EFFECT OF FEEDING FREQUENCY ON PASTURE INTAKE AND MILK PRODUCTION OF GRAZING COWS

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Ulyatt and Waghorn (1993) emphasised that the limitations to cow performance, in pasture based dairy systems, often arise from a low voluntary intake of pasture and nutrient levels that differ from those required by the lactating animal. The current system for grazing cattle means that cows are offered fresh pasture once or maybe twice per day and must consume most of their allowance within 2-3 hours since the feed on offer decreases as areas are fouled and herbage is consumed.

This paper reports on an experiment conducted to test the hypothesis that offering a given daily allowance of pasture as smaller feeds more frequently than once per day could increase the daily dry matter intake (DMI) of dairy cows in early lactation.

In September 1995, 24 multiparous, spring calving cowsaveraging 30 litres of milk/cow.day were allocated to 1 of 4 treatment groups (6 animals/group). Two groups were offered a pasture allowance of 30 kg DM/cow.day (Groups 1 & 2) while the remaining 2 groups were offered 50 kg DM/cow.day (Groups 3 & 4). Within each pasture allowance there were 2 frequencies of feeding :- once per day (Groups 1 & 3) or 6 times per day (Groups 2 & 4). The 6 times per day allowance was divided into 6 equal portions and a new strip of pasture was offered at 0600, 0900, 1130, 1330, 1800 and 2000 hours. The groups fed once per day received their daily pasture allowance at 0900 hours. Cows were milked at 0730 and 15 15 hours. No supplements were offered during the 4 weeks of the experiment.

Milk volume was recorded at each milking and composite pm/am samples were collected, and analysed for fat, protein and lactose, on 5 consecutive days in each of the last 2 weeks. Naturally occurring and dosed alkanes (C28, C32 & C36) were used to determine individual cow- intakes during the final week of the experiment. The grazing behaviour of each animal was recorded at 10 minute intervals during two 24 hour observation periods.

The average pre-grazing height and mass of pasture offered was 7.4 cm and 3 100 kg DM/ha, respectively. Cows offered 50 kg DM/day consumed more pasture and produced significantly more milk than those offered 30 kg DM/day (Table 1). Frequency of feeding had no significant effect on milk production (Table 1). There were no differences between treatments in milk fat, protein or lactose percentages. Grazing time for all groups was between 9.2 and 9.6 hours per day. Rumination time for cows offered 50 kg DM/day was between 24 and 48 minutes longer than those offered 30 kg DM/day.

Table 1.The effects (means) of pasture allowance and frequency of feeding on milk yield (litres/cow.day) and pasture intake (kg DM/cow.day)

	Group 1	Group 2	Group 3	Group 4	SED
Pasture intake (kg DM/cow.day)	14.7^{aA}	16.7^{ab}	17.8^{b}	18.6^{b}	1.11
Milk yield (litres/day)	24.3^{a}	23.6^{a}	26.6^{b}	26.8^{b}	0.71

[A] Means within a row followed by different superscripts differ, $P < 0.05$.

There was a trend to higher intakes with 6 times compared with once a day feeding but in this instance the increased intake did not result in more milk. Since grazing time was not altered by increasing the pasture allowance or frequency of feeding, an increase in the rate of intake is the most likely explanation for the increased intake observed.

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ULYATT, M.J. and WAGHORN, G.C. (1993). *In* "Improving the quality and intake of pasture based diets for lactating dairy cows" (Eds N.J. Edwards and W.J. Parker). pp. 11.