

THE NUTRIENT CONTENT OF PASTURES SELECTED BY GRAZING DAIRY COWS
IN NORTHERN VICTORIA

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Few data are available on the nutrient contents of pasture actually eaten by grazing dairy cows in Australia. Five irrigated farms in northern Victoria were monitored to provide a measure of the degree of selection in perennial **ryegrass/white** clover-based pastures throughout the year.

The five farms, each running between 120 and 245 spring calving dairy cows, were monitored at various times between September 1989 and June 1991. One farm was monitored over 20 months, another over 3 months while week-long spot checks were carried out during 3 seasons on each of the other 3 farms. On each occasion, a rising plate metre recorded the availability of pre and post-grazed pastures each day for 5 days (in week-long spot checks) or for 20 days each month. Samples of pre and post-grazed pastures were harvested to ground level, bulked over weekly or monthly periods then analysed for *in vitro* DM digestibility (DMD) and concentrations of protein, Ca and P. Metabolisable energy (MJ/kg DM) was calculated as $ME = 0.17 \times DMD - 2.0$. Herd milk yields were recorded daily and milk composition every ten days. Data calculated on a monthly basis were averaged over each season, such that there were 9 values for spring (Sep to Nov), 10 for summer (Dec to Feb), 11 for autumn (Mar to May) but only 2 for winter (Jun).

Average pre-grazed seasonal pasture availabilities ranged from 3.3 to 4.2 t DM/ha. Mean seasonal milk yields (corrected to 4% milk fat), daily pasture DM allocations (kg DM/cow), total DM intakes (kg/cow/day) and that proportion supplied by grazed pastures were as follows: spring, **22.4, 48, 15.5, 0.86**; summer, **17.8, 66, 14.9, 0.92**; autumn, **13.4, 47, 15.7, 0.63**; winter, **11.6, 40, 15.9, 0.50**. Energy, protein, Ca and P contents in offered and selected pastures are presented in Table 1.

Table 1. The energy (MJ/kg DM), protein, calcium, phosphorus (g/kg DM) contents of pastures on offer (OFF) and selected (SEL) by dairy cows over four seasons on five northern Victorian farms (standard deviations of means are in parentheses).

	Energy		Protein		Calcium		Phosphorus	
	OFF	SEL	OFF	SEL	OFF	SEL	OFF	SEL
Spr	10.5 (0.6)	11.2 (0.5)	170 (16)	274 (30)	5.1 (0.8)	6.6 (2.2)	3.8 (0.4)	5.1 (1.2)
Sum	9.2 (0.4)	10.5 (1.1)	140 (13)	254 (51)	4.7 (0.8)	6.7 (1.5)	3.9 (1.2)	6.4 (3.5)
Aut	9.4 (0.6)	11.6 (1.8)	154 (26)	253 (70)	4.4 (1.0)	6.6 (2.3)	3.7 (0.5)	3.8 (1.4)
Win	9.7 (0.5)	13.4 (0.9)	165 (15)	291 (117)	3.0 (0.5)	2.1 (1.2)	3.2 (0.3)	3.6 (2.9)

Cows always selected diets of higher nutritive value, except for Ca in winter. The degree of selection was greatest for protein with cows eating **herbage** containing 61 to 81% higher levels than those on offer. Corresponding values for Ca were 29 to 50%, for P were 3 to 64% and for energy were 6 to 38%.

The levels of Ca (except in winter), P and protein in the selected pastures were higher than NRC (1989) dietary recommendations for lactating cows. Trace mineral analyses of several of these pastures on offer also indicated adequate levels of manganese, iron, selenium, cobalt and iodine. However levels of pasture copper and zinc were below NRC (1989) **recommendations**. Dietary energy levels were also suboptimal during spring and summer.

These data suggest that levels of protein and major minerals in pastures selected by cows grazing irrigated perennial pastures in northern Victoria are generally adequate for current levels of milk production.

NRC (1989). "Nutrient Requirements of Dairy Cattle". 6th Edn. (National Acad. Press: Washington, D.C.).

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