trial animals are shown in Table 2. A significant reduction in scouring occurred with benomyl treatment in both the 1972 trials. A reduction of “runny noses” with benomyl in both trials, just failed to achieve significance. Analyses also showed that there was no connection between scouring and “runny nose” symptoms. However, in trial 1 a negative relationship between scouring and weight gain was found. (Thus serving to confirm farmers’ beliefs that scouring signifies ill health in hoggets.)

Scouring and “runny nose” symptoms did not occur in the 1973 trials.

The late summer and autumn weather effect has probably been the over-riding influence on the results of these trials. A continuation and extension of the research is clearly warranted.

CONCLUSIONS

1. Laboratory studies have shown that benomyl will inhibit the growth of *Myrothecium* spp.
2. Spraying pastures grazed by hoggets, with benomyl, has reduced the incidence of scouring and "runny nose" symptoms in 2 trials, but has not consistently shown an effect on liveweight changes.
3. The part that pasture fungi play in stock health (especially in the autumn months) needs further investigation.

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