Click here for previous

RH 5205

SPECIES	0.05 kg/ha		0.2 kg/ha		0.8 kg/ha	
MAIZE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(58)	86	xxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx	57	xxxxxxxxxx
SORGHUM	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(59)	71	xxxxxxxxxxxxx	57	xxxxxxxxxx	36	xxxxxxx
RICE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(60)	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxx
PIGEON P	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	89	xxxxxxxxxxxxxxxxx
(61)	57	xxxxxxxxxx	50	xxxxxxxxxx	43	xxxxxxxxx
COWPEA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	83	xxxxxxxxxxxxxxxx
(62)	50	xxxxxxxxxx	43	xxxxxxxxx	21	xxxx
CHICKPEA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(63)	71	xxxxxxxxxxxxxx	57	xxxxxxxxxx	14	xxx
GRNDNUT	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(64)	57	xxxxxxxxxx	50	xxxxxxxxxx	43	xxxxxxxxx
COTTON	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	60	xxxxxxxxxxx
(66)	43	xxxxxxxxx	29	xxxxxx	14	xxx
JUTE	0		0		0	
(67)	0		0		0	
KENAF	31	xxxxxx	0		0	
(68)	14	xxx	0		0	
TOBACCO	20	xxxx	0		0	
(69)	29	xxxxxx	0		0	
SESAMUM	0		0		0	
(70)	0		0		0	

RH 5205

SPECIES	0.05 kg/ha		0.2 kg/ha		0.8 kg/ha	
TOMATO	60	xxxxxxxxxxxx	20	xxxx	0	
(71)	43	xxxxxxxxx	36	xxxxxxx	0	
OR PUNCT	100	xxxxxxxxxxxxxxxxxxxx	94	xxxxxxxxxxxxxxxxxxxx	94	xxxxxxxxxxxxxxxxxxxx
(73)	79	xxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxxx	43	xxxxxxxxx
ELEU IND	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(74)	93	xxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx
ECH CRUS	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(75)	93	xxxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	57	xxxxxxxxxx
ROTT EXA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(76)	93	xxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	57	xxxxxxxxxx
DIG SANG	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	94	xxxxxxxxxxxxxxxxxxx
(77)	86	xxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	57	xxxxxxxxxx
AMAR RET	87	xxxxxxxxxxxxxxxxx	25	xxxxx	0	
(78)	57	xxxxxxxxxxx	50	xxxxxxxxxx	0	
PORT OLE	0		0		0	
(79)	0		0		0	
SOL NIG	92	xxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	25	xxxxx
(81)	50	xxxxxxxxxx	43	xxxxxxxxx	7	x
SNOW POL	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(83)	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx
CYP ROTU	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(86)	93	xxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx

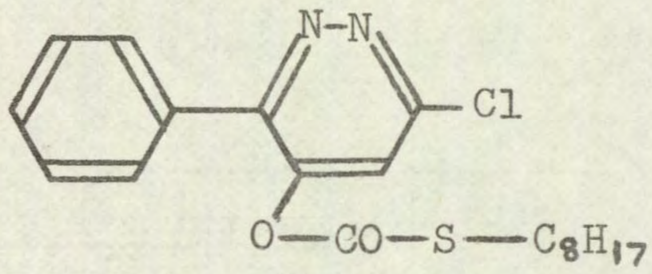
PYRIDATE

Code number: CL 11344

Former common name: Fenpyrate

Chemical name: n-octyl(6 chloro-3-phenylpyridazin-4-yl)oxycarbothioate

Structure



Source

Chemie Linz AG
P O Box 296
A-4021 Linz
Austria

Information available and suggested uses

Diskus, A. et al (1976) reported good post-emergence (contact action) control of hard to kill weeds such as Galium aparine, Galeopsis, Lamium and Veronica spp., at 1.0 to 1.5 kg a.i./ha, with tolerance of cereals and maize. It also controls tropical grass weeds eg Echinochloa crus-galli, Digitaria spp, Setaria viridis and Panicum miliaceum. There is no activity via the soil.

