[Click here for previous](#)

SPECIES	RH 8817 0.2 kg/ha		RH 8817 0.8 kg/ha		RH 8817 3.2 kg/ha	
CIRS ARV	75	xxxxxxxxxxxxxxx	0		25	xxxxx
(50)	57	xxxxxxxxxxx	0		14	xxx
MILLET	50	xxxxxxxxxx	40	xxxxxxxx	0	
(55)	57	xxxxxxxxxxx	29	xxxxxx	0	
MAIZE + S	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	25	xxxxx
(56)	86	xxxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	21	xxxx
MAIZE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	0	
(57)	71	xxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	0	
SORG + S	100	xxxxxxxxxxxxxxxxxxxx	67	xxxxxxxxxxxxx	0	
(58)	79	xxxxxxxxxxxxxxxx	29	xxxxxx	0	
SORGHUM	100	xxxxxxxxxxxxxxxxxxxx	50	xxxxxxxxxx	0	
(59)	79	xxxxxxxxxxxxxxxx	36	xxxxxxx	0	
PIGEON P	20	xxxx	0		0	
(61)	43	xxxxxxxxx	0		0	
COWPEA	100	xxxxxxxxxxxxxxxxxxxx	80	xxxxxxxxxxxxxxxx	0	
(62)	50	xxxxxxxxxx	29	xxxxxx	0	
CHICKPEA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(63)	64	xxxxxxxxxxxxx	50	xxxxxxxxxx	50	xxxxxxxxxx
GRNDNUT	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(64)	64	xxxxxxxxxxxxx	50	xxxxxxxxxx	43	xxxxxxxxx
SOYABEAN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(65)	86	xxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	57	xxxxxxxxxxx
COTTON	100	xxxxxxxxxxxxxxxxxxxx	90	xxxxxxxxxxxxxxxxxx	0	
(66)	43	xxxxxxxxx	14	xxx	0	

POST-EMERGENCE SELECTIVITY TEST

POST-EMERGENCE SELECTIVITY TEST

SPECIES	RH 8817 0.2 kg/ha		RH 8817 0.8 kg/ha		RH 8817 3.2 kg/ha	
JUTE	0		0		0	
(67)	0		0		0	
KENAF	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	50	xxxxxxxxxx
(68)	29	xxxxxx	29	xxxxxx	7	x
TOBACCO	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	40	xxxxxxxx
(69)	64	xxxxxxxxxxxxx	43	xxxxxxxxx	36	xxxxxxx
SESAMUM	0		0		0	
(70)	0		0		0	
TOMATO	33	xxxxxxx	0		0	
(71)	57	xxxxxxxxxxx	0		0	
RICE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	87	xxxxxxxxxxxxxxxxx
(72)	71	xxxxxxxxxxxxxx	57	xxxxxxxxxxx	43	xxxxxxxxx
RICE + A	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(73)	86	xxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	43	xxxxxxxxx
ELEU IND	100	xxxxxxxxxxxxxxxxxxxx	80	xxxxxxxxxxxxxxxx	0	
(74)	93	xxxxxxxxxxxxxxxxxxx	43	xxxxxxxxx	0	
ECH CRUS	100	xxxxxxxxxxxxxxxxxxxx	17	xxx	0	
(75)	64	xxxxxxxxxxxxx	14	xxx	0	
ROTT EXA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	25	xxxxx
(76)	79	xxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	21	xxxx
DIG SANG	100	xxxxxxxxxxxxxxxxxxxx	92	xxxxxxxxxxxxxxxxxx	8	xx
(77)	100	xxxxxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	21	xxxx
AMAR RET	70	xxxxxxxxxxxxxx	0		0	
(78)	43	xxxxxxxxx	0		0	

POST-EMERGENCE SELECTIVITY TEST

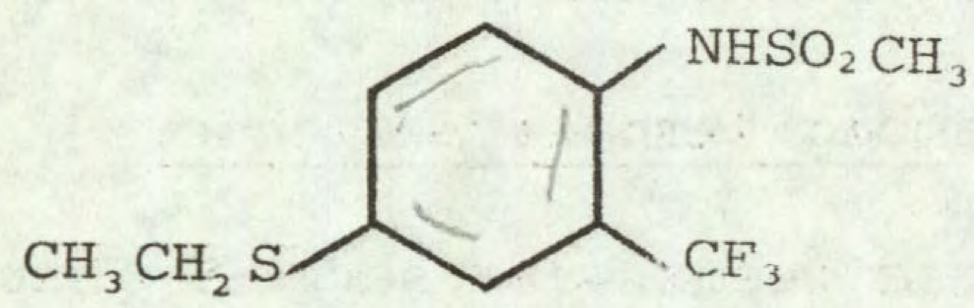
SPECIES	RH 8817 0.2 kg/ha		RH 8817 0.8 kg/ha		RH 8817 3.2 kg/ha	
PORT OLE	0		0		0	
(79)	0		0		0	
SOL NIG	17	xxx	0		0	
(81)	36	xxxxxxx	0		0	
BROM PEC	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	31	xxxxxx
(82)	79	xxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	36	xxxxxxx
SNO POL	100	xxxxxxxxxxxxxxxxxxxx	94	xxxxxxxxxxxxxxxxxxx	44	xxxxxxxxx
(83)	93	xxxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	36	xxxxxxx
PHAL MIN	100	xxxxxxxxxxxxxxxxxxxx	50	xxxxxxxxxx	0	
(84)	64	xxxxxxxxxxxxx	36	xxxxxxx	0	
CYP ESCU	-		-		-	
(85)	57	xxxxxxxxxxx	50	xxxxxxxxxx	29	xxxxxx
CYP ROTU	-		-		-	
(86)	71	xxxxxxxxxxxxxx	57	xxxxxxxxxxx	43	xxxxxxxxx
OXAL LAT	-		-		-	
(87)	50	xxxxxxxxxx	21	xxxx	0	
CYN DACT	-		-		-	
(88)	93	xxxxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	50	xxxxxxxxxx

MBR 18337

Code number MBR 18337

Chemical name N-[4-(ethylthio)-2-(trifluoromethyl)phenyl]methane sulphonamide

Structure



Source FBC Limited
Agrochemical Division
Chesterford Park Research Station
Saffron Walden
Essex CB10 1XL

Information available and suggested uses

Grass growth retardation and seedhead suppression in all warm and cool season turf grasses at 0.14 and 2.24 kg a.i./ha depending on species; sucrose enhancement in sugar cane at 0.28 to 1.12 kg a.i./ha; weed control in cotton pre-emergence, pre-plant incorporated or post-emergence at 0.56 to 2.24 kg a.i./ha.

