Click here for previous

SPECIES		AC 213087 0.25 kg/ha		AC 213087 1.0 kg/ha		AC 213087 4.0 kg/ha
SOYABEAN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(65)	57	xxxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
COTTON	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(66)	57	xxxxxxxxxxx	64	xxxxxxxxxxxx	50	xxxxxxxxxx
JUTE	80	xxxxxxxxxxxxxxxx	0		0	
(67)	14	xxx	0		0	
KENAF	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(68)	71	xxxxxxxxxxxxxx	50	xxxxxxxxxx	36	xxxxxxx
TOBACCO	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(69)	64	xxxxxxxxxxxxx	57	xxxxxxxxxxx	43	xxxxxxxxx
SESAMUM	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx	67 R	xxxxxxxxxxxxx
(70)	43 R	xxxxxxxxx	29 R	xxxxxx	14 R	xxx
TOMATO	67 R	xxxxxxxxxxxxx	67 R	xxxxxxxxxxxxx	0 R	
(71)	43 R	xxxxxxxxx	29 R	xxxxxx	0 R	
OR BART	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(73)	71	xxxxxxxxxxxxxx	64	xxxxxxxxxxxx	29	xxxxxx
ELEU IND	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx	87 R	xxxxxxxxxxxxxxxxx
(74)	100 R	xxxxxxxxxxxxxxxxxxxx	57 R	xxxxxxxxxxx	29 R	xxxxxx
ECH CRUS	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(75)	100	xxxxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	50	xxxxxxxxxx
ROTT EXA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(76)	93	xxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx	36	xxxxxxx
DIG SANG	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(77)	71	xxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx	64	xxxxxxxxxxxx

SPECIES	AC 213087 0.25 kg/ha		AC 213087 1.0 kg/ha		AC 213087 4.0 kg/ha	
AMAR RET	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	94	xxxxxxxxxxxxxxxxxx
(78)	50	xxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
PORT OLE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx
(79)	100	xxxxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx	43	xxxxxxxxx
SOL NIG	100	xxxxxxxxxxxxxxxxxxxx	25	xxxxx	0	
(81)	29	xxxxxx	29	xxxxxx	0	
BROM PEC	100	xxxxxxxxxxxxxxxxxxxx	92	xxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx
(82)	71	xxxxxxxxxxxxxx	50	xxxxxxxxxx	29	xxxxxx
SNOW POL	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx
(83)	79	xxxxxxxxxxxxxxxx	64	xxxxxxxxxxxx	50	xxxxxxxxxx
PHAL MIN	93	xxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	57	xxxxxxxxxxx
(84)	36	xxxxxxx	21	xxxx	14	xxx
CYP ESCU	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx
(85)	43	xxxxxxxxx	21	xxxx	14	xxx
CYP ROTU†	-		-		-	
(86)	43	xxxxxxxxx	36	xxxxxxx	29	xxxxxx
OXAL LAT	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx
(87)	43	xxxxxxxxx	36	xxxxxxx	21	xxxx
CYN DACT†	-		-		-	
(88)	71	xxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx	29	xxxxxx

† results based on vigour scores only

NB: AC 213087 is confidential, AC 222293 is imazamethabenz-methyl, Dowco 433 is fluroxypyr, MB 30755 is 1-(3,4-dichlorobenzyl)-4,5-dimethylcarbonamido) imidazole (May & Baker), SSH-41 is monisuron

AC 222293

Code number AC 222293

Chemical name Confidential

Structure -

Source Cyanamid International Ltd
Fareham Road
Gosport
Hants PO13 OAS
UK

Information available and suggested uses

Control of *Avena fatua* and *Alopecurus myosuroides* in cereals, pre-emergence at 0.5-0.75 kg a.i./ha.

Formulation used 50% w/w a.i. wettable powder

Spray volume for activity experiment 370 l/ha
for post-emergence selectivity experiment 345 l/ha

RESULTS

Full results are given in the histograms on pages 38-44 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 + safener (NA) barley barley + safener (NA) lettuce	*Poa annua* *Polygonum lapathifolium* *Galium aparine* *Rumex obtusifolius* *Agrostis stolonifera* *Oryza barthii* *Cyperus esculentus* *Cyperus rotundus* + species below
1.0	species above + wheat fenugreek pigeon pea	*Avena fatua* *Raphanus raphanistrum* *Solanum nigrum* *Phalaris minor* + species below

Table continued overleaf

NB: AC 213087 is confidential, AC 222293 is imazamethabenz-methyl, Dowco 433 is fluroxypyr, MB 30755 is 1-(3,4-dichlorobenzyl)-4,5-dimethylcarbonamido) imidazole (May & Baker), SSH-41 is monisuron

RATE (kg a.i./ha)	CROPS: vigour reduced by 15% or less	WEEDS: number or vigour reduced by 70% or more
0.25	species above + perennial ryegrass carrot maize maize + safener (NA) cotton	Alopecurus myosuroides Poa trivialis Holcus lanatus

Comments on results

Activity experiment

The foliar spray caused minor effects on dwarf bean, Avena fatua and Agropyron repens but the other three species were unaffected. Much more activity resulted from soil drenches to established plants with all species except A. repens. This difference was particularly noticeable with A. fatua. However, pre-emergence treatments were the most effective. Perennial ryegrass and A. repens were marginally more sensitive to the surface rather than the incorporated pre-emergence spray but with other species differences were either not apparent (Polygonum amphibium) or incorporated treatments were slightly more effective (dwarf bean, kale, A. fatua). Thus the pattern of activity and selectivity is very similar to the previous herbicide AC 213087 although the latter is marginally more effective pre-emergence while AC 222293 is just as active or slightly more so (A. fatua) when applied as a soil drench, post-emergence.

Symptoms

These were identical to those caused by the previous herbicide, AC 213087, varying only in the degree of effect with certain species.