Formulation used: Wettable powder 50% w/w a.i.

Spray volume: 345 l/ha for post-emergence selectivity experiment
340 l/ha for activity experiment

RESULTS

Full results are given in the histograms on pages 27-32 and potential selectivities are summarised in the following table.

RATE (kg a.i./ha)	CROPS: vigour reduced by 15% or less	WEEDS: number or vigour reduced by 70% or more
4.0	wheat fenugreek chickpea groundnut	Raphanus raphanistrum Chrysanthemum segetum Rumex obtusifolius Oryza punctata Amaranthus retroflexus Solanum nigrum + species below

(Table continued overleaf)

RATE (kg a.i./ha)	CROPS: vigour reduced by 15% or less	WEEDS: number or vigour reduced by 70% or more
1.0	species above + barley oat onion pea white clover rape kale cabbage maize	Sinapis arvensis Galium aparine Spergula arvensis Veronica persica + species below
0.25	species above + perennial ryegrass carrot radish sorghum rice pigeon pea	Tripleurospermum maritimum Senecio vulgaris Chenopodium album Stellaria media

Comments on results

Activity experiment

Most activity was observed with the foliar spray on the broad-leaved species, with lethal effects on dwarf bean and kale at the high dose. Grasses exhibited only minor symptoms following the foliar spray. Activity via the soil was generally low but perennial ryegrass showed some symptoms with soil drenches and pre-emergence surface sprays at the high dose.

Symptoms

Foliar treatments caused scorch and chlorosis or yellowing within a few days of treatment. Symptoms due to soil treatments were seen only at the higher doses, chlorosis or yellowing usually preceding necrosis. In one instance, perennial ryegrass treated pre-emergence exhibited alternate green and white "bars" across the leaf blade, possible related to a diurnal effect.

Selectivity among temperate species

Several annual broad-leaved weeds were selectively controlled but Polygonum species were quite resistant as were grass weeds. Two composite weeds, Senecio vulgaris and Tripleurospermum maritimum, were controlled at the lowest dose of 0.25 kg/ha but Chrysanthemum segetum was controlled by only the highest dose of 4.0 kg/ha and was completely resistant to 0.25 and 1.0 kg/ha. Similarly, among the crucifers, Sinapis arvensis was controlled at 1.0 kg/ha but Raphanus raphanistrum needed 4.0 kg/ha before control was achieved. Galium aparine was killed at 1.0 kg/ha and severely affected (43% vigour reduction) at 0.25 kg/ha.

Crop tolerance was found among the cereals, with wheat tolerating 4.0 kg/ha and barley and oat being only marginally reduced in vigour at this dose. Certain of the leguminous species were tolerant; fenugreek to 4.0 kg/ha, pea and white clover to 1.0 kg/ha, but both dwarf and field beans were sensitive. The brassicas, rape, kale and cabbage, tolerated 1.0 kg/ha.

Radish was reduced in vigour only marginally but a 25% stand reduction occurred at this dose. Other tolerant crops were onion, to 1.0 kg/ha and perennial ryegrass and carrot to 0.25 kg/ha.

Pyridate has some interesting features, one of the most notable being the control of the problem weed Galium aparine in crops such as cereals, certain legumes and brassicas. Also it shows some differential effects among closely related species. This may result in some disadvantages, for example control of certain, but not all, composites. Control of Sinapis arvensis in brassicas, however, would be very important and needs further study. The lack of grass weed control is a disadvantage and consideration will have to be given to using pyridate as one component of a mixture in the above mentioned tolerant crops. Further work on control of broad-leaved perennial weeds and even volunteer potato may also be worthwhile as the two solanaceous species in this test, Solanum nigrum and tomato, showed some sensitivity.

