

9000/37 POST-EMERGENT HERBICIDE TRIAL

TERMINAL REPORT

Cat.: 1442  
Object: To determine the efficacy and phytotoxicity of a range of post-emergent herbicides using a logarithmic sprayer.

Location Hippo Valley Estates, Section 20, Field 16A.

Soil type: Sandy loam, 14% clay.

Design: Randomised blocks with 3 replications. Single row plots 23m long x 1m swath width, each 3rd row unsprayed for comparison purposes.

Variety/spacing: NCo 376 in 1,5m rows.

Planting date: 16th September 1982

Treatment date: 20-22 October 1982 (5 weeks old)

Stage of growth of crop at spraying: 3 unfurled leaves.

Stage of growth of weeds at spraying: Pre-flowering

Irrigation/rainfall: The trial site was irrigated 2 weeks after application of treatments. Approximately 10mm of rain fell within 6 hours of application of treatment 1, treatment 2, reps 2 and 3 and treatments 3 to 15, rep 2. Rainfall of 30mm was recorded on 12th November 1982. No other significant falls occurred.

<u>Treatments:</u>	<u>Herbicide (trade name and formulation)</u>	<u>Standard Rate</u> (kg or l/ha)
1.	Actril DS 70% e.c.	1,0 l
2.	Asulox 40% a.s.	8,0 l
3.	Banvel 57% e.c.	0,5 l
4.	Basagran 48% e.c.	3,0 l
5.	Bimate 75% w.p.	4,0 kg
6.	Bladex 50% s.c.	2,25 l
7.	Daconate 6 72% e.c.	3,0 l
8.	Diuron 80% w.p.	2,0 kg
9.	Dopax 50% e.c.	6,0 l
10.	Gardopax 80% w.p.	3,0 kg
11.	Gesapax 50% s.c.	3,2 l
12.	Gesapax Combi 50% s.c.	3,2 l
13.	Gesapax Special 50% w.p.	5,0 kg
14.	Gesaprim 50% s.c.	3,2 l
15.	Igran 50% s.c.	2,5 l
16.	Maizex 50% s.c.	3,75 l
17.	MCPA 40% a.e.	3,0 l
18.	Sencor 70% w.p.	1,5 kg
19.	Velpar 24% e.c.	2,5 l
20.	Gramoxone 25% sol.c.	1,5 l

2/Conduct.....

CONDUCT:

The treatments were applied with a Chesterford miniature logarithmic sprayer, delivering 25.2 ml/sec at a logarithmically reducing chemical dosage rate from 4 x standard rate to 1/4 x standard rate. Herbicides were applied over the cane row.

RESULTS

Assessments of the effects of the herbicides were conducted 1 and 7 weeks after application and are presented in Tables 1 and 2 in terms of the minimum rates required to control weeds. Vigorous growth of Cucumis myriocarpus in the comparison rows and its consequent encroachment over the treatment rows precluded any further assessment.

A very limited weed spectrum was present, principally Portulaca oleracea, Cucumis myriocarpus, and Convolvulus species. Grass weeds were sparse but included Brachiaria deflexa and a Digitaria species.

Initial leaf burn was observed following application of a number of post-emergent herbicides, particularly Daconate 6, Igran, Velpar, Gramoxone and the mixtures containing Ametryn and Atrazine. By 7 weeks however, lasting effects were only noticeable with Daconate and Velpar at 1 1/2 x the standard rate and Igran at 3 x the standard rate.

All herbicides except Asulox controlled Portulaca oleracea for at least 7 weeks, with Basagran, Bimate, Dopax, Gardopax, Gesapax Combi, Gesapax Special, Maizex, and Sencor controlling it at 1/4 x standard rate. Hormone weedkillers (Banvel and MCPA) were effective but slower acting than other herbicides.

Cucumis myriocarpus was effectively controlled by most herbicides particularly at low rates by Bimate, Diuron, Sencor and Gesapax and Gesaprim or mixtures of the latter two.

Convolvulus was somewhat more difficult to control than other broadleaf weeds but most herbicides were effective although higher rates of application were generally required.