Post-emergence selectivity among temperate species

The weed control spectrum was generally similar to that found with the previous herbicide AC 213087. Some important grass weeds were controlled, Alopecurus myosuroides, Poa trivialis and Holcus lanatus at 0.25 kg/ha; Avena fatua at 1.0 kg/ha and Poa annua and Agrostis stolonifera at 4.0 kg/ha. Agropyron repens was resistant. Solanum nigrum was the most susceptible broad-leaved weed but this was raised as a tropical species at a higher temperature. The crucifer (Raphanus raphanistrum) at 1.0 kg/ha and polygonaceous weeds (Polygonum lapathifolium and Rumex obtusifolius) and Galium aparine at 4.0 kg/ha were the other susceptible weeds. In contrast to AC 213087, Veronica persica was not controlled though it was reduced in vigour by about 50% at the higher doses. A shallow dose response of many weed species was another similarity between AC 222293 and AC 213087. All composite and caryophyllaceous weeds again showed the greatest degree of resistance, while Chenopodium album was not controlled.

The spectrum of tolerant crops was broadly similar to that found with AC 213087. The two cereals, wheat and in particular, barley showed good tolerance, which was increased by NA. The other cereal, oat, was very sensitive. Tolerance by lettuce was outstanding and greater than with AC 213087. Fenugreek, at 1.0 kg/ha, carrot and perennial ryegrass at 0.25 kg/ha were the only other tolerant species. Legumes other than fenugreek, all brassicas and sugar beet were very sensitive.

NB: AC 213087 is confidential, AC 222293 is imazamethabenz-methyl, Dowco 433 is fluroxypyr,
MB 30755 is 1-(3,4-dichlorobenzyl)-4,5-dimethylcarbonamido) imidazole (May & Baker),
SSH-41 is monisuron

AC 222293 exhibited a number of very interesting and potentially useful characteristics in this trial. The control of A. fatua and A. myosuroides in wheat and barley deserves further investigation. The post-emergence activity would appear to be largely dependent upon activity and uptake via the soil. The conditions of relatively high soil moisture in this test may have favoured post-emergence activity and selectivity. The resistance of composite, caryophyllaceous and possibly other broad-leaved weeds will probably require studies in mixtures. This should be a relatively easy task in cereals as herbicides are available such as ioxynil, bromoxynil, bentazone and possibly phenoxyalkanoic herbicides, but in lettuce the problem is more difficult as herbicides are not yet available for controlling composite weeds. The high tolerance of lettuce post-emergence may warrant further investigations with AC 222293, however, either in transplant or block raised crops.

Selectivity among tropical species

This compound had somewhat lower activity than AC 213087 on most species with a few exceptions, notably sorghum, which was damaged even at the lowest dose of AC 222293. The protective effects of NA on maize and cyometrinil on sorghum were only very slight. Some species were markedly less affected by AC 222293 than by AC 213087 particularly pigeon pea, Amaranthus and Oxalis. No useful selectivity was demonstrated in the tropical annual crop species. As with AC 213087 there was an indication of possible selective control of Phalaris minor in wheat and of much greater sensitivity of Bromus pectinatus compared with B. sterilis. Differing conditions of growth, however, make both of these observations subject to reservation. Activity on Cyperus species was lower than that of AC 213087 but C. esculentus was completely suppressed by 4 kg/ha and C. rotundus very nearly so.

ACTIVITY EXPERIMENT

AC 222293

		0.25 kg/ha	1.0 kg/ha	4.0 kg/ha
DWARF BEAN	F	xxxxxxxxxxxxxx xxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxx
	S	xxxxxxxxxxxxxx xxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxx	xxxxxxxxxxxxxx xxxxxxx
	P	xxxxxxxxxxxx xxxxxxxxxxxx	xxxxxxxxxxxxx xxxxxxxxx	xxxxxxxxxxxx xxxx
	I	xxxxxxxxxxx xxxxxxxxx	xxxxxxxxxxxxxx + xxxxx	xxxxxxxx xxxx
KALE	F	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx
	S	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxx
	P	xxxxxxxxxxxxx + xxxxxxxxx	xxxxxxxx xxxx	xxxxxxx xxx
	I	xxxxxxxxxxxx xxxxxxx	xxxxxxxxx xxx	xxxxxxxxx xxx
POLYGONUM AMPHIBIUM	F	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx
	S	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxx
	P	xxxxxxxx xxxxxxxx	xxxxxxxx xxxxx	xxx xx
	I	xxxxxxxxxxx xxxxxxx	xxxxxx xxxxxx	x xx
PERENNIAL RYEGRASS	F	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx
	S	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxx xxxxxxxxx	xxxxxxxxxxxxx xxxxx
	P	xxxxxxxxxxx xxxxxxxxxx	xxx xxxx	x x
	I	xxxxxxxxxxxxxx + xxxxxxxxxxxx	xxxxxxxx xxxxx	xxxxxxxx xx
AVENA FATUA	F	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxx
	S	xxxxxxxxxxxxxx xxxxxx	xxxxxxxxxxxxxx xxxx	xxxxxxxxxxxxxx xx
	P	xxxxxxxxx xxxxxxx	xx xx	o o
	I	xxxxxxxxx xxxx	x x	o o
AGROPYRON REPENS	F	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxx xxxxxxxxxx
	S	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxx
	P	xxxxxxxxxxxx xxxxxxxx	xxxx xxxx	o o
	I	xxxxxxxxxxxxx xxxxxxxx	xxxxxxxxxx xxxxxxx	o o

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

UNTREATED xxxxxxxxxxxxxx no. of survivors
CONTROL xxxxxxxxxxxxxx vigour of survivors

NB: AC 213087 is confidential, AC 222293 is imazamethabenz-methyl, Dowco 433 is fluroxypyr,
MB 30755 is 1-(3,4-dichlorobenzyl)-4,5-dimethylcarbonamido) imidazole (May & Baker),
SSH-41 is monisuron