Formulation used 24% w/v a.i. emulsifiable concentrate

Spray volume for post-emergence selectivity experiment 371 l/ha

RESULTS

Full results are given in the histograms on pages 36-41 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
1.60	None	None listed as no crops tolerant
0.4	rape cabbage radish chickpea	Festuca rubra Poa trivialis Holcus lanatus Agrostis stolonifera Eleusine indica Echinochloa crus-galli
0.1	None listed as no weeds controlled	None

Comments on results

Results of the activity and pre-emergence selectivity experiments were published earlier (Richardson et al, 1982) together with symptoms caused on susceptible species, and soil persistence. Greatest activity was found pre-emergence especially on grasses. Post-emergence, moderate, though non-lethal effects resulted, broad-leaved species tending to be more sensitive to the foliar spray rather than to the soil drench, but grasses responded similarly to both post-emergence treatments. Symptoms were typical of other amide/anilide herbicides, necrosis usually developing much later after inhibition of apical meristems, which were often swollen. Leaves were often fused together, dark green in colour with shiny leaf surfaces. Similar symptoms appeared in the current post-emergence test but several species tended to produce either extra tillers (grasses) or more axillaries further down their stems, (broad-leaved species), these usually being small and sometimes deformed.

Post-emergence selectivity among temperate species

Although nearly all grass weeds were severely stunted at 0.4 kg/ha and lower, only four species were controlled at this dose. These included the perennial, Agrostis stolonifera and the annuals, Festuca rubra, Holcus lanatus and Poa trivialis. Broad-leaved weeds were generally resistant though some, eg Sinapis arvensis and Spergula arvensis were severely stunted even at the lowest dose.

Only three brassica crops (cabbage, radish and rape) tolerated 0.4 kg/ha. Wheat and barley were sensitive even at the lowest dose. NA failed to reduce herbicidal effects on these two species, in contrast to the pre-emergence test (Richardson et al, 1982).

Although some grass weeds were controlled selectively in certain brassica crops post-emergence, better activity and selectivity exists pre-emergence. A wider spectrum of weeds was then controlled more effectively in brassica and other crops (Richardson et al, 1982). The partial control of Sinapis arvensis in brassica crops post-emergence may be worth further testing, however.

Selectivity among tropical species

Nearly all species showed comparable degrees of stunting and distortion, mostly mild at 0.1 kg/ha and severe at 1.6 kg/ha. At 0.4 kg/ha the effects were generally severe; chickpea was exceptional in showing no deformity at this dose but pod development may have been delayed. There was some protection of maize and rice by NA but only at the lowest dose. Sorghum was not protected by cyometrinil. Perennials were damaged initially to the same degree as annuals but all were recovering strongly after about two months.

The value of this compound as a post-emergence treatment would appear to be restricted to situations where a non-selective growth suppression rather than kill is required, perhaps under a perennial tree crop.

POST-EMERGENCE SELECTIVITY TEST

SPECIES	MBR 18337 0.1 kg/ha		MBR 18337 0.4 kg/ha		MBR 18337 1.6 kg/ha	
WHEAT	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(1)	57	xxxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
WHEAT + S	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(2)	57	xxxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
BARLEY	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(3)	64	xxxxxxxxxxxxx	43	xxxxxxxxx	36	xxxxxxx
BARLEY + S	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(4)	64	xxxxxxxxxxxxx	43	xxxxxxxxx	36	xxxxxxx
OAT	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(5)	79	xxxxxxxxxxxxxxxx	43	xxxxxxxxx	36	xxxxxxx
PER RYGR	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(6)	86	xxxxxxxxxxxxxxxxx	36	xxxxxxx	43	xxxxxxxxx
ONION	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(8)	93	xxxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	50	xxxxxxxxxx
DWF BEAN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(9)	57	xxxxxxxxxxx	43	xxxxxxxxx	36	xxxxxxx
FLD BEAN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(19)	71	xxxxxxxxxxxxxx	57	xxxxxxxxxxx	43	xxxxxxxxx
PEA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(11)	86	xxxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	43	xxxxxxxxx
W CLOVER	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	69	xxxxxxxxxxxxxx
(12)	64	xxxxxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
RAPE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(14)	86	xxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	57	xxxxxxxxxxx

POST-EMERGENCE SELECTIVITY TEST

SPECIES	MBR 18337 0.1 kg/ha		MBR 18337 0.4 kg/ha		MBR 18337 1.6 kg/ha	
KALE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(15)	86	xxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	43	xxxxxxxxx
CABBAGE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(16)	86	xxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx
CARROT	84	xxxxxxxxxxxxxxxxx	105	xxxxxxxxxxxxxxxxxxxx+	105	xxxxxxxxxxxxxxxxxxxx+
(18)	79	xxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	43	xxxxxxxxx
PARSNIP	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(19)	71	xxxxxxxxxxxxxx	57	xxxxxxxxxxx	43	xxxxxxxxx
SUG BEET	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(22)	100	xxxxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx	50	xxxxxxxxxx
BETA VUL	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(23)	93	xxxxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	57	xxxxxxxxxxx
BROM STE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(24)	79	xxxxxxxxxxxxxxxx	36	xxxxxxx	29	xxxxxx
FEST RUB	75	xxxxxxxxxxxxxxx	31	xxxxxx	25	xxxxx
(25)	64	xxxxxxxxxxxxx	14	xxx	14	xxx
AVE FATU	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(26)	71	xxxxxxxxxxxxxx	43	xxxxxxxxx	36	xxxxxxx
ALO MYOS	100	xxxxxxxxxxxxxxxxxxxx	70	xxxxxxxxxxxxxx	60	xxxxxxxxxxxx
(27)	64	xxxxxxxxxxxxx	36	xxxxxxx	21	xxxx
POA ANN	100	xxxxxxxxxxxxxxxxxxxx	81	xxxxxxxxxxxxxxxx	94	xxxxxxxxxxxxxxxxxxx
(28)	50	xxxxxxxxxx	36	xxxxxxx	29	xxxxxx
POA TRIV	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	94	xxxxxxxxxxxxxxxxxxx
(29)	50	xxxxxxxxxx	29	xxxxxx	29	xxxxxx

