

Tolerance of Persian clover seedlings to broadleaf herbicide

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Persian clover (*T.resupinatum*, ssP.majus) is an annual forage crop grown with irrigation or high rainfall (>600 mm) (1). Capeweed (*Arctotheca calendula*) is frequently a problem weed; no herbicides are yet registered for use on Persian clover in Victoria.

Methods

Persian clover, cv. Maral, was sown at the P.R.I., Hamilton (rainfall 700mm) and at Creswick (rainfall 300 mm) at 9kg/ha with 200 kg/ha of lime-super-phosphate with molybdenum (0.925%) fertilizer in May, 1986. When the Persian clover was at the 3 leaf stage (Hamilton) and the 1 to 3 leaf stage (Creswick) a range of broadleaf herbicides were applied at 2 rates (the usual recommended rate, and double that rate). The Creswick experiment was unreplicated.

The clover was rated for damage, at 12 weeks and 5 weeks after sowing at Hamilton and Creswick respectively. We used a modified version of the scale developed by the European Weed Research Council (Table 1).

Results and Discussions

Table 1 Effect of herbicide on damage to, and yield, of Persian clover.

Herbicide	Rate (l/ha)		Clover damage (0=no effect, 9=total kill)						Persian clover t DM/ha, 6.10.86		
			Hamilton			Creswick			Hamilton		
	Low	High	Low	High	Mean	Low	High	Mean	Low	High	Mean
MCPA Na Salt	2.0	4.0	1.0	2.5	1.8	6.0	6.5	6.3	1.12	0.94	1.03
MCPA amine	1.0	2.0	0.0	0.5	0.3	6.5	7.5	7.0	1.06	1.15	1.11
MCPB Na Salt	4.2	8.4	2.5	7.0	4.8	6.0	6.5	6.3	0.91	0.89	0.90
MCPB amine	4.0	8.0	4.0	7.0	5.5	5.0	7.0	6.0	0.83	0.89	0.86
24DB Na+ K Salt	4.0	8.0	3.5	6.0	4.8	4.0	5.0	4.5	1.14	0.97	1.06
24DB amine	3.2	6.4	4.5	7.0	5.8	5.0	6.5	5.8	0.92	0.87	0.89
24DB ester	2.5	5.0	4.0	6.0	5.0	4.0	5.5	4.8	1.13	0.95	1.04
24D amine	1.0	2.0	3.5	4.0	3.8	6.5	7.5	7.0	1.07	0.67	0.87
Bromoxynil	2.1	4.2	8.0	9.0	8.5	9.0	9.0	9.0	0.42	0.18	0.30
Control	-	-	0.0	0.0	0.0	0.0	0.0	0.0	1.06	1.02	1.04
Mean			3.1	4.9	4.0	5.8	6.8	6.3	0.96	0.85	0.91
LSD(P=0.05)											
Herbicide main effects			1.15 sig. @ 1%						0.233 sig. @ 1%		
Rate main effects			0.51 sig. @ 1%						0.104 sig. @ 1%		
Interactions											
Difference between means			1.62 sig. @ 5%						0.330 sig. @ 1%		

Persian clover tolerated MCPA Na Salt and MCPA amine sufficiently well to anticipate their registration for use pending further trial. 24DB amine was marginally more damaging to Persian clover than 24DB Na + K Salt or 24DB ester at both rates of herbicide application. At the higher rates MCPB formulations were damaging to Persian clover. Bromoxynil severely reduced clover yield at Hamilton, where formulations of 24DB were also more damaging at 12 weeks than were those of MCPA. It is suggested that clover was old enough at spraying (11 weeks) to change 24DB to 24D, despite being only at the 3 leaf stage.

1. Flinn, P.C., Reed, K.F.M., Saul, G.R., Ward, G.N. and Graham, J.G. 1985. Proc. 15th Int. Grassld. Congr., Kyoto, 961-2.