SPECIES	AC 222293 0.25 kg/ha		AC 222293 1.0 kg/ha		AC 222293 4.0 kg/ha	
WHEAT	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(1)	100	xxxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx
WHEAT + S	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(2)	100	xxxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx
BARLEY	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(3)	100	xxxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxx
BARLEY + S	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx
(4)	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx
OAT	100	xxxxxxxxxxxxxxxxxxxx	90	xxxxxxxxxxxxxxxxx	90	xxxxxxxxxxxxxxxxx
(5)	43	xxxxxxxxx	29	xxxxxx	14	xxx
PER RYGR	100	xxxxxxxxxxxxxxxxxxxx	92	xxxxxxxxxxxxxxxxxx	92	xxxxxxxxxxxxxxxxxx
(6)	86	xxxxxxxxxxxxxxxxx	50	xxxxxxxxxx	14	xxx
ONION	100 R	xxxxxxxxxxxxxxxxxxxx	40 R	xxxxxxxx	20 R	xxxx
(8)	71 R	xxxxxxxxxxxxxx	29 R	xxxxxx	14 R	xxx
DWF BEAN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(9)	64	xxxxxxxxxxxxx	57	xxxxxxxxxxx	43	xxxxxxxxx
FLD BEAN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	75	xxxxxxxxxxxxxxx
(10)	43	xxxxxxxxx	29	xxxxxx	14	xxx
PEA	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx
(11)	57 R	xxxxxxxxxxxx	57 R	xxxxxxxxxxxx	43 R	xxxxxxxxx
W CLOVER	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	42	xxxxxxxx
(12)	43	xxxxxxxxx	43	xxxxxxxxx	14	xxx
RAPE	100	xxxxxxxxxxxxxxxxxxxx	83	xxxxxxxxxxxxxxxx	67	xxxxxxxxxxxxx
(14)	43	xxxxxxxxx	29	xxxxxx	14	xxx

SPECIES	AC 222293 0.25 kg/ha		AC 222293 1.0 kg/ha		AC 222293 4.0 kg/ha	
KALE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(15)	71	xxxxxxxxxxxxxx	50	xxxxxxxxxx	29	xxxxxx
CABBAGE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(16)	57	xxxxxxxxxxx	36	xxxxxxx	29	xxxxxx
CARROT	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(18)	100	xxxxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	50	xxxxxxxxxx
PARSNIP	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	87	xxxxxxxxxxxxxxxx
(19)	71	xxxxxxxxxxxxxx	57	xxxxxxxxxx	29	xxxxxx
LETTUCE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(20)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx
FENUGREEK	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(21)	100	xxxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx	57	xxxxxxxxxx
SUG BEET	92	xxxxxxxxxxxxxxxxx	92	xxxxxxxxxxxxxxxxx	58	xxxxxxxxxx
(22)	50	xxxxxxxxxx	43	xxxxxxxxx	21	xxxx
BETA VUL	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(23)	64	xxxxxxxxxxxxx	43	xxxxxxxxx	43	xxxxxxxxx
BROM STE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(24)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx
AVE FATU	100	xxxxxxxxxxxxxxxxxxxx	0		0	
(26)	43	xxxxxxxxx	0		0	
ALO MYOS	60	xxxxxxxxxxxx	40	xxxxxxxx	80	xxxxxxxxxxxxxxxx
(27)	14	xxx	14	xxx	14	xxx
POA ANN	100	xxxxxxxxxxxxxxxxxxxx	90	xxxxxxxxxxxxxxxxxx	80	xxxxxxxxxxxxxxxx
(28)	50	xxxxxxxxxx	36	xxxxxxx	14	xxx

SPECIES		AC 222293 0.25 kg/ha		AC 222293 1.0 kg/ha		AC 222293 4.0 kg/ha
POA TRIV	100	xxxxxxxxxxxxxxxxxxxx	40	xxxxxxxx	20	xxxx
(29)	21	xxxx	7	x	7	x
RAPH RAP	100	xxxxxxxxxxxxxxxxxxxx	30	xxxxxx	60	xxxxxxxxxxxx
(31)	36	xxxxxxx	14	xxx	14	xxx
TRIP MAR	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(33)	100	xxxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx
SEN VULG	123	xxxxxxxxxxxxxxxxxxxx +	123	xxxxxxxxxxxxxxxxxxxx +	108	xxxxxxxxxxxxxxxxxxxx +
(34)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxx
POL LAPA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(35)	71	xxxxxxxxxxxxxx	50	xxxxxxxxxx	29	xxxxxx
GAL APAR	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx
(38)	71 R	xxxxxxxxxxxxxx	43 R	xxxxxxxxx	29 R	xxxxxx
CHEN ALB	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(39)	93	xxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	64	xxxxxxxxxxxx
STEL MED	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	94	xxxxxxxxxxxxxxxxxx
(40)	100	xxxxxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxx	50	xxxxxxxxxx
SPER ARV	100	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(41)	100	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxx
VER PERS	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(42)	79	xxxxxxxxxxxxxxxx	57	xxxxxxxxxx	43	xxxxxxxx
RUM OBTU	100	xxxxxxxxxxxxxxxxxxxx	50	xxxxxxxxxx	0	
(44)	71	xxxxxxxxxxxxxx	36	xxxxxxx	0	
HOLC LAN	50	xxxxxxxxxx	70	xxxxxxxxxxxxx	60	xxxxxxxxxxx
(45)	14	xxx	14	xxx	14	xxx

POST-EMERGENCE SELECTIVITY TEST

SPECIES		AC 222293 0.25 kg/ha		AC 222293 1.0 kg/ha		AC 222293 4.0 kg/ha
AG REPEN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(47)	86	xxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx
AG STOLO	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	75	xxxxxxxxxxxxxxx
(48)	79	xxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	21	xxxx
CIRS ARV	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(50)	86	xxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx	43	xxxxxxxxx
MAIZE + S	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(56)	86	xxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	57	xxxxxxxxxx
MAIZE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(57)	86	xxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxx	43	xxxxxxxxx
SORG + S	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(58)	64	xxxxxxxxxxxxx	50	xxxxxxxxxx	43	xxxxxxxxx
SORGHUM	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(59)	64	xxxxxxxxxxxxx	43	xxxxxxxxx	43	xxxxxxxxx
RICE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(60)	50	xxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
PIGEON P	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx
(61)	100 R	xxxxxxxxxxxxxxxxxxxx	86 R	xxxxxxxxxxxxxxxxx	43 R	xxxxxxxxx
COWPEA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(62)	71	xxxxxxxxxxxxxx	57	xxxxxxxxxxx	36	xxxxxxx
CHICKPEA	100	xxxxxxxxxxxxxxxxxxxx	83	xxxxxxxxxxxxxxxx	50	xxxxxxxxxx
(63)	57	xxxxxxxxxxx	29	xxxxxx	14	xxx
GRNDNUT	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx
(64)	71 R	xxxxxxxxxxxxxx	57 R	xxxxxxxxxxx	57 R	xxxxxxxxxx