POST-EMERGENCE SELECTIVITY TEST

SPECIES	MBR 18337 0.1 kg/ha		MBR 18337 0.4 kg/ha		MBR 18337 1.6 kg/ha	
SIN ARV	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(30)	57	xxxxxxxxxxx	50	xxxxxxxxxx	43	xxxxxxxxx
RAPH RAP	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	90	xxxxxxxxxxxxxxxxxx
(31)	93	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	57	xxxxxxxxxxx
TRIP MAR	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(33)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx
POL LAPA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(35)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx
GAL APAR	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(38)	86	xxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx
STEL MED	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	95	xxxxxxxxxxxxxxxxxxx
(40)	71	xxxxxxxxxxxxxx	57	xxxxxxxxxxx	43	xxxxxxxxx
SPER ARV	81	xxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	87	xxxxxxxxxxxxxxxxx
(41)	57	xxxxxxxxxxx	57	xxxxxxxxxxx	36	xxxxxxx
VER PERS	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(42)	93	xxxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxxx	57	xxxxxxxxxxx
RUM OBTU	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx
(44)	86	xxxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	57	xxxxxxxxxxx
HOLC LAN	80	xxxxxxxxxxxxxxxx	80	xxxxxxxxxxxxxxxx	30	xxxxxx
(45)	64	xxxxxxxxxxxxx	29	xxxxxx	7	x
AG REPEN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(47)	57	xxxxxxxxxxx	43	xxxxxxxxx	36	xxxxxxx
AG STOLO	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	90	xxxxxxxxxxxxxxxxxx
(48)	71	xxxxxxxxxxxxxx	29	xxxxxx	21	xxxx

POST-EMERGENCE SELECTIVITY TEST

SPECIES		MBR 18337 0.1 kg/ha		MBR 18337 0.4 kg/ha		MBR 18337 1.6 kg/ha
CIRS ARV	75	xxxxxxxxxxxxxxx	75	xxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(50)	100	xxxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx
MILLET	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	90	xxxxxxxxxxxxxxxxxx
(55)	71	xxxxxxxxxxxxxx	29	xxxxxx	36	xxxxxxx
MAIZE + S	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(56)	79	xxxxxxxxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
MAIZE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(57)	43	xxxxxxxxx	36	xxxxxxx	29	xxxxxx
SORG + S	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(58)	43	xxxxxxxxx	29	xxxxxx	29	xxxxxx
SORGHUM	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(59)	43	xxxxxxxxx	29	xxxxxx	29	xxxxxx
PIGEON P	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(61)	71	xxxxxxxxxxxxxx	50	xxxxxxxxxx	43	xxxxxxxxx
COWPEA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(62)	86	xxxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	50	xxxxxxxxxx
CHICKPEA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(63)	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx
GRNDNUT	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(64)	86	xxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	57	xxxxxxxxxxx
SOYABEAN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(65)	57	xxxxxxxxxxx	50	xxxxxxxxxx	36	xxxxxxx
COTTON	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(66)	86	xxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	50	xxxxxxxxxx

POST-EMERGENCE SELECTIVITY TEST

SPECIES	MBR 18337 0.1 kg/ha		MBR 18337 0.4 kg/ha		MBR 18337 1.6 kg/ha	
JUTE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(67)	57	xxxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
KENAF	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(68)	64	xxxxxxxxxxxxx	50	xxxxxxxxxx	43	xxxxxxxxx
TOBACCO	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(69)	86	xxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	50	xxxxxxxxxx
SESAMUM	94	xxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(70)	57	xxxxxxxxxxx	57	xxxxxxxxxxx	36	xxxxxxx
TOMATO	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(71)	64	xxxxxxxxxxxxx	57	xxxxxxxxxxx	43	xxxxxxxxx
RICE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(72)	71	xxxxxxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
RICE + S	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(73)	86	xxxxxxxxxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
ELEU IND	100	xxxxxxxxxxxxxxxxxxxx	80	xxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(74)	57	xxxxxxxxxxx	29	xxxxxx	29	xxxxxx
ECH CRUS	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(75)	86	xxxxxxxxxxxxxxxxx	29	xxxxxx	29	xxxxxx
ROTT EXA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(76)	79	xxxxxxxxxxxxxxxx	36	xxxxxxx	29	xxxxxx
DIG SANG	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(77)	57	xxxxxxxxxxx	36	xxxxxxx	36	xxxxxxx
AMAR RET	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	105	xxxxxxxxxxxxxxxxxxxx+
(78)	71	xxxxxxxxxxxxxx	57	xxxxxxxxxxx	43	xxxxxxxxx

SPECIES	MBR 18337 0.1 kg/ha		MBR 18337 0.4 kg/ha		MBR 18337 1.6 kg/ha	
PORT OLE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(79)	64	xxxxxxxxxxxxx	50	xxxxxxxxxx	43	xxxxxxxxx
SOL NIG	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(81)	64	xxxxxxxxxxxxx	57	xxxxxxxxxxx	43	xxxxxxxxx
BROM PEC	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(82)	57	xxxxxxxxxxx	36	xxxxxxx	29	xxxxxx
SNO POL	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(83)	57	xxxxxxxxxxx	50	xxxxxxxxxx	43	xxxxxxxxx
PHAL MIN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(84)	93	xxxxxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	29	xxxxxx
CYP ESCU	-		-		-	
(85)	93	xxxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx	43	xxxxxxxxx
CYP ROTU	-		-		-	
(86)	79	xxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	29	xxxxxx
OXAL LAT	-		-		-	
(87)	79	xxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	43	xxxxxxxxx
CYN DACT	-		-		-	
(88)	93	xxxxxxxxxxxxxxxxxxx	50	xxxxxxxxxx	29	xxxxxx

