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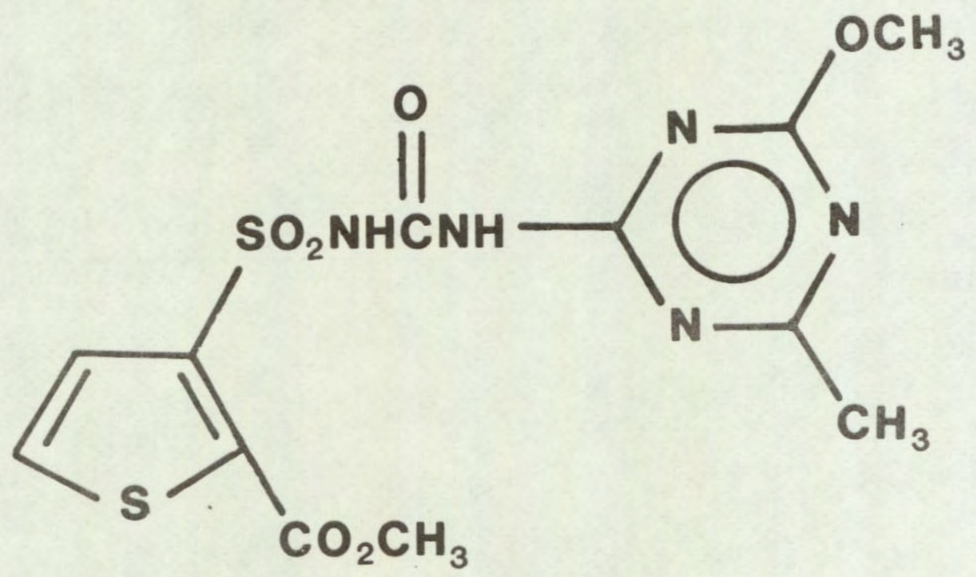
DPX-M6316

Code number DPX-M6316 Trade name/s Harmony

Common name - Thiameturon-methyl

Chemical name Methyl 3-(3-(4-methoxy-6-methyl-1,3,5-triazin-2-yl) ureidosulphonyl) thiophene-2-carboxylate

Structure



Source Du Pont (UK) Ltd
Wedgwood Way
Stevenage
Herts SG1 4QN

Information available and suggested uses

Post-emergence in cereals c.o. 0.6 kg/ha

Formulation used 75% a.i. water dispersible granules

RESULTS

Full results are given in the histograms on pages 31 - 33 and potential selectivities are summarised in the following table.

RATE (kg a.i./ha)	CROPS: vigour reduced by less than 15%	WEEDS: number or vigour reduced by more than 70%
0.2	wheat ± safener (NA) barley ± safener (NA) maize ± safener (NA) oat	Poa annua Poa trivialis Polygonum lapathifolium Lamium purpureum Galium aparine Chenopodium album Stellaria media Veronica persica Viola arvensis + species below
0.05	species above	Beta vulgaris Chrysanthemum segetum Matricaria perforata Senecio vulgaris Rumex obtusifolius
0.0125	None listed as no weeds controlled	None

Comments on results

Activity test data, symptoms on susceptible species and post-emergence selectivities were reported previously (Richardson and West, 1986). DPX-M6316 bore many similarities to other sulfonyl-ureas such as chlorsulfuron and metsulfuron-methyl.

Soil persistence

A short period of persistence was found for 0.0125 and 0.05 kg/ha which were undetectable 11 weeks after treatment, Sugar beet being very sensitive to 0.05 kg/ha initially. The highest dose of 0.2 kg/ha, was a little more persistent, but no effects were apparent on Sugar beet after 30 weeks.

Pre-emergence selectivity

All annual broad-leaved weeds tested (except solanum nigrum) were controlled, five of these at 0.05 kg/ha. Although no weeds were killed at 0.0125 kg/ha several were severely reduced in number and vigour. Composite weeds were particularly sensitive. At 0.2 kg/ha important weeds such as Galium aparine, Lamium purpureum, Veronica persica and Viola arvensis were controlled. Poa annua and Poa trivialis were the only two grass weeds controlled.

Crop tolerance was confined to the four cereals, wheat, barley, oat and maize, all withstanding the highest dose of 0.2 kg/ha. Consequently it was not possible to observe any safening effects. All other crops were damaged, notably sugar beet and onion. Dwarf bean however was reduced in vigour by only 21% at the two higher doses while field bean, pea and lettuce were affected to the same degree at 0.05 kg/ha.

Clearly DPX-M6316 has great potential for contol of most annual broad-leaved weeds in cereals. It would appear to be as selective as chlorsulfuron though perhaps less active (Richardson et al., 1981). However the very short persistence may be a very desirable feature when compared to that of chlorsulfuron (Richardson et al., 1981).

TRIAL NUMBER 536

DPX M6316

SPECIES	0.0125 kg/ha		0.0500 kg/ha		0.2000 kg/ha	
WHEAT	102	xxxxxxxxxxxxxxxxxxx	96	xxxxxxxxxxxxxxxxxxx	96	xxxxxxxxxxxxxxxxxxx
(1)	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx
WHEAT+S	102	xxxxxxxxxxxxxxxxxxx	96	xxxxxxxxxxxxxxxxxxx	96	xxxxxxxxxxxxxxxxxxx
(2)	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxxx
BARLEY	96	xxxxxxxxxxxxxxxxxx	89	xxxxxxxxxxxxxxxxxx	96	xxxxxxxxxxxxxxxxxxx
(3)	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxxx
BARLEY+S	109	xxxxxxxxxxxxxxxxxxx+	109	xxxxxxxxxxxxxxxxxxx+	109	xxxxxxxxxxxxxxxxxxx+
(4)	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx
OAT	114	xxxxxxxxxxxxxxxxxxx+	114	xxxxxxxxxxxxxxxxxxx+	107	xxxxxxxxxxxxxxxxxxx+
(5)	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxxx
PER RYGR	114	xxxxxxxxxxxxxxxxxxx+	54	xxxxxxxxxxx	24	xxxxx
(6)	79	xxxxxxxxxxxxxxxx	50	xxxxxxxxxx	29	xxxxxx
ONION	60	xxxxxxxxxxxx	0		0	
(8)	57	xxxxxxxxxxx	0		0	
DWF BEAN	106	xxxxxxxxxxxxxxxxxxx+	88	xxxxxxxxxxxxxxxxxx	106	xxxxxxxxxxxxxxxxxxx+
(9)	93	xxxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx
FLD BEAN	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	87	xxxxxxxxxxxxxxxx
(10)	86	xxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx	50	xxxxxxxxxx
PEA	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	83	xxxxxxxxxxxxxxxx
(11)	100	xxxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx	57	xxxxxxxxxxx
W CLOVER	98	xxxxxxxxxxxxxxxxxxx	98	xxxxxxxxxxxxxxxxxxx	67	xxxxxxxxxxxx
(12)	64	xxxxxxxxxxxx	36	xxxxxxx	21	xxxx
RAPE	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	87	xxxxxxxxxxxxxxxx
(14)	86	xxxxxxxxxxxxxxxx	64	xxxxxxxxxxxx	36	xxxxxxx
KALE	110	xxxxxxxxxxxxxxxxxxx+	95	xxxxxxxxxxxxxxxxxx	110	xxxxxxxxxxxxxxxxxxx+
(15)	71	xxxxxxxxxxxxxx	50	xxxxxxxxxx	36	xxxxxxx

