

## **Treatment of natural coccidial infection in Lambs using Monensin**

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### **Abstract**

The therapeutic effect of monensin on natural coccidial infection was tested in two trials. Lambs with heavy mixed infections were fed a diet containing 20g monensin/tonne over a period of 14 days. In both trials and over a period of 35 days, coccidial oocyst output in non-medicated lambs was reduced by 53.6%. In the medicated lambs, it was practically nil. Monensin thus appears to have some therapeutic effect on sheep coccidiosis.

### **Introduction**

Morbidity and mortality due to natural coccidial infections greatly affect the profit of sheep producers (Christensen 1940, Smith *et al.*, 1960; Pout and Harbutt, 1968; Rose, 1968 and Leek, 1973). This has led to the evaluation of several drugs and chemicals as anti-coccidial agents (Onawumi and Ayeni, 1978). One drug that is currently being tested is monensin. It has coccidiostatic value in lambs (Bergstrom and Maki, 1974, 1976; Leek *et al.*, 1976; Bergstrom and Jolley, 1977) but little is known about its therapeutic value.

This paper reports the successful treatment of patent natural coccidial infections with monensin in 2 flocks of sheep.

### **Materials and methods**

Trial 1: The flock of sheep consisted of about 500 ewes on a farm located near Neston, a village in North-England very close to the Welsh border. Winter-lambing is practised on the farm, and because of the severe winter of 1978/79, the lambs were kept indoors with their ewes longer than usual. These lambs developed heavy diarrhoea, and had a very high rate of discharge of coccidial oocysts. Twenty of these lambs were fed monensin<sup>1</sup> at the rate of 20g/tonne creepfeed for 14 days.

Rectal faecal samples were taken from the 20 lambs at the start of medication (day 0) and at days 3, 14, 21, 28 and 35. The samples were subjected to saline floatation and examined for coccidial oocysts in McMaster counting chambers. Oocysts per gram faeces were recorded.

1/Romensin pre-mix<sup>(R)</sup> – Elanco Products Ltd., Basingstoke UK.

Species identification of the oocysts was done on representative samples according to MAFF (1977) technique

Trial 2: This flock belonged to the Animal Husbandry Department of the University of Liverpool Veterinary School, Leahurst also near Neston. The flock had the same history as the flock in trial 1.

32 diarrhoeic lambs, about 4 months old, with high oocyst counts were selected and divided into four equal groups of 8 animals. Two groups were fed a diet containing 20g monensin/tonne for 14 days whilst the other two groups served as non-medicated controls. The animals were kept indoors throughout the trial. Faecal samples were taken at days 0, 7 and 35 and examined for coccidial oocyst output using the same technique as described earlier.

## Results

Trial 1: The mean oocyst output of the lambs during the trial is presented in Fig. 1. Oocyst per gm. faeces decreased appreciably after three days of medication and continued to stay very low till the termination of the experiment on day 35 although medication stopped on day 14. However, throughout the experiment, oocysts were not completely eliminated in some of the animals. The major coccidial oocysts identified were those of *Eimeria ovina*, *E. Weybridgeensis*, *E. parva*, *E. ninakohlyamimovae* and *E. faurei*. All the infections were mixed. Diarrhoea persisted until the third week and in some animals till the termination of the trial.

Trial 2: The mean oocyst count from faeces at beginning, during and after medication are presented in Table 1. Although oocyst output of untreated lambs was reduced by 38.1% within the first week of the trial, the treated lambs were shedding 98.1% less oocysts at this time than at the onset of medication. Three weeks after the treatment, 13 of the 16 medicated lambs were free of oocysts whilst the untreated lambs were shedding oocysts at 46.4% of the pretreatment level. However, diarrhoea still persisted in all the groups, but to a lesser degree in the treated lambs.

Similar species of coccidia were identified as in trial 1.