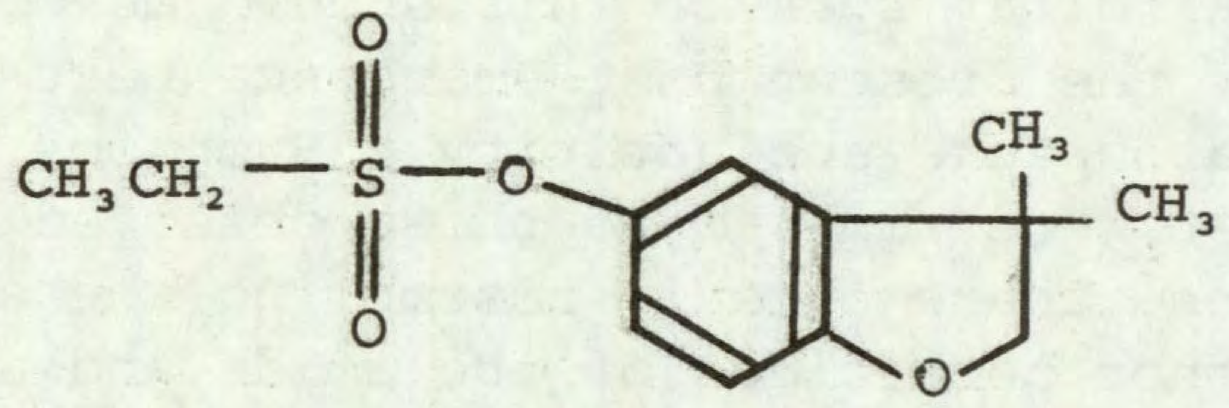
POST-EMERGENCE SELECTIVITY TEST

NC 20484

<u>Code number</u> NC 20484

<u>Chemical name</u> 2,3-dihydro-3,3-dimethyl-5-benzofuranyl ethanesulphonate

<u>Structure</u>



<u>Source</u> FBC Limited
Agrochemical Division
Chesterford Park Research Station
Saffron Walden
Essex CB10 1XL

<u>Information available and suggested uses</u>

Control of <u>Cyperus</u> spp and annual grass and broad-leaved weeds in cotton at 0.5 to 2.0 kg a.i./ha pre-plant or pre-emergence; tobacco 0.5 to 2.0 kg a.i./ha pre- or post-transplanting; orchard/plantation crops, pre-weed emergence.

<u>Formulation used</u> 40% w/v a.i. emulsifiable concentrate

<u>Spray volume</u> for post-emergence selectivity experiment 371 l/ha

RESULTS

Full results are given in the histograms on pages 44-49 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
3.20	parsnip rice + safener (NA)	Poa annua Galium aparine Spergula arvensis Veronica persica Holcus lanatus Agropyron repens Eleusine indica Echinochloa crus-galli Digitaria sanguinalis Portulaca oleracea Cyperus rotundus + species below
0.80	species above + perennial ryegrass maize + safener (NA)	Festuca rubra Alopecurus myosuroides Poa trivialis Stellaria media Rumex obtusifolius Bromus pectinatus
0.20	None listed as no weeds controlled	None

Comments on results

Activity and pre-emergence selectivity data were published previously (Richardson et al, 1982) together with soil persistence data and symptoms on susceptible species. As with MBR 18337, pre-emergence treatments were more effective than post-emergence. In the latter, broad-leaved species were more susceptible to the foliar spray than to soil drenches, again corresponding to MBR 18337 but with the grasses NC 20484 was much more active as a soil drench than as a foliar spray. This should be borne in mind when considering the results of the present post-emergence test where the possibility existed for soil and foliar uptake and activity. Symptoms produced on susceptible species in the present test were similar to those observed and described in the earlier activity experiment, these closely resembling the effects of the previous herbicide MBR 18337 and other herbicides of the amide and anilide groups.

Post-emergence selectivity among temperate species

Several annual grass and broad-leaved weeds were controlled. At 0.8 kg/ha Alopecurus myosuroides and Festuca rubra were susceptible. At 3.2 kg/ha Galium aparine and Veronica persica were among the weed species controlled.

Parsnip was the only crop to withstand the high dose of 3.2 kg/ha. Perennial ryegrass was the only other tolerant crop at 0.8 kg/ha. White clover and beans (dwarf and field) were very sensitive as were some of the brassica crops (kale, cabbage and radish). The cereals too were rather susceptible, especially wheat. No safening effect of NA was found with these two cereals, contrasting with a moderate to good effect, found in the earlier pre-emergence test (Richardson et al, 1982).

The control of F. rubra and A. myosuroides in perennial ryegrass is of interest and perhaps worthy of further investigation. Unfortunately this species is sensitive pre-emergence. The weed spectrum was wider and the level of activity greater, pre- rather than post-emergence (Richardson et al, 1982), while a few more crops were tolerant, pre-emergence.

Selectivity among tropical species

The symptoms of stunting and distortion from this compound were almost indistinguishable from those of the previous compound MBR 18337 and there was a comparable lack of selectivity on most crops. Even chickpea failed to show tolerance, but there was a more pronounced protection of maize and rice by NA, and a range of weeds could theoretically be selectivity controlled in rice at the highest dose of 3.2 kg/ha. Further work with NA and NC 20484 on maize and rice will be published elsewhere. Effects on sorghum were not reduced by cyometrinil. Perennials were affected quite severely at first, as they were by MBR 18337. Recovery was a little slower but almost complete after about three months.