Post-emergence selectivity among tropical species

Some small-seeded broad-leaved species, including jute, were very susceptible, but Amaranthus, Portulaca and Solanum were not controlled by 1 kg/ha. There was not the activity against annual grasses, such as Echinochloa, which had been expected from the published information. Selective control of Amaranthus and Solanum could be expected at about 2 kg/ha but even at 4 kg/ha all the annual grasses other than Oryza punctata were still tolerant and maize was slightly, but distinctly, weakened. In chickpea and groundnut there is potential for selective control of a range of broad-leaved weeds including Solanum, which could be of some interest. It is unfortunate that, owing to bad germination, no information was obtained on soyabean.

ACTIVITY EXPERIMENT

PYRIDATE

		0.2 kg/ha	1.0 kg/ha	5.0 kg/ha
DWARF BEAN	F	xxxxxxxxxxxxxxx	xxxxxxxxxxx	xxxxxxxxxxxxxxx
	S	xxxxxxxxxxxxxxx xxxxxxxxx	xxxxxxxxxxx xxxxxxx	xxxxxxxxxxxxxxx xx
	P	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxxxx
	I	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx
KALE	F	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxx xxxxxxxx
	S	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxxxx
	P	xxxxxxxxxxxxxxx + xxxxxxxxxxxxxxx	xxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxxx + xxxxxxxxxxxx
	I	xxxxxxxxx xxxxxxxxxxxxxx	xxxxxxxxxxxxxxx + xxxxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxxx
POLYGONUM AMPHIBIUM	F	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxx
	S	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxx
	P	xxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxx xxxxxxxxxxx
	I	xxxxxxxxxxxxxxx + xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx + xxxxxxxxxxxxxxx	xxxxxxxxxxxxx xxxxxxx
PERENNIAL RYEGRASS	F	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxx	xxxxxxxxxxxx xxxxxx
	S	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxxx	xxxxxxxxxxxxxx xxxx
	P	xxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxx xxxxxxxxxxxxxx	xxxxxx xxxxx
	I	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxx
AVENA FATUA	F	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxx
	S	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxx
	P	xxxxxxxxxxxx xxxxxxxxxxxxxxx	± xxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx + xxxxxxxxxxxxx
	I	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	± xxxx xxxxxx xxxxxx
AGROPYRON REPENS	F	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxx xxxxx xxxxxxxxx
	S	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxx xxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxx
	P	xxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx + xxx xxxxxxxxxxx	xxxxxxxxxxxx xxxxxxxxxxx
	I	xxxxxxxxxxxxxxx + xxx xxx xxxxxxxxx	xxxxxxxxx xxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxx xxxxxxxxxx

Key: F = post-emergence, foliar application
S = post-emergence, soil drench
P = pre-emergence, surface film
I = pre-planting, incorporated
± = reduced numbers due to bad germination, not herbicide

POST-EMERGENCE SELECTIVITY EXPERIMENT

PYRIDATE

SPECIES	0.25 kg/ha		1.0 kg/ha		4.0 kg/ha	
WHEAT	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx
(1)	100	xxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx
BARLEY	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx
(2)	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx
OAT	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx
(3)	86	xxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxx
PER RYGR	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	10	xx
(4)	100	xxxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	14	xxx
ONION	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	0	
(8)	93	xxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx	0	
DWF BEAN	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	50	xxxxxxxxxx
(9)	50	xxxxxxxxxx	57	xxxxxxxxxx	7	x
FLD BEAN	100	xxxxxxxxxxxxxxxxxxx	33	xxxxxxx	0	
(10)	64	xxxxxxxxxxxxx	57	xxxxxxxxxx	0	
PEA	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	17	xxx
(11)	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	29	xxxxxx
W CLOVER	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	37	xxxxxxx
(12)	100	xxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxx	43	xxxxxxxxx
RAPE	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	17	xxx
(14)	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	50	xxxxxxxxxx
KALE	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx
(15)	86	xxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx
CABBAGE	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	56	xxxxxxxxxxx
(16)	100	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx

