Control of spiny burrgrass by consol lovegrass

W.H. Johnston

Soil Conservation Service of N.S.W.. P.O. Box 5146 Wagga Wagga N.S.W. 2650

In south-western N.S.W., control of the noxious sumo -growing weed spiny burrgrass (SBG) (Cenchrus spp.) incurs a high risk of soil erosion once soils are denuded of vegetation by repeated cultivation, herbicide application or heavy continuous grazing. Consol lovegrass (Eragrostis curvula) has been shown to easily establish and to persist on the light acid soils preferred by SBG (Johnston, unpublished). Experiments were commenced in spring 1980 to determine if Consol would replace SBG by competition and at the same time reduce the risk of soil erosion.

Methods.

Trial sites were located about 30 km due north (Coonong) and due south (Oaklands) of Urana N.S.W. (Median annual rainfall 430 mm) on infertile sand ridges heavily infested with SBG. Experiments included CUF101 lucerne, and the lovegrasses Accession 4660 and Consol, in main plots in a tri-replicated split plot configuration of three fertilizer regimes: 30 kgN + 10 kgP/ha; 10 kgP/ha; and nil fertilizer. Each trial was sown by hand in October 1981 and October 1982 as lucerne failed to establish in 1981. Sown species and SBG were counted using thrown quadrats in January 1986. Results were analysed using square root transformed values.

Results and Discussion.

Mean density of sown species and SBG at Coonong is shown in Table 1. Differences in plant density between lucerne and the two lovegrasses was highly significant ($P<0.01$) at all fertilizer levels. Differences in SBG count between lucerne and lovegrass plots was highly significant at the nil fertilizer level, and between lucerne and Consol at the N + P level. The competitiveness of lucerne was improved by P alone and differences between it and lovegrass were not significant ($P>0.05$). Results were similar at Oaklands.

Table 1. Mean density (plants/sq.m) of sown species and SBG at Coonong in January 1986.

	Sown Species Count			SBG Plant Count		
Fertilizer	Lucerne	4660	Consol	Lucerne	4660	Consol
N + P	6.1	15.3	12.25	1.6	1.3	0.0
P only	10.1	20.2	17.4	0.2	0.0	0.0
Nil	3.0	23.0	32.4	4.3	0.5	0.0
MEAN	6.4	19.5	20.8	2.0	0.6	0.0

Consol and Accession 4660 lovegrasses achieved virtual control of SGB in the four years of the trial. Both lovegrasses also spread from their plots which is an important advantage compared to lucerne which required a prepared seedbed, and which is unable to recruit seedlings to make up for mature plant losses after establishment. Lucerne was more difficult to establish than the lovegrasses which did not require, nor did they respond to, applications of N or P. This is a considerable cost saving, as the country favoured by SBG is very infertile. The use of persistent summer growing grasses to combat SBG instead of currently recommended practices involving cultivation and sward destruction would considerably reduce the risk of soil erosion of the wind prone soils of south-western N.S.W.