

**A PRELIMINARY NOTE ON FASTING METABOLISM AND FEED INTAKE IN  
THE BLESBOK, *DAMALISCUS DORCAS PHILLIPSI*, AND THE SOUTH AFRICAN  
MUTTON MERINO UNDER COMPARABLE CONDITIONS**

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Gross efficiency of feed utilization is influenced by the ratio between voluntary feed intake and fasting metabolism. Evidence at this stage seems to indicate the ratio between these two components to be constant (Blaxter, 1969). To investigate this ratio in different animal types, Mutton Merino lambs were compared to blesbok lambs. Due to certain raising problems experienced with the blesbok lambs, this purpose could not be achieved. However, some interesting observations with regard to feed intake and fasting metabolism in these animals were made which are given below as a preliminary report.

Six blesbok lambs were captured a few minutes after birth at the nearby van Riebeeck Nature Reserve. Two died soon afterwards. The 4 remaining lambs and 15 Mutton Merino lambs were hand-reared on cow's milk according to a schedule developed by Hofmeyr and co-workers (personal communication) for sheep lambs at this laboratory. According to this schedule daily milk allowances were calculated according to metabolic birth mass ( $W_{kg}^{3/4}$ ). The animals were weaned at 7 weeks of age and introduced to a fairly concentrated ration (Table 1).

Table 1

*Composition of ration*

Yellow maize meal	46,00
Lucerne meal	15,00
Maize straw	15,00
Fish meal	13,00
Voermol	10,00
Bone meal	1,00
Salt	1,00
Minerals and vitamins	0,11
Digestible crude protein (DCP)	15,34%
Digestible energy (DE)	12,14 MJ/kg

Fasting metabolism was estimated from measurements of oxygen consumption and carbon dioxide production in a respiration chamber described by Hofmeyr, Vorster and de la Rey (1971). Actual measurements were made after 8 hours fasting in the milk fed lambs and after 48 hours when the animals started to ruminate and thereafter. It was evident that the blesbok lambs could not consume the amount of milk they were offered daily, whereas the Mutton Merino lambs showed no difficulty in drinking the total amount.

The solid feed intake of the blesbok lambs was exceptionally low, quite dissimilar to the intakes recorded

for the Mutton Merino lambs (Table 2). It was also observed that the blesbok lambs developed digestive problems. Two actually died while the other 2 only managed to survive when milk was reintroduced at intervals. Post mortem analyses revealed serious impaction with subsequent inflammation of the abomasum. Careful inspection of the abomasal contents showed a large amount of totally undigested matter. This probably indicated that the food passed through from the oesophagus of the abomasum without being fermented in the rumen. The precise reasons for this phenomenon are not clear although certain physical factors involving the reticulo-rumen might be partially responsible.

Table 2

*The mean DM-intake of the Mutton Merino and blesbok lambs ( $g DM/W_{kg}^{3/4}/week$ ).*

Age (weeks)	Mutton Merino		Blesbok	
	Mean	Range	Mean	Range
7	626	462-752	78	51-124
9	674	564-861	195	59-223
11	609	375-870	209*	128-290
13	706	493-849	247	198-295
15	741	624-925	283	182-384
17	708	591-839	321	238-403

\*The DM-intake of the blesbok lambs from the eleventh to the seventeenth week represents only the average of 2 animals since the other 2 died (see text).

The fasting metabolism of the experimental animals over a 4 month period is recorded in Figure 1. The fasting metabolism of the Mutton Merino lambs follows more or less the expected decrease from an average of 900  $KJ/W_{kg}^{3/4}/24$  hr at one day of age to an average of 520  $KJ/W_{kg}^{3/4}/24$  hr at 4 months of age. In contrast, the pattern followed by the fasting metabolism of the blesbok lambs is quite dissimilar to that of the Mutton Merino lambs. No evidence of any specific decline in fasting metabolism with time was established and the average (390  $KJ/W_{kg}^{3/4}/24$  hr) calculated at 17 days was not significantly different from the average at 4 months of age (37  $KG/W_{kg}^{3/4}/24$  hr). However, it must be pointed out that due to the death of 2 blesbok lambs the values recorded in the figure at 3 and 4 months of age are only the means of the 2 remaining lambs.

In conclusion it would seem that the blesbok lambs

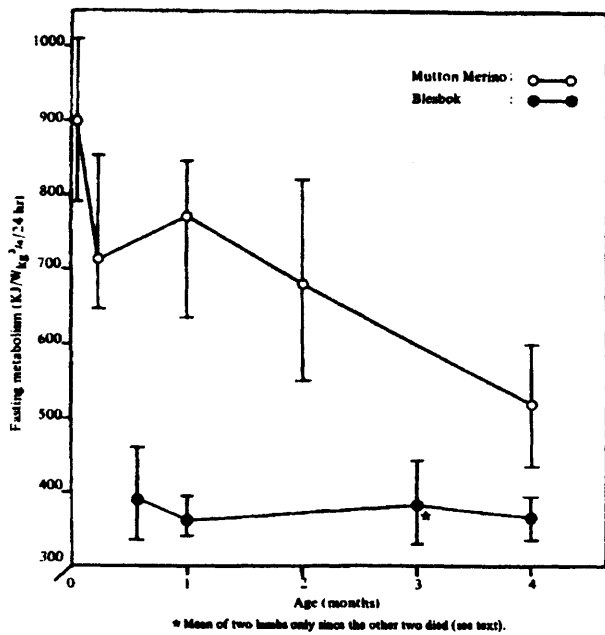


Fig. 1. — The fasting metabolism of the Mutton Merino and Blesbok lambs

did, in fact, consume less food per unit of body mass than the Mutton Merino lambs and they did have a lower fasting metabolism. Because of the small number, however, further research is warranted.

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