

VARIABILITY IN THE INTAKE OF SUPPLEMENTS BY GRAZING SHEEP

J.F. LOBATO\* and G.R. PEARCE\*

Although it is a common observation that wide variability can occur in the intake of supplements by individuals within a group of grazing animals there have been few attempts to measure this variability and little is known of the factors governing it,

In the studies reported here, individual intakes of oats, milled hay and molasses/urea blocks were estimated using chromic oxide ( $\text{Cr}_2\text{O}_3$ ) as a marker. For oats and hay the chromic oxide was mixed at a concentration of 2 g/kg with the addition of a starch-based adhesive (10-50 g/kg). For the molasses/urea blocks, chromic oxide was incorporated during manufacture ("Barastoc", K.M.M. Pty. Ltd., Melbourne). The supplement with the chromic oxide was offered to grazing sheep for seven days and total faeces were collected during that period and for the ensuing seven days when all of the ingested chromic oxide had been excreted. By determining the total amount of chromic oxide excreted by each sheep, and knowing the concentration of marker in the supplement, the intake of supplement by each individual was estimated.

Three groups of 15 mature Corriedale wethers were offered daily either 4.5 kg oats, 8.0 kg hay (air-dry weights) or access to a molasses/urea block. Measurements were continued over three periods with each group offered each supplement in rotation. Social dominance observations were made periodically and, as indices of animal size, the sheep were weighed weekly and measurements were made of the height at withers and of the girth dimension.

Estimated intakes (means and standard errors, g dry matter/sheep/7 days) were: oats 1851 + 65, hay 3326 + 151, molasses/urea block 117 + 25. Of particular interest% this study were the ranges in individual intakes which were: oats 1086-2679, hay 1508-6048, molasses/urea block 0-732. Thus with oats the greatest intake was 2.5 times the smallest, and with hay the greatest intake was 4 times the smallest. The range in intake of molasses/urea block was even wider; 8 sheep in fact consumed no block at all.

Part of the variability in the intakes of oats and hay may be explainable in terms of the size parameters measured and in terms of the dominance rankings. There were positive correlations between individual intakes of oats and hay and live weight ( $P < 0.01$ ). Intakes of oats were correlated with height at withers ( $P < 0.05$ ) and intakes of hay were correlated with girth measurement ( $P < 0.05$ ), and height at withers ( $P < 0.01$ ). Dominance ranking affected intakes of oats and hay ( $P < 0.01$ ) and correlations between dominance values and live weight and girth measurement were 'significant ( $P < 0.01$ ). However, there were no significant correlations between any of these factors and individual intakes of molasses/urea block. Thus, while size and/or social dominance influenced the intakes of oats and-hay, the response to molasses/urea block was apparently due to other factors.

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\* School of Agriculture and Forestry, University of Melbourne, Parkville, Victoria, 3052.  
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