

Pasture legumes and grasses for the Monaro region of southern NSW.

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Introduction

The Monaro region has a unique low rainfall environment with only three months of the year frost-free. Pasture productivity and therefore animal productivity can be severely restricted by lack of rainfall at any time of the year and by low temperature from April until October. Feed gaps are a common feature of the region. Droughts have also impacted in recent years resulting in a decline in the legume content of pasture and loss of desirable perennial grasses. This project was established to evaluate a range of annual and perennial legumes and perennial grasses for their suitability to the Monaro region:

Materials and Methods

The site is located on 'Oakvale', approximately 5 km south of Berridale, NSW. The soil at the site is granite derived with a pH_{CaCl_2} of 4.8 and Colwell P of 6 mg/kg. The site was sprayed with glyphosate (450 g/L) at 2 L/ha in October 2004. The site was cultivated in February 2005. Fifty-four annual and perennial legumes were sown into the prepared site on 31 March 2005 at 10 kg/ha. There were three replicates of each line. Thirty-two perennial grasses were sown in a separate three-replicate experiment at the same site. The grasses vary significantly within and between species in their pattern of growth, particularly the

degree of summer activity/summer dormancy. Measurements taken have included germination, herbage production and persistence. Note that only the results of a selection of species sown is reported in this paper. A more comprehensive list of species sown is available from the authors.

Results and discussion

A range of legume species have established well in the first year of the experiment. Many of the legumes have produced substantial amounts of herbage over the first spring and appear, at the least, to have potential as fodder conservation species in this area. The productivity of arrowleaf clover, gland clover and red clover were particularly impressive (Figure 1). First year productivity of many of the sown legumes was superior to subterranean clover, one of the main species used in the region. However, further evaluation is required to determine the long-term persistence of alternative legume species in this environment, particularly the capacity of annual legumes to regenerate under adverse conditions where moisture in autumn is frequently marginal.

Productivity of short-term ryegrasses (Concord and Feast II), mountain rye (*Secale montanum*) and several perennial bromes exceeded 2.5 t/ha over the winter-spring period in the first year of the

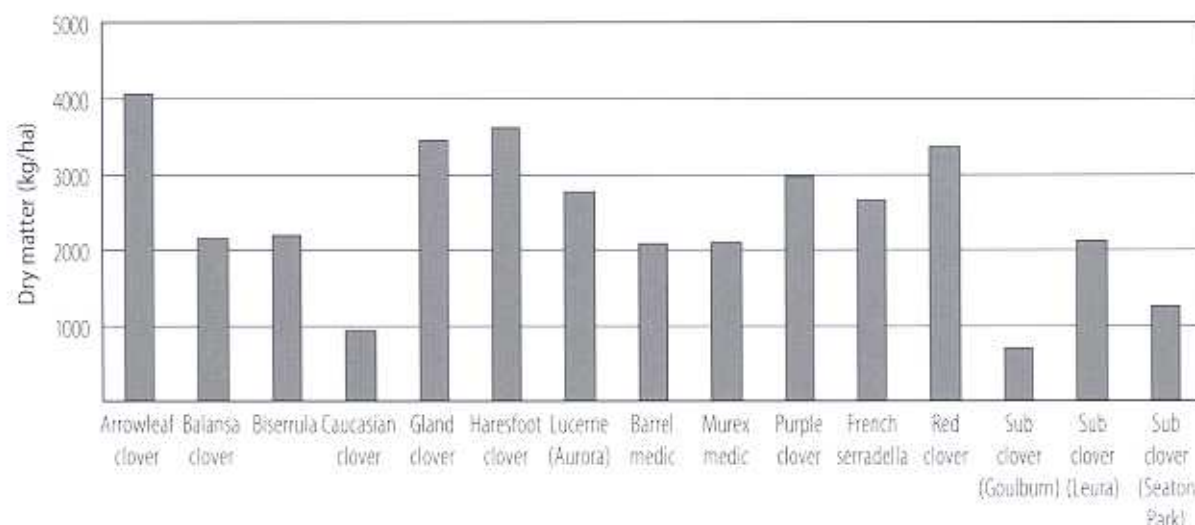


Figure 1 Dry matter production (kg/ha) of several annual and perennial legumes between March and November 2005 at Berridale, NSW.

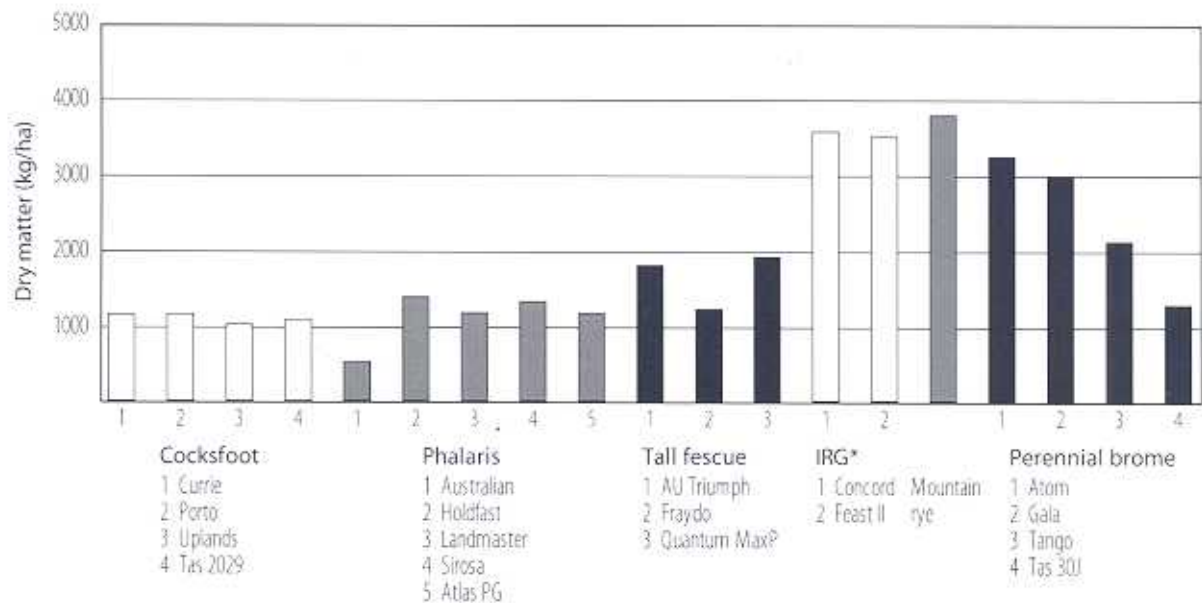


Figure 2 Dry matter production (kg/ha) of several perennial grasses between March and November 2005 at Berridale, NSW.

experiment (Figure 2). These grasses appear to have potential in the region as fodder conservation and fodder crops and may combine well in mixes with some of the above-mentioned legumes. A range of cocksfoot, phalaris and tall fescue lines have established at adequate densities and have produced moderate amounts of herbage in the first year of the experiment (Figure 2). It remains to be seen whether summer dormancy or summer activity is the most beneficial mechanism to ensure long-term production and persistence of perennial grasses in this environment.

Conclusion

Early results from this experiment indicate there are a range of legume and perennial grasses that may be suited to the Monaro region. First year results have identified some species which may be successfully grown as one year forage or fodder conservation crops. Using these species in this manner may be of value prior to establishing a longer term permanent pasture as a means of cleaning paddocks while providing high quality feed that can be used to fill feed gaps. Further evaluation is required to determine whether these initially high performing species will be persistent in the longer term.

Acknowledgements

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