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Milk intake improves outcomes for young lambs with continuous exposure to gastrointestinal parasites in pasture-based system

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Key words : weaning lamb, nutrition, low chemical

Introduction Gastrointestinal parasites remain a major challenge to lamb finishing systems. In low chemical and organic systems, lamb growth during lactation is adequate but often low post-weaning (Mackay et al. 1998). Pastoral farmers need effective tools and strategies for management of parasites. The importance of milk to the performance of young lambs infected with gastrointestinal parasites was investigated.

Materials and methods Ewes rearing twin lambs were run as a single mob grazing moderate quality mixed grass and legume pasture expected to have minimal numbers of sheep gastrointestinal parasite larvae following at least 2 years grazing by cattle only. Twin pairs of lambs (12 lambs per group) were weaned at 7 or 15 weeks of age and trickle infected (weeks 5 to 15) and/or late (weeks 16-25). Weaning was achieved by removing ewes from the mob resulting in a mixed mob of weaned lambs and unweaned lambs with their dams. Treated lambs were artificially infected with gastrointestinal parasites by oral dosing with infective larvae (stage 3 larvae: L₃) suspended in water. Lambs were trickle infected with 60 infective L₃ larvae/kg liveweight per day of *Trichostrongylus colubriformis* and *Teladorsagia circumcincta* (60:40) administered three times per week for periods 5 to 15 weeks and/or 16 to 25 weeks of age. Liveweights of lambs and ewes and lamb faecal egg counts were monitored regularly. The number of adult gastrointestinal parasites in the abomasums and small intestine was determined at slaughter at age 15 or 25 weeks. The results from the 15 week slaughter are presented here.

Results Early removal of milk depressed liveweight gain by 30-35% while parasite dosing from week 5 reduced growth rates in 5-15 week period by 15-20% (Figure 1). Faecal egg counts were 40% higher in -milk lambs compared to +milk dosed lambs, while undosed lambs had very low faecal egg counts (Table 1). Adult worm numbers reflected dosing and there was a tendency for lambs still receiving milk to have less *T. circumcincta* ($p=0.1$) adult worms.

Table 1 Mean strongyle faecal egg counts (e.p.g) and total count of *T. circumcincta* in abomasums and *T. colubriformis* in small intestine of lambs following necropsy at 15 weeks age.

	Strongyle e.p.g	<i>T. circumcincta</i> Total count	<i>T. colubriformis</i> Total count
No parasites			
-milk	75	52	60
+milk	105	56	67
LSD (5%)	34	34	94
	ns	ns	ns
L3-Dose			
-milk	2343	2824	15728
+milk	1670	1475	15050
LSD (5%)	385	1360	4126
	**	P=0.1	ns

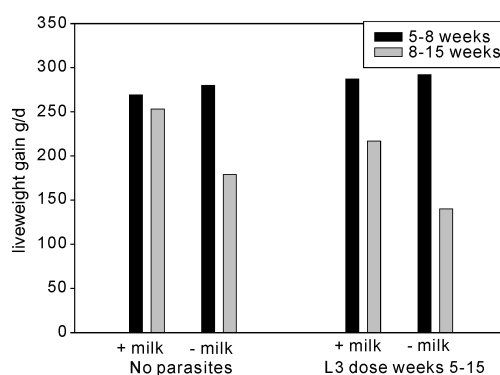


Figure 1 Mean liveweight gain g/day for Lambs dosed with nil or 60 L₃ larvae/kg LW/day and weaned (-milk) or not weaned (+milk) from 5-15 weeks of age. Maximum LSD (5%) = 19 g/day.

Conclusions Milk intake enabled lambs to grow faster and to apparently suppress egg production from adult worms. Despite the substantial impacts on lamb growth rates from early removal of milk from the diet, there was no interaction between parasite infections and milk intake on growth rates. A limitation of this type of field study was the use of liveweight gain rather than nutritional parameters which may have demonstrated an interaction.

Reference

Mackay, A. D., Betteridge, K., Devantier, B. J., Budding, P. J., Niezen, J. H. 1998 Chemical-free hill country sheep and beef livestock production systems. *Proceedings of the New Zealand Grasslands Association* 60: 15-18.