BRIEF COMMUNICATION

The effect of clean pasture and anthelmintic frequency on growth rates of lambs on irrigated pasture

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Growth rates of lambs on irrigated pastures commonly fall below farmer expectations. Poor pasture quality, changed trace element status and gastrointestinal parasitism have been suggested as being implicated. Frequent anthelmintic drenching is generally considered to be sufficient to remove effects of parasitism but there is evidence that the effect of nematodes on performance is not entirely removed by regular drenching (Coop *et al.*, 1982; Brunsdon, 1976) although larval contamination of pastures may be reduced.

The paper describes field trials investigating these matters in 2 successive years.

EXPERIMENTAL METHODS

"Clean" and contaminated pastures were identified prior to weaning, the former based on presence of less than 200 larvae/kg herbage and absence of young stock on those pastures during the previous year.

At weaning 240 ewe lambs were allocated to each set of pastures. Within each set of pastures lambs were further subdivided into 3 groups of 80 lambs, which received anthelmintic at intervals of 3, 6 or 9 weeks. Groups were maintained in separate treatments within each set of pastures.

Pasture larval counts, faecal egg counts and lamb live weights were obtained at intervals during the trials, which were conducted from December 1979 to April 1980 and from December 1980 to March 1981. Estimates of herbage dry matter on offer and of residual dry matter were made during the second trial.

RESULTS AND DISCUSSION

Differences in live weight were established during the first 6 to 9 weeks of both trials and were maintained until termination. The mean cumulative live weight gains of the groups are given in Table 1. The group drenched every 9 weeks on contaminated pasture was removed from the 1979/80 trial after 8 weeks because of very poor growth rate and body condition. During both trials the greatest differences in live-weight gain were seen between clean and contaminated pasture. The differences averaged about 30% ($P<0.001$) in both years. By comparison only small improvements (10%) in rate of gain were seen as a result of more frequent drenching, though in 1979/80 3 and 6 weekly treatment was clearly beneficial, particularly on contaminated pasture.

Faecal egg counts were invariably higher in sheep on contaminated pasture within any drenching regime but the differences between groups in egg counts at the end of each 3-weekly period were not large, ranging from 150 to 300 epg respectively, on "clean" and contaminated pasture at a 3-weekly

TABLE 1 Mean live weight gains (kg)

Pasture type	Frequency of drenching (weeks)			Mean	S.E.D.
	3	6	9		
Trial 1 1979/80—18 weeks					
Clean	19.0	17.0	16.0	17.3	0.269
Contaminated	13.0	12.0	*	12.5	
Mean	16.0	14.5			
S.E.D	0.330				
Trial 2 1980/1—12 weeks**					
Clean	12.3	11.6	10.0	11.3	0.303
Contaminated	8.8	7.8	8.3	8.3	
Mean	10.6	9.7	9.2		
S.E.D.		0.372			

* Group removed from trial
** Grazing curtailed by feed shortage

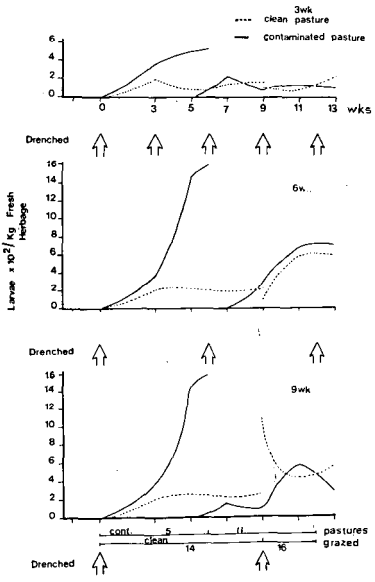

FIG. 1 Larvae on herbage from clean (14 and 16) and contaminated (5 and 11) pastures. Anthelmintic dosing at 3, 6 and 9 weekly intervals, 1980/1.

drenching interval, to 300 and 400 epg respectively, at the 9-weekly drench interval. Counts in the latter group were consistently high and would have led to greater pasture contamination. This was confirmed by pasture larval counts (Fig. 1).

It is not possible to test these data rigorously for statistical validity without replication of treatments. The possibility that pasture of varying quantity and quality was offered to the different groups was not considered to be a factor in 1979/80 but was tested during 1980/1. Mean pasture allowances were 2650 and 2605 kg DM/ha and residual pasture levels 1708 and 2031 kg DM/ha, for the "clean" and contaminated groups respectively. Mean herbage dry matter intakes were estimated after allowance for regrowth to be 1.6 and 1.2 kg DM/hd/d, and the digestibility of herbage on offer varied from 70 to 30% with season but averaged 48.7 and 49.5% respectively. This supports the view that pasture contamination was the major factor responsible for differences between groups and that maximum animal productivity can only be achieved in management systems which lead to low levels of pasture contamination.