PYRIDATE

SPECIES	0.25 kg/ha		1.0 kg/ha		4.0 kg/ha	
CARROT	100	xxxxxxxxxxxxxxxxxxxx	81	xxxxxxxxxxxxxxxx	0	
(18)	100	xxxxxxxxxxxxxxxxxxxx	43	xxxxxxxxx	0	
PARSNIP	100	xxxxxxxxxxxxxxxxxxxx	0		0	
(19)	71	xxxxxxxxxxxxxx	0		0	
LETTUCE	83	xxxxxxxxxxxxxxxxx	17	xxx	0	
(20)	71	xxxxxxxxxxxxxx	21	xxxx	0	
SUG BEET	50	xxxxxxxxxx	0		0	
(21)	50	xxxxxxxxxx	0		0	
FENUGREK	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(22)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
AVE FATU	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(26)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxx
ALO MYOS	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(27)	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxx	64	xxxxxxxxxxxx
POA ANN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(28)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxx
POA TRIV	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	67	xxxxxxxxxxxx
(29)	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxx	57	xxxxxxxxxx
SIN ARV	70	xxxxxxxxxxxxxx	10	xx	0	
(30)	64	xxxxxxxxxxxxx	29	xxxxxx	0	
RAPH RAP	100	xxxxxxxxxxxxxxxxxxxx	75	xxxxxxxxxxxxxx	0	
(31)	100	xxxxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx	0	
CHRY SEG	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	0	
(32)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	0	

POST-EMERGENCE SELECTIVITY EXPERIMENT

PYRIDATE

SPECIES		0.25 kg/ha		1.0 kg/ha		4.0 kg/ha	
TRIP MAR	15	xxx	0		0		
(33)	21	xxxx	0		0		
SEN VULG	40	xxxxxxxx	0		0		
(34)	21	xxxx	0		0		
POL LAPA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	31	xxxxxx	
(35)	86	xxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx	50	xxxxxxxxxx	
POL AVIC	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	92	xxxxxxxxxxxxxxxxxx	
(36)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx	
GAL APAR	100	xxxxxxxxxxxxxxxxxxxx	0		0		
(38)	57	xxxxxxxxxxx	0		0		
CHEN ALB	17	xxx	0		0		
(39)	36	xxxxxxx	0		0		
STEL MED	19	xxxx	0		0		
(40)	21	xxxx	0		0		
SPER ARV	45	xxxxxxxxx	0		0		
(41)	36	xxxxxxx	0		0		
VER PERS	100	xxxxxxxxxxxxxxxxxxxx	0		0		
(42)	64	xxxxxxxxxxxxx	0		0		
RUM OBTU	80	xxxxxxxxxxxxxxx	70	xxxxxxxxxxxxx	0		
(44)	57	xxxxxxxxxxx	36	xxxxxxx	0		
AG REPEN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	
(47)	79	xxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	
AG STOLO	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	
(48)	100	xxxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	

POST-EMERGENCE SELECTIVITY EXPERIMENT

PYRIDATE

SPECIES	0.25 kg/ha		1.0 kg/ha		4.0 kg/ha	
MAIZE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(58)	100	xxxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx
SORGHUM	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(59)	100	xxxxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx	57	xxxxxxxxxx
RICE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	44	xxxxxxxx
(60)	100	xxxxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx	43	xxxxxxxx
PIGEON P	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	89	xxxxxxxxxxxxxxxxx
(61)	100	xxxxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxx	57	xxxxxxxxxx
COWPEA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	83	xxxxxxxxxxxxxxxx
(62)	79	xxxxxxxxxxxxxxx	64	xxxxxxxxxxx	64	xxxxxxxxxxx
CHICKPEA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(63)	86	xxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx
GRNDNUT	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(64)	71	xxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx
COTTON	100	xxxxxxxxxxxxxxxxxxxx	60	xxxxxxxxxxx	0	
(66)	57	xxxxxxxxxx	29	xxxxx	0	
JUTE	0		0		0	
(67)	0		0		0	
KENAF	19	xxx	6	x	0	
(68)	43	xxxxxxxxxx	21	xxx	0	
TOBACCO	100	xxxxxxxxxxxxxxxxxxxx	70	xxxxxxxxxxxxx	10	xx
(69)	57	xxxxxxxxxxxxx	50	xxxxxxxxxx	21	xxxx
SESAMUM	81	xxxxxxxxxxxxxxxx	12	xx	6	x
(70)	50	xxxxxxxxxx	14	xxx	21	xxxx