TRIAL NUMBER 536

DPX M6316

SPECIES	0.0125 kg/ha		0.0500 kg/ha		0.2000 kg/ha	
SWEDE	98	xxxxxxxxxxxxxxxxxxx	87	xxxxxxxxxxxxxxxx	81	xxxxxxxxxxxxxxx
(17)	71	xxxxxxxxxxxxx	50	xxxxxxxxxx	29	xxxxxx
CARROT	83	xxxxxxxxxxxxxxxxx	89	xxxxxxxxxxxxxxxxx	57	xxxxxxxxxx
(18)	93	xxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxx	43	xxxxxxxxx
LETTUCE	117	xxxxxxxxxxxxxxxxxxx+	106	xxxxxxxxxxxxxxxxxxx+	50	xxxxxxxxxx
(20)	100	xxxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx	43	xxxxxxxxx
SUG BEET	82	xxxxxxxxxxxxxxx	64	xxxxxxxxxxxx	73	xxxxxxxxxxxxxx
(22)	29	xxxxxx	21	xxxx	14	xxx
BETA VUL	60	xxxxxxxxxxx	24	xxxxx	0	
(23)	57	xxxxxxxxxx	43	xxxxxxxxx	0	
BROM STE	125	xxxxxxxxxxxxxxxxxxx+	112	xxxxxxxxxxxxxxxxxxx+	106	xxxxxxxxxxxxxxxxxxx+
(24)	100	xxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx
AVE FATU	135	xxxxxxxxxxxxxxxxxxx+	155	xxxxxxxxxxxxxxxxxxx+	165	xxxxxxxxxxxxxxxxxxx+
(26)	100	xxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxx
ALO MYOS	62	xxxxxxxxxxxx	72	xxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxx
(27)	100	xxxxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxx	50	xxxxxxxxxx
POA ANN	85	xxxxxxxxxxxxxxxxx	109	xxxxxxxxxxxxxxxxxxx+	49	xxxxxxxxxx
(28)	71	xxxxxxxxxxxxxx	50	xxxxxxxxxx	29	xxxxxx
POA TRIV	67	xxxxxxxxxxxxx	73	xxxxxxxxxxxxxx	18	xxxx
(29)	57	xxxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
CHRY SEG	0		23	xxxxx	23	xxxxx
(32)	0		57	xxxxxxxxxxx	14	xxx
MAT PERF	100	xxxxxxxxxxxxxxxxxxx	62	xxxxxxxxxxxx	44	xxxxxxxxx
(33)	57	xxxxxxxxxxx	14	xxx	14	xxx
SEN VULG	43	xxxxxxxxx	0		0	
(34)	43	xxxxxxxxx	0		0	

