

← Click here for previous

SPECIES		WL 83627 0.25 kg/ha		WL 83627 1.0 kg/ha		WL 83627 4.0 kg/ha
TOMATO	0		0		0	
(60)	0		0		0	
CHICKPEA	100	XXXXXXXXXXXXXXXXXXXXX	100	XXXXXXXXXXXXXXXXXXXXX	0	
(63)	86	XXXXXXXXXXXXXXXXXXXXX	71	XXXXXXXXXXXXXXXXXXXXX	0	
JUTE	0		0		0	
(67)	0		0		0	
KENAF	105	XXXXXXXXXXXXXXXXXXXXX +	60	XXXXXXXXXXXXX	0	
(68)	86	XXXXXXXXXXXXXXXXXXXXX	57	XXXXXXXXXXXXX	0	
ORYZA	141	XXXXXXXXXXXXXXXXXXXXX +	75	XXXXXXXXXXXXXXXXXXXXX	84	XXXXXXXXXXXXXXXXXXXXX
(71)	79	XXXXXXXXXXXXXXXXXXXXX	50	XXXXXXXXXXXXX	29	XXXXXX
RICE	102	XXXXXXXXXXXXXXXXXXXXX	59	XXXXXXXXXXXXX	27	XXXXXX
(72)	79	XXXXXXXXXXXXXXXXXXXXX	43	XXXXXXXXXXXXX	29	XXXXXX
RICE + S	106	XXXXXXXXXXXXXXXXXXXXX +	72	XXXXXXXXXXXXXXXXXXXXX	28	XXXXXX
(73)	71	XXXXXXXXXXXXXXXXXXXXX	43	XXXXXXXXXXXXX	21	XXXX
ELEU IND	9	xx	0		0	
(74)	21	xxxx	0		0	
ECH CRUS	25	xxxxxx	0		0	
(75)	50	XXXXXXXXXXXXX	0		0	
ROTT EXA	106	XXXXXXXXXXXXXXXXXXXXX +	71	XXXXXXXXXXXXXXXXXXXXX	0	
(76)	93	XXXXXXXXXXXXXXXXXXXXX	57	XXXXXXXXXXXXX	0	
DIG SANG	0		0		0	
(77)	0		0		0	
AMAR RET	9	xx	0		0	
(78)	43	XXXXXXXXXXXXX	0		0	