SPECIES	NC 20484 0.2 kg/ha		NC 20484 0.8 kg/ha		NC 20484 3.2 kg/ha	
WHEAT	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(1)	71	xxxxxxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
WHEAT + S	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(2)	64	xxxxxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
BARLEY	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(3)	86	xxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	36	xxxxxxx
BARLEY + S	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(4)	86	xxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	36	xxxxxxx
OAT	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(5)	86	xxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	43	xxxxxxxxx
PER RYGR	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(6)	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	43	xxxxxxxxx
ONION	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx
(8)	71	xxxxxxxxxxxxxx	57	xxxxxxxxxxx	43	xxxxxxxxx
DWF BEAN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(9)	50	xxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
FLD BEAN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(10)	43	xxxxxxxxx	29	xxxxxx	29	xxxxxx
PEA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(11)	79	xxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx	57	xxxxxxxxxxx
W CLOVER	81	xxxxxxxxxxxxxxxx	75	xxxxxxxxxxxxxxx	44	xxxxxxxxx
(12)	36	xxxxxxx	29	xxxxxx	29	xxxxxx
RAPE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(14)	79	xxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	43	xxxxxxxxx

POST-EMERGENCE SELECTIVITY TEST

SPECIES	NC 20484 0.2 kg/ha		NC 20484 0.8 kg/ha		NC 20484 3.2 kg/ha	
KALE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(15)	50	xxxxxxxxxx	43	xxxxxxxxx	36	xxxxxxx
CABBAGE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(16)	43	xxxxxxxxx	50	xxxxxxxxxx	43	xxxxxxxxx
CARROT	95	xxxxxxxxxxxxxxxxxxx	105	xxxxxxxxxxxxxxxxxxxx+	105	xxxxxxxxxxxxxxxxxxxx+
(18)	86	xxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx	57	xxxxxxxxxxx
PARSNIP	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(19)	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx
SUG BEET	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(22)	79	xxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	50	xxxxxxxxxx
BETA VUL	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(23)	86	xxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	64	xxxxxxxxxxxxx
BROM STE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(24)	93	xxxxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	43	xxxxxxxxx
FEST RUB	56	xxxxxxxxxxx	0		25	xxxxx
(25)	50	xxxxxxxxxx	0		14	xxx
AVE FATU	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(26)	100	xxxxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx	50	xxxxxxxxxx
ALO MYOS	80	xxxxxxxxxxxxxxxx	80	xxxxxxxxxxxxxxxx	90	xxxxxxxxxxxxxxxxxx
(27)	50	xxxxxxxxxx	29	xxxxxx	29	xxxxxx
POA ANN	100	xxxxxxxxxxxxxxxxxxxx	94	xxxxxxxxxxxxxxxxxxx	62	xxxxxxxxxxxx
(28)	86	xxxxxxxxxxxxxxxxx	36	xxxxxxx	29	xxxxxx
POA TRIV	100	xxxxxxxxxxxxxxxxxxxx	87	xxxxxxxxxxxxxxxxx	62	xxxxxxxxxxxx
(29)	79	xxxxxxxxxxxxxxxx	29	xxxxxx	29	xxxxxx

SPECIES	NC 20484 0.2 kg/ha			NC 20484 0.8 kg/ha			NC 20484 3.2 kg/ha		
SIN ARV	100		xxxxxxxxxxxxxxxxxxxx	100		xxxxxxxxxxxxxxxxxxxx	100		xxxxxxxxxxxxxxxxxxxx
(30)	57		xxxxxxxxxxx	43		xxxxxxxxx	36		xxxxxxx
RAPH RAP	80		xxxxxxxxxxxxxxxx	100	MP	xxxxxxxxxxxxxxxxxxxx	100		xxxxxxxxxxxxxxxxxxxx
(31)	57		xxxxxxxxxxx	43		xxxxxxxxx	43		xxxxxxxxx
TRIP MAR	100		xxxxxxxxxxxxxxxxxxxx	100		xxxxxxxxxxxxxxxxxxxx	100		xxxxxxxxxxxxxxxxxxxx
(33)	79		xxxxxxxxxxxxxxxx	71		xxxxxxxxxxxxxx	36		xxxxxxx
POL LAPA	100		xxxxxxxxxxxxxxxxxxxx	100		xxxxxxxxxxxxxxxxxxxx	100		xxxxxxxxxxxxxxxxxxxx
(35)	86		xxxxxxxxxxxxxxxxx	86		xxxxxxxxxxxxxxxxx	64		xxxxxxxxxxxxx
GAL APAR	100		xxxxxxxxxxxxxxxxxxxx	100		xxxxxxxxxxxxxxxxxxxx	100		xxxxxxxxxxxxxxxxxxxx
(38)	64		xxxxxxxxxxxxx	36		xxxxxxx	29		xxxxxx
STEL MED	100		xxxxxxxxxxxxxxxxxxxx	100		xxxxxxxxxxxxxxxxxxxx	100		xxxxxxxxxxxxxxxxxxxx
(40)	36		xxxxxxx	29		xxxxxx	29		xxxxxx
SPER ARV	100		xxxxxxxxxxxxxxxxxxxx	94		xxxxxxxxxxxxxxxxxxx	87		xxxxxxxxxxxxxxxxx
(41)	79		xxxxxxxxxxxxxxxx	43		xxxxxxxxx	29		xxxxxx
VER PERS	100		xxxxxxxxxxxxxxxxxxxx	80		xxxxxxxxxxxxxxxx	50		xxxxxxxxxx
(42) -	71		xxxxxxxxxxxxxx	50		xxxxxxxxxx	29		xxxxxx
RUM OBTU	100	R	xxxxxxxxxxxxxxxxxxxx	100	R	xxxxxxxxxxxxxxxxxxxx	100	R	xxxxxxxxxxxxxxxxxxxx
(44)	43		xxxxxxxxx	29		xxxxxx	29		xxxxxx
HOLC LAN	100		xxxxxxxxxxxxxxxxxxxx	30		xxxxxx	60		xxxxxxxxxxxx
(45)	79		xxxxxxxxxxxxxxxx	50		xxxxxxxxxx	14		xxx
AG REPEN	100		xxxxxxxxxxxxxxxxxxxx	100		xxxxxxxxxxxxxxxxxxxx	100		xxxxxxxxxxxxxxxxxxxx
(47)	71		xxxxxxxxxxxxxx	57		xxxxxxxxxxx	29		xxxxxx
AG STOLO	100		xxxxxxxxxxxxxxxxxxxx	100		xxxxxxxxxxxxxxxxxxxx	100		xxxxxxxxxxxxxxxxxxxx
(48)	86		xxxxxxxxxxxxxxxxx	50		xxxxxxxxxx	36		xxxxxxx

