

Preliminary observations of pasture legume herbicide tolerance

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This trial reports on the impact of specific herbicides on the growth and seed yield of a range of pasture legumes. Two of the herbicides are traditionally considered non-selective (viz. glyphosate and paraquat), while others are previously untested in terms of pasture legume seed production.

Methods

The following is a subset of a larger trial sited at Turretfield Research Centre. Six pasture legume cultivars were sown at recommended rates in plots, 30x3 m, on 25 June 1992. Herbicide treatments were applied across these plots using a 2 m boom. Post-sow pre-emergence (PSPE) treatments were applied on 27 June, and post-emergence (PE) treatments were applied during the period 25-28 August. All spray treatments plus a control were replicated twice. Visual estimates of percent biomass reduction to all cultivars were made on 26 October. Seed production was measured on 20 Jan. 1993, using a vacuum harvester.

Results and discussion

Table 1. Tolerance of pasture legumes to herbicides

Herbicides	Seed yield kg/ha											
	Caliph		Paraggio		Santiago		Paradana		Dalkeith		Daliak	
Control	2100	(0) ^a	2448	(0)	2469	(0)	1536	(0)	1238	(0)	1399	(0)
Glyphosate 360 g/Ha (PE)	1263	(85)	3014	(10)	2341	(15)	322	(95)	735	(85)	1089	(85)
Paraquat 200 g/Ha (PE)	1964	(15)	2786	(15)	2981	(25)	1487	(10)	1563	(15)	1318	(15)
Simazine 1 kg/Ha (PSPE)	1246	(80)	2368	(10)	2433	(5)	472	(95)	1004	(15)	1564	(30)
24DB amine 1.25 kg/Ha (PE)	1128	(5)	2196	(5)	2645	(20)	1040	(5)	606	(25)	1425	(15)
Flumetsulam 25g/Ha+oil (PE)	2342	(5)	2440	(5)	3327	(5)	1978	(5)	828	(5)	1231	(5)
Pyridate 900g/Ha (PE)	2148	(5)	2177	(5)	2237	(5)	1155	(5)	699	(5)	1172	(5)

^a(percent reduction of plant biomass)

The most notable result from this trial was the unexpected tolerance to the glyphosate treatment exhibited by the two medic cultivars, Paraggio and Santiago. This was demonstrated visually, with low estimates of biomass reduction, and supported by the seed yield data.

All pasture species displayed tolerance to the new herbicide flumetsulam and also the pyridate treatment. Seed production ranged from good to excellent in the paraquat treatment even though all cultivars exhibited some herbicide damage.

Results must be interpreted with caution because of unprecedented spring/summer rainfall and the limiting nature of only having two replicates. A similar trial will be repeated in 1993.