

THE USE OF HAY AS A SUPPLEMENT TO OVERCOME THE EFFECTS  
OF RESTRICTING PASTURE TO DAIRY COWS IN LATE LACTATION

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Dairy cows in late lactation are more efficient than dry cows at improving body condition (Moe *et al.* 1970). Many farmers have insufficient pasture to fully feed cows in late lactation and therefore cannot take advantage of this improved efficiency. The aim of this experiment was to determine the extent to which hay could compensate for restricted pasture supply in terms of milk production and body condition.

Two herds of 18 cows were individually penned and fed varying quantities of hay and/or paspalum-dominant pasture in two experimental periods coinciding with the 8th (March) and 9th (April) months of lactation. The dry matter digestibilities of the pasture and hay offered were 65 and 70%, respectively. In each period there was a group fed pasture *ad lib.* and five other groups. The mean daily intakes (periods combined) of pasture (P) and/or hay (H) for each group were (kg DM): (1) *ad lib.* group - 14.9 P; (2) 11.4 P; (3) 7.7 P; (4) 10.3 P, 4.2 H; (5) 7.6 P, 7.6 H, and (6) 7.9 P, 4.3 H. The data were analysed by regression using each cow as an analytical unit.

Reduced dry matter intake (DMI; kg/cow/day) decreased milk yield (MY; kg/cow/day) and daily condition score change (CSC), but increased butterfat test (BF; %), as described by the following regressions:

$$MY = 2.66 + 0.49(\pm 0.05)DMI + 0.17(\pm 0.004)DMI \times A - 1.78(\pm 0.62)A \quad R^2 = 0.94 \quad RSD = 0.70$$

$$CSC = -0.29 - 0.018(\pm 0.008)DMI + 0.14(\pm 0.05) \sqrt{DMI} \quad R^2 = 0.74 \quad RSD = 0.007$$

$$BF = 6.57 - 0.12(\pm 0.02)DMI \quad R^2 = 0.94 \quad RSD = 0.30$$

where A for period I = +1, for period II = -1

Regression coefficients showing the relative worth of pasture and hay in terms of production and body condition are given in Table 1. There were no significant differences between the coefficients for pasture and hay, indicating that they are of similar nutritive value.

TABLE 1 Regression coefficients ( $P < 0.01$ ) describing the relative nutritive value of pasture (P), hay when cows were fully fed (HF), and restricted (HR) in terms of milk yield (MY; kg/cow/day), daily condition score change (CSC), and butterfat test (BF; %)

|     | P      | SE     | HF     | SE     | HR    | SE    | RSD  |
|-----|--------|--------|--------|--------|-------|-------|------|
| MY  | 0.30   | 0.08   | 0.31   | 0.08   | 0.36  | 0.14  | 1.21 |
| CSC | 0.0022 | 0.0007 | 0.0018 | 0.0007 | -     | -     | 0.01 |
| BF  | 0.098  | 0.018  | 0.098  | 0.018  | 0.094 | 0.035 | 0.29 |

It is concluded that hay can be used to compensate for reduced pasture availability in late lactation and under these conditions it is of equal nutritive value to pasture in terms of production and body condition.

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