PRE-EMERGENCE SELECTIVITY TEST

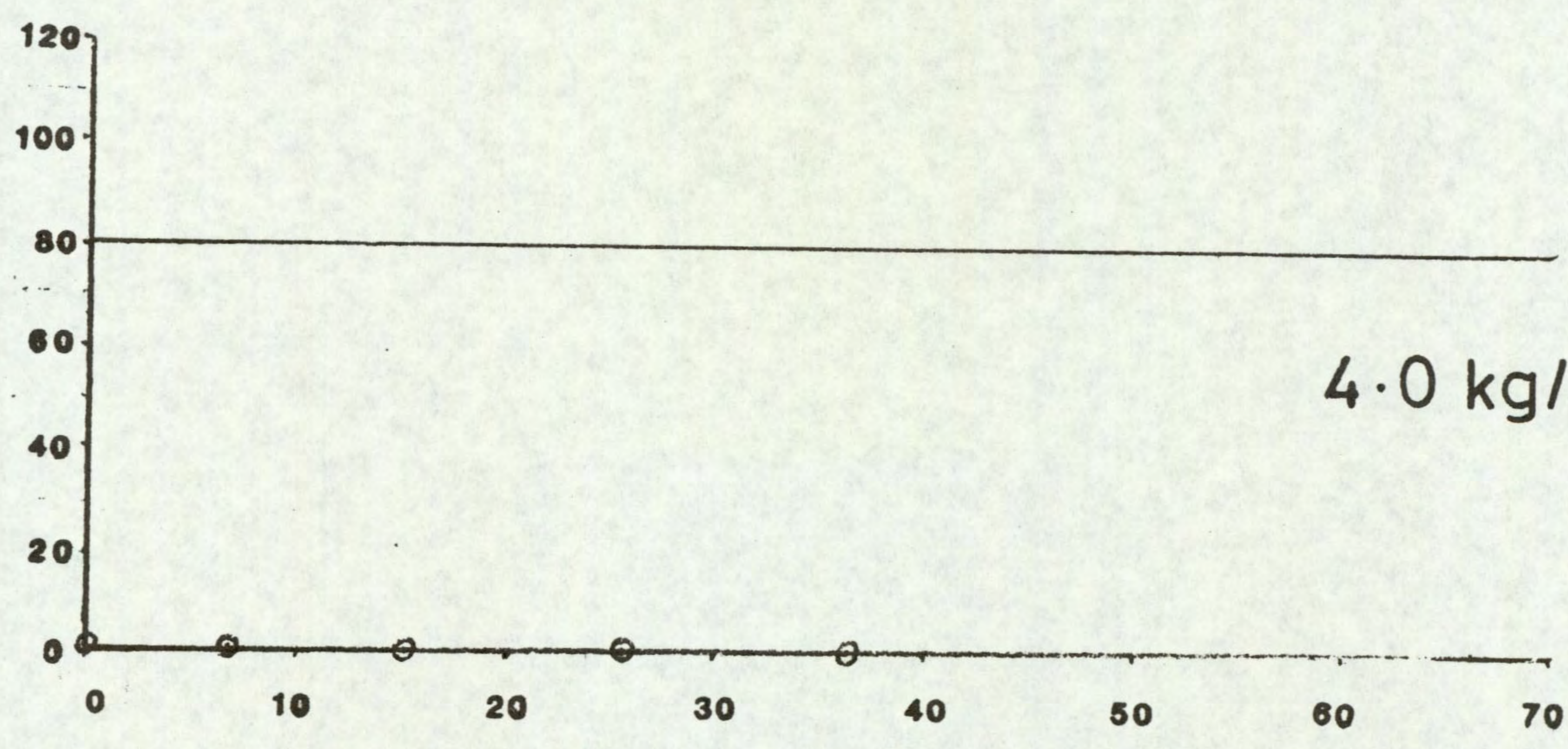
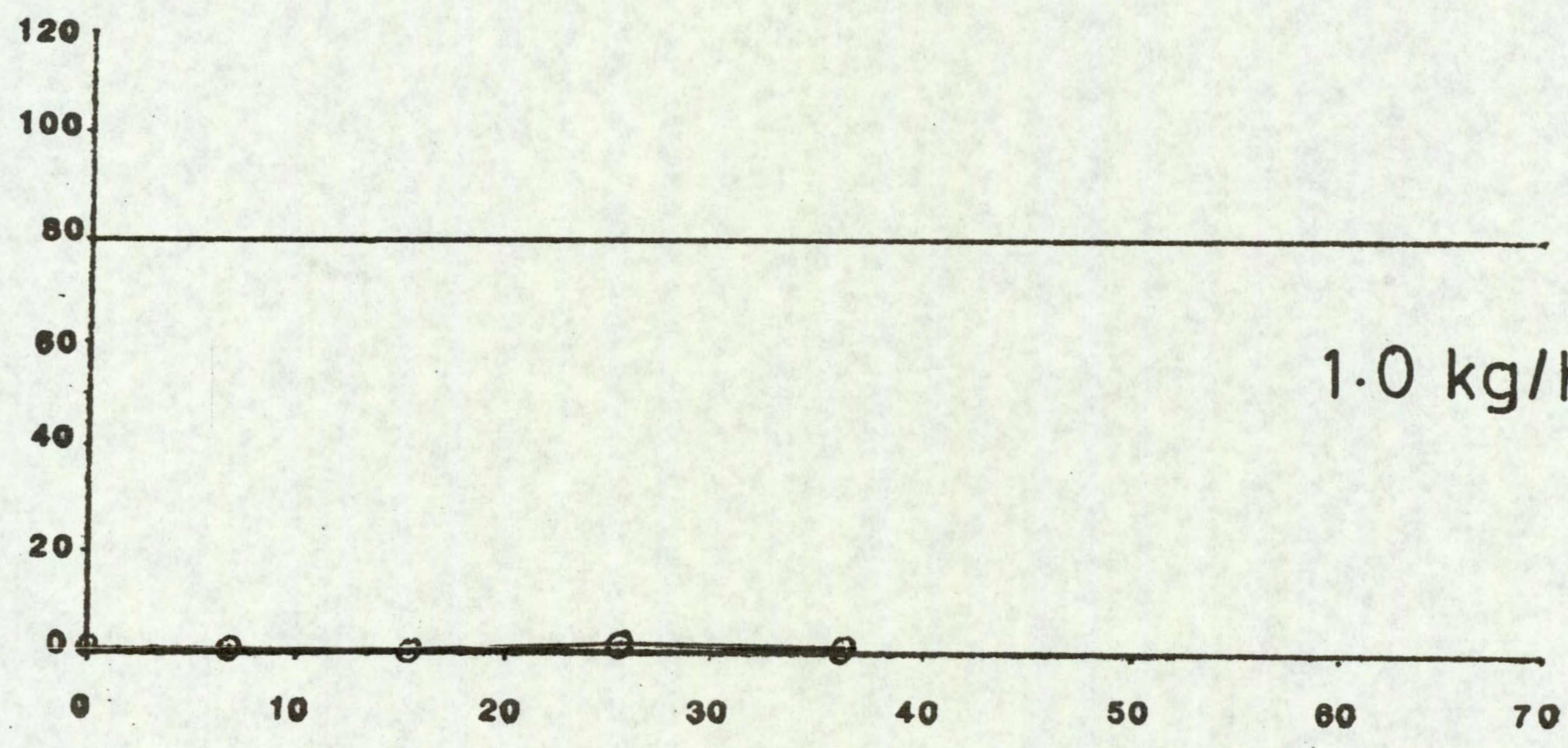
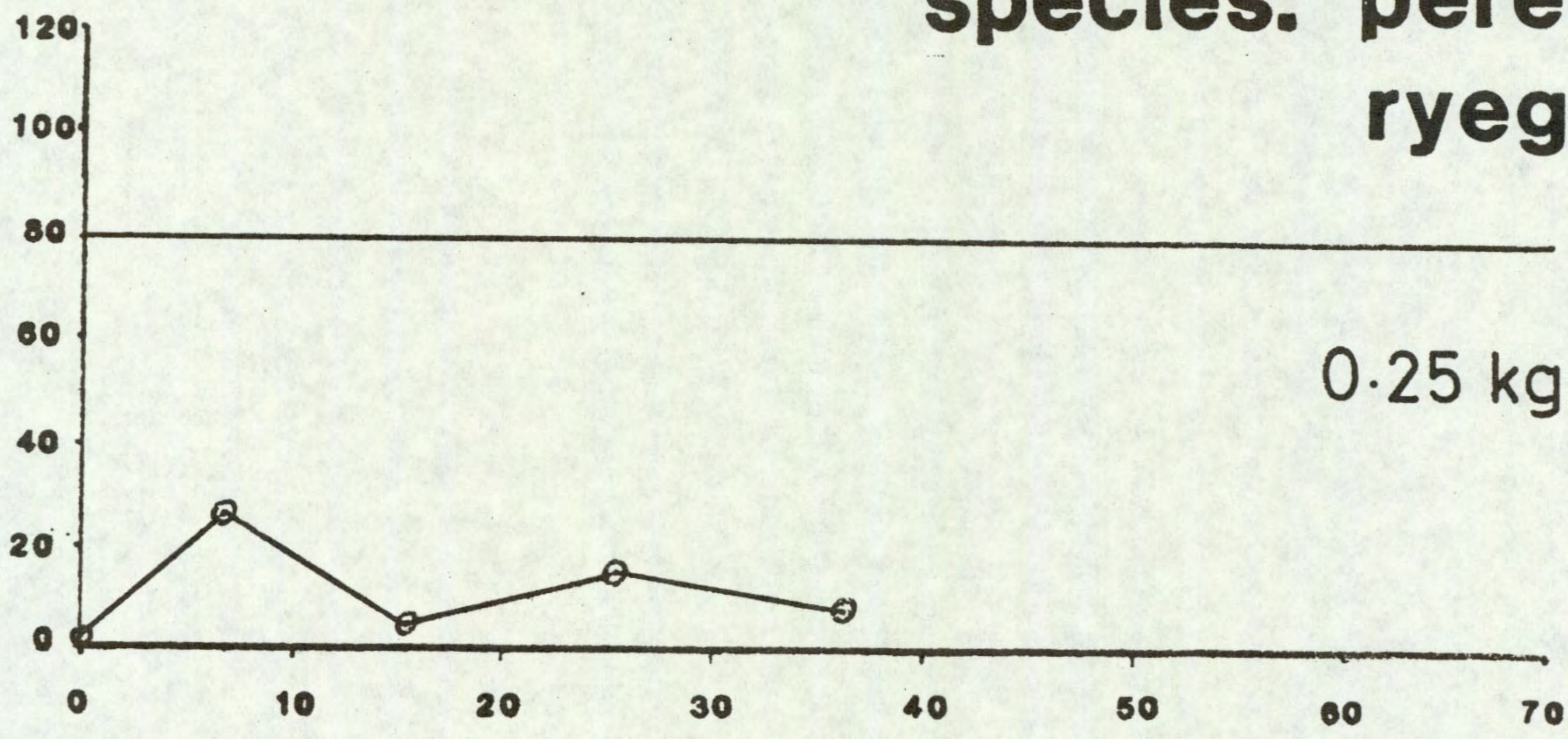
SPECIES		WL 83627 0.25 kg/ha		WL 83627 1.0 kg/ha		WL 83627 4.0 kg/ha	
SOL NIG (81)	0 0	0 0	0 0	0 0	0 0		
BROM PEC (82)	108 100	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	113 79	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	28 50	XXXXXX XXXXXXXXXX	
SNO POL (83)	10 43	XX XXXXXXXXXX	0 0		0 0		
PHAL MIN (84)	0 0		0 0		0 0		
CYP ESCU (85)	79 86	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	107 71	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	64 57	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	
CYP ROTU (86)	91 100	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	105 100	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	98 79	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	

