

HARD GRAZING DURING SPRING GROWTH IMPROVED NUTRITIVE VALUE OF SUBTERRANEAN CLOVER

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The quality of annual pastures declines dramatically during maturation and senescence in mediterranean environments. The rate of this decline depends on the species of pasture and management systems. It has been reported that pastures with high feed on offer usually were poor in quality because of more mature and dead material in the swards. Also such conditions may commonly occur during spring with stocking intensity often being low (Thompson *et al.* 1994). This experiment was carried out to demonstrate the effect of grazing intensity on nutritive value of subterranean clover in spring.

Two cultivars of subterranean clover, cvv. Dinninup and Seaton Park, with a similar flowering time of 110-112 days from sowing, were sown at 60 kg/ha at Shenton Park Field Station, W.A. in May 1992. Each cultivar was sown in 2 blocks with 3 replicates. The plot size was 100 m² (4 x 25 m) with 2 m border between plots. A basal dressing of superphosphate and potash was applied before sowing at a rate of 200 kg/ha. The plots were grazed by sheep at 4-weekly intervals at 2 grazing intensities (hard & lax) from 7 August until 12 October. The equivalent of about 50 sheep/ha were used to enable grazing to be completed over the entire experiment in 2 days. The grazing intensities were achieved by controlling grazing time according to the amount of herbage remained after each grazing. The amount of herbage removed by grazing animals averaged 64% and 37% for hard and lax grazing respectively. Before each grazing, a quadrat (0.1 m²) of plant material from each plot was cut at ground level and freeze dried. Dry matter content was measured at 80°C, dry matter digestibility (DMD) was estimated using the pepsin-cellulose method (*in vitro*) and nitrogen was analysed using the Kjeldahl method.

The results indicated that total dry matter production was not affected ($P>0.05$) by grazing intensity (400 vs 378 g/m²). Plants in the 2 blocks had similar DMD and crude protein (CP) content ($P>0.05$) before commencement of the first grazing. After grazing had commenced, plants under hard grazing were more digestible ($P<0.05$) than those under lax grazing (Figure 1a) because active grazing stimulated regrowth of plant and maintained vegetative growth. Hard grazing also increased CP content of plants significantly ($P<0.05$) in both September and October. The seasonal change in CP content was indicated by an increase before September and a decrease thereafter (Figure 1 b), which may reflect a seasonal change in the capacity for nitrogen fixation or dilution effect. In this experiment seed yields were extremely high (>750 kg/ha) and thus not detrimentally influenced by grazing.

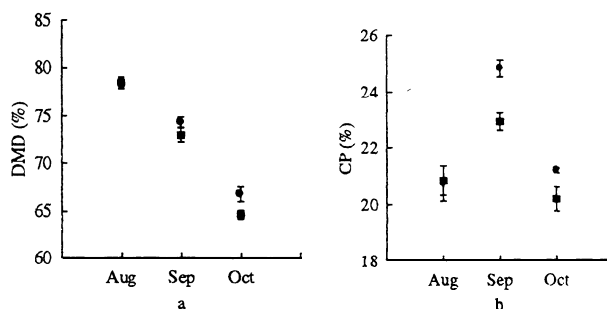


Figure 1. The effect of grazing intensity on a) DMD and b) CP during growing season (○) hard; (■) lax

The results of this experiment further support the use of hard grazing to improve the nutritive value of annual pastures by the control of development of plants, and suggest that indicative targets of grazing intensity need to be further developed to support the focus on pasture quality.

THOMPSON, A.N., DOYLE, P.T. and GRIMM, M. (1994). *Aust. J. Agric. Res.* 45: 367-89.