Species contribution to pasture biomass under different grazing systems

Judi Earl and Christine Jones

Department of Botany, University of New England , Armidale, NSW, 2351

John and Helen McKemey's property "Green Hills", 15 km east of Guyra on the Northern Tablelands of NSW, is located on basalt soil, pH 5.6 (in water) and has an annual average rainfall of 865 mm. In 1994, total rainfall was 678 mm. A decline in the sown species comp onent of the pasture (phalaris, cocksfoot, ryegrass, fescue and white clover) has been evident during the '80s and '90s.

In October 1994, a form of grazing management was implemented in which the rest period for each paddock is varied according to the requirements of the pasture (Parsons 1986). Each of the 26 paddocks in what is termed a ·cell· are grazed for only 1.5-4 days at high stock density and then rested for 40-100 days before being grazed again. Every paddock is therefore being rested for 96% of the year. The property is currently stocked with crossbred ewes and backgrounding steers.

This study investigates the effect of two grazing systems, cell grazing and set stocking, on the contribution of the pasture species to dry matter production.

Methods

A set stocked paddock was fenced within a cell grazed paddock in September 1994 (prior to the first graze period) to enable comparisons of species contribution to biomass between areas which had identical past management histories. Three paired sites within the cell grazed and set stocked areas will be monitored using the Botanal sampling procedure in spring and autumn each year. The three measurements made to date have been September 1994, prior to cell grazing; November 1994, after the first graze period; and March 1995, following two further graze periods. The cell grazed and set stocked paddocks have the same average stocking rate over the year.

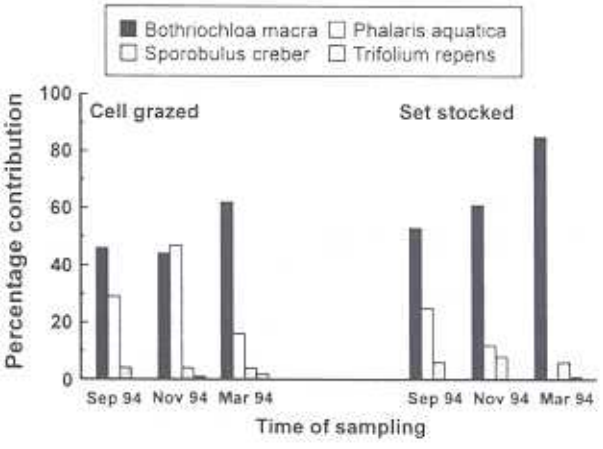

Figure 1. Percentage contribution of four indicator species to dry matter production in cell grazed and set stocked paddocks at "Green Hills"

Results and Discussion

Preliminary data show a gradual increase in the percentage contribution of *Bothriochloa macra* (redgrass) and a continuing decline in the percentage contribution of *Phalaris aquatica* (phalaris) to total dry weight (Figure 1). This reflects the contrasting seasonal growth patterns of these species. However, the increase in *Bothriochloa* and decrease in phalaris progressed at a faster rate under set stocking than under cell grazing (Figure 1). The percentage contribution of *Trifolium repens* (white clover) increased under cell grazing (Figure 1).

Acknowledgments

This project is funded by the Meat Research Corporation.

References

Parsons, S.D. (1986) ."Putting Profit Into Grazing". Resource Consulting Services, Yeppoon, Qld.