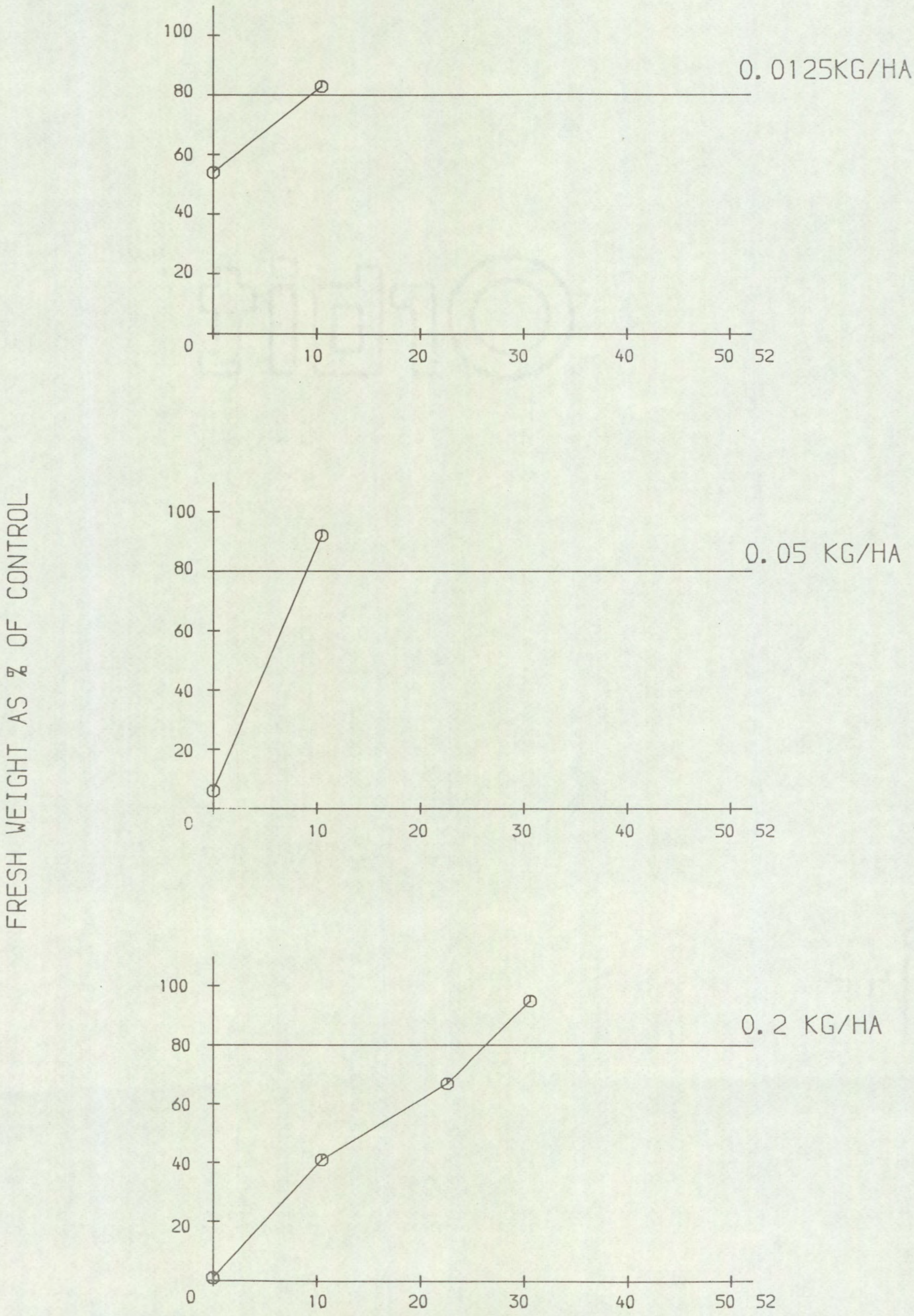
TRIAL NUMBER 536

DPX M6316

SPECIES		0.0125 kg/ha		0.0500 kg/ha		0.2000 kg/ha
POL LAPA	87	xxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx
(35)	64	xxxxxxxxxxxxx	36	xxxxxxx	14	xxx
LAM PUR	95	xxxxxxxxxxxxxxxxxxx	123	xxxxxxxxxxxxxxxxxxxx+	0	
(37)	86	xxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	0	
GAL APAR	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	78	xxxxxxxxxxxxxxxx
(38)	64	xxxxxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
CHEN ALB	91	xxxxxxxxxxxxxxxxx	145	xxxxxxxxxxxxxxxxxxx+	18	xxxx
(39)	100	xxxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	7	x
STEL MED	110	xxxxxxxxxxxxxxxxxxx+	44	xxxxxxxxx	0	
(40)	71	xxxxxxxxxxxxxx	43	xxxxxxxxx	0	
VER PERS	61	xxxxxxxxxxxx	37	xxxxxxx	12	xx
(42)	71	xxxxxxxxxxxxxx	43	xxxxxxxxx	7	x
VI ARVE	71	xxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx	24	xxxxx
(43)	71	xxxxxxxxxxxxxx	50	xxxxxxxxxx	14	xxx
GER DISS	72	xxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx
(44)	43	xxxxxxxxx	21	xxxx	14	xxx
EL REPEN	106	xxxxxxxxxxxxxxxxxxx+	106	xxxxxxxxxxxxxxxxxxx+	106	xxxxxxxxxxxxxxxxxxx+
(47)	100	xxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxx
MAIZE+S	109	xxxxxxxxxxxxxxxxxxx+	109	xxxxxxxxxxxxxxxxxxx+	82	xxxxxxxxxxxxxxxx
(56)	100	xxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx
MAIZE	109	xxxxxxxxxxxxxxxxxxx+	109	xxxxxxxxxxxxxxxxxxx+	95	xxxxxxxxxxxxxxxxxx
(57)	100	xxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxx
SOL NIG	143	xxxxxxxxxxxxxxxxxxx+	184	xxxxxxxxxxxxxxxxxxx+	130	xxxxxxxxxxxxxxxxxxx+
(81)	100	xxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx

PERSISTENCE OF DPX-M 6316

SPECIES: SUGAR BEET



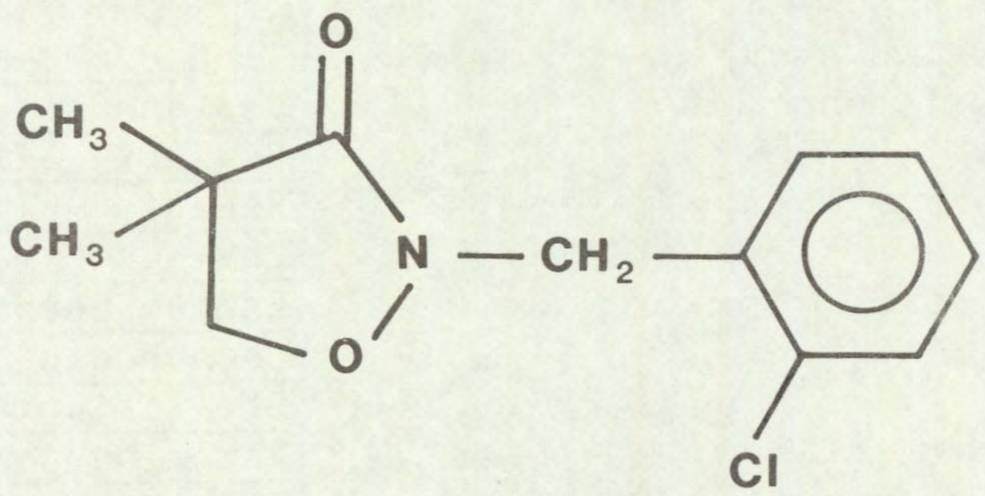
FMC 57020

Code number FMC 57020 Trade name/s - Command

Common name Clomazone (proposed)

Chemical name 2-(2-chlorophenyl)methyl-4,4-dimethyl-3-isoxazolidinone

Structure



Source

FMC Corporation Europe SA
Avenue Louise 523 Box 1
1050 Brussels
Belgium

Information available and suggested uses

Pre-emergence or pre-plant incorporated in soyabeans for control of many broad-leaved and grassy weed species. Doses 0.56 to 1.4 kg a.i./ha depending on soil type. Trials in potatoes, tobacco, cotton, beans, established alfalfa and in fallow land are also suggested.

Formulation used 50% a.i. emulsifiable concentrate

RESULTS

Full results are given in the histogram on pages 38 - 41 and potential selectivities are summarised in the following table.

RATE (kg a.i./ha)	CROPS: vigour reduced by less than 15%	WEEDS: number or vigour reduced by more than 70%
0.2	maize + safener (NA)	Beta vulgaris Matricaria perforata + species below
0.1	species above + field bean carrot	Bromus sterilis Avena fatua Chrysanthemum segetum Galium aparine Viola arvensis + species below
0.05	species above + dwarf bean	Alopecurus myosuroides Poa annua Poa trivialis Senecio vulgaris Polygonum lapathifolium Lamium purpureum Chenopodium album Stellaria media Veronica persica Rumex obtusifolius Solanum nigrum

Comments on results

Activity experiment

Activity was found with all four methods of application but was greatest with pre-emergence treatments, especially on the two annual grasses. The surface treatments were generally more effective than when the herbicide was incorporated into the soil, this difference again being most marked with the two annual grasses.

Symptoms on susceptible species

A pronounced albinism was the most distinctive characteristic of this herbicide and was observed with all four methods of application. Sometimes a pink or purple pigmentation was observed in some species. Germination was usually unaffected.

