

A COMPARATIVE STUDY OF FAUNATED LAMBS AND LAMBS REARED FROM BIRTH FREE OF CILIATE PROTOZOA

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Anti-protozoan agents (APA) which are used to remove ciliate protozoa from the rumen of sheep are also toxic to bacteria (Orpin and Letcher 1984). Therefore differences between APA-treated animals (ciliate-free) and untreated animals (faunated) cannot be attributed solely to the absence of ciliate protozoa. This study was established to compare lambs reared by either faunated or defaunated ewes. Lambs reared by defaunated ewes remained free of ciliate protozoa for the duration of this study and therefore required no APA treatment.

One hundred and sixty joined Merino ewes were selected from a flock of 300 ewes and randomised into two groups of 80. One group of ewes was drenched with Alkanate 3SL3 to remove ciliate protozoa from the rumen and both groups were held in a rotational grazing system. Progeny from these flocks were used in this study. Four wether lambs (24 kg) from each group were fitted with a rumen cannula two months prior to the rumen function studies. A further 10 lambs (24 kg) from each group were housed in an animal house and individually fed over a 14 week period to measure weight gain and wool growth. All lambs were fed a ration of oaten chaff (86%), cottonseed meal (10%) and minerals/urea mix (4%).

Table 1. Rumen and production parameters of control (faunated) lambs and lambs reared free of ciliate protozoa from birth

	Treatments	
	Control	Ciliate-free
<i>Rumen parameters</i>		
<i>In sacco</i> digestibility (24h) [#] (%)	57 ^b	51 ^b
Whole tract digestibility (%)	57.6 ^a	56.5 ^a
Total VFA concentration (mmol/mL)	83 ^a	68 ^b
<i>Production parameters</i>		
Dry matter intake (g/d)	730 ^a	745 ^a
Liveweight gain (g/d)	44 ^a	63 ^b
Wool production (g/d)	6.0 ^a	7.2 ^b

Means with different superscripts are significantly different ($P < 0.05$)

[#] Ground oaten chaff (2 mm screen) was used in the *in sacco* study

The *in sacco* digestibility of oaten chaff was lower in the rumen of the ciliate-free lambs but whole tract digestibility was not significantly different from the control lambs. This result is consistent with results from comparative studies with APA-treated and untreated lambs (Veira 1986) The significantly higher rate of liveweight gain and wool growth of the ciliate-free lambs in this study are also consistent the results from comparative studies with APA-treated and untreated lambs (Bird 1989).

It is concluded that the differences observed in this study between faunated and ciliate-free lambs are due to the absence of ciliate protozoa.

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