Forage quality of some native perennial grasses

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Native perennial grasses have always been important components of pastures on the tablelands of NSW. However replacement of native grasses with exotic perennial grasses has been encouraged, to address a perceived shortfall in their forage quality and dry matter (DM) production. Archer and Robinson (1988) demonstrated that some native grasses of the Northern Tablelands provide comparable quality to that of exotic species. Strong interest in the retention and management of native grasses has developed in recent years. The seasonal forage quality provided by many native grasses of other parts of NSW is not well understood. This study investigates the forage quality of some of the most prominent native perennial grasses of the Southern Tablelands and Monaro.

Methods

Replicated trials of 8 native grass species and 2 exotic species were sown near Goulburn and Dalgety NSW, in May and August 1992 respectively. An equal number of seeds per unit area of each species, was broadcast onto 2m x 5m plots after spraying with glyphosate and rotary hoeing. A blended fertiliser (N + P) was applied at the equivalent of 125 kg/ha at sowing. Weeds were controlled during establishment, using selective herbicide.

Stock were excluded from the plots during establishment and at intervals, to allow herbage to accumulate for measurement. Otherwise the plots were grazed to impose "real-world" pastoral conditions and to limit development of weeds.

Measurements were made at irregular intervals as growing conditions allowed. A small sample was cut from each plot, immediately microwaved for 30 sec, and later oven dried at 60^{0}C. Species replicates were combined, ground and analysed for crude protein and digestibility.

Results and discussion

Phalaris provided the highest quality feed at the end of spring (16% CP, 67% DDR). However, two ecotypes of *Microlaena stipoides* (Weeping grass) provided feed of higher crude protein (20 vs 16%) and equivalent digestibility (65-70% DDM) to phalaris and cocksfoot at the end of winter and during summer/autumn. *Danthonia duttoniana* had the highest quality of the *Danthonia* species (Wallaby grasses) in spring, summer and autumn, and outperformed all native and exotic species in summer/autumn (18% CP, 69% DDM). The other *Danthonia* species (*D. richardsonii* cvs. Hume and Taranna, *D. linkii* var. *linkii* cv. Bunderra and *D. racemosa*) and *Stipa bigeniculata* (Tall speargrass) consistently produced lower quality herbage (7-14% CP, 54-62% DDM). The cool-season perennial *Elymus scaber* (Wheatgrass) provided high quality in winter (15% CP, 64% DDM) and in summer 1994-5 (16.5% CP, 71% DDM), but low quality at the end of spring 1995 (6% CP, 50% DDM).

As expected, both exotic and native species showed variability in forage quality with growing conditions. Although Phalaris provided the highest quality at the end of spring, both exotic species offered lower protein than *Microlaena* at the end of winter, and lower protein and digestibility than *Microlaena*, *D. duttoniana*, *E. scaber* during summer and autumn. These results support the data of Archer and Robinson (1988) and suggest that some prominent native species of the Southern Tablelands and Monaro are valuable components of existing pastures and offer promise for domestication.

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Reference

Archer, K.A. and Robinson, G.G. (1988). Agronomic performance of native grass species on the Northern tablelands of New South Wales. II Nutritive value. *Australian Journal of Agricultural Research* **39:** 425-36.