Emergence of African lovegrass (*Eragrostis curvula*) and several native grasses on the northern tablelands of New South Wales

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African lovegrass (*Eragrostis curvula*) is a weed (Leigh and Davidson 1968) which is spreading along roadsides and invading both native and sown pastures on the Northern Tablelands of New South Wales. The aim of this project was to compare the germination of African lovegrass with the closely related Consol lovegrass and several native grasses which are increasingly being promoted for use in pastures and grasslands on the Northern Tablelands, *i.e.* wallaby grass (*Danthonia richardsonii*), Microlaena (*Microlaena stipoides*) and kangaroo grass (*Themeda triandra*).

Methods

Seed of African lovegrass and *Microlaena* was harvested from wild populations and that of the other species from commercial or experimental plantings from 1992 to 1994. Germination tests at 20/30oC established the percentage of non-dormant viable seeds for use in the field experiment. A randomised and replicated experiment on the University campus examined the effect of time of sowing between mid-winter and early summer 1994 and moisture availability on the germination of each of the five grasses. In each plot, 60 seeds of each species were sown into bare ground along 30-cm rows at a depth of 2-5 mm. Plots were either watered every second day or left exposed to natural rainfall events. Emergence was recorded 1 month after sowing.

A separate glasshouse experiment examined the effect of 75% shade (using sarlon shade cloth) on the germination and growth of these same species sown on the soil surface. There were five replicates of each of the shaded and non-shaded pots and 20 seeds were sown per pot.

Results and Discussion

All species emerged better in the regularly watered plots than in the unwatered plots, however, the effect was least marked with African lovegrass (Figure 1), indicating that it may be better adapted for germination to low intensity rainfall events than the other species. No species emerged well in either the watered or unwatered plots from July to September. Wallaby grass had a minor emergence advantage in mid-spring (October) but it was surpassed by the lovegrasses in November when all grasses recorded their highest levels of emergence. The two lovegrasses also emerged readily at high temperatures in December when other species did not.

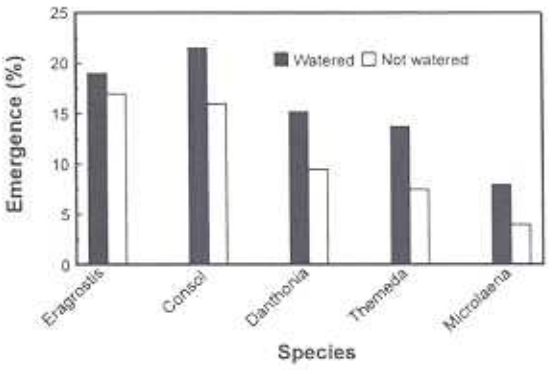

Figure 1. Effect of regular watering (versus natural rainfall events) on the emergence of five grasses (as a percentage of viable non-dormant seeds) from July to December 1994 on the northern tablelands of NSW.

Shade had no effect on emergence of the two lovegrasses or *Microlaena*, but it increased emergence of wallaby grass and decreased that of kangaroo grass. Low seedling weights were recorded for the two lovegrasses under shade. The growth of seedlings of *Microlaena*, a noted coloniser of shaded areas, was not affected by reduced light levels.

Conclusions

The weedy African lovegrass and the more palatable selected variety, Consol lovegrass, had superior emergence strategies to the three native grasses tested from winter to spring on the Northern Tablelands. A competitive perennial pasture which offers heavy shade in spring and autumn is one of the best ways of preventing the lovegrasses from invading these areas.

References

Leigh, J.H. and Davidson, R.L. (1968). *Eragrostis curvula* (Schrad.) Nees and some other African lovegrasses. *Australian Plant Introduction Review*, **5**: 21-44.