EFFECT OF DRY MATTER CONTENT OF PERSIAN CLOVER HERBAGE ON DIGESTIBILITY IN LACTATING DAIRY COWS

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Persian clover (Trifolium resupinatum) has a dry matter content that is often less than 10%. Low dry matter content of the diet reduces voluntary dry matter intake (Butris and Phillips 1987) and may also reduce apparent in vivo digestibility. An experiment was done to establish the effect of DM content of Persian clover herbage on its digestibility in dairy cows that were in late lactation.

Six cows, fistulated at the rumen, were offered 8 or 16 kg DM/cow.day of either (i) freshly cut herbage (10.3% DM), (ii) herbage that had been wilted for 24 h (11.8% DM), or (iii) freshly cut herbage plus additional water which was introduced directly into the rumen at feeding times (sufficient to reduce effective dry matter content of the herbage to 8.6% DM) in two 3 x 3 Latin squares. The cows were housed in metabolism stalls to allow collection of faeces for the estimation of digestibility. Plows of fluid from the rumen, using chromium EDTA, were also measured.

Apparent in vivo DM digestibilities of fresh herbage, wilted herbage, and fresh herbage plus water were 79, 74 and 81% [l.s.d.(P = 0.05) = 4.0], respectively, and mean retention times of liquid in the rumen were 9.3, 10.5 and 9.1 h [l.s.d.(P = 0.05) = 2.19]. The resulting milk yields were 10.6, 8.8 and 9.6 kg/day [l.s.d.(P = 0.05) = 1.83] for cows receiving fresh herbage, wilted herbage and fresh herbage plus water, respectively. In a concurrent study with sheep, in vivo DM digestibilities of 74 and 69% [l.s.d.(P = 0.05) = 4.6] were obtained from feeding fresh (12.1% DM) or wilted (20.2% DM) Persian clover.

It has been suggested that high water intakes may be responsible for depressions in digestibility, due to reduced mean retention time of the liquid in the rumen (Owens and Issacson 1977). Although mean retention time was associated with dry matter content of the herbage in this experiment, digestibilities and milk yields were contrary to those postulated. It would appear that the dry matter content of the herbage per se had little effect on digestion or milk yield. Reductions in these variables with wilting were probably due to losses of nutrients during the wilting process. All the fibre fractions were increased by wilting. Therefore, although farmers complain of apparent diarrhoea in cows grazing Persian clover, from a nutritional standpoint there is no need to alter the feed or provide supplements to correct this.