The effect of lime on establishment, nodulation and herbage yield of Persian clover in South West Victoria

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The cultivation and high feeding value of Persian clover (Trifolium resupinatum L.) cv Maral have been described (1). Recent work has also improved nodulation and nitrogen fixation (2,3). Although Maral can grow in a wide range of environments there is little published information on the effect of soil pH. Two hardseeded lines of T. resupinatum and Maral were grown at two sites to determine the influence of soil pH.

## **Methods**

Experimental details have been given (4). Mooralla (50 km N of Hamilton) and Hamilton receive mean rainfalls of 650 and 700 mm p.a. respectively. Lime was incorporated into the seedbed by hand raking in the autumn of 1984 and pH was determined 4 months before sowing (May 1985). Nodulation was assessed on 15 plants/plot by counting and scoring in late July (5).

## Results and discussion

Table 1. Effect of lime on establishment, modulation and herbage yield of Persian clover; mean for three seed lines (4).

Site	Lime rate t/ha	Soil pH (1:5, H <sub>2</sub> 0)	Establishment plants/m <sup>2</sup>	Nodulation		Herbage
				Nodule no. no./plant	Nodule score (0-5)	yield <sup>†</sup> t/ha
1	5.82	1060 ab	14.53 a	3.42 ab	7.92 ab	
2	6.02	1066 ab	15.51 a	3.64 a	7.92 ab	
5	6.47	1145 a	15.61 a	3.59 a	8.13 ab	
10	6.93	1141 a	15.60 a	3.50 ab	9.12 a	
Hamilton	0	5.07	1601 a	9.09 a	2.50 b	5.56 b
	2	5.68	1684 a	11.13 a	2.96 a	6.58 a

† Total for three harvests

Letters refer to Duncan's multiple range test (P<0.05)

Lime had a marked effect on soil pH at both sites. Seedling establishment was not affected by lime at Hamilton but improved at 5 and 10 t/ha lime rates at Mooralla. Although nodule numbers were similar at all lime rates, nodule scores were greater than unlimed treatments at 2 and 5 t/ha lime rates at Mooralla and at 2 t/ha at Hamilton. Herbage yield increased with lime rate at Mooralla (19% increase at the highest lime rate) and also at Hamilton (18% increase). Persian clover appears to be well adapted in the pH range 5.0-7.0 in south west Victoria. Liming to improve growth of Persian clover would not be worthwhile, despite small responses to lime application.

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