Soil persistence

A short to moderate period of persistence was found. Perennial ryegrass was unaffected by the highest dose of 0.20 kg/ha, 30 weeks after treatment.

Pre-emergence selectivity

Eleven annual weeds (three grasses and eight broad-leaved) were controlled at the lowest dose of 0.05 kg/ha. A further five weeds controlled at 0.1 kg/ha included Galium aparine and Avena fatua, while Matricaria perforata and Beta vulgaris required the highest dose of 0.2 kg/ha for control. Elymus repens was the only resistant weed.

Field bean and carrot were the most tolerant crops being reduced in vigour by only 21% at the highest dose. Dwarf bean was the only other tolerant crop withstanding 0.05 kg/ha. However the most outstanding selectivity was found with maize and the safener NA, there being no symptoms even at the highest dose, while maize itself showed obvious symptoms even at the lowet dose. No safening was observed with wheat and barley. Onion, white clover and lettuce were very sensitive.

Although the activity, weed control spectrum and the safening of maize are very impressive some caution is needed with FMC 57020 because of its apparently high volatility. Obvious symptoms of albinism were seen in both trials on several untreated control plants even though some of these emerged several days after application and precautions had been taken to avoid contamination.

ACTIVITY EXPERIMENT

FMC 57020

		0.05 kg/ha	0.3 kg/ha	1.8 kg/ha
DWARF BEAN	F	XXXXXXXXXXXXXXX XXXXXX	XXXXXXXXXXXXXXX XXXX	XXXXXXXXXXXXXXX XXX
	S	XXXXXXXXXXXXXXX XXXXXXXX	XXXXXXXXXXXXXXX XXXXX	XXXXXXXXXXXXXXX XXX
	P	XXXXXXXXXXXXXXX XXXXXXXXXXXX	XXXXXXXXXXXXX XXXXXXXX	XXXXXXXXXXXXXXX XXX
	I	XXXXXXXXXXXXXXX XXXXXXXXXXX	XXXXXXXXXXXXXXX XXXXXXXX	XXXXXXXXX XXX
KALE	F	XXXXXXXXXXXXXXX XXXXXXXXX	XXXXXXXXXXXXXXX XXXXXXXX	XXXXXXXXXXXXXXX XXXXXX
	S	XXXXXXXXXXXXXXX XXXXXXXXXX	XXXXXXXXXXXXXXX XXXXXXXX	XXXXXXXXXXXXXXX XXXXXX
	P	XXXXXXXXXXXXXXX+ XXXXXXXXX	XXXXXXXXXXX XXXXX	XXX XX
	I	XXXXXXXXXXXXXXX+ XXXXXXXXXXX	XXXXXXXXXXXXXXX+ XXXXXXXX	XXXXXXXXXX XXX
POLYGONUM AMPHIBIUM	F	XXXXXXXXXXXXXXX XXXXXXXXXX	XXXXXXXXXXXXXXX XXXXXXXX	XXXXXXXXXXXXXXX XXXXXXXX
	S	XXXXXXXXXXXXXXX XXXXXXXXXX	XXXXXXXXXXXXXXX XXXXXXXX	XXXXXXXXXXXXXXX XXXXXX
	P	XXXXXXXXXXXXXX XXXX	XXXXXXXXXXXXX XXX	XXXXXXXXXXXXX XX
	I	XXXXXXXXXXXXX XXXXXX	XXXXXXXXXXXXXX XXXX	XXXXXXXXXXXXXX XX
PERENNIAL RYEGRASS	F	XXXXXXXXXXXXXXX XXXXXXXXXXX	XXXXXXXXXXXXXXX XXXXXXXXXX	XXXXXXXXXXXXXXX XXXXXXX
	S	XXXXXXXXXXXXXXX XXXXXXXXX	XXXXXXXXXXXXXXX XXXXX	XXXXXXXXXXXXXXX XXXX
	P	XXXXXXXXXX XXXXXXXX	O O	O O
	I	XXXXXXXXXXXXXXX XXXXXXXXXXX	XXXXXXXXXX XXXXXXXX	XX XX
AVENA FATUA	F	XXXXXXXXXXXXXXX XXXXXXXXXX	XXXXXXXXXXXXXXX XXXXXX	XXXXXXXXXXXXXXX XXXX
	S	XXXXXXXXXXXXXXX XXXXXXXX	XXXXXXXXXXXXXXX XXXXXX	XXXXXXXXXXXXXXX XXXX
	P	XXXXXXXXXXXXXXX XXXXXXXX	O O	O O
	I	XXXXXXXXXXXXXXX XXXXXXXXXX	XXXXXXXXXXXXX XXXX	O O
ELYMUS REPENS	F	XXXXXXXXXXXXXXX XXXXXXXXXX	XXXXXXXXXXXXXXX XXXXXX	XXXXXXXXXXXXXXX XXXXXX
	S	XXXXXXXXXXXXXXX XXXXXXXX	XXXXXXXXXXXXXXX XXXXXX	XXXXXXXXXXXXXXX XXXXXX
	P	XXXXXXXXXXXXXXX XXXXXXXX	XXXXXXXXXXXXX XX	XXXXXXXXXXXXX XX
	I	XXXXXXXXXXXXXXX+ XXXXXXXXX	XXXXXXXXXXXXXX XXXX	XXXXXXXXXXXXXX XX

Key: F = post-emergence, foliar application
S = post-emergence, soil drench
P = pre-emergence, surface film
I = pre-planting, incorporated