PRE-EMERGENCE SELECTIVITY TEST

PERSISTENCE OF WL 83627

species: perennial ryegrass

FRESH WEIGHT AS % OF CONTROL



TIME OF SOWING
weeks after treatment

WL 83801

Code number WL 83801
Chemical name Confidential
Structure Confidential

Source Shell Biosciences Laboratory
 Sittingbourne Research Centre
 Sittingbourne
 Kent ME9 8AG

Information available and suggested uses

Suggested as a dwarfing agent for use in agronomic, horticultural and amenity crops, including turf at 1.0 to 6.0 kg a.i./ha.

Formulation used 20% w/v a.i. emulsifiable concentrate

Spray volume 386 l/ha

RESULTS

Full results are given in this histograms on pages 42-49 and potential selectivities are summaried 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	carrot	<u>Alopecurus myosuroides</u> <u>Poa trivialis</u> <u>Chrysanthemum segetum</u> <u>Stellaria media</u> <u>Veronica persica</u> <u>Rumex obtusifolius</u> <u>Holcus lanatus</u> <u>Eleusine indica</u> <u>Echinochloa crus-galli</u> <u>Digitaria sanguinalis</u> <u>Amaranthus retroflexus</u> <u>Solanum nigrum</u> <u>Snowdenia polystachya</u> + 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 ± safener (NA) oat lucerne maize sorghum rice + safener (NA)	<u>Poa annua</u> <u>Chenopodium album</u>
0.25	None listed as no weeds controlled	None

Comments on results

Activity experiment

WL 83801 acts as a powerful regulator or inhibitor of growth. Although the foliar spray caused symptoms at the higher doses, mainly on kale and dwarf bean, effectiveness was much greater as a soil treatment. Pre-emergence treatments were marginally more active than the post-emergence soil drench. Differences in level of activity between the two pre-emergence treatments were also marginal and sometimes varied with dose.