POST-EMERGENCE SELECTIVITY EXPERIMENT

PYRIDATE

SPECIES	0.25 kg/ha		1.0 kg/ha		4.0 kg/ha	
TOMATO	100	xxxxxxxxxxxxxxxxxxxx	60	xxxxxxxxxxxx	0	
(71)	57	xxxxxxxxxxx	43	xxxxxxxxx	0	
OR PUNCT	100	xxxxxxxxxxxxxxxxxxxx	94	xxxxxxxxxxxxxxxxxxxx	6	x
(73)	86	xxxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	14	xxx
ELEU IND	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(74)	86	xxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx	64	xxxxxxxxxxxx
ECH CRUS	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	50	xxxxxxxxxx
(75)	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	43	xxxxxxxxx
ROTT EXA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(76)	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx
DIG SANG	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(77)	86	xxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx
AMAR RET	100	xxxxxxxxxxxxxxxxxxxx	56	xxxxxxxxxx	0	
(78)	64	xxxxxxxxxxxxx	50	xxxxxxxxxx	0	
PORT OLE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	40	xxxxxxxx
(79)	86	xxxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	50	xxxxxxxxxx
SOL NIG	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	0	
(81)	79	xxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	0	
SNOW POL	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(83)	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	57	xxxxxxxxxxx
CYP ROTU	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(86)	100	xxxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx

ACKNOWLEDGEMENTS

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Appendix 1. Species, abbreviations, varieties and stages of growth at spraying and assessment for post-emergence selectivity test

	Designation and computer serial number	Cultivar or source	Stage of growth at spraying	Stage of growth at assessment (untreated controls, leaf numbers exclusive of cotyledons)
Temperate species				
Wheat (Triticum aestivum)	WHEAT (1)	Maris Dove	2½-3 leaves	5 leaves
Barley (Hordeum vulgare)	BARLEY (2)	Maris Mink	2½ leaves	5 leaves
Oat (Avena sativa)	OAT (3)	Maris Tabard	2½ leaves	5 leaves, tillering
Perennial ryegrass (Lolium perenne)	PER RYGR (4)	S 23	4½ leaves	9 leaves, tillering
Onion (Allium cepa)	ONION (8)	Robusta	2 leaves	2½ leaves
Dwarf bean (Phaseolus vulgaris)	DWF BEAN (9)	The Prince	2 unifoliate leaves	1½-2½ trifoliate leaves
Field bean (Vicia faba)	FLD BEAN (10)	Maris Bead	2½ leaves	7 leaves
Pea (Pisum sativum)	PEA (11)	Dark Skinned Perfection	3½ leaves	8 leaves
White clover (Trifolium repens)	W CLOVER (12)	S 100	2 trifoliate leaves	7 trifoliate leaves
Rape (Brassica napus oleifera)	RAPE (14)	Rapora	1½ leaves	4-4½ leaves
Kale (Brassica oleracea acephala)	KALE (15)	Maris Kestrel	2 leaves	4-4½ leaves
Cabbage (Brassica oleracea capitata)	CABBAGE (16)	Primo (Golden Acre)	1½-2 leaves	4-4½ leaves
Carrot (Daucus carota)	CARROT (18)	Chantenay Red Core	2 leaves	3½ leaves

Appendix 1. (cont.)