TRIAL NUMBER 536

FMC 57020

SPECIES	0.0500 kg/ha		0.1000 kg/ha		0.2000 kg/ha	
WHEAT	96	xxxxxxxxxxxxxxxxxxx	102	xxxxxxxxxxxxxxxxxxxx	102	xxxxxxxxxxxxxxxxxxxx
(1)	57	xxxxxxxxxxx	43	xxxxxxxxx	21	xxxx
WHEAT+S	96	xxxxxxxxxxxxxxxxxxx	102	xxxxxxxxxxxxxxxxxxxx	102	xxxxxxxxxxxxxxxxxxxx
(2)	57	xxxxxxxxxxx	43	xxxxxxxxx	43	xxxxxxxxx
BARLEY	96	xxxxxxxxxxxxxxxxxxx	89	xxxxxxxxxxxxxxxxxx	96	xxxxxxxxxxxxxxxxxxx
(3)	71	xxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	43	xxxxxxxxx
BARLEY+S	102	xxxxxxxxxxxxxxxxxxx	95	xxxxxxxxxxxxxxxxxx	89	xxxxxxxxxxxxxxxxx
(4)	79	xxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	50	xxxxxxxxxx
OAT	107	xxxxxxxxxxxxxxxxxxx+	93	xxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx
(5)	57	xxxxxxxxxxx	21	xxxx	14	xxx
PER RYGR	60	xxxxxxxxxxxx	36	xxxxxxx	18	xxxx
(6)	57	xxxxxxxxxxx	50	xxxxxxxxxx	29	xxxxxx
ONION	0		0		0	
(8)	0		0		0	
DWF BEAN	106	xxxxxxxxxxxxxxxxxxx+	106	xxxxxxxxxxxxxxxxxxx+	106	xxxxxxxxxxxxxxxxxxx+
(9)	100	xxxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	64	xxxxxxxxxxxxx
FLD BEAN	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx
(10)	100	xxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx
PEA	83	xxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx
(11)	79	xxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	64	xxxxxxxxxxxxx
W CLOVER	0		0		0	
(12)	0		0		0	
RAPE	100	xxxxxxxxxxxxxxxxxxx	107	xxxxxxxxxxxxxxxxxxx+	93	xxxxxxxxxxxxxxxxxx
(14)	71	xxxxxxxxxxxxxx	57	xxxxxxxxxxx	50	xxxxxxxxxx
KALE	102	xxxxxxxxxxxxxxxxxxx	110	xxxxxxxxxxxxxxxxxxx+	95	xxxxxxxxxxxxxxxxxx
(15)	71	xxxxxxxxxxxxxx	57	xxxxxxxxxxx	43	xxxxxxxxx

TRIAL NUMBER 536

FMC 57020

SPECIES	0.0500 kg/ha		0.1000 kg/ha		0.2000 kg/ha	
SWEDE	110	xxxxxxxxxxxxxxxxxxx+	92	xxxxxxxxxxxxxxxxx	110	xxxxxxxxxxxxxxxxxxx+
(17)	79	xxxxxxxxxxxxxxx	57	xxxxxxxxxx	50	xxxxxxxxx
CARROT	83	xxxxxxxxxxxxxxxx	64	xxxxxxxxxxxx	83	xxxxxxxxxxxxxxxx
(18)	100	xxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx
LETTUCE	0		0		0	
(20)	0		0		0	
SUG BEET	27	xxxxx	45	xxxxxxxxx	0	
(22)	21	xxxx	29	xxxxxx	0	
BETA VUL	96	xxxxxxxxxxxxxxxxxx	42	xxxxxxxx	12	xx
(23)	71	xxxxxxxxxxxxxx	50	xxxxxxxxxx	14	xxx
BROM STE	81	xxxxxxxxxxxxxxxx	31	xxxxxx	0	
(24)	50	xxxxxxxxxx	21	xxxx	0	
AVE FATU	58	xxxxxxxxxxxx	39	xxxxxxxx	0	
(26)	43	xxxxxxxxx	29	xxxxxx	0	
ALO MYOS	0		10	xx	0	
(27)	0		21	xxxx	0	
POA ANN	0		4	x	0	
(28)	0		7	x	0	
POA TRIV	0		0		0	
(29)	0		0		0	
CHRY SEG	35	xxxxxxx	12	xx	0	
(32)	79	xxxxxxxxxxxxxxxx	36	xxxxxxx	0	
MAT PERF	100	xxxxxxxxxxxxxxxxxxx	75	xxxxxxxxxxxxxxx	19	xxxx
(33)	86	xxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	21	xxxx
SEN VULG	0		0		0	
(34)	0		0		0	