Symptoms

The foliar spray caused scorch of true leaves and petioles of kale within 24 hours of treatment at the high dose. At the middle dose, in this same time period, inward and downward rolling of true leaves occurred, especially the youngest, reminiscent of phenoxyalkanoic herbicides such as mecoprop. This occurred later on dwarf bean trifoliolate leaves. A severe retardation or even cessation of growth of these and other species ensued with old and new leaves becoming an intense dark green in colour. These symptoms were seen also with soil drenches, necrosis developing later at the higher doses. Similar symptoms were noted pre-emergence on a wide range of species. In some instances plants assumed a miniature rosette or dwarfed appearance often with a more prostrate or creeping growth habit. Grasses sometimes produced more tillers but these were also severely inhibited. Sinapis arvensis also showed increased dentation along its leaf margins. Germination and emergence were not affected with many species but some Poa spp, A. myosuroides, H. lanatus, onion, white clover, S. media and R. obtusifolius failed to germinate and/or emerge at the higher doses. Inhibition of roots and rhizomes was often observed at higher doses. With some leguminous species nodulation was reduced at higher doses, although fenugreek appeared to produce more nodules at the lower doses. A feature common to all affected species was the longevity of the inhibition. For example A. repens remained vegetative long after controls had flowered and senesced.

Persistence in the soil

The persistence in soil is relatively long, the herbistatic effects of WL 83801 being detected 36 weeks after spraying. Shoot fresh weights were reduced at this time by 61, 67 and 84% after treatment with 0.25, 1.0 and 4.0 kg/ha.

Pre-emergence selectivity among temperate species

Only two weeds (Poa annua and Chenopodium album) were controlled at 1.0 kg/ha. At the highest dose, seven more annual species were controlled, three grasses and four broad-leaved species. Perennial species and Avena fatua, although showing symptoms, were not controlled.

Carrot was the most tolerant crop. Barley ± safener (NA), oat and lucerne were the only other tolerant crops. However, fenugreek recovered well from the lower doses and plants actually looked healthier (less etiolated and darker green) than controls. White clover was rather sensitive.

No real potential herbicidal selectivities are apparent from this test. WL 83801 is primarily a herbistat and this quality may prove of value in many, as yet untested situations. For example its ability to arrest growth of turf, lawn and other grasses is promising. It would seem to have quite a long lasting effect, judging from these tests, although this aspect needs more investigation as does the wear and durability of these species after treatment with this material. Several other possibilities are apparent in amenity and possibly forestry, plantations and orchards. Total control of weeds is not always desirable in such situations possibly resulting in soil erosion, a vegetative cover species or group of species being more desirable. If the latter can be rendered relatively non-competitive by a herbistat such as WL 83801 then great benefits could result.

Selectivity among tropical species

No weeds were effectively controlled by 1 kg/ha and only some by 4 kg/ha. Maize and sorghum tolerated 1 kg/ha but not 4 kg/ha and there was no protection of these crops, or of rice, by safeners. Selectivity in annual crops, therefore, appears unlikely but the possibility of use as a growth suppressant in plantation crops deserves consideration, particularly if the growth of ground cover legumes could be restrained. Effects on chickpea suggested the right sort of retardant action without other serious damage symptoms.

ACTIVITY EXPERIMENT

WL 83801

		0.5 kg/ha	2.0 kg/ha	8.0 kg/ha
<u>DWARF BEAN</u>	F	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXX
	S	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXX
	P	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXX
	I	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXX	XXXXXXXXXXXX XXXXXX
<u>KALE</u>	F	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXX
	S	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXX
	P	XXXXXXXXXXXXXXXXXX + XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX + XXXXXXXXXXXX	XXXXXXX XXXXX
	I	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX + XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXX
<u>POLYGONUM AMPHIBIUM</u>	F	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX
	S	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX
	P	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXX
	I	XXXXXXXXXXXX XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX + XXXXX
<u>PERENNIAL RYEGRASS</u>	F	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX
	S	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXX
	P	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX + XXXXXXXXXXXX	XXXXXXX XXXXX
	I	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXX
<u>AVENA FATUA</u>	F	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX
	S	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX
	P	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX + XXXXXXXXXXXX
	I	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX
<u>AGROPYRON REPENS</u>	F	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX
	S	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXX
	P	XXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX + XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXX
	I	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXX	XXXXXXXXXXXXXXXXXX XXXXX

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

UNTREATED xxxxxxxxxxxxxxxx no. of survivors
 CONTROL xxxxxxxxxxxxxxxx vigour of survivors

