

ESTIMATING PASTURE INTAKE USING η -ALKANES AND KNOWN SUPPLEMENT INTAKE

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Herbage intake in ruminants can be estimated by comparing the long, odd-chain alkanes contained in the cuticular wax of herbage ingested and in faeces, with long, even-chain alkanes in the faeces released from intra-ruminal, controlled release devices (CRDs) (Dove *et al.* 1991). However, if a supplement contains, or can be labelled with, alkanes, the proportion of supplement in the diet can be determined (Dove and Oliván 1998). If the supplement intake is known, total herbage intake can be determined by proportion (Dove *et al.* 2002). This technique would remove the need for CRDs. The study reported here aimed to estimate kikuyu and ryegrass intake by supplementing sheep with lucerne chaff, a feed with a naturally strong alkane profile markedly different to kikuyu and ryegrass (C. Clark, unpublished data).

Nine sheep were housed in metabolism crates and randomly allocated to 3 groups based on liveweight. The proportion of lucerne chaff to kikuyu pasture fed on a DM basis was (0.125, 0.25 and 0.5) with a total feed intake of 600 g DM/sheep/day. The proportions of kikuyu and lucerne chaff in the diet were estimated from the profile of the C₃₁, C₃₃ and C₃₅ alkanes using the least squares procedure of Dove and Moore (1995). This procedure was repeated for ryegrass pasture. The actual and estimated proportions of lucerne chaff in the kikuyu and ryegrass diets are presented in Figure 1.

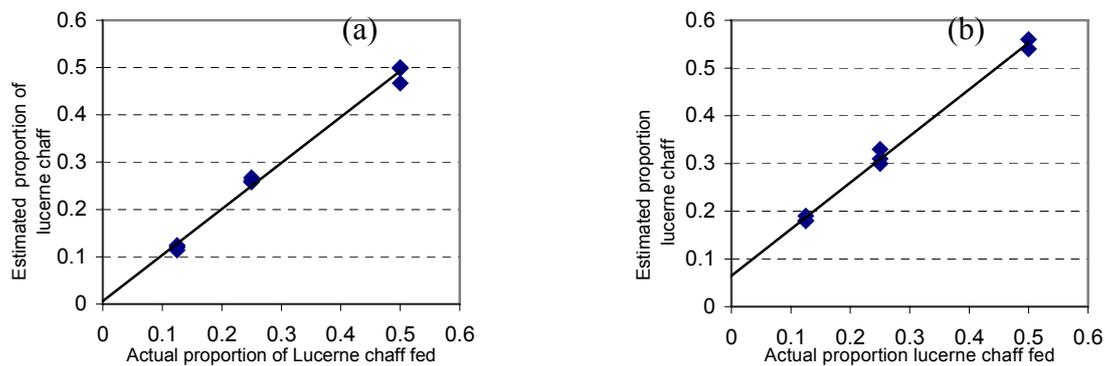


Figure 1. The estimated (y) and actual (x) proportions of lucerne chaff fed to sheep when also fed (a) kikuyu ($Y = 0.9728x + 0.006$; $r^2 = 0.99$) and (b) ryegrass ($Y = 0.9756x + 0.0646$; $r^2 = 0.99$).

The estimated mean intake of kikuyu for each group did not differ significantly ($P > 0.05$) from actual kikuyu intake at each proportion of kikuyu and lucerne fed. The estimated proportion of lucerne chaff in the ryegrass diet was approximately 6% higher at each proportion of ryegrass and lucerne fed. This may be due to the very high water content of the ryegrass pasture, increasing the likelihood of errors in estimating daily pasture DM intake.

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