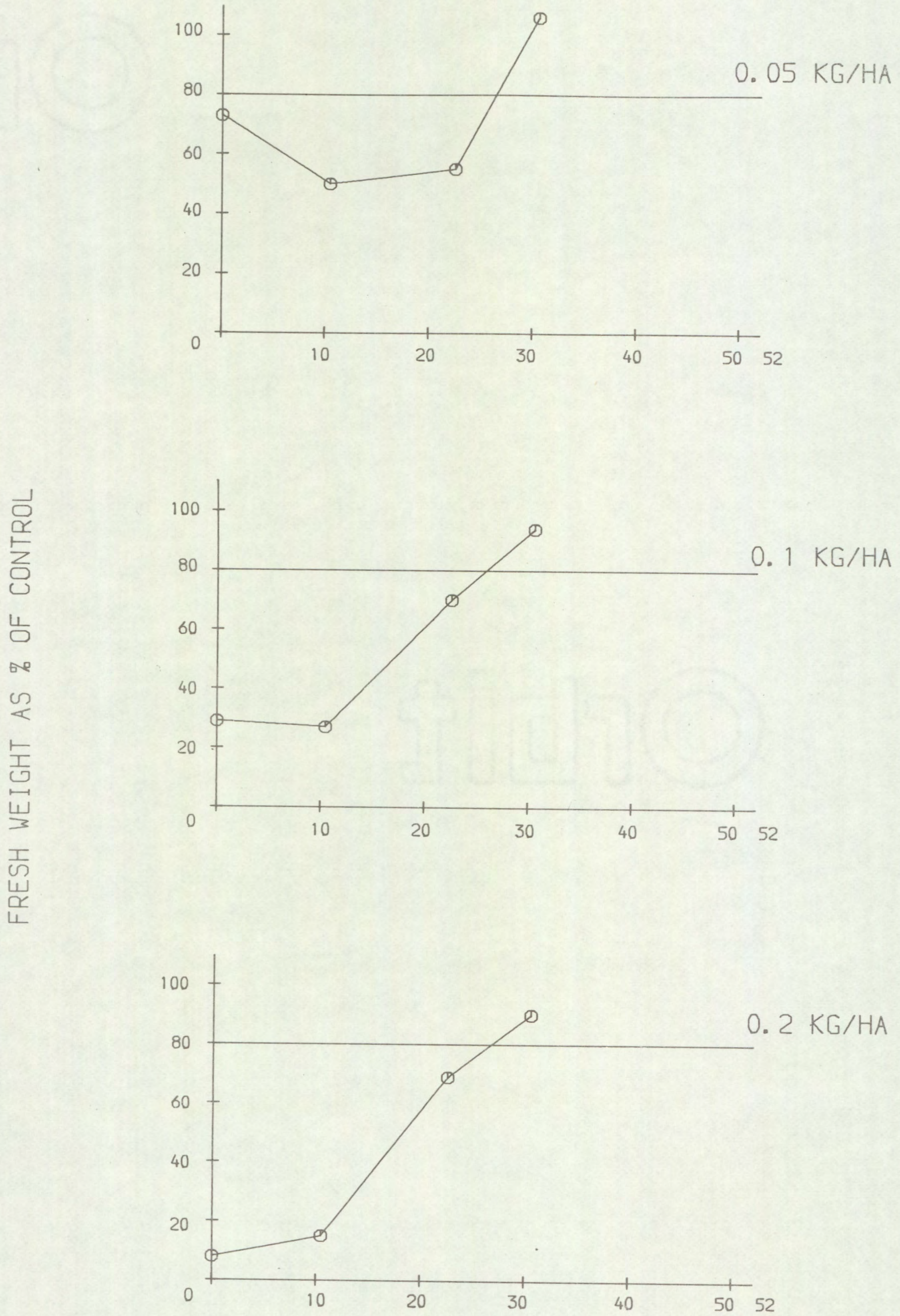
TRIAL NUMBER 536

FMC 57020

SPECIES	0.0500 kg/ha		0.1000 kg/ha		0.2000 kg/ha	
POL LAPA	63	xxxxxxxxxxxxx	47	xxxxxxxxx	0	
(35)	21	xxxx	14	xxx	0	
LAM PUR	0		0		0	
(37)	0		0		0	
GAL APAR	72	xxxxxxxxxxxxxx	89	xxxxxxxxxxxxxxxxxx	89	xxxxxxxxxxxxxxxxxx
(38)	43	xxxxxxxxx	29	xxxxxx	29	xxxxxx
CHEN ALB	0		0		0	
(39)	0		0		0	
STEL MED	0		0		0	
(40)	0		0		0	
VER PERS	0		0		0	
(42)	0		0		0	
VI ARVE	32	xxxxxx	16	xxx	8	xx
(43)	43	xxxxxxxxx	29	xxxxxx	7	x
GER DISS	0		0		0	
(44)	0		0		0	
EL REPEN	97	xxxxxxxxxxxxxxxxxx	106	xxxxxxxxxxxxxxxxxx+	88	xxxxxxxxxxxxxxxxx
(47)	79	xxxxxxxxxxxxxxx	57	xxxxxxxxxx	43	xxxxxxxxx
MAIZE+S	109	xxxxxxxxxxxxxxxxxxx+	109	xxxxxxxxxxxxxxxxxxx+	109	xxxxxxxxxxxxxxxxxxx+
(56)	100	xxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxx
MAIZE	109	xxxxxxxxxxxxxxxxxxx+	82	xxxxxxxxxxxxxxx	109	xxxxxxxxxxxxxxxxxxx+
(57)	79	xxxxxxxxxxxxxxx	57	xxxxxxxxxx	43	xxxxxxxxx
SOL NIG	61	xxxxxxxxxxx	41	xxxxxxxx	0	
(81)	29	xxxxxx	14	xxx	0	