SPECIES	WL 83801 0.25 kg/ha		WL 83801 1.0 kg/ha		WL 83801 4.0 kg/ha	
WHEAT (1)	107 86	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	87 71	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	93 57	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
WHEAT + S (2)	102 86	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	102 71	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	95 57	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
BARLEY (3)	100 100	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	100 86	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	100 71	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
BARLEY + S (4)	100 100	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	94 86	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	100 71	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
OAT (5)	102 100	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	102 86	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	102 71	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
PER RYGR (6)	106 71	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXX	118 57	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXX	85 43	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
ONION (8)	107 100	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	94 71	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	45 29	XXXXXXXXXXXXX XXXXXXX
DWF BEAN (9)	104 86	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXX	78 57	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	104 43	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXX
FLD BEAN (10)	90 79	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	120 57	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXX	75 43	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
PEA (11)	80 100	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	120 71	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXX	120 50	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXX
W CLOVER (12)	127 79	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXX	33 50	XXXXXXX XXXXXXXXXXXXX	0 0	
LUCERNE (13)	109 100	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	119 86	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXX	98 57	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX

PRE-EMERGENCE SELECTIVITY TEST

SPECIES		WL 83801 0.25 kg/ha		WL 83801 1.0 kg/ha		WL 83801 4.0 kg/ha
RAPE (14)	102 71	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	108 57	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	85 43	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
KALE (15)	106 71	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	102 57	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	88 43	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
SWEDE (17)	106 71	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	78 57	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	83 43	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
CARROT (18)	92 100	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	104 93	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	98 86	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX
LETTUCE (20)	104 86	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	100 71	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	43 29	XXXXXXXXXXXXX XXXXXXX
FENUGREK (21)	106 100	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	94 71	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	94 64	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX
SUG BELT (22)	88 86	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	84 57	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	73 36	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
BETA VUL (23)	96 71	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	75 57	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	59 43	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
BROM STE (24)	99 100	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	107 86	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	81 64	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX
FEST RUB (25)	104 71	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	115 57	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	87 43	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
AVE FATU (26)	108 100	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	108 93	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	108 71	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX
ALO MYOS (27)	98 100	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	98 79	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	61 29	XXXXXXXXXXXXXXXXXXXXX XXXXXXX

PRE-EMERGENCE SELECTIVITY TEST

SPECIES		WL 83801 0.25 kg/ha		WL 83801 1.0 kg/ha		WL 83801 4.0 kg/ha
POA ANN	86	XXXXXXXXXXXXXXXXXXXX	46	XXXXXXXXXX	0	
(28)	64	XXXXXXXXXXXXXXXXXXXX	29	XXXXXXX	0	
POA TRIV	108	XXXXXXXXXXXXXXXXXXXX +	78	XXXXXXXXXXXXXXXXXXXX	16	XXX
(29)	86	XXXXXXXXXXXXXXXXXXXX	50	XXXXXXXXXXXX	21	XXXX
SIN ARV	100	XXXXXXXXXXXXXXXXXXXX	85	XXXXXXXXXXXXXXXXXXXX	56	XXXXXXXXXXXX
(30)	71	XXXXXXXXXXXXXXXXXXXX	57	XXXXXXXXXXXX	43	XXXXXXXXXXXX
RAPH RAP	97	XXXXXXXXXXXXXXXXXXXX	102	XXXXXXXXXXXXXXXXXXXX	88	XXXXXXXXXXXXXXXXXXXX
(31)	71	XXXXXXXXXXXXXXXXXXXX	57	XXXXXXXXXXXX	43	XXXXXXXXXXXX
CHRY SEG	164	XXXXXXXXXXXXXXXXXXXX +	55	XXXXXXXXXXXX	27	XXXXX
(32)	100	XXXXXXXXXXXXXXXXXXXX	79	XXXXXXXXXXXXXXXXXXXX	14	XXX
TRIP MAR	90	XXXXXXXXXXXXXXXXXXXX	90	XXXXXXXXXXXXXXXXXXXX	162	XXXXXXXXXXXXXXXXXXXX +
(33)	100	XXXXXXXXXXXXXXXXXXXX	64	XXXXXXXXXXXX	43	XXXXXXXXXXXX
SEN VULG	108	XXXXXXXXXXXXXXXXXXXX +	78	XXXXXXXXXXXXXXXXXXXX	36	XXXXXXX
(34)	100	XXXXXXXXXXXXXXXXXXXX	71	XXXXXXXXXXXXXXXXXXXX	57	XXXXXXXXXXXX
POL LAPA	78	XXXXXXXXXXXXXXXXXXXX	91	XXXXXXXXXXXXXXXXXXXX	104	XXXXXXXXXXXXXXXXXXXX +
(35)	71	XXXXXXXXXXXXXXXXXXXX	57	XXXXXXXXXXXX	43	XXXXXXXXXXXX
GAL APAR	85	XXXXXXXXXXXXXXXXXXXX	74	XXXXXXXXXXXXXXXXXXXX	45	XXXXXXXXXXXX
(38)	100	XXXXXXXXXXXXXXXXXXXX	71	XXXXXXXXXXXXXXXXXXXX	50	XXXXXXXXXXXX
CHEN ALB	81	XXXXXXXXXXXXXXXXXXXX	23	XXXXXX	2	X
(39)	86	XXXXXXXXXXXXXXXXXXXX	43	XXXXXXXXXXXX	14	XXX
STEL MED	91	XXXXXXXXXXXXXXXXXXXX	94	XXXXXXXXXXXXXXXXXXXX	7	X
(40)	86	XXXXXXXXXXXXXXXXXXXX	64	XXXXXXXXXXXX	14	XXX
VER PERS	164	XXXXXXXXXXXXXXXXXXXX +	136	XXXXXXXXXXXXXXXXXXXX +	27	XXXXX
(42)	100	XXXXXXXXXXXXXXXXXXXX	71	XXXXXXXXXXXX	14	XXX