	Designation and computer serial number	Cultivar or source	Stage of growth at spraying	Stage of growth at assessment (untreated controls, leaf numbers exclusive of cotyledons)
Parsnip (Pastinaca sativa)	PARSNIP (19)	Evesham	1½-2 leaves	3-4 leaves
Lettuce (Lactuca sativa)	LETTUCE (20)	Borough Wonder	2½ leaves	7-8 leaves
Sugar beet (Beta vulgaris)	SUG BEET (21)	Monotri	2 leaves	6-7 leaves
Fenugreek (Trifolium ornithopodioides)	FENUGREK (22)	Paul	1½ trifoliate leaves	7 trifoliate leaves
Avena fatua	AVE FATU (26)	Farthinghoe 1972	3-3½ leaves	6-7 leaves, tillering
Alopecurus myosuroides	ALO MYOS (27)	South Leigh, 1972	2-3 leaves	10 leaves, tillering
Poa annua	POA ANN (28)	WRO 1972	3 leaves	15 leaves, tillering
Poa trivialis	POA TRIV (29)	cv. Omega	5 leaves, tillering	9 leaves, tillering
Sinapis arvensis	SIN ARV (30)	WRO 1971	2½-3½ leaves	8 leaves
Raphanus raphanistrum	RAPH RAP (31)	Long Black Spanish	1½-2 leaves	4-4½ leaves
Chrysanthemum segetum	CHRY SEG (32)	WRO 1976	6 leaves	10 leaves
Tripleurospermum maritimum	TRIP MAR (33)	WRO 1975	4 leaves	7 leaves
Senecio vulgaris	SEN VULG (34)	WRO 1974	1½-6 leaves	7 leaves
Polygonum lapathifolium	POL LAPA (35)	WRO 1974	1½ leaves	7 leaves
Polygonum aviculare	POL AVIC (36)	B and S Supplies 1976	2½ leaves	10 leaves
Galium aparine	GAL APAR (38)	B and S Supplies 1976	5-7 whorls	18 whorls

Appendix 1. (cont.)

	Designation and computer serial number	Cultivar or source	Stage of growth at spraying	Stage of growth at assessment (untreated controls, leaf numbers exclusive of cotyledons)
Chenopodium album	CHEN ALB (39)	B and S Supplies 1975	4-5 leaves	8 leaves
Stellaria media	STEL MED (40)	B and S Supplies 1975	4-5 leaves	20 leaves
Spergula arvensis	SPER ARV (41)	WRO 1966	1½ whorls	16 whorls
Veronica persica	VER PERS (42)	WRO 1975	4-5 leaves	15 leaves, flowering
Rumex obtusifolius	RUM OBTU (44)	Tackley 1972	1-2 leaves	4-5 leaves
Holcus lanatus	HOLC LAN (45)	WRO 1973	erratic germination	-
Agropyron repens	AG REPEN (47)	WRO Clone 31*	2½-3 leaves	7 leaves, tillering
Agrostis stolonifera	AG STOLO (48)	B and S Supplies 1975	3-3½ leaves	3-4 tillers
Cirsium arvense	CIRS ARV (50)	WRO Clone 1**	erratic growth	-
Tropical species (grown under higher temperature regime)				
Maize (Zea mays)	MAIZE (58)	Julia	3½ leaves	6-7 leaves
Sorghum (Sorghum bicolor)	SORGHUM (59)	YE 90L	3½ leaves	6-6½ leaves
Rice (Oryza sativa)	RICE (60)	Blue Bonnet	2-2¼ leaves	4½-5 leaves
Pigeon pea (Cajanus cajan)	PIGEON P (61)	Jamaica 1976	½ trifoliate leaf	3-4 trifoliate leaves
Cowpea (Vigna unguiculata)	COWPEA (62)	Nigeria 1974	1 trifoliate leaf	3 trifoliate leaves
Chickpea (Cicer arietinum)	CHICKPEA (63)	India 1976	12-14 pinnate leaves	17-18 pinnate leaves

* one node rhizome pieces

** root fragments

Appendix 1. (cont.)