SPECIES	AC 222293 0.25 kg/ha		AC 222293 1.0 kg/ha		AC 222293 4.0 kg/ha	
SOYABEAN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(65)	64	xxxxxxxxxxxxx	50	xxxxxxxxxx	29	xxxxxx
COTTON	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(66)	86	xxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	57	xxxxxxxxxxx
JUTE	80	xxxxxxxxxxxxxxxx	30	xxxxxx	0	
(67)	14	xxx	7	x	0	
KENAF	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(68)	71	xxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	50	xxxxxxxxxx
TOBACCO	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(69)	57	xxxxxxxxxxx	57	xxxxxxxxxxx	43	xxxxxxxxx
SESAMUM	100 R	xxxxxxxxxxxxxxxxxxxx	50 R	xxxxxxxxxx	17 R	xxx
(70)	57 R	xxxxxxxxxxx	29 R	xxxxxx	14 R	xxx
TOMATO	100 R	xxxxxxxxxxxxxxxxxxxx	33 R	xxxxxxx	67 R	xxxxxxxxxxxxx
(71)	43 R	xxxxxxxxx	14 R	xxx	14 R	xxx
OR BART	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(73)	50	xxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
ELEU IND	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx
(74)	86 R	xxxxxxxxxxxxxxxxx	71 R	xxxxxxxxxxxxxx	43 R	xxxxxxxxx
ECH CRUS	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	92	xxxxxxxxxxxxxxxxxx
(75)	100	xxxxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	36	xxxxxxx
ROTT EXA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(76)	86	xxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	43	xxxxxxxxx
DIG SANG	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(77)	86	xxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx

NB: AC 213087 is confidential, AC 222293 is imazamethabenz-methyl, Dowco 433 is fluroxypyr,
MB 30755 is 1-(3,4-dichlorobenzyl)-4,5-dimethylcarbonamido) imidazole (May & Baker),
SSH-41 is monisuron

SPECIES	AC 222293 0.25 kg/ha		AC 222293 1.0 kg/ha		AC 222293 4.0 kg/ha	
AMAR RET	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(78)	86	xxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	57	xxxxxxxxxxx
PORT OLE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(79)	86	xxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx
SOL NIG	87	xxxxxxxxxxxxxxxxx	0		0	
(81)	43	xxxxxxxxx	0		0	
BROM PEC	100	xxxxxxxxxxxxxxxxxxxx	92	xxxxxxxxxxxxxxxxx	92	xxxxxxxxxxxxxxxxx
(82)	79	xxxxxxxxxxxxxxxx	50	xxxxxxxxxx	36	xxxxxx
SNOW POL	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(83)	100	xxxxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx	57	xxxxxxxxxxx
PHAL MIN	93	xxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx	57	xxxxxxxxxxx
(84)	57	xxxxxxxxxxx	29	xxxxxx	14	xxx
CYP ESCU	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(85)	50	xxxxxxxxxx	36	xxxxxxx	21	xxxx
CYP ROTU †	-		-		-	
(86)	56	xxxxxxxxxxx	43	xxxxxxxxx	29	xxxxxx
OXAL LAT	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(87)	71	xxxxxxxxxxxxxx	57	xxxxxxxxxx	57	xxxxxxxxxxx
CYN DACT†	-		-		-	
(88)	86	xxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx	50	xxxxxxxxxx

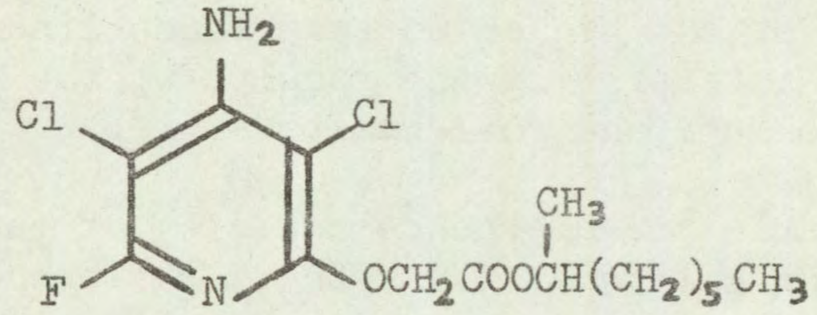
† results based on vigour scores only

DOWCO 433

Code number: Dowco 433

Chemical name: 1'-methylheptyl-(4-amino-3,5-dichloro-6-fluoro-2-pyridinyl)-oxyacetate

Structure



Source: Dow Chemical Co Ltd
Kings Lynn
Norfolk PE30 2JD
UK

Information available and suggested uses

Control of various broad-leaved weeds in small grain crops.

Formulation used: 250 g/l a.e. emulsifiable concentrate

Spray volume: for activity experiment 370 l/ha
for post-emergence selectivity experiment 345 l/ha

RESULTS

Full results are presented in the histograms on pages 48-54 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
0.90	wheat wheat + safener (NA) barley barley + safener (NA) perennial ryegrass	Tripleurospermum maritimum Polygonum lapathifolium Spergula arvensis Veronica persica Beta vulgaris Oxalis latifolia Cynodon dactylon + species below
0.15	species above + oat onion maize maize + safener (NA) sorghum sorghum + safener (cyometrinil) rice	Senecio vulgaris Galium aparine Stellaria media Rumex obtusifolius Amaranthus retroflexus Portulaca oleracea Solanum nigrum + species below
0.025	None listed as no weeds controlled	None

Comments on results

Activity experiment

The foliar spray was active on the broad-leaved species, but not the three grasses. Kale and particularly dwarf bean were sensitive even at the lowest dose. Soil drenches to established plants produced effects but smaller than those with the foliar spray, although the latter treatment caused some symptoms on the grasses at the higher doses. These findings should be taken into consideration when interpreting the results of the post-emergence selectivity test where uptake via foliage and soil was possible.

There was considerable pre-emergence activity at the higher doses, Polygonum amphibium being killed at 1.0 kg/ha. Differences in activity between surface and incorporated treatments were small and varied depending on dose.

Symptoms

A severe epinasty of leaves, stems and petioles developed fairly rapidly on broad-leaved species. Eventually stems and petioles swelled to twice their normal size and often produced root primordia. Leaves frequently changed colour, becoming dark in some species and lighter in others. Necrosis usually followed the severe growth inhibition. Some inhibition of grasses was seen at the higher doses, often accompanied by a darkening of the leaves. Some plants of Poa annua became necrotic and died but usually grass species recovered well.