POST-EMERGENCE SELECTIVITY TEST

POST-EMERGENCE SELECTIVITY TEST

SPECIES	NC 20484 0.2 kg/ha		NC 20484 0.8 kg/ha		NC 20484 3.2 kg/ha	
CIRS ARV	75	xxxxxxxxxxxxxxx	75	xxxxxxxxxxxxxxx	75	xxxxxxxxxxxxxxx
(50)	57	xxxxxxxxxxx	71	xxxxxxxxxxxxxx	50	xxxxxxxxxx
MILLET	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(55)	93	xxxxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	43	xxxxxxxxx
MAIZE + S	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(56)	100	xxxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxxx	36	xxxxxxx
MAIZE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(57)	93	xxxxxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	29	xxxxxx
SORG + S	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(58)	100	xxxxxxxxxxxxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
SORGHUM	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(59)	93	xxxxxxxxxxxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
PIGEON P	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(61)	43	xxxxxxxxx	29	xxxxxx	29	xxxxxx
COWPEA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(62)	64	xxxxxxxxxxxxx	57	xxxxxxxxxxx	57	xxxxxxxxxxx
CHICKPEA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(63)	86	xxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	57	xxxxxxxxxxx
GRNDNUT	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(64)	71	xxxxxxxxxxxxxx	57	xxxxxxxxxxx	43	xxxxxxxxx
SOYABEAN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(65)	71	xxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	50	xxxxxxxxxx
COTTON	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(66)	93	xxxxxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	50	xxxxxxxxxx

SPECIES	NC 20484 0.2 kg/ha		NC 20484 0.8 kg/ha		NC 20484 3.2 kg/ha	
JUTE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(67)	86	xxxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	29	xxxxxx
KENAF	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(68)	64	xxxxxxxxxxxxx	50	xxxxxxxxxx	36	xxxxxxx
TOBACCO	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(69)	71	xxxxxxxxxxxxxx	50	xxxxxxxxxx	43	xxxxxxxxx
SESAMUM	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(70)	86	xxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	43	xxxxxxxxx
TOMATO	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(71)	57	xxxxxxxxxxx	50	xxxxxxxxxx	36	xxxxxxx
RICE	87	xxxxxxxxxxxxxxxxx	87	xxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(72)	86	xxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	50	xxxxxxxxxx
RICE + S	100 MP	xxxxxxxxxxxxxxxxxxxx	87	xxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(73)	86	xxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx
ELEU IND	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(74)	86	xxxxxxxxxxxxxxxxx	50	xxxxxxxxxx	29	xxxxxx
ECH CRUS	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	92	xxxxxxxxxxxxxxxxxx
(75)	100	xxxxxxxxxxxxxxxxxxxx	50	xxxxxxxxxx	29	xxxxxx
ROTT EXA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(76)	100	xxxxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx	43	xxxxxxxxx
DIG SANG	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(77)	71	xxxxxxxxxxxxxx	36	xxxxxxx	29	xxxxxx
AMAR RET	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(78)	79	xxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	43	xxxxxxxxx

SPECIES	NC 20484 0.2 kg/ha		NC 20484 0.8 kg/ha		NC 20484 3.2 kg/ha	
PORT OLE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	75	xxxxxxxxxxxxxxx
(79)	57	xxxxxxxxxxx	36	xxxxxxx	29	xxxxxx
SOL NIG	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(81)	64	xxxxxxxxxxxxx	50	xxxxxxxxxx	36	xxxxxxx
BROM PEC	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(82)	71	xxxxxxxxxxxxxx	29	xxxxxx	29	xxxxxx
SNO POL	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(83)	50	xxxxxxxxxx	43	xxxxxxxxx	36	xxxxxxx
PHAL MIN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	92	xxxxxxxxxxxxxxxxxx
(84)	100	xxxxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx	50	xxxxxxxxxx
CYP ESCU	-		-		-	
(85)	71	xxxxxxxxxxxxxx	50	xxxxxxxxxx	36	xxxxxxx
CYP ROTU	-		-		-	
(86)	86	xxxxxxxxxxxxxxxxx	50	xxxxxxxxxx	29	xxxxxx
OXAL LAT	-		-		-	
(87)	57	xxxxxxxxxxx	50	xxxxxxxxxx	36	xxxxxxx
CYN DACT	-		-		-	
(88)	100	xxxxxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	36	xxxxxxx

