

227. Rumen degradability of Mongolian pastures: a comparison of *in situ* and *in vitro* gas production techniques

A. H. Murray<sup>1</sup>, D. Daalkhajav<sup>2</sup> and C. D. Wood<sup>1</sup>

<sup>1</sup>Natural Resources Institute, Central Avenue, Chatham Maritime, Kent ME4 4TB; <sup>2</sup>Research Institute of Animal Husbandry, Zaisan 53, Ulaanbaatar 210153, Mongolia

In Mongolia, animal performance is very much dependent on the quality and quantity of the native grassland available. There have been few studies to date on the degradation of native Mongolian pastures. Four samples were collected from two pastures in Mongolia, high mountain (HM) and forest steppe (FS), during various months of the year and pooled. The principal pasture species on HM were *Festuca lenensis* and *Kobresia bellardii* and on FS were *Stipa krylovii* and *Agropyron cristatum*. The *in situ* degradation of pasture samples was assessed for up to 96 h using duplicate bags for each incubation time. Samples were also fermented using the Theodorou gas pressure transducer technique up to 70 h and dry matter (DM) disappearance was measured after 70 h. Samples were run in duplicate in two separate runs. Measured values of the extent of degradation were *in situ* DM disappearance at 96 h, *in vitro* cumulative gas production at 70 h and dry DM disappearance at 70 h. *In situ* DM degradation and gas production kinetics (from 12 h incubation) were described fitting the exponential equation  $p = a + b(1 - e^{-ct})$ . Indicators of the extent of degradation obtained from the two techniques were generally highly correlated (for example *in situ* DM disappearance at 96 h and *in vitro* DM disappearance after 70 h  $R^2 = 0.72$ ), but the correlation between DM disappearance at 96 h *in situ* and gas pool size (constant  $b$  for gas production) was particularly poor ( $R^2 = 0.12$ ). Rate constants were poorly correlated ( $R^2 = 0.27$ ). Trends in the degradability of pastures with time were equivalent for cumulative gas production at 70 h and *in situ* DM disappearance at 96 h. It was concluded that the correlations in the extent of degradation were generally good between both techniques, over what was a limited range of degradabilities.