Grass weeds were controlled at near standard rates by Asulox, Igran, Ametryn and some combinations of Ametryn. They were controlled by some other herbicides at greater than standard rates.

Weed control was better with combinations of herbicides than with single herbicides and a broader spectrum was controlled at lower application rates.

Weed control was generally poorer in the rain-affected plots except with Asulox, Bimate, Diuron and Dopax, herbicides which were equally effective in both situations. Broadleaf weed control by Gardopax, Ametryn and Igran was unaffected by rain but grass control was absent with these herbicides after rain. Cucumis control by Gesaprim was poor after rain.

3/Conclusions.....

CONCLUSIONS

The results generally indicate that the standard rates allocated for each herbicide are effective, although in many instances the rate can be reduced depending on the weed spectrum, particularly if Portulaca is the major problem. Rates of application may require to be increased for grass or difficult broadleaf weeds.

R.D.E./July '83  
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Table 1

FIRST ASSESSMENT

DATE: 29th October 1982

1 week after application

TREATMENT	HERBICIDE TRADE NAME AND FORMULATION	HERBICIDE CHEMICAL NAME	STANDARD RATE kg or l/ha	PHYTO-TOXICITY DAMAGE OBSERVED AT RATE SHOWN kg or l/ha	WEEDS LISTED BELOW CONTROLLED AT RATE SHOWN			
					<u>Portulaca oleracea</u> Portulaca	<u>Cucumis Myriocarpus</u> Striped wild cucumber	<u>Convolvulus</u>	Grasses including <u>Brachiaria deflexa</u> <u>Digitaria</u>
1	ACTRIL DS 70% e.c.	IOXYNIL + 2,4-D	1,0 l	0	2,0	2,0	N.C.	N.C.
2	ASULOX 40% a.s.	ASULAM	8,0 l	0	N.C.	N.C.	N.R.	N.C.
2	BANVEL 57% e.c.	DICAMBA	0,5 l	0	N.C.	N.C.	N.C.	N.C.
4	BASAGRAN 40% e.c.	BENTAZON	3,0 l	0	1,5	N.C.	0,75	N.C.
5	BIMATE 75% w.p.	TEBUTHIURON 25% DIURON 50%	4,0 kg	4,0	2,0	4,0	4,0	N.C.
6	BLADEX 50% s.c.	CYANAZINE	2,25 l	0	N.C.	4,5	1,3	N.C.
7	DACONATE 6 72% e.c.	MSMA	3,0 l	1,5	6,0	6,0	N.C.	3,0
8	DIURON 80% w.p.	DIURON	2,0 kg	0	1,0	1,0	N.C.	N.C.
9	DOPAX 50% e.c.	AMETRYN 25% METOLOCHLOR 25%	6,0 l	6,0	1,5	1,5	1,5	6,0
10	GARDOPAX 80% w.p.	AMETRYN 26,7% TERBUTHYLAZINE 53,3%	3,0 kg	6,0	0,75	0,75	1,5	3,0
11	GESAPAX 50% s.c.	AMETRYN	3,2 l	1,6	0,8	0,8	0,8	6,4
12	GESAPAX COMBI 50% s.c.	AMETRYN 25% ATRAZINE 25%	4,8 l	4,8	2,4	4,8	1,2	14,4
13	GESAPAX SPECIAL 50% w.p.	AMETRYN 25% SECBUMETON 25%	5,0 kg	5,0	1,25	1,25	2,5	2,5
14	GESAPRIM 50% s.c.	ATRAZINE	3,2 l	6,4	3,2	1,6	3,2	N.C.
15	IGRAN 50% s.c.	TERBUTRYN	2,5 l	2,5	1,25	0,6	1,25	2,5
16	MAIZEX 50% s.c.	ATRAZINE 16,7% CYANAZINE 33,3%	3,75 l	0	1,9	1,9	3,75	N.C.
17	MCPA 40% a.e.	MCPA	3,0 l	0	6,0	N.C.	6,0	N.C.
18	SENCOR 70% w.p.	METRIBUZON	1,5 kg	3,0	0,4	0,75	0,75	4,5
19	VELPAR 24% e.c.	HEXAZINONE	2,5 l	5,0	2,5	1,25	1,25	N.C.
20	GRAMOXONE 25% sol c	PARAQUAT	1,5 l	1,5	1,5	1,5	1,5	1,5

