

## UREA KINETICS IN TWO LINES OF SHEEP WITH DIFFERENT POTENTIAL FOR WOOL GROWTH

I.A. SCHOUTEN and J.R. MERCER

Two lines of Peppin Merino sheep with markedly different propensity for wool growth (Fleece Plus, F+ and Fleece Minus, F-) were developed by the Department of Agriculture at Trangie, NSW more than 20 years ago. Since that time intense activity has been directed toward identifying the reasons for the superior performance of the F+ line.

Hough et al. (1988) found no difference in plasma urea concentrations between the two lines of sheep, while Lush et al. (1991) reported that the arterial and portal levels of urea N were significantly greater in F+ sheep.

In this study several parameters of urea kinetics were measured in these animals. Six ewes (three F+ and three F-) were housed in metabolism crates in an air-conditioned room. A mixed ration (50/50 lucerne chaff/oaten chaff; 800g/day; 10.76g N/day) was fed continuously over 24 hours and water was available ad libitum. The animals were fed the ration for at least fourteen days prior to treatment. On the day before the experiment catheters were placed in both jugular veins and an indwelling urinary catheter was inserted.

A single injection of 50 uCi <sup>14</sup>C urea (2.5 mg) was administered via one of the catheters. Blood samples were taken via the other catheter at intervals for up to nine hours after isotope injection.

Samples were analysed for urea and radioactivity. Estimates of urea space, pool size and urea entry rate were calculated using standard methods. Results are shown below.

	F+	s.e.	(n)	F-	s.e.	(n)
Plasma urea (mM)	5.80 <sup>a</sup>	0.37	6	4.09 <sup>b</sup>	0.59	6
Urea pool size (g)	6.10	0.59	6	6.26	1.65	6
Urea space (l)	17.43 <sup>c</sup>	1.24	6	25.12 <sup>d</sup>	4.11	6
Entry rate (mg/min)	13.15	1.14	6	13.19	1.97	6

(Values with unlike superscripts on the same line are significantly different; P < 0.001)

Although there was no difference in the entry rate of urea, the distribution of urea probably differs in the two lines of sheep.

HOUGH, G.M., WILLIAMS, A.J., McDOWELL, G.H. and ANNISON, E.F. (1988). Proc. Aust. Soc. Anim. Prod. 17: 422.

LUSH, J.M., GOODEN, J.M. and ANNISON, E.F. (1991). Proc. Nutr. Soc. Aust. 16: 144.