Herbage yield of some native perennial grasses

David Eddy and Denys Garden

NSW Agriculture, Agronomy Research Unit, Canberra ACT, 2601

On the NSW Tablelands replacement of native grasses with exotic perennial grasses has been encouraged, to address a perceived shortfall in their productivity and forage quality. However, perennial native grasses dominate a large proportion of pastures on the tablelands and can be as productive as commonly sown exotic species. The seasonal dry matter (DM) yield of many native grasses on the Southern Tablelands and Monaro has not been well studied, and interest in their retention and management has grown in recent years. This study investigates the DM production of some of the most prominent native grasses in this region.

Methods

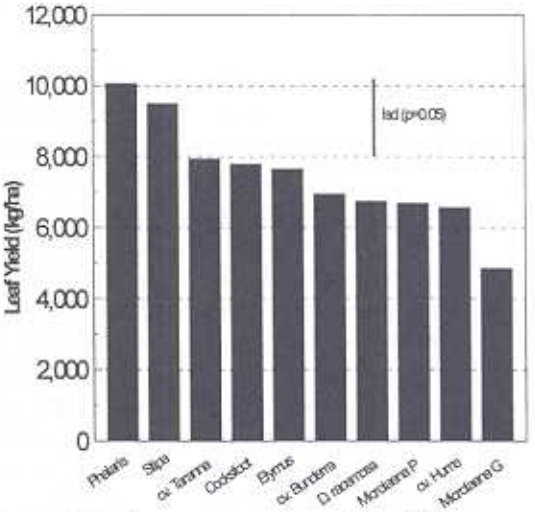
Two trials were sown at Goulburn and Dalgety NSW, in May and August 1992. The 2 m x 5 m plots contained pure swards of 8 native species and 2 exotic species in 4 replicates. A sowing rate equivalent to 3 kg/ha of phalaris was used for all species to promote equal plant density. Seed and a blended fertiliser (N + P) were broadcast onto the plots, and the soil rolled. 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 weed development.

Measurements were made at irregular intervals as growing conditions allowed. Two quadrats (0.5 m x 0.5 m) were cut from each plot and combined. Samples were sorted into leaf and stem, oven dried and weighed.

Results and discussion

Growth of each species varied considerably between samplings, due to the variability of growing conditions experienced. *Stipa bigeniculata* (tall speargrass) consistently yielded well in comparison with the exotic species phalaris and cocksfoot (Figure 1). It was particularly impressive in its year-round performance at both sites, with a high proportion of leaf. Leaf DM production by *Danthonia richardsonii* cv. Taranna and phalaris were not significantly different at Goulburn but were at Dalgety. At Goulburn, leaf DM of the other natives



(except *Microlaena stipoides* ecotype 'G') was not significantly different from Cocksfoot. At Dalgety only *S. bigeniculata* was similar to both phalaris and cocksfoot.

Each of the native species produced as much leaf DM as the exotic species at one or more samplings. *Elymus scaber* (Wheatgrass) grew very well in winter and spring, out-yielding all other species in October 1993, but was less active in the warmer months. The two ecotypes of *M. stipoides* grew well in the warmer months, out-yielding all species but *S. bigeniculata* at Dalgety in November 1994, but were less impressive in the cooler months. The 'P' ecotype of *M. stipoides* was consistently more productive than the 'G' ecotype at both sites. The *Danthonia* spp. showed less seasonal variability, and were among most productive species on several occasions at each site.

These results show that several native species have the capacity for strong leaf DM production under field conditions. This is consistent with the results of Robinson and Archer (1988). We consider that further study into the ecology, agronomy and management of these native grasses is important for the pastoral industry and good land management.

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