

## CONCLUSIONS

Clearance and registration have strong economic and planning implications for companies developing new herbicides.

Legislation concerned with registration in Australia tends to be complex and inflexible. Delays may be minimized if it is administered in a flexible, positive, constructive manner which recognizes that registration is a key link in making available to primary producers useful management tools - herbicides.

The Australian Weeds Conference provides a forum for a frank, objective discussion, which may serve as a base for further action.

### PRE-EMERGENCE WEED CONTROL IN CEREALS WITH VCS 438

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VCS 438 is a novel chemical discovered by the Velsicol Corporation of the USA. In initial screening work at 'Merrindale' Research Station, it showed promise as a selective herbicide for weed control in wheat, when applied after sowing and before crop emergence. As a consequence, field testing of this new material was undertaken in 1968 and 1969, and an outline of some of the results achieved and their possible implications is given in this paper.

Glasshouse tests had indicated that Wimmera ryegrass was particularly susceptible to VCS 438 and, in the single detailed field trial of 1968, this was the dominant weed. On a light Mallee sand rates of 1 and 2 lb a.i. per acre (1.12 and 2.24 kg per hectare) were applied after sowing and before emergence to a site where ryegrass was expected to be a problem.

Insignia wheat had been sown 3 days prior to spraying, which was carried out with an Oxford Precision unit delivering 10 gal. per acre (113.6 litre per hectare).

Counts of ryegrass were made 2 months after spraying, with five random foot-square quadrats (929 sq cm) in each of the

four replicates of the trial. Harvesting was done with a small plot stripper. Weed counts and yields are summarized in Table 1.

TABLE 1

Yields and Weed Counts

Treatments	Yield Bus. per acre (kg/ha)	Weed Count Mean of 20 quadrats
Unsprayed Control	22.4 (1505)	32.4 (5.54)*
1 lb a.i. VCS 438/ac (1.12 kg/ha)	32.4 (2177)	4.3 (1.73)
2 lb a.i. VCS 438/ac (2.24 kg/ha)	32.8 (2204)	2.9 (1.48)
LSD 0.1%	9.21 (618)	1.21

\* Square root transformation. LSD is given for transformed data.

During 1969 more extensive trials were run and these included sites where the weed problem was more complex. From these trials it became clear that VCS 438 had a wide weed spectrum. At 1 lb a.i. per acre (1.12 kg per hectare) such weeds as toad rush *Juncus bufonius*, purple loosestrife (*Lythrum salicaria*), amsinckia (*A. eycopsoides*), wireweed (*Polygonum aviculare*), deadnettle (*Lamium amplexicaule*) and various cruciferous weeds were controlled. Yield results in a weed-free situation showed that up to 2lb a.i. per acre (2.24 kg per hectare) was safe to the crop. Yield responses where weed infestations were heavy were similar to those for 1968, and are shown in Table 2.

TABLE 2

Yield of Grain

Trial Site	Bushels per acre (kilogrammes per hectare)				LSD 5%
	Control	½ lb/ac (0.56 kg/ha)	1 lb/ac (1.12 kg/ha)	2 lb/ac (2.24 kg/ha)	
Mallee Sand	15.5 (1043)	21.1 (1420)	22.9 (1541)	23.5 (1581)	5.3 (356)
Mallee Sand	22.2 (1494)	29.1 (1958)	32.9 (2214)	33.8 (2238)	8.0 (538)
Mallee Sand	10.7 ( 720)	-	20.2 (1359)	18.9 (1272)	1.7 (114)
Red-brown Earth	11.1 ( 747)	-	19.1 (1285)	19.1 (1285)	Large- scale Devel- opment site

The results from the 0.5 lb (0.56 kg) rate (as deduced from weed control observations during the season at two of these sites) were remarkably better than would have been anticipated. The fact that, at harvest, considerable weed infestation was present in plots receiving 0.5 lb per acre (0.56 kg per hectare) of VCS 438, yet these plots still gave appreciable yield response, suggests that early suppression, rather than total elimination of weeds for the whole crop growth period, may well be a sufficient control measure for crop production. Cost/efficiency data are likely to become the criteria for herbicide usage rather than the generally current attitude of total crop cleanliness.

Whether on the basis of input-output data or of crop cleanliness (which can be achieved with rates of 1-1.5 lb a.i. per acre (1.12-1.68 kg per hectare), VCS 438 is a highly promising broad-spectrum herbicide for wheat.