

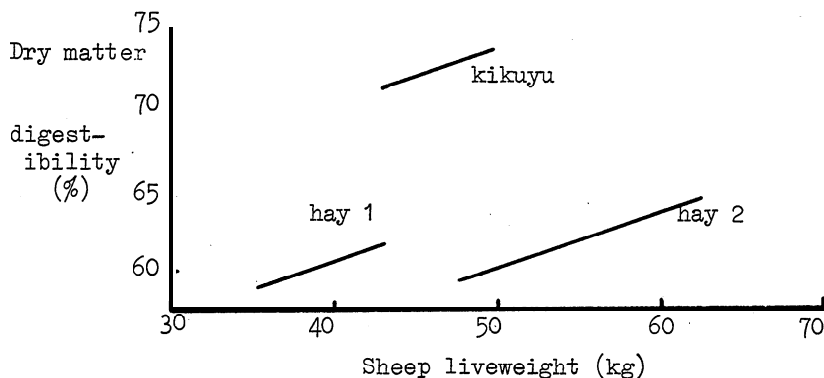
EFFECT OF AMOUNT OF FEED ON OFFER AND LIVEWEIGHT OF
CAGED SHEEP ON DIGESTIBILITY ESTIMATES

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The relationship between the ad libitum intake of caged sheep, dry matter digestibility of the diet, the nitrogen content of consumed feed (%N-consumed), the ratio of feed residue to feed consumed (residue fraction) and sheep liveweight was studied in three experiments. Fresh chopped kikuyu (Pennisetum clandestinum) was fed to 10 sheep in one experiment and two different, predominantly ryegrass (Lolium spp.) hays were fed to 18 and 19 sheep in the other experiments.

Simple correlations were calculated between the measured variables for each diet. In all diets, a significant correlation was found between sheep liveweight and dry matter digestibility. The between-diet slopes for this relationship were not significantly different, they were thus combined by an analysis of covariance to yield a common slope (Figure 1) of 0.34 unit increase in digestibility per kilogram increase in liveweight.

A significant ($P < 0.01$) correlation between %N-consumed and residue fraction occurred when kikuyu and Hay 1 were fed. No other correlations were significant in more than one experiment although that between residue fraction and digestibility was significant with kikuyu and approached significance with Hay 2.



No other report of consistent significant correlations between digestibility and liveweight could be found; this is not surprising since it is unusual to feed one diet to more than about 5 or 6 caged sheep, and with sheep numbers of that order the correlation is likely to be non-significant or, if significant regarded as spurious. If the relationship between digestibility and liveweight is widespread, then the common slope of 0.34 between diets can provide an indication of the bias that may result if sheep from the same flock but of different liveweights are used to determine the digestibility of different diets.

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