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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)	Mardler	$2\frac{1}{2}$ leaves	10-12 leaves, 2 tillers
Wheat + safener	WHEAT + S (2)	Mardler	$2\frac{1}{2}$ leaves	10-12 leaves, 2 tillers
Barley (*Hordeum vulgare*)	BARLEY (3)	Sonja	$2\frac{1}{2}$ leaves	10-20 leaves, up to 7 tillers
Barley + safener	BARLEY + S (4)	Sonja	$2\frac{1}{2}$ leaves	10-20 leaves, up to 7 tillers
Oat (*Avena sativa*)	OAT (5)	Pennal	2-$2\frac{1}{2}$ leaves	14-17 leaves, up to 3 tillers
Perennial ryegrass (*Lolium perenne*)	PER RYGR (6)	S 23	$3\frac{1}{2}$-$4\frac{1}{2}$ leaves, tillering	Up to 4 tillers
Onion (*Allium cepa*)	ONION (8)	Hygro	$1\frac{1}{2}$-2 leaves	4 leaves
Dwarf bean (*Phaseolus vulgaris*)	DWF BEAN (9)	The Prince	2 unifoliate leaves	4 trifoliate leaves, flowering
Field bean (*Vicia faba*)	FLD BEAN (10)	Maris Bead	2-$2\frac{1}{2}$ leaves	9 leaves
Pea (*Pisum sativum*)	PEA (11)	Dark Skinned Perfection	2-$2\frac{1}{2}$ leaves	Up to 10 leaves
White Clover (*Trifolium repens*)	W CLOVER (12)	Milkanova	1 trifoliate leaf	12 trifoliate leaves
Rape (*Brassica napus oleifera*)	RAPE (14)	Rapora	$2\frac{1}{2}$ leaves	7 leaves
Kale (*Brassica oleracea acephala*	KALE (15)	Marrow Stem	$2\frac{1}{2}$ leaves	4-$4\frac{1}{2}$ leaves
Cabbage (*Brassica oleracea capitata*)	CABBAGE (16)	Derby Day	2-$2\frac{1}{2}$ leaves	6-7 leaves
Carrot (*Daucus carota*)	CARROT (18)	Chantenay Red Core	$1\frac{1}{2}$-2 leaves	6 leaves

	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)	Albino	1½-2 leaves	4 leaves
Lettuce (Lactuca sativa)	LETTUCE (20)	Reskia	Inadequate germination	-
Fenugreek (Trigonella foenumgraecum)	FENUGREEK (21)	Paul	Inadequate germination	-
Sugar beet (Beta vulgaris)	SUG BEET (22)	Vytomo	2-2½ leaves	7-8 leaves
Beta vulgaris	BETA VUL (23)	WRO 1979 ex Attleborough	2 leaves	7 leaves
Bromus sterilis	BROM STE (24)	WRO 1979	4-4½ leaves, tillering	35 leaves, up to 10 tillers
Festuca rubra	FEST RUB (25)	Boreal	2 leaves	Up to 7 tillers
Avena fatua	AVE FATU (26)	WRO 1978	3-4½ leaves, some tillering	10-14 leaves 2 tillers
Alopecurus myosuroides	ALO MYOS (27)	WRO 1979	2-3 leaves	Up to 12 tillers
Poa annua	POA ANN (28)	B & S Supplies 1978	4-5 leaves, some tillering	Up to 12 tillers
Poa trivialis	POA TRIV (29)	WRO 1978	5-7 leaves, tillering	Up to 20 tillers
Sinapis arvensis	SIN ARV (30)	WRO 1971	3-5 leaves	5-6 leaves, flowering
Raphanus raphanistrum	RAPH RAP (31)	Long Black Spanish	4-5 leaves	7-8 leaves
Tripleurospermum maritimum	TRIP MAR (33)	WRO 1978	4 leaves	Numerous leaves, flowers developing
Senecio vulgaris	SEN VULG (34)	WRO 1977	Inadequate germination	-
Polygonum lapathifolium	POL LAPA (35)	WRO 1980	2½ leaves	10 leaves, flowering
Polygonum aviculare	POL AVIC (36)	B & S Supplies 1978	Inadequate germination	-

	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)
Galium aparine	GAL APAR (38)	WRO 1979	3-5 whorls	Up to 13 whorls
Chenopodium album	CHEN ALB (39)	B & S Supplies 1977	Inadequate germination	-
Stellaria media	STEL MED (40)	B & S Supplies 1977	6 leaves	Numerous leaves, flowering
Spergula arvensis	SPER ARV (41)	B & S Supplies 1977	2 whorls	Numerous whorls, flowering
Veronica persica	VER PERS (42)	WRO 1977	4-5 leaves	Numerous leaves, flowering
Rumex obtusifolius	RUM OBTU (44)	B & S Supplies 1978	1-2½ leaves	4-4½ leaves
Holcus lanatus	HOLC LAN (45)	B & S Supplies 1979	2-3 leaves	6-10 tillers
Agropyron repens	AG REPEN (47)	WRO Clone 31*	2½-3 leaves	14-20 leaves, 2-3 tillers
Agrostis stolonifera	AG STOLO (48)	B & S Supplies 1976	4-7 leaves, tillering	8-13 stolons
Cirsium arvense	CIRS ARV (50)	WRO Clone 1**	3-5 leaves	7-10 leaves
Tropical species (grown under higher temperature regime)				
Millet (*Pennisetum americanum*)	MILLET (55)	Ex ICRISAT 1977	2½-3 leaves	5½-7½ leaves
Maize + safener (*Zea mays*)	MAIZE + S (56)	Julia	3-3½ leaves	6½-7½ leaves
Maize (*Zea mays*)	MAIZE (57)	Julia	3-3½ leaves	6½ leaves
Sorghum + safener (*Sorghum bicolor*)	SORG + S (58)	Funk G 623	3½-4 leaves	7½ leaves
Sorghum (*Sorghum bicolor*)	SORGHUM (59)	Funk G 623	3½-4 leaves	7½ leaves
Pigeon pea (*Cajanus cajan*)	PIGEON P (61)	ICRISAT 1977	1 trifoliate leaf	5-7 trifoliate leaves

