

The Potential for Native Grasses on the Central and Southern Tablelands

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Grazing has been practised on the Tablelands of New South Wales since the 19th Century, with the main industries being wool and beef and, on the more favoured areas, prime lambs. The Tablelands were some of the first areas in Australia to undertake pasture improvement on a large scale. Traditional sown pastures on the Central and Southern Tablelands involve the introduction of a legume (mainly subterranean clover) to the existing pasture, or complete replacement of the existing pasture with a mix of subterranean clover and introduced grasses [eg. perennial ryegrass (*Lolium perenne*), phalaris (*Phalaris aquatica*), cocksfoot (*Dactylis glomerata*), fescue (*Festuca arundinacea*)]. Superphosphate is applied at sowing, and frequently as a regular dressing.

However, many pastures based on introduced grasses have not performed as expected and, in recent years, there has been an increasing interest in the role of perennial native grasses in pastures on the Tablelands of NSW (eg. Lodge and Whalley, 1989; Dowling *et al.*, 1990; Munnich *et al.*, 1991). Data from a recent survey suggests that there may be many situations where the sowing of improved pastures may be of little long-term economic benefit and, consequently, encouragement of the more desirable native grasses may be a more appropriate means of increasing productivity and sustainability.

Methods

This study sampled 125 properties located in the Central, Southern and Monaro Tablelands of NSW, an area comprising 3.5 m ha. All areas were generally above 600m, although some areas less than 600m within the Tablelands (eg. the upper Lachlan valley) were included. Each selected landholder was interviewed personally and much of each property was inspected. A relatively undisturbed paddock on each property was sampled for botanical composition and a soil sample taken for determination of soil fertility. Information was obtained from the landholder on pad-

dock history, especially fertiliser use, grazing and pasture improvement.

Results and Discussion

Satisfaction with pastures on disturbed areas

A high proportion of landholders (80%) were satisfied with the sown pastures on their properties, and most claimed significantly higher productivity from them (average 7.9 DSE/ha vs 4.3 DSE/ha on natural pastures). However, it was frequently noted that such pastures had a low content of introduced species in them and were often dominated by native grasses such as *Microlaena* and *Danthonia*. Thus, the extra productivity from sown pastures, in many cases, may have been associated with the presence of these native species in the pastures.

Soil Fertility

Results from sampled paddocks show that a large proportion of soils are acid with pH<4.5, a level regarded as the minimum for satisfactory growth of phalaris. On the Southern Tablelands for example, 73% of sampled paddocks had a pH below 4.5. In the past, where attempts had been made to sow introduced species into the same or similar paddocks, failure was common.

Botanical composition

A large proportion of sampled paddocks contained perennial native grasses, and the more desirable grasses were widely distributed (*Danthonia* at 98% of sites, *Microlaena* at 70% of sites). The results in Table 1 suggest that both *Microlaena* and *Danthonia* are able to grow successfully on soils which are too acid for many introduced perennial grasses. For example, on the Southern Tablelands, the average content of *Microlaena* in pastures on sites with pH<4.5 was 30%. In pastures on sites with pH<4.0 it was 42%.

Pastures dominated by *Microlaena* and *Danthonia* have high nutritive value (Archer and Robinson, 1988; Simpson, 1992) and can have carrying capacities of 7.5 DSE/ha or more (Munnich *et al.*, 1991; Garden, Dowl-

Table 1: Occurrence of *Microlaena* and *Danthonia* and content (%) in pastures on soils with pH<4.5

	Tablelands location:					
	Central		Southern		Monaro	
	O ¹	A ²	O	A	O	A
<i>Microlaena</i>	91	44	84	30	86	26
<i>Danthonia</i>	91	20	91	35	100	25

Notes: 1 O = Occurrence defined as the percent of paddocks where species occur; 2 A = Amount defined as the average content in pastures (%)

ing and Eddy, unpublished). However, while these species are often present in many pastures, it is only at high levels that such productivity can occur. Thus, there is a need to investigate further the role of these species in pastures in the temperate high rainfall zone, especially ways of increasing their content, and ensuring sufficient seed is produced to allow them to be widely sown.

References

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