	Designation and computer serial number	Cultivar or source	Stage of growth at spraying	Stage of growth at assessment (untreated controls, leaf numbers exclusive of cotyledons)
Groundnut (*Arachis hypogaea*)	GRNDNUT (64)	S 38	4 pinnate leaves	6-7 pinnate leaves
Soyabean (*Glycine max*)	SOYABEAN (65)	Amsoy	germination failed	-
Cotton (*Gossypium hirsutum*)	COTTON (66)	26 J	½-1 leaf	4 leaves
Jute (*Corchorus olitorius*)	JUTE (67)	Egypt 1971	2-3 leaves	8 leaves
Kenaf (*Hibiscus cannabinus*)	KENAF (68)	Thailand 1968	½ trifoliate leaf	5-6 leaves
Tobacco (*Nicotiana tabacum*)	TOBACCO (69)	Yellow Mammoth	1-2 leaves	5-7 leaves
Sesamum (*Sesamum indicum*)	SESAMUM (70)	India 1977	2 leaves	6-8 leaves
Tomato (*Lycopersicum esculentum*)	TOMATO (71)	Eurocross BB	2 pinnate leaves	7-8 pinnate leaves
Oryza punctata	OR PUNCT (73)	Swaziland 1974	2-2½ leaves	5 leaves, tillering
Eleusine indica	ELEU IND (74)	Rhodesia 1967	3½ leaves	8-8½ leaves
Echinochloa crus-galli	ECH CRUS (75)	WRO 1973	3-3½ leaves	7-7½ leaves
Rottboellia exaltata	ROT EXAL (76)	Rhodesia 1974	2½-3 leaves	5½ leaves
Digitaria sanguinalis	DIG SANG (71)	WRO 1973	3-4½ leaves	6-7 leaves, tillering
Amaranthus retroflexus	AMAR RET (78)	WRO 1972	3-4 leaves	11-12 leaves
Portulaca oleracea	PORT OLE (79)	WRO 1973	4-6 leaves	numerous leaves, some flowering
Solanum nigrum	SOL NIG (81)	WRO 1976	5-6 leaves	8-9 leaves, flowering

Appendix 1. (cont.)

	Designation and computer serial number	Cultivar or source	Stage of growth at spraying	Stage of growth at assessment (untreated controls, leaf numbers exclusive of cotyledons)
Snowdenia polystachya	SNOW POL (83)	Ethiopia 1974	$3\frac{1}{2}$-$4\frac{1}{2}$ leaves	7-8 leaves, tillering
Cyperus esculentus	CYP ESCU (85)	WRO Clone 2* (ex South Africa)	failed to grow	-
Cyperus rotundus	CYP ROTU (86)	WRO Clone 1* (ex Rhodesia)	6 leaves	12-14 leaves
Oxalis latifolia	OXAL LAT (87)	WRO Clone 2** (ex Cornwall)	1-4 trifoliate leaves	4-5 trifoliate leaves, flowering

* tubers ** bulbs

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	LC50	infra red	i.r.
cubic centimetre*	cm^3	kilogramme	kg
cubic foot*	ft^3	kilo ($x10^3$)	k
cubic inch*	in^3	less than	<
cubic metre*	m^3	litre	l.
cubic yard*	yd^3	low volume	LV
cultivar(s)	cv.	maximum	max.
curie*	Ci	median lethal dose	LD50
degree Celsius*	^oC	medium volume	MV
degree centigrade	^oC	melting point	m.p.
degree Fahrenheit*	^oF	metre	m
diameter	diam.	micro ($x10^{-6}$)	μ
diameter at breast height	d.b.h.	microgramme*	μg
divided by*	÷ or /	micromicro (pico: $x10^{-12}$)*	μμ
dry matter	d.m.	micrometre (micron)*	μm (or μ)
emulsifiable concentrate	e.c.	micron (micrometre)*†	μm (or μ)
equal to*	=	miles per hour*	mile/h
fluid	fl.	milli ($x10^{-3}$)	m
foot	ft	milliequivalent*	m.equiv.
		milligramme	mg
		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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