



A SURVEY OF NATIVE GRASSES IN THE GOULBURN DISTRICT AND FACTORS INFLUENCING THEIR ABUNDANCE

D.J. Munnich, P.C. Simpson & H.I. Ridings, NSW Agriculture & Fisheries

Introduction

Work identifying important native grass species and their characteristics has largely been confined to the Northern Tablelands of New South Wales (Lodge and Whalley 1998). Little comparable work has been carried out on the Southern Tablelands. In this latter region, where topsoils are characterised by pH (CaCl_2) levels of 4.5 and below (Helyar et al. 1990), certain native evergreen species (*Danthonia* spp. and *Microlaena stipoides*) may play an increasingly important role in persisting on acid soils. The presence of these perennial species on non-arable areas (where the use of lime is difficult) may help to reduce the rate of soil acidification by slowing down the leaching of nitrate-N over summer.

Survey aims and method

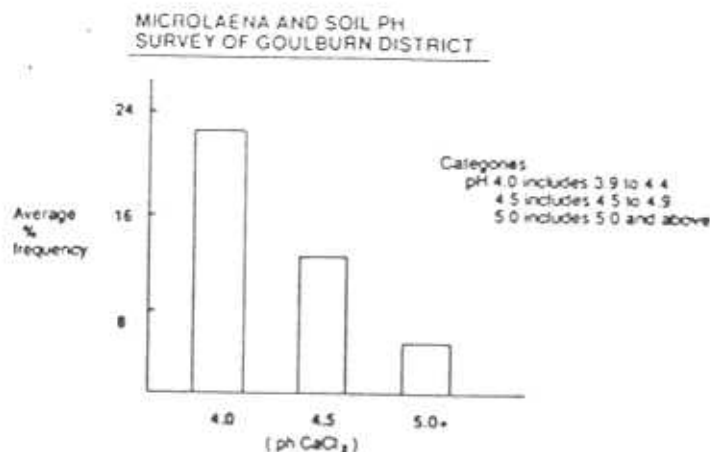
Thirty four farms in the Goulburn district were surveyed over winter and summer in 1989. Aims were to assess factors affecting the abundance and distribution of useful native grasses (*Danthonia* spp. and *Microlaena stipoides*) in farmers' paddocks. On each farm, an improved and natural (native grasses with a subterranean clover/superphosphate input) paddock were surveyed in order to gain more information on how best to manage or encourage the presence of these species. Information collected included: superphosphate, cultivation and stocking history and soil details (pH, P, Mn and Al status).

Results/discussion

Both *Danthonia* spp. (8 species of which were recorded) and *Microlaena stipoides* were widespread across the Goulburn district. Their abundance appeared to be more influenced by management factors - such as the type of cultivation employed in a paddock and competition from either sown (eg *Phalaris*) or volunteer (*Vulpia* spp.) species - rather than environmental factors.

pH also appeared to influence species abundance. Results showed *Microlaena* in particular to be quite tolerant to soil acidity, with percentage frequencies increasing with declining pH (down to pH 4 - see figure 1). This finding gives greater impetus to the retention of these native species on known acid soils areas, and highlights the need for further research on native grass species.

Figure 1.



NOTE: Data based on 57 paddocks surveyed in winter 1989. The actual pH range was 3.9 - 5.8 and predicted values of % *Microlaena* (derived from the statistical analysis, $r^2 = 48.7$) were fitted at three pH levels.

Further reading: Lodge, G.M. & Whalley, R.D.B. (1989). Native and natural pastures on the Northern Slopes and Tablelands of New South Wales: a review and annotated bibliography. Technical Bulletin 35, NSW Agriculture & Fisheries.

Helyar, K.R., Cregan, P.D. & Godyn, D.L. (1990). Soil acidity in New South Wales - current pH values and estimation of acidification rate. *Aust. J. Soil Res.* 28(3), in press.