N.C. = Weed not controlled      a.e. = acid equivalent, a.s. = aqueous solution, e.c. = emulsifiable concentrate,  
 N.R. = Weed not recorded      s.c. = suspension concentrate, sol c. = soluble concentrate, w.p. = wettable powder  
 Rates/ha quoted above refer to a 1m wide swath. (key for Tables 1 and 2)

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Table 2 SECOND ASSESSMENT DATE: 8th December 1982

7 weeks after application

TREAT- MENT	HERBICIDE TRADE NAME AND FORMULATION	HERBICIDE CHEMICAL NAME	STANDARD RATE kg or l/ha	PHYTO- TOXICITY DAMAGE OBSERVED AT RATE SHOWN kg or l/ha	WEEDS LISTED BELOW CONTROLLED AT RATE SHOWN			
					<u>Portulaca</u> <u>oleracea</u> Portulaca	<u>Cucumis</u> <u>Myriocarpus</u> Striped wild cucumber	<u>Convolvulus</u>	Grasses including <u>Brachiaria</u> <u>deflexa</u> <u>Digitaria</u>
1	ACTRIL DS 70% e.c.	IOXYNIL + 2,4-D	1,0 l	0	1,5	1,5	0,5	N.C.
2	ASULOX 40% a.s.	ASULAM	8,0 l	0	N.C.	8,0	N.C.	6,0
3	BANVEL 57% e.c.	DICAMBA	0,5 l	0	0,25	0,75	0,5	N.C.
4	BASAGRAN 48% e.c.	BENTAZON	3,0 l	0	0,75	3,0	9,0	N.C.
5	BIMATE 75% w.p.	TERBUTHIURON 25% DIURON 50%	4,0 kg	0	1,0	1,0	4,0	8,0
6	BLADEX 50% s.c.	CYANAZINE	2,25 l	0	2,25	1,7	1,1	4,5
7	DACONATE 6 72% e.c.	MSMA	3,0 l	4,5	3,0	2,0	1,5	6,0
8	DIURON 80% w.p.	DIURON	2,0 kg	0	1,5	0,5	4,0	N.C.
9	DOPAX 50% e.c.	AMETRYN 25% METOLOCHLOR 25%	6,0 l	0	1,5	1,5	1,5	6,0
10	GARDOPAX 80% w.p.	AMETRYN 26,7% TERBUTHYLAZINE 53,3%	3,0 kg	0	0,75	0,75	1,5	4,5
11	GESAPAX 50% s.c.	AMETRYN	3,2 l	0	1,6	0,8	3,2	3,2
12	GESAPAX COMBI 50% s.c.	AMETRYN 25% ATRAZINE 25%	4,8 l	0	1,2	1,2	9,6	9,6
13	GESAPAX SPECIAL 50% w.p.	AMETRYN 25% SECBUMETON 25%	5,0 kg	0	1,25	1,25	1,25	4,0
14	GESAPRIM 50% s.c.	ATRAZINE	3,2 l	0	1,2	0,8	1,6	N.C.
15	IGRAN 50% s.c.	TERBUTRYN	2,5 l	7,5	1,25	1,5	N.R.	2,0
16	MAIZEX 50% s.c.	ATRAZINE 16,7% CYANAZINE* 33,3%	3,75 l	0	0,9	0,9	1,9	11,0
17	MCPA 40% a.e.	MCPA	3,0 l	0	1,1	4,5	3,0	N.C.
18	SENCOR 70% w.p.	METRIBUZIN	1,5 kg	0	0,4	0,6	2,2	2,2
19	VELPAR 24% e.c.	HEXAZINONE	2,5 l	3,7	1,25	1,8	5,0	N.C.
20	GRAMOXONE 25% sol c	PARAQUAT	1,5 l	0	controlled where contacted	controlled where contacted	controlled where contacted	controlled where contacted