* one node rhizome pieces ** root fragments

	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)
Cowpea (Vigna unguiculata)	COWPEA (62)	ICRISAT 1977	1 trifoliate leaf	3-4 trifoliate leaves
Chickpea (Cicer arietinum)	CHICKPEA (63)	Jygthi 1981	8-9 pinnate leaves	18 pinnate leaves
Groundnut (Arachis hypogaea)	GRNDNUT (64)	Mani Pinta (Ghana)	3-4 pinnate leaves	6-7 pinnate leaves
Soyabean (Glycine max)	SOYABEAN (65)	Bragg (USA)	1-2 trifoliate leaves	5 trifoliate leaves
Cotton (Gossypium hirsutum)	COTTON (66)	S 71 (Nigeria)	2 leaves	4-5 leaves
Jute (Corchorus olitorius)	JUTE (67)	Egypt 1971	3-4 leaves	8-11 leaves
Kenaf (Hibiscus cannabinus)	KENAF (68)	A 63-440 (Ghana)	3-4 leaves	8-9 leaves
Tobacco (Nicotiana tabacum)	TOBACCO (69)	Yellow Mammoth	4-5 leaves	7-8 leaves
Sesamum (Sesamum indicum)	SESAMUM (70)	Sudan, 1981	2 leaves	6-8 leaves
Tomato (Lycopersicum esculentum)	TOMATO (71)	Ailsa Craig	2-4 pinnate leaves	7-9 pinnate leaves
Rice (Oryza sativa)	RICE (72)	IR 298	3-3½ leaves	6½-7 leaves, 0-2 tillers
Rice + safener (Oryza sativa)	RICE + S (73)	IR 298	3-3½ leaves	6½-7 leaves, 0-1 tiller
Eleusine indica	ELEU IND (74)	WRO 1977	2-3½ leaves	8-9 leaves, 2-3 tillers
Echinochloa crus-galli	ECH CRUS (75)	WRO 1976	3-3¼ leaves	6½-8 leaves
Rottboellia exaltata	ROT EXAL (76)	Zimbabwe 1978	2½-3 leaves	6 leaves
Digitaria sanguinalis	DIG SANG (77)	WRO 1973	4-5 leaves	7-9 leaves, 2-4 tillers
Amaranthus retroflexus	AMAR RET (78)	WRO 1979	5-7 leaves	6-12 leaves

	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)
Portulaca oleracea	PORT OLE (79)	WRO 1973	4-6 leaves	10-16 leaves
Solanum nigrum	SOL NIG (81)	WRO 1975	1-6 leaves	Flowering
Bromus pectinatus	BROM PEC (82)	Tanzania 1978	3-3¼ leaves	6-7 leaves, 0-2 tillers
Snowdenia polystachya	SNOW POL (83)	Ethiopia 1978	4½-5½ leaves	6½-8½ leaves, 0-2 tillers
Phalaris minor	PHAL MIN (84)	India 1978	3-3½ leaves, some tillering	6-7 leaves, 1-2 tillers
Cyperus esculentus	CYP ESCU (85)	WRO Clone 2* (ex South Africa)	4-4½ leaves	6-8 leaves
Cyperus rotundus	CYP ROTU (86)	WRO Clone 1* (ex Zimbabwe)	5-6 leaves	10-12 leaves
Oxalis latifolia	OXAL LAT (87)	WRO Clone 2** (ex Cornwall)	1-2 trifoliate leaves	10-20 leaves, flowering
Cynodon dactylon	CYN DACT (88)	WRO Clone 2† (ex Sudan)	5-6 leaves, 1-2 tillers	Up to 7 nodes

* tubers ** bulbs † runners

ABBREVIATIONS

ångström	Å
Abstract	Abs.
acid equivalent*	a.e.
acre	ac
active ingredient*	a.i.
approximately equal to*	$\simeq$
aqueous concentrate	a.c.
bibliography	bibl.
boiling point	b.p.
bushel	bu
centigrade	C
centimetre*	cm
concentrated	concd
concentration	concn
concentration x time product	ct
concentration required to kill 50% test animals	LC50
cubic centimetre*	cm^3
cubic foot*	ft^3
cubic inch*	in^3
cubic metre*	m^3
cubic yard*	yd^3
cultivar(s)	cv.
curie*	Ci
degree Celsius*	^{o}C
degree centigrade	^{o}C
degree Fahrenheit*	^{o}F
diameter	diam.
diameter at breast height	d.b.h.
divided by*	÷ or /
dry matter	d.m.
emulsifiable concentrate	e.c.
equal to*	=
fluid	fl.
foot	ft

freezing point	f.p.
from summary	F.s.
gallon	gal
gallons per hour	gal/h
gallons per acre	gal/ac
gas liquid chromatography	GLC
gramme	g
hectare	ha
hectokilogram	hkg
high volume	HV
horse power	hp
hour	h
hundredweight*	cwt
hydrogen ion concentration*	pH
inch	in.
infra red	i.r.
kilogramme	kg
kilo ($x10^3$)	k
less than	<
litre	l.
low volume	LV
maximum	max.
median lethal dose	LD50
medium volume	MV
melting point	m.p.
metre	m
micro ($x10^{-6}$)	μ
microgramme*	μg
micromicro (pico: $x10^{-12}$)*	μμ
micrometre (micron)*	μm (or μ)
micron (micrometre)* †	μm (or μ)
miles per hour*	mile/h
milli ($x10^{-3}$)	m
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*	√
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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22. The pre-emergence selectivity of some newly developed herbicides: bentazon, BAS 3730H, metflurazone, SAN 9789, HER 52.123, U 27,267. December 1972. W G Richardson and M L Dean. Price - £0.25

23. A survey of the presence of wild oats and blackgrass in parts of the United Kingdom during summer 1972. A Phillipson. Price - £0.25

24. The conduct of field experiments at the Weed Research Organization. February 1973. J G Elliott, J Holroyd and T O Robson. Price - £1.25

25. The pre-emergence selectivity of some recently developed herbicides: lenacil , RU 12068, metribuzin, cyprazine, EMD-IT 5914 and benthiocarb. August 1973. W G Richardson and M L Dean. Price - £1.75.

26. The post-emergence selectivity of some recently developed herbicides: bentazon, EMD-IT 6412, cyprazine, metribuzin, chlornitrofen, glyphosate, MC 4379, chlorfenprop-methyl. October 1973. W G Richardson and M L Dean. Price - £3.31

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* 29. The pre-emergence selectivity between pasture grasses of twelve herbicides: haloxydine, pronamide, NC 8438, Orga 3045, chlortoluron, metoxuron, dicamba, isopropalin, carbetamide, MC 4379, MBR 8251 and EMD-IT 5914. November 1973. A M Blair. Price - £1.30

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