

Effect of Plant Diversity on Ruminal Degradability of Goats Grazing in a Semi-natural Pasture

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The objective of this study was to clarify the effect of plant diversity on ruminal degradability of goats grazing in a semi-natural pasture. The experiment was conducted in July and August 2016 in a semi-natural pasture in Minokamo City, Gifu, Japan. The pasture was divided into two paddocks according to stocking rate: high (HS: 30 goats ha⁻¹) and low (LS: 14 goats ha⁻¹). Direct and continuous observations of bites taken were used to record ingested plants by four grazing goats in each paddock. Five dominant plants in the ingesta—fresh materials of *Poa* spp., *Erigeron annuus*, *Paederia foetida*, *Phyllostachys edulis*, and white clover and two common grasses—fresh Italian ryegrass and Timothy hay were used for evaluating *in vitro* ruminal degradability. Rumen fluids were collected from three goats in each paddock by using a stomach tube. The plants were incubated by the batch culture method. The grazing goats in HS ingested 48 and 47 species in July and August, respectively, whereas the goats in LS ingested 63 and 57 species in July and August, respectively. The goats in LS ate more woody plants and less herbaceous plants than did the goats in HS. *In vitro* degradability of Italian ryegrass and *Phyllostachys edulis* was higher in HS than in LS ($P<0.05$), whereas no difference was detected in other species between the stocking rates. The degradability of the two common grasses was higher in July than in August; however, no seasonal effect was detected in the degradability of the five dominant species.