Similar symptoms were seen on broad-leaved species following pre-emergence treatment while at higher doses, plants often failed to emerge from the soil or died soon after. With grasses treated pre-emergence there was some growth retardation and a tendency for some leaves to be narrower and darker green, but these symptoms were seen only at the high dose.

These symptoms are very similar to those reported for triclopyr and 3,6-dichloropicolinic acid (Richardson and Parker, 1976) and also for phenoxyalkanoic herbicides such as 2,4-D and 2,4,5-T.

Post-emergence selectivity among temperate species

Only the annual broad-leaved weeds were controlled, all grasses being resistant. Five weeds were controlled at 0.15 kg/ha and four more at 0.90 kg/ha. The annual composite weeds were particularly sensitive with Senecio vulgaris at 0.15 kg/ha and Tripleurospermum maritium at 0.9 kg/ha,being controlled. Polygonaceous weeds were also included (Rumex obtusifolius at 0.15 kg/ha and Polygonum lapathifolium at 0.9 kg/ha). Perhaps of greater interest, however, is the control of Solanum nigrum and Galium aparine at 0.15 kg/ha and Veronica persica at 0.9 kg/ha. The perennial composite, Cirsium arvense and the crucifer, Raphanus raphanistrum were notably resistant.

Monocotyledonous crops were tolerant. Wheat and barley tolerated the highest dose of 0.9 kg/ha with NA giving mild safeningeffects on both species. Oat and onion tolerated 0.15 kg/ha but not 0.9 kg/ha. Perennial ryegrass was the most tolerant crop tested, with no symptoms apparent at the highest dose. Most broad-leaved crops were sensitive, notably all leguminous species as well as lettuce and sugar beet. All brassica crops and carrot tolerated the lowest dose.

Dowco 433 would appear to have considerable potential for annual broad-leaved weed control in cereals, perennial ryegrass and possibly onion. The high level of control of Galium aparine gives it a distinct advantage over

many other herbicides. It has certain features in common with two previously tested herbicides from Dow Chemicals, triclopyr and 3,6-dichloropicolinic acid (Richardson and Parker, 1977). The sensitivity of Solanum nigrum (though raised as a tropical species) suggests that testing for control of volunteer potatoes may be worthwhile, as it was to some extent with the two other Dow herbicides (Lutman and Richardson, 1978). Unlike 3,6-dichloropicolinic acid, however, Dowco 433 does not show potential against Cirsium arvense. Sensitivity of legumes suggests that, as with triclopyr, testing for control of gorse (Ulex spp) and broom (Sarothamnus spp) may be worthwhile for grassland, amenity areas and forestry.

Selectivity among tropical species

The compound produced typical epinastic effects on broad-leaved species and was safe on the cereals (with or without protectant). A dose of 0.15 kg/ha was tolerated but no very wide margin of selectivity was apparent even in these cereal crops and the results do not suggest any apparent advantage of this compound over available materials. All broad-leaved crops were susceptible. The high dose of 0.9 kg/ha killed Oxalis but Cyperus spp recovered strongly.

NB: AC 213087 is confidential, AC 222293 is imazamethabenz-methyl, Dowco 433 is fluroxypyr,
MB 30755 is 1-(3,4-dichlorobenzyl)-4,5-dimethylcarbonamido) imidazole (May & Baker),
SSH-41 is monisuron

ACTIVITY EXPERIMENT

DOWCO 433

		0.04 kg/ha	0.20 kg/ha	1.0 kg/ha
DWARF BEAN	F	xxxxxxxxxxxxxxx xxxxxx	xxxxxxxxxxxxxxx xx	xxxxxxxxxxxxxxx xx
	S	xxxxxxxxxxxxxxx xxxxxxxx	xxxxxxxxxxxxxxx xxxxxx	xxxxxxxxxxxxxxx xx
	P	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxx	xxxxxxx xxxx
	I	xxxxxxxxxxxxxxx xxxxxxxxxxxxxxx +	xxxxxxxxxxxxxxx xxxxxx	xxx x
KALE	F	xxxxxxxxxxxxxxx xxxxxxxxxx	xxxxxxxxxxxxxxx xxxx	xxxxxxxxxxxxxxx xxxx
	S	xxxxxxxxxxxxxxx xxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxx	xxxxxxxxxxxxxxx xxxxx
	P	xxxxxxxxxxxxxxx xxxxxxxxxxxxx +	xxxxxxxxxxxxx xxxxxxxxxxx	xxxxxx xxxx
	I	xxxxxxxxxxxxxx xxxxxxxxxxxxxxx	xxxxxxxxxxxxxxx xxxxxxxxxxxxxx	xxxxxxxxxxxxx xxxxxxxx
POLYGONUM AMPHIBIUM	F	xxxxxxxxxxxxxx xxxxxxxxxx	xxxxxxxxxxxxxx xxxxxx	xxxxxxxxxxxxxx xxxx
	S	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxx
	P	xxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxx	o o
	I	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxx xxxxxxxxxxxxx	x xxx
PERENNIAL RYEGRASS	F	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx
	S	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx
	P	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxx xxxxxxx
	I	xxxxxxxxxxxxxx xxxxxxxxxxxxx +	xxxxxxxxxxxxx xxxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxx
AVENA FATUA	F	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx
	S	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxx xxxxxxxxxx
	P	xxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx +	xxxxxxxxxxxx xxxxxxxxxxxx
	I	xxxxxxxxxxxxxx xxxxxxxxxxxxx +	xxxxxxxxxxxxxx xxxxxxxxxxxxx +	xxxxxxxxxxxx xxxxxxxx
AGROPYRON REPENS	F	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx
	S	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxx
	P	xxxxxxxxxxxxxx xxxxxxxxxxxxx +	xxxxxxxxxxxxxx xxxxxxxxxxx +	xxxxxxxxxx xxxxxxxxx
	I	xxxxxxxxxxxxx xxxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxxxxxxx	xxxxxxxxxxxxxx xxxxxxxx

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

UNTREATED xxxxxxxxxxxxxx no. of survivors
CONTROL xxxxxxxxxxxxxx vigour of survivors