PERSISTENCE OF FMC 57020

SPECIES: PERENNIAL RYEGRASS

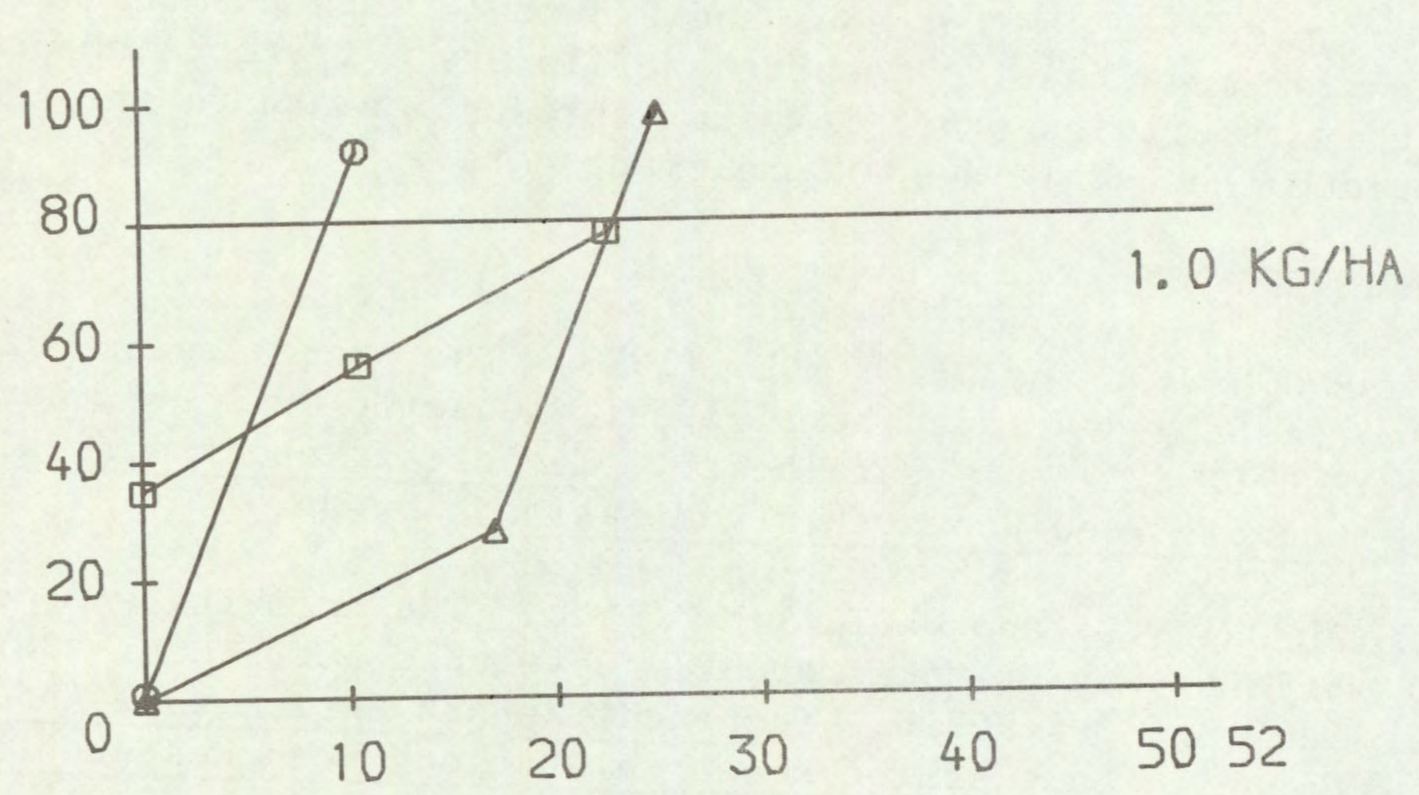


PERSISTENCE OF CYANAZINE

SPECIES: PERENNIAL RYEGRASS

SUGAR BEET

STELLARIA MEDIA

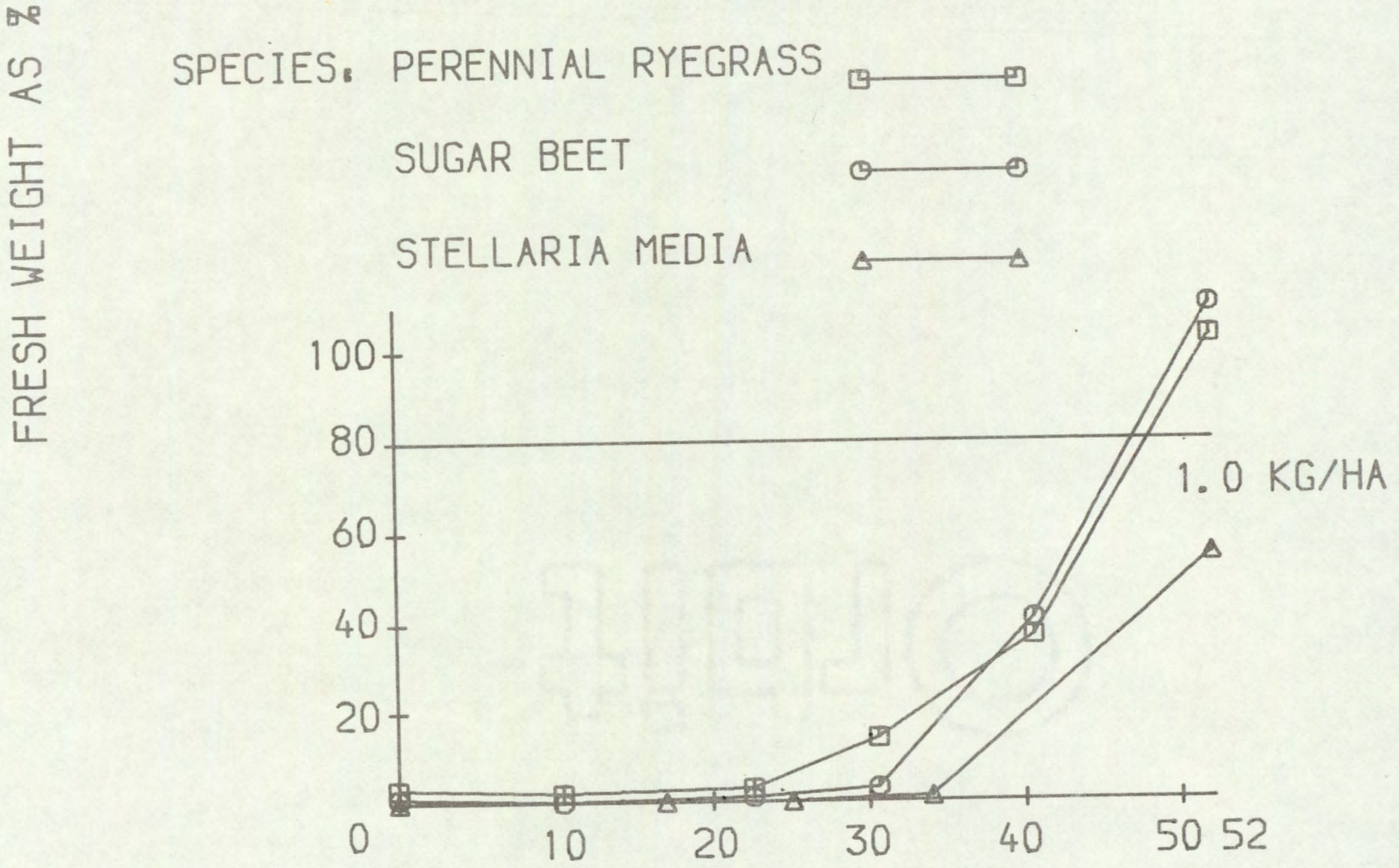


PERSISTENCE OF SIMAZINE

SPECIES: PERENNIAL RYEGRASS

SUGAR BEET

STELLARIA MEDIA



TIME OF SOWING

WEEKS AFTER TREATMENT

ACKNOWLEDGEMENTS

This work was carried out at the site of the former Weed Research Organization.

We are grateful to the Statistics Section for processing the experimental data; to Messrs R M Porteous and S Burbank, Mrs L Smith and Mrs E Radley for technical and practical assistance. To Mrs J Fry for the preparation and typing of this report; to staff for its reproduction and to the commercial firms who provided the herbicides and relevant data.

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RICHARDSON, W.G., WEST, T.M. and PARKER, C. (1981) The activity and pre-emergence selectivity of some recently developed herbicides: UBI-5734, SSH-43, ARD 34/02 (= NP 55), PP 009 and DPX 4189. Technical Report Agricultural Research Council Weed Research Organization, 62, pp.59.

Appendix 1. Species, abbreviations, cultivars and stages of growth at assessment

	Designation and computer serial	Cultivar or source	No. per pot	Depth of planting (cm)	Stage of growth at assessment (untreated controls, leaf numbers exclusive of cotyledons)
Temperate species					
Wheat (*Triticum aestivum*)	WHEAT (1)	Armada	8	1.0	5 leaves
Wheat + safener	WHEAT + S (2)	Armada	8	1.0	5 leaves
Barley (*Hordeum vulgare*)	BARLEY (3)	Igri	8	1.0	5.5 leaves
Barley + safener	BARLEY + S (4)	Igri	8	1.0	5.5 leaves
Oat (*Avena sativa*	OAT (5)	Peniarth	8	1.0	4.5 leaves, 0-1 tiller
Perennial ryegrass (*Lolium perenne*)	PER RYGR (6)	S 23	12	0.5	4 tillers
Onion (*Allium cepa*)	ONION (8)	Robusta	12	0.5	2 leaves
Dwarf bean (*Phaseolus vulgaris*)	DWF BEAN (9)	Masterpiece	3	2.0	2 trifoliate leaves
Field bean (*Vicia faba*)	FLD BEAN (10)	Maris Bead	4	2.0	9 leaves
Pea (*Pisum sativum*)	PEA (11)	Meteor	4	1.5	6 leaves
White clover (*Trifolium repens*)	W CLOVER (12)	HUIA	12	0.5	3-5 trifoliate leaves
Rape (*Brassica napus oleifera*)	RAPE (14)	Bienvenu	8	0.5	3.5 leaves
Kale (*Brassica oleracea acephala*)	KALE (15)	Marrowstem	8	0.5	4.5-5 leaves
Swede (*Brassica napus*)	SWEDE (17)	Acme	8	0.5	4 leaves

