SWARD DYNAMICS:

Perennial grass species vary in resistance to invasion of hairy panic (*Panicum effusum*)

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Hairy panic is a warm season annual grass species able to establish rapidly in pastures when rainfall occurs over summer. Sheep grazing this species may suffer from a syndrome known as -yellow big head- which can be fatal. In this paper we present data that shows the ability of four perennial grasses (phalaris, cocksfoot, tall fescue and *Danthonia*) under various management regimes to resist the invasion of hairy panic.

Methods

The experiment consists of four perennial grass species grazed to between 200-500 kg/ha every 2, 5 or 8 weeks under natural rainfall conditions over spring-autumn 1994/5. The design was a factorial with grazing interval as main plots and species as sub plots, with four replicates. Species were grazed in common within grazing treatments by crossbred wethers. Before and after each grazing dry matter was estimated on each plot using the falling plate meter which was calibrated for each species at least four times during the experimental period. Estimates of hairy panic density were made on 3/2/95 (10 days after a major rainfall event) and on 22/3/95 when the treatments concluded. Density was estimated by counting plants in three randomly placed quadrats (0.1 m^2) per plot.

Results and Discussion

Density of hairy panic was highest in the phalaris and tall fescue plots when initially counted in February (Table 1). Although the density did fall with time there were still significant differences due to the presence of perennial grass species 7 weeks later. There was no relationship between dry matter production of the perennial grass species and hairy panic density - phalaris produced more dry matter than tall fescue but contained a higher infestation of hairy panic. The more frequently grazed treatments contained higher numbers of hairy panic seedlings.

Table 1. Effect of perennial grass species and grazing regimes on hairy panic density and dry matter accumulation by the perennial grasses.

Species/Grazing interval	Density (3.2.95) (#/m^2)	Density (22.3.95) (#/m^2)	Growth[1] (kg/ha)
Danthonia (cv. Tarrana)	27c	20c	411ab
Cocksfoot (cv. Porto)	39c	20c	573a
Phalaris (cv. Sirosa)	134a	78a	540a
2 weeks	88b	60b	194b
5 weeks	69ab	36b	396b
8 weeks	56a	30a	919a

[1] Perennial pasture growth in the period 15.1.94 to 15.3.95. Means followed by the same letter are not significantly different at P<0.05.

In the previous (establishment) year the *Danthonia* plots were the most infested and the cocksfoot the least (visual impression only). Hence, the clear difference in the species ability to resist infestation could not be related to conditions in the previous season. It was evident that throughout the period, cocksfoot and *Danthonia* retained transpiring (green leaf) area for longer. This in turn may have prevented establishment of hairy panic amongst these species.