POST-EMERGENCE SELECTIVITY TEST

SPECIES	Dowco 433 0.025 kg/ha		Dowco 433 0.15 kg/ha		Dowco 433 0.9 kg/ha	
WHEAT	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(1)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx
WHEAT + S	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(2)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
BARLEY	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(3)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxx
BARLEY +S	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx
(4)	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx
OAT	90	xxxxxxxxxxxxxxxxxx	90	xxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(5)	86	xxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx
PER RYGR	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(6)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
ONION	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx
(8)	86 R	xxxxxxxxxxxxxxxxx	86 R	xxxxxxxxxxxxxxxxx	57 R	xxxxxxxxxx
DWF BEAN	100	xxxxxxxxxxxxxxxxxxxx	0		0	
(9)	36	xxxxxxx	0		0	
FLD BEAN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	25	xxxxx
(10)	50	xxxxxxxxxx	29	xxxxxx	7	x
PEA	100 R	xxxxxxxxxxxxxxxxxxxx	0 R		0 R	
(11)	43 R	xxxxxxxxx	0 R		0 R	
W CLOVER	100	xxxxxxxxxxxxxxxxxxxx	67	xxxxxxxxxxxxx	33	xxxxxxx
(12)	64	xxxxxxxxxxxxx	43	xxxxxxxxx	7	x
RAPE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(14)	100	xxxxxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx	29	xxxxxx

NB: AC 213087 is confidential, AC 222293 is imazamethabenz-methyl, Dowco 433 is fluroxypyr,
MB 30755 is 1-(3,4-dichlorobenzyl)-4,5-dimethylcarbonamido) imidazole (May & Baker),
SSH-41 is monisuron

SPECIES		Dowco 433 0.025 kg/ha		Dowco 433 0.15 kg/ha		Dowco 433 0.9 kg/ha
KALE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	80	xxxxxxxxxxxxxxxx
(15)	71	xxxxxxxxxxxxxx	57	xxxxxxxxxxx	36	xxxxxxx
CABBAGE	100	xxxxxxxxxxxxxxxxxxxx	80	xxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(16)	86	xxxxxxxxxxxxxxxxx	57	xxxxxxxxxxx	29	xxxxxx
CARROT	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	90	xxxxxxxxxxxxxxxxxx
(18)	86	xxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxx	29	xxxxxx
PARSNIP	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	75	xxxxxxxxxxxxxxx
(19)	79	xxxxxxxxxxxxxxxx	64	xxxxxxxxxxxx	29	xxxxxx
LETTUCE	100	xxxxxxxxxxxxxxxxxxxx	0		0	
(20)	43	xxxxxxxxx	0		0	
FENUGREK	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	25	xxxxx
(21)	57	xxxxxxxxxxx	43	xxxxxxxxx	14	xxx
SUG BEET	100	xxxxxxxxxxxxxxxxxxxx	67	xxxxxxxxxxxx	0	
(22)	13	xxxxxxxxx	21	xxxx	0	
BETA VUL	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(23)	50	xxxxxxxxxx	36	xxxxxxx	29	xxxxxx
BROM STE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(24)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx
AVE FATU	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(26)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx
ALO MYOS	60	xxxxxxxxxxxx	90	xxxxxxxxxxxxxxxxx	70	xxxxxxxxxxxxx
(27)	64	xxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxx
POA ANN	100	xxxxxxxxxxxxxxxxxxxx	60	xxxxxxxxxxxx	40	xxxxxxxx
(28)	100	xxxxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	43	xxxxxxxxx

POST-EMERGENCE SELECTIVITY TEST

SPECIES	Dowco 433 0.025 kg/ha		Dowco 433 0.15 kg/ha		Dowco 433 0.9 kg/ha	
POA TRIV	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(29)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx
RAPH RAP	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(31)	100	xxxxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx	43	xxxxxxxxx
TRIP MAR	100	xxxxxxxxxxxxxxxxxxxx	62	xxxxxxxxxxxx	0	
(33)	71	xxxxxxxxxxxxxx	43	xxxxxxxxx	0	
SEN VULG	138	xxxxxxxxxxxxxxxxxxxx +	62	xxxxxxxxxxxx	0	
(34)	64	xxxxxxxxxxxxx	29	xxxxxx	0	
POL LAPA	100 R	xxxxxxxxxxxxxxxxxxxx	83	xxxxxxxxxxxxxxxxx	42	xxxxxxxx
(35)	71 R	xxxxxxxxxxxxxx	50	xxxxxxxxxx	21	xxxx
GAL APAR	100 R	xxxxxxxxxxxxxxxxxxxx	0 R		0 R	
(38)	57 R	xxxxxxxxxxx	0 R		0 R	
CHEN ALB	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(39)	100	xxxxxxxxxxxxxxxxxxxx	84	xxxxxxxxxxxxxxxx	43	xxxxxxxxx
STEL MED	100	xxxxxxxxxxxxxxxxxxxx	19	xxxx	0	
(40)	64	xxxxxxxxxxxxx	21	xxxx	0	
SPER ARV	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	42	xxxxxxxx
(41)	57	xxxxxxxxxxx	36	xxxxxxx	14	xxx
VER PERS	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(42)	86	xxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxx	29	xxxxxx
RUM OBTU	60	xxxxxxxxxxxx	10	xx	0	
(44)	64	xxxxxxxxxxxxx	14	xxx	0	
HOLC LAN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(45)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx

POST-EMERGENCE SELECTIVITY TEST

SPECIES	Dowco 433 0.025 kg/ha		Dowco 433 0.15 kg/ha		Dowco 433 0.9 kg/ha	
AG REPEN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(47)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
AG STOLO	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(48)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx
CIRS ARV	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(50)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxxx
MAIZE + S	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(56)	100	xxxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx	57	xxxxxxxxxx
MAIZE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(57)	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxx	57	xxxxxxxxxx
SORG + S	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(58)	100	xxxxxxxxxxxxxxxxxxxx	93	xxxxxxxxxxxxxxxxxx	57	xxxxxxxxxx
SORGHUM	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(59)	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	57	xxxxxxxxxx
RICE	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(60)	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxx
PIGEON P	0 R		0 R		0 R	
(61)	0 R		0 R		0 R	
COWPEA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(62)	36	xxxxxxx	21	xxxx	14	xxx
CHICKPEA	100	xxxxxxxxxxxxxxxxxxxx	50	xxxxxxxxxx	0	
(63)	79	xxxxxxxxxxxxxxxxx	14	xxx	0	
GRNDNUT	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx	0 R	
(64)	71 R	xxxxxxxxxxxxxx	57 R	xxxxxxxxxx	0 R	

