

Competitiveness of annual forage clovers with capeweed

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In recent years, the use of Persian clover (*Trifolium resupinatum*) cv. Maral as hay has increased in South-Eastern Australia (1). With autumn sowings, its growth is often restricted by broadleaf weeds such as capeweed (*Arctotheca calendula*), which grow vigorously in winter and spring necessitating use of a herbicide (2). Field research was undertaken to examine the comparative competitiveness of five annual forage clovers with broadleaf weeds, principally capeweed.

Methods

Seeds of Persian clover cv. Maral and Kyambro, berseem clover (*T. alexandrinum*) cv. Bigbee and Multicut, and balansa clover (*T. balansae*) cv. Paradana were sown at a capeweed infested site at Hamilton (about 700 mm annual rainfall) on May 12, 1988. All cultivars were rhizobium-inoculated and lime-coated before sowing at 600 pure, live seeds/m² with 200 kg/ha of a superphosphate-lime mix (1:1) containing molybdenum (0.025%). 200 kg/ha of a superphosphate-muriate of potash mix (1:1) was broadcast after the first harvest. No herbicide was used.

Seedling density was counted in six 8 dm² quadrats per plot. Botanical composition was determined by hand-sorting grab samples taken before each harvest (Sep. 22, Nov. 11 and Dec. 19).

Results and discussion

Clover plant densities decreased by the time of the first cut for all cultivars. Capeweed was the main weed present (c. 70% of the non-clover fraction on a dry matter basis).

Table 1. Seedling density (plants/m²), dry matter yield (t/ha) of herbage (clover + weeds) and clover, and clover content (% DM)

Cultivars	Seedling density	Seedling density	Winter		Spring		Total clover yield
	Aug. 2	Sep. 21	Herbage yield	Clover (%)	Herbage yield	Clover (%)	
Maral	320	214	1.75	45	3.85	40	2.32
Kyambro	308	246	1.07	32	3.09	21	1.00
Bigbee	309	230	1.78	59	2.79	24	1.72
Multicut	363	224	1.85	58	3.33	64	3.20
Paradana	370	251	1.64	56	2.21	18	1.34
LSD (P 0.05)	62.4	49.2	0.348	15.5	0.568	17.0	0.803

Bigbee, Multicut and Paradana competed effectively with capeweed in winter, while in spring Maral and Multicut were the most competitive clovers with capeweed. Multicut may have potential for use on farms when grown either as a monoculture or in mixtures with Maral.

1. Flinn, P.C., Reed, K.F.M., Saul, G.R., Ward, G.N. and Graham, J.G. (1985). Proc. XV Int. Grassld. Congr., Kyoto, Japan. p. 961-962.

2. Kenny, P.T., Hill, R.D. and Reed, K.F.M. (1987). Proc. 4th Aust. Agron. Conf., Melbourne. p. 186.