PRE-EMERGENCE SELECTIVITY TEST

SPECIES	WL 83801 0.25 kg/ha		WL 83801 1.0 kg/ha		WL 83801 4.0 kg/ha	
RUM OBTU (44)	166 57	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXX	38 43	XXXXXXX XXXXXXXXXX	64 29	XXXXXXXXXXXXXXXXXX XXXXXXX
HOLC LAN (45)	80 64	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	95 50	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	0 0	
AG REPEN (47)	106 100	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	106 86	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	79 71	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX
ALL VIN (49)	97 100	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	97 100	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	93 100	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX
CIRS ARV (50)	46 86	XXXXXXX XXXXXXXXXXXXXXXXXXXXX	92 86	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	92 79	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX
TUS FARF (51)	133 100	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	117 100	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	117 93	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX
MILLET (55)	93 100	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	87 79	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	60 50	XXXXXXXXXXXXX XXXXXXXXXXXXX
MAIZE + S (56)	100 86	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	100 79	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	100 64	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
MAIZE (57)	104 100	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	104 100	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	91 64	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
SORG + A (58)	107 100	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	93 71	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	93 64	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
SORGHUM (59)	107 100	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	100 86	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	93 57	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX

PRE-EMERGENCE SELECTIVITY TEST

SPECIES	WL 83801 0.25 kg/ha		WL 83801 1.0 kg/ha		WL 83801 4.0 kg/ha	
TOMATO (60)	82 93	XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX	95 71	XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX	48 50	XXXXXXXXXXXX XXXXXXXXXXXX
CHICKPEA (63)	100 71	XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX	100 71	XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX	100 57	XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXX
JUTE (67)	65 86	XXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX	39 29	XXXXXXX XXXXXX	0 0	
KENAF (68)	105 86	XXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXX	112 71	XXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXX	67 50	XXXXXXXXXXXXXXXX XXXXXXXXXXXX
ORYZA (71)	122 93	XXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXX	84 64	XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX	47 57	XXXXXXXXXXXX XXXXXXXXXXXX
RICE (72)	102 100	XXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXX	102 64	XXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXX	96 50	XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXX
RICE + S (73)	89 93	XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX	100 93	XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX	89 50	XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXX
ELEU IND (74)	91 71	XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX	96 50	XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	4 14	x xxx
ECH CRUS (75)	108 64	XXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXX	118 50	XXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXX	20 36	xxxx xxxxxxx
ROTT EXA (76)	141 86	XXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXX	115 71	XXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXX	53 50	XXXXXXXXXXXX XXXXXXXXXXXX
DIG SANG (77)	83 86	XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX	65 57	XXXXXXXXXXXX XXXXXXXXXXXX	0 0	
AMAR RET (78)	61 71	XXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX	82 50	XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXX	4 29	x xxxxxx

PRE-EMERGENCE SELECTIVITY TEST