POST-EMERGENCE SELECTIVITY TEST

SPECIES	Dowco 433 0.025 kg/ha		Dowco 433 0.15 kg/ha		Dowco 433 0.9 kg/ha	
SOYABEAN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	0	
(65)	43	xxxxxxxxx	29	xxxxxx	0	
COTTON	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(66)	43	xxxxxxxxx	29	xxxxxx	21	xxxx
JUTE	100	xxxxxxxxxxxxxxxxxxxx	10	xx	0	
(67)	43	xxxxxxxxx	7	x	0	
KENAF	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	87	xxxxxxxxxxxxxxxxx
(68)	57	xxxxxxxxxxx	14	xxx	14	xxx
TOBACCO	50	xxxxxxxxxx	10	xx	0	
(69)	43	xxxxxxxxx	7	x	0	
SESAMUM	100 R	xxxxxxxxxxxxxxxxxxxx	83 R	xxxxxxxxxxxxxxxxx	0 R	
(70)	57 R	xxxxxxxxxxx	29 R	xxxxxx	0 R	
TOMATO	67 R	xxxxxxxxxxxxx	0 R		0 R	
(71)	14 R	xxx	0 R		0 R	
OR BART	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx
(73)	79	xxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx
ELEU IND	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxxx	100 R	xxxxxxxxxxxxxxxxxxx
(74)	86 R	xxxxxxxxxxxxxxxxx	71 R	xxxxxxxxxxxxx	43 R	xxxxxxxxx
ECH CRUS	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx
(75)	100	xxxxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxxx	43	xxxxxxxxx
ROTT EXA	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx
(76)	93	xxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	64	xxxxxxxxxxxx
DIG SANG	92	xxxxxxxxxxxxxxxxxx	92	xxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxx
(77)	86	xxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx	36	xxxxxxx

SPECIES		Dowco 433 0.025 kg/ha		Dowco 433 0.15 kg/ha		Dowco 433 0.9 kg/ha
AMAR RET	100	xxxxxxxxxxxxxxxxxxxx	81	xxxxxxxxxxxxxxxx	0	
(78)	71	xxxxxxxxxxxxxx	29	xxxxxx	0	
PORT OLE	100	xxxxxxxxxxxxxxxxxxxx	0		0	
(79)	43	xxxxxxxxx	0		0	
SOL NIG	100	xxxxxxxxxxxxxxxxxxxx	25	xxxxx	0	
(81)	43	xxxxxxxxx	7	x	0	
BROM PEC	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(82)	79	xxxxxxxxxxxxxxxx	64	xxxxxxxxxxxx	71	xxxxxxxxxxxxxx
SNOW POL	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(83)	93	xxxxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxx	64	xxxxxxxxxxxx
PHAL MIN	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(84)	79	xxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx
CYP ESCU	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx
(85)	79	xxxxxxxxxxxxxxxx	79	xxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx
CYP ROTU†	-		-		-	
(86)	93	xxxxxxxxxxxxxxxxxx	86	xxxxxxxxxxxxxxxx	43	xxxxxxxxx
OXAL LAT	100	xxxxxxxxxxxxxxxxxxxx	100	xxxxxxxxxxxxxxxxxxxx	0	
(87)	57	xxxxxxxxxxx	36	xxxxxxx	0	
CYN DACT†	-		-		-	
(88)	100	xxxxxxxxxxxxxxxxxxx	71	xxxxxxxxxxxxxx	29	xxxxxx

