AGE OF WEANING AND PARASITISM IN MERINO LAMBS

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Summary

Merino lambs born in September and October 1964 were weaned at 4, 6 and 11 weeks of age, at average liveweights of 9 kg, 12 kg, and 19 kg respectively, on to a pasture of phalaris and white clover.

The lambs remaining with their mothers for 11 weeks showed the earliest onset of an appreciable worm infection which reached a peak in December about one month after weaning. Similar levels of infection were not reached in the other groups until about two months later.

It is concluded that weaning at 4 or 6 weeks of age helped to control roundworm infection in the lambs.

I. INTRODUCTION

Ewes may show a post-parturient rise in faecal worm egg counts and can be an important source of nematode infection for their lambs (Crofton 1963). Such infection may be controlled by anthelmintic medication of the ewes (Nunns, Rawes and Shearer 1965), but reducing contact between ewe and lamb by early weaning has also proved effective (Levine, Schaeffler and Szanto 1960; Bizzell et al. 1964) unless there is contamination of the pasture with roundworm larvae persisting from the previous year (Brown 1964). The development of nematode infection in Merino lambs weaned at three different ages was studied in the experiment reported here.

II. EXPERIMENTAL

Fine-wool Merino ewes, three to five years old, were mated to Merino rams and during pregnancy and lactation they grazed a well established pasture of Phalaris and white clover. Lambing took place during the last three weeks of September and the first week of October 1964. Ewe and wether lambs in approximately equal numbers were randomly allotted to form three groups that finally contained 13, 13 and 11 animals; the lambs of each group were weaned individually at 4, 6 and 11 weeks of age respectively on to a separate area of Phalaris and white clover pasture which had been without livestock for five weeks before the first lambs were introduced. The area allotted was increased as weaning progressed and the final stocking rate was 15 lambs per acre. Drought increasingly restricted pasture growth from early December onwards and the lambs were given a supplement of approximately 150 g oat grain per head daily from mid-March 1965.

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Samples of faeces were first taken from all lambs sufficiently mature on 4 November. Samples were subsequently taken every three weeks until May 1965. Worm egg counts were made by the modified *McMaster* technique (Whitlock 1948) and the species present were identified by larval differentiation in faecal culture; the egg counting technique allowed infections yielding 17 eggs per gram faeces to be detected.

**Fig. 1.**—Mean liveweights and worm egg counts for lambs weaned at 4, 6 or 11 weeks of age, and monthly rainfall.
III. RESULTS

Monthly rainfall, the live-weight changes of the three groups of lambs and mean faecal worm, egg counts are shown in Figure 1.

Rainfall during the experiment was in total only 59% of the standard 30-year average for this period. The points for lambing and weaning are plotted to correspond with the median dates.

**Ostertagia** spp. and **Haemonchus contortus** were the most abundant species in the lambs. In the group weaned at 11 weeks of age, peak levels of more than 500 **Ostertagia** spp. eggs per gram of fresh faeces were reached within a month of their weaning, whereas the lambs weaned at the earlier ages then showed much lower levels of infection. There was a delay of six to nine weeks before maximum egg counts were attained in the latter groups. Appreciable levels of infection with **Haemonchus contortus** were also evident much sooner in the lambs weaned at 11 weeks of age.

Other nematodes present in small numbers were **Trichostrongylus** spp., **Cooperia oncophora**, **Oesophagostomum** spp., **Nematodirus** spp., and **Strongyloides papillosus**.

IV. DISCUSSION

These results were obtained in a period of below average rainfall; the growth of the pasture was retarded as was the growth of the lambs. The low level of worm infection, especially with **Haemonchus contortus**, was also a reflection of the dry conditions.

As rumen function would not be as well established at 4 and 6 weeks as at 11 weeks (Wardrop and Coombe 1960), it was anticipated that lambs weaned at the earlier ages would suffer the more severe check in nutrition and in growth. In fact the check at 6 weeks was relatively less than at 11 weeks probably because weaning at the later age coincided with the maturation of the pasture herbage. Lambs taken from their mothers at 4 weeks of age then suffered a check in growth for about 2 weeks but subsequently grew at a rate comparable to that achieved by those weaned when 2 weeks older. A reduction in live-weight due to early weaning was still apparent at eight months of age.

Infections with **Ostertagia** spp. and **Haemonchus contortus** reached the higher levels more quickly in lambs weaned at 11 weeks than in those weaned at 4 and 6 weeks of age, although continued suckling might have been expected to reduce the intake of *herbage* and of the associated worm larvae (Spedding, Brown and Large 1963). The importance of the ewe as a source of infection for the lamb is clearly seen. The lambs were weaned into a paddock which had been rested from stock for a short period only and which may have carried some residual infection. As all lambs were running together, cross infection between groups could also have occurred. Management that reduced these risks of infection might give even greater benefits from early weaning in the control of parasitism than those reported here.

The host is better able to withstand parasitic infection when nutrition is good (Whitlock 1949) and a check in growth associated with early weaning might interfere with the lambs’ ability to develop resistance to nematodes. In the present study the final egg count level of all groups were similar. To the extent that these
levels may indicate differences in resistance, there was no suggestion that either age of weaning, delay in the onset of infection or, in the case of *Ostertagia* spp., the lower absolute level of infection had interfered with the development of resistance in the early weaned lambs. Similar conclusions can be drawn from work reported by Tetley (1959) and Brown (1964). The former compared the development of *H. contortus* in weaned and unweaned lambs and the latter even suggested that early weaning may accelerate the development of resistance to infection.

**V. ACKNOWLEDGMENTS**

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**VI. REFERENCES**