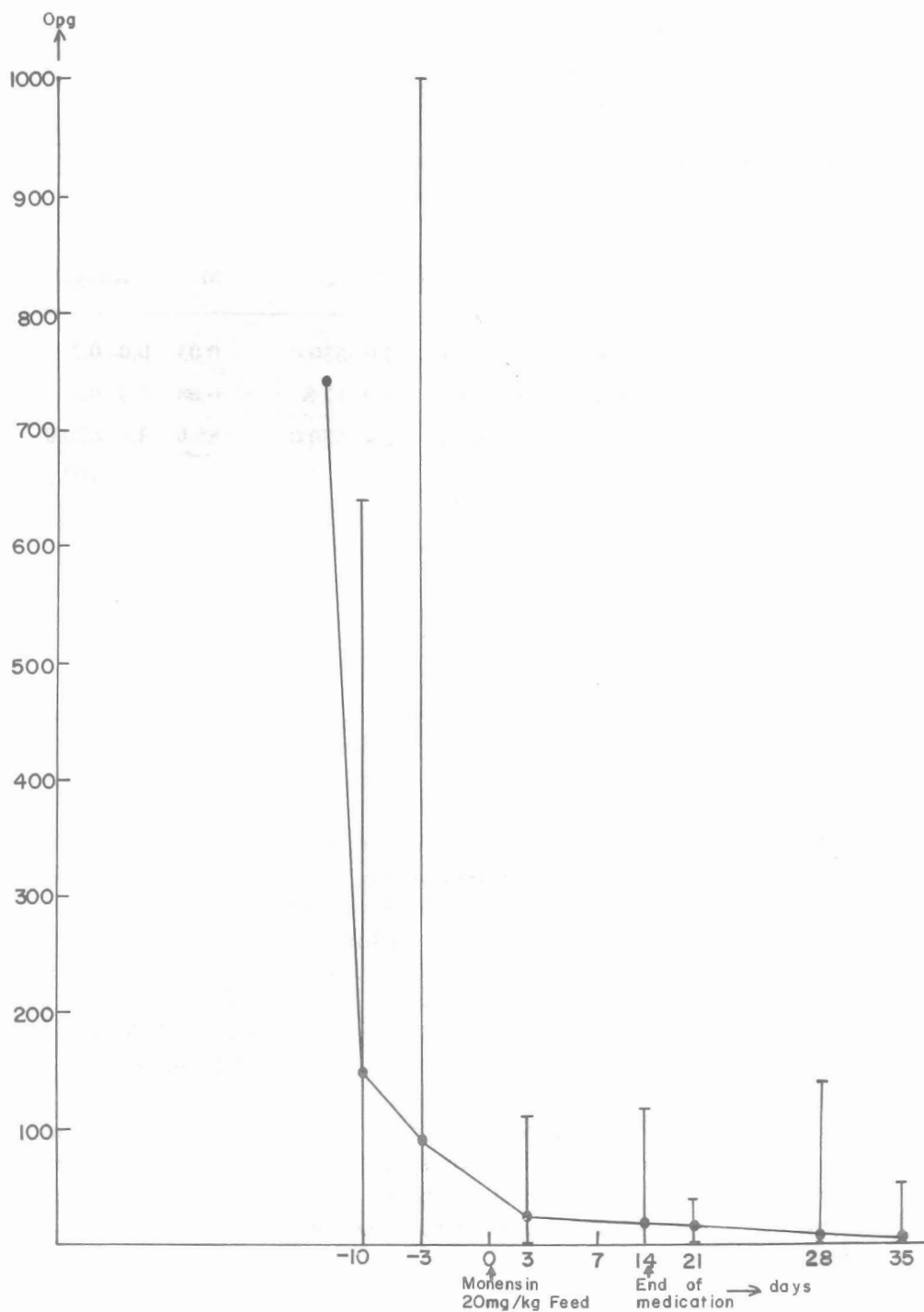


Fig. 1: Average coccidial oocyst out put of Batch 1 Lambs.

TABLE 1: MEAN COCCIDIAL OOCYST OUTPUT (OPG)<sup>x10<sup>3</sup></sup> OF EXPERIMENTAL LAMBS.

Group\* Days after start of medication

	0		7		35	
	Mean	Range	Mean	Range	Mean	Range
1	142.3	14.0-660.0	7.9	0.0-630.0	0.03	0.0-0.2
2	409.5	6.0-970.0	2.7	0.0-12.8	0.08	0.0-0.4
3	193.5	2.4-670.0	99.0	2.4-580.0	86.6	3.8-620.0
4	77.6	1.8-400.0	68.8	1.0-360.0	39.1	9.0-102.2

\* 1, 2 — medicated groups, 3-4 non-medicated control groups.

\*\* n = 7

## Discussion

In natural occidial infections, it is very common to find a mixture of coccidial species in the same animal. The species identified in this study are the same as found in Wales and North-Endland by Catchpole *et al* (1975).

Contrary to the earlier findings of Bergstrom and Jolley (1977) who reported a coccidiostatic effect lasting only one week post-treatment in lambs, monesin showed therapeutic effect in this study. According to them, oocyst output was back in full force 22 days post treatment. In the present work, oocyst output was not increased over a period of 21 days after treatment in both trials. In fact only 3 of 16 treated lambs in trial 2 had scanty numbers of oocysts in their faeces at this time. This is attributed to reinfection or artificial contamination of the faeces during collection or processing.

Diarrhoea persisted throughout the duration of the study. A similar observation was reported by Peardon *et al* (1965) and Pout & Harbutt (1968). These workers observed persistent diarrhoea during and after treatment for coccidiosis. Apparently, monensin has some therapeutic effect on natural coccidiosis.

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