† results based on vigour scores only

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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 Huntsman	3-4½ leaves	14-30 leaves, up to 10 tillers
Wheat + safener	WHEAT + S (2)		3-4½ leaves	14-30 leaves, up to 10 tillers
Barley (*Hordeum vulgare*)	BARLEY (3)	Athene	3-4½ leaves	10-20 leaves, up to 4-7 tillers
Barley + safener	BARLEY + S (4)		2½-3 leaves	10-20 leaves, up to 4-7 tillers
Oat (*Avena sativa*)	OAT (5)	Pennal	3 leaves	13-20 leaves, up to 6 tillers
Perennial ryegrass (*Lolium perenne*)	PER RYGR (6)	S 23	2-3 leaves	15-20 leaves, up to 7 tillers
Onion (*Allium cepa*)	ONION (8)	Hygro	2½-3 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 Blaze	2½-3½ leaves	10 leaves
Pea (*Pisum sativum*)	PEA (11)	Dark Skinned Perfection	4 leaves	10 leaves
White clover (*Trifolium repens*)	W CLOVER (12)	Milkanova	1 trifoliate leaf	20 trifoliate leaves
Rape (*Brassica napus oleifera*)	RAPE (14)	Rapora	2 leaves	3½ leaves
Kale (*Brassica oleracea acephala*)	KALE (15)	Marrow Stem	2-2½ leaves	4-5½ leaves
Cabbage (*Brassica oleracea capitata*)	CABBAGE (16)	Derby Day	2-2½ leaves	5-6 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)
Carrot (Daucus carota)	CARROT (18)	Chantenay Red Core	$2\frac{1}{2}$-3 leaves	6-7 leaves
Parsnip (Pastinaca sativa)	PARSNIP (19)	Avonresister	$1\frac{1}{2}$-2 leaves	3-$3\frac{1}{2}$ leaves
Lettuce (Lactuca sativa)	LETTUCE (20)	Reskia	4-5 leaves	7-9 leaves
Fenugreek (Trigonella foenumgraecum)	FENUGREEK (21)	Paul	1 trifoliate leaf	5 trifoliate leaves, anthesis
Sugar beet (Beta vulgaris)	SUG BEET (22)	Nomo	2-$2\frac{1}{2}$ leaves	7-9 leaves
Beta vulgaris	BETA VUL (23)	WRO 1979 ex Attleborough	4 leaves	9 leaves
Bromus sterilis	BROM STE (24)	WRO 1979	4-6 leaves, tillering	30 leaves, up to 15 tillers
Avena fatua	AVE FATU (26)	WRO 1978	3 leaves	8-9 leaves, 1-2 tillers
Alopecurus myosuroides	ALO MYOS (27)	B & S Supplies 1979	2-3 leaves	14-36 leaves, up to 12 tillers
Poa annua	POA ANN (28)	B & S Supplies 1977	3-4 leaves	10-20 leaves, 2-5 tillers
Poa trivialis	POA TRIV (29)	WRO 1978	3-4 leaves	25-30 leaves, up to 20 tillers
Sinapis arvensis	SIN ARV (30)	WRO 1965	inadequate germination	-
Raphanus raphanistrum	RAPH RAP (31)	Long Black Spanish	2-4 leaves	$4\frac{1}{2}$ leaves
Tripleurospermum maritimum	TRIP MAR (33)	WRO 1976	6-8 leaves	Numerous leaves, flowers developing
Senecio vulgaris	SEN VULG (34)	WRO 1979	7-9 leaves	Anthesis
Polygonum lapathifolium	POL LAPA (35)	WRO 1978	$5\frac{1}{2}$-6 leaves	9 leaves, seeding
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 1978	3-5 whorls	Numerous whorls
Chenopodium album	CHEN ALB (39)	WRO 1979	10-12 leaves	Numerous leaves, seeding
Stellaria media	STEL MED (40)	B & S Supplies 1977	4-6 leaves	Numerous leaves, flowering
Spergula arvensis	SPER ARV (41)	B & S Supplies 1966	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 1977	4 leaves	5 leaves
Holcus lanatus	HOLC LAN (45)	WRO 1979	3½-5 leaves	13-25 leaves up to 10 tillers
Agropyron repens	AG REPEN (47)	WRO Clone 31*	3 leaves	14-17 leaves up to 3 tillers
Agrostis stolonifera	AG STOLO (48)	B & S Supplies 1976	4 leaves	Numerous tillers
Cirsium arvense	CIRS ARV (50)	WRO Clone 1**	6-10 leaves	10 leaves
Tropical species (grown under higher temperature regime)				
Maize + safener (Zea mays)	MAIZE + S (56)	Julia	3-3½ leaves	7 leaves
Maize (Zea mays)	MAIZE (57)	Julia	3-3½ leaves	7 leaves
Sorghum + safener (Sorghum bicolor)	SORG + S (58)	Funk G 623	3½-4 leaves	7 leaves
Sorghum (Sorghum bicolor)	SORGHUM (59)	Funk G 623	3½-4 leaves	7 leaves
Rice (Oryza sativa)	RICE (60)	IR 298	3 leaves	5-6 leaves
Pigeon pea (Cajanus cajan)	PIGEON P (61)	India 1977	2 trifoliate leaves	6-7 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)	Upper Volta 1977	1-2 trifoliate leaves	3-4 trifoliate leaves
Chickpea (Cicer arietinum)	CHICKPEA (63)	India 1977	10-11 pinnate leaves	16 pinnate leaves
Groundnut (Arachis hypogaea)	GRNDNUT (64)	Mani Pinta (Ghana)	1 pinnate leaf	8 pinnate leaves
Soyabean (Glycine max)	SOYABEAN (65)	Fiskeby V	2-3 trifoliate leaves	4 trifoliate leaves
Cotton (Gossypium hirsutum)	COTTON (66)	S 71 (Nigeria)	1½-2 leaves	4-5 leaves
Jute (Corchorus olitorius)	JUTE (67)	Egypt 1971	3-5 leaves	8-10 leaves
Kenaf (Hibiscus cannabinus)	KENAF (68)	A 63-440 (Ghana)	4-6 leaves	8-10 leaves
Tobacco (Nicotiana tabacum)	TOBACCO (69)	Yellow Mammoth	2-3½ leaves	6 leaves
Sesamum (Sesamum indicum)	SESAMUM (70)	E 8, India 1977	2 leaves	6 leaves
Tomato (Lycopersicum esculentum)	TOMATO (71)	Ailsa Craig	1½-3½ pinnate leaves	5-6 pinnate leaves
Oryza barthii	OR BART (73)	Upper Volta 1974	3 leaves	6 leaves
Eleusine indica	ELEU IND (74)	Zimbabwe 1967	3-4½ leaves	7-9 leaves
Echinochloa crus-galli	ECH CRUS (75)	WRO 1976	3-4 leaves	7-8 leaves
Rottboellia exaltata	ROT EXAL (76)	Zambia 1978	2-3 leaves	7 leaves
Digitaria sanguinalis	DIG SANG (77)	WRO 1973	4-5½ leaves	8 leaves
Amaranthus retroflexus	AMAR RET (78)	WRO 1979	8-9 leaves	10-12 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 1970	10-14 leaves	Seeding
Solanum nigrum	SOL NIG (81)	WRO 1976	$2\frac{1}{2}$-$3\frac{1}{2}$ leaves	8-9 leaves, flowering
Bromus pectinatus	BROM PEC (82)	Tanzania 1978	3 leaves	6-7 leaves
Snowdenia polystachya	SNOW POL (83)	Ethiopia 1978	5-7 leaves	7-8 leaves
Phalaris minor	PHAL MIN (84)	Jordan 1977	3 leaves	7-8 leaves
Cyperus esculentus	CYP ESCU (85)	WRO Clone 2* (ex South Africa)	3-5 leaves	10 leaves
Cyperus rotundus	CYP ROTU (86)	WRO Clone 1* (ex Zimbabwe)	5-6 leaves	15 leaves
Oxalis latifolia	OXAL LAT (87)	WRO Clone 2** (ex Cornwall)	1-4 trifoliate leaves	Flowering
Cynodon dactylon	CYN DACT (88)	WRO Clone 2† (ex Sudan)	7-8 leaves	Flowering

* tubers ** bulbs † runners

ABBREVIATIONS

ångstrom	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.
		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*	$\surd$
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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63. The activity and post-emergence selectivity of some recently developed herbicides: SSH-41, MB 30755, AC 213087, AC 222293 and Dowco 433. May 1981. W G Richardson, T M West and C Parker. Price - £3.50

NB: AC 213087 is confidential, AC 222293 is imazamethabenz-methyl, Dowco 433 is fluroxypyr,
MB 30755 is 1-(3,4-dichlorobenzyl)-4,5-dimethylcarbonamido) imidazole (May & Baker),
SSH-41 is monisuron