

## ENERGY AND PROTEIN CONTENT OF PASTURES EATEN BY DAIRY CATTLE IN NEW SOUTH WALES

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Energy and protein contents of pastures selected by grazing cows determine levels of milk yield. Little published information is available on seasonal changes in these parameters for pastures actually eaten. Measurement of these changes facilitates selection of supplements.

Contents of metabolisable energy (ME) and crude protein (CP) in dry matter (DM) of pastures consumed by dairy cattle were estimated monthly on dairy farms at Camden, Berry and Richmond in New South Wales. ME contents were estimated as  $0.16 \times \text{digestible organic matter in dry matter (DOMD)}$  using near infrared spectroscopy, calibrated from samples on which DOMD was measured *in vitro* using cellulase and pepsin. The *in vitro* technique was calibrated with *in vivo* standards. CP was analysed as nitrogen using a Kjelfoss analyser. Nutrient contents of pasture eaten were calculated from nutrient contents of pasture samples collected before and after grazing, together with estimates of pasture mass before and after grazing.

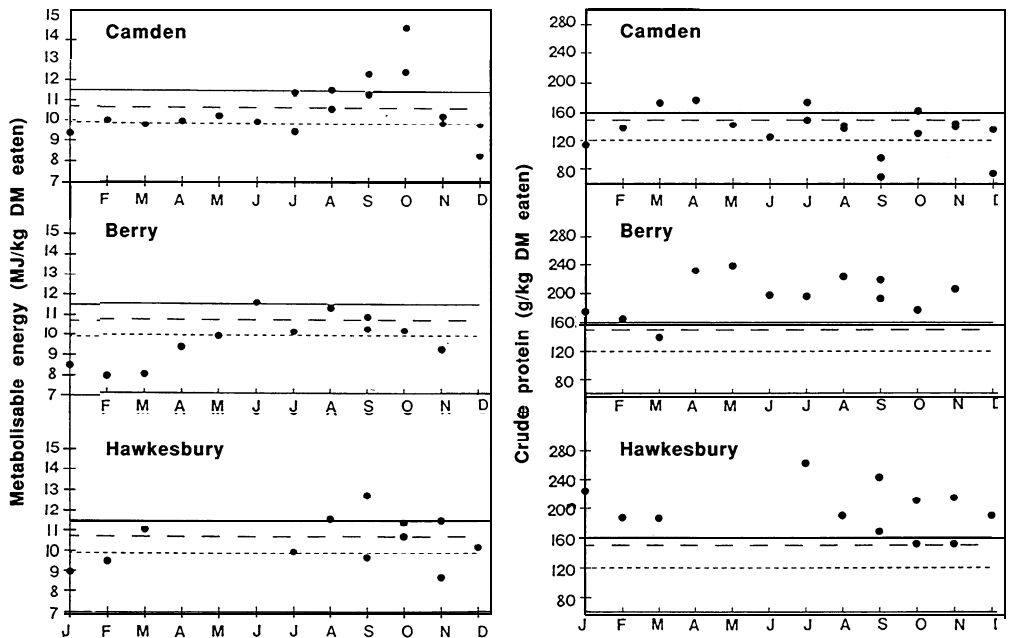


Fig. 1. Seasonal changes in the energy (MJ ME/kg DM) and crude protein (g/kg DM) contents of pasture eaten by dairy cattle on 3 farms. Recommended minimum concentrations (NRC 1989) for production are 10 (-----), 20 (— — —), and 30 (——) L of milk/day.

There were strong seasonal trends in energy content and all farms were deficient in ME in summer and autumn. Pasture eaten on the Berry farm was very low in ME from December to May. CP in pasture eaten did not show a regular seasonal pattern but was consistently low at Camden where protein supplements would have been beneficial.

NRC (1989). Nutrient requirements of dairy cattle 6th Edn. (National Research Council, Washington D.C.)