	Designation and computer serial	Cultivar or source	No. per pot	Depth of planting (cm)	Stage of growth at assessment (untreated controls, leaf numbers exclusive of cotyledons)
Carrot (Daucus carota)	CARROT (18)	Chantenay Red Core	12	0.5	4 leaves
Sugar beet (Beta vulgaris)	SUG BEET (22)	Monotri	8	1.0	4-6 leaves
Lettuce (Lactuca sativa)	LETTUCE (20)	Great Lakes	12	0.5	7 leaves
Beta vulgaris	BETA VUL (23)	Attleborough 1981	12	1.0	4 leaves
Bromus sterilis	BROM STE (24)	WRO 1982	10	1.0	4 tillers
Avena fatua	AVE FATU (26)	WRO 1980	12	1.0	5-7.5 leaves, 0-1 tiller
Alopecurus myosuroides	ALO MYOS (27)	WRO 1984	12	0.25	5-8 tillers
Poa annua	POA ANN (28)	B & S Supplies 1985	15	0.5	4 tillers
Poa trivialis	POA TRIV (29)	B & S Supplies 1984	12	0.5	2-9 tillers
Sinapis arvensis	SIN ARV (30)	WRO 1982	10	0.5	8 leaves
Chrysanthemum segetum	CHRY SEG (32)	WRO 1983	20	surface	8 leaves
Matricaria perforata	MAT PERF (33)	WRO 1981	15	surface	9 leaves
Senecio vulgaris	SEN VULG (34)	WRO 1983	15	surface	9 leaves
Polygonum lapathifolium	POL LAPA (35)	B & S Supplies 1985	15	0.5	4-5 leaves

	Designation and computer serial	Cultivar or source	No. per pot	Depth of planting (cm)	Stage of growth at assessment (untreated controls, leaf numbers exclusive of cotyledons)
Lamium purpureum	LAM PUR (37)	B & S Supplies 1985	10	0.5	Numerous leaves
Galium aparine	GAL APAR (38)	WRO 1985	12	0.5	10 Whorls
Chenopodium album	CHEN ALB (39)	B & S Supplies 1985	15	0.5	10 leaves
Stellaria media	STEL MED (40)	B & S Supplies 1984	12	0.5	Numerous leaves
Veronica persica	VER PERS (42)	WRO 1983	15	0.25	Numerous leaves
Viola arvensis	VI ARVE (43)	B & S Supplies 1984	15	0.25	9 leaves
Rumex obtusifolius	RUM OBTU (44)	B & S Supplies 1985	12	0.25	3-4 leaves
Elymus repens	EL REPEN (47)	WRO Clone 31	6*	1.0	5-7.5 leaves, 0-1 tiller
Maize + safener Zea mays	MAIZE + S (56)	LG 11	4	2.0	4.5-5 leaves
Maize Zea mays	MAIZE (57)	LG 11	4	2.0	4.5-5 leaves
Solanum nigrum	SOL NIG (81)	B & S Supplies 1984	15	Surface	8 leaves

* One node rhizome fragments

ABBREVIATIONS

ångström	Å	freezing point	f.p.
Abstract	Abs.	from summary	F.s.
acid equivalent*	a.e.	gallon	gal
acre	ac	gallons per hour	gal/h
active ingredient*	a.i.	gallons per acre	gal/ac
approximately equal to*	≃	gas liquid chromatography	GLC
aqueous concentrate	a.c.	gramme	g
bibliography	bibl.	hectare	ha
boiling point	b.p.	hectokilogram	hkg
bushel	bu	high volume	HV
centigrade	C	horse power	hp
centimetre*	cm	hour	h
concentrated	concd	hundredweight*	cwt
concentration	concn	hydrogen ion concentration*	pH
concentration x time product	ct	inch	in.
concentration required to kill 50% test animals	LC_{50}	infra red	i.r.
		kilogramme	kg
cubic centimetre*	cm^3	kilo ($x10^3$)	k
cubic foot*	ft^3	less than	<
cubic inch*	in^3	litre	l.
cubic metre*	m^3	low volume	LV
cubic yard*	yd^3	maximum	max.
cultivar(s)	cv.	median lethal dose	LD50
curie*	Ci	medium volume	MV
degree Celsius*	^oC	melting point	m.p.
degree centigrade	^oC	metre	m
degree Fahrenheit*	^oF	micro ($x10^{-6}$)	µ
diameter	diam.	microgramme*	µg
diameter at breast height	d.b.h.	micromicro (pico: $x10^{-12}$)*	µµ
divided by*	÷ or /	micrometre (micron)*	µm (or µ)
dry matter	d.m.	micron (micrometre)*†	µm (or µ)
emulsifiable concentrate	e.c.	miles per hour*	mile/h
		milli ($x10^{-3}$)	m
equal to*	=	milliequivalent*	m.equiv.
fluid	fl.	milligramme	mg
foot	ft	millilitre	ml

† The name micrometre is preferred to micron and µm is preferred to µ.

millimetre*	mm
millimicro* (nano: $x10^{-9}$)	n or mμ
minimum	min.
minus	-
minute	min
molar concentration*	M (small cap)
molecule, molecular	mol.
more than	>
multiplied by*	x
normal concentration*	N (small cap)
not dated	n.d.
oil miscible concentrate	o.m.c. (tables only)
organic matter	o.m.
ounce	oz
ounces per gallon	oz/gal
page	p.
pages	pp.
parts per million	ppm
parts per million by volume	ppmv
parts per million by weight	ppmw
percent(age)	%
pico (micromicro: $x10^{-12}$)	p or μμ
pint	pint
pints per acre	pints/ac
plus or minus*	±
post-emergence	post-em
pound	lb
pound per acre*	lb/ac
pounds per minute	lb/min
pound per square inch*	lb/in^2
powder for dry application	p. (tables only)
power take off	p.t.o.
precipitate (noun)	ppt.
pre-emergence	pre-em.
quart	quart
relative humidity	r.h.
revolution per minute*	rev/min
second	s
soluble concentrate	s.c.
soluble powder	s.p.
solution	soln
species (singular)	sp.
species (plural)	spp.
specific gravity	sp. gr.
square foot*	ft^2
square inch	in^2
square metre*	m^2
square root of*	$\sqrt{}$
sub-species*	ssp.
summary	s.
temperature	temp.
ton	ton
tonne	t
ultra-low volume	ULV
ultra violet	u.v.
vapour density	v.d.
vapour pressure	v.p.
varietas	var.
volt	V
volume	vol.
volume per volume	v/v
water soluble powder	w.s.p. (tables only)
watt	W
weight	wt
weight per volume*	w/v
weight per weight*	w/w
wettable powder	w.p.
yard	yd
yards per minute	yd/min

* Those marked * should normally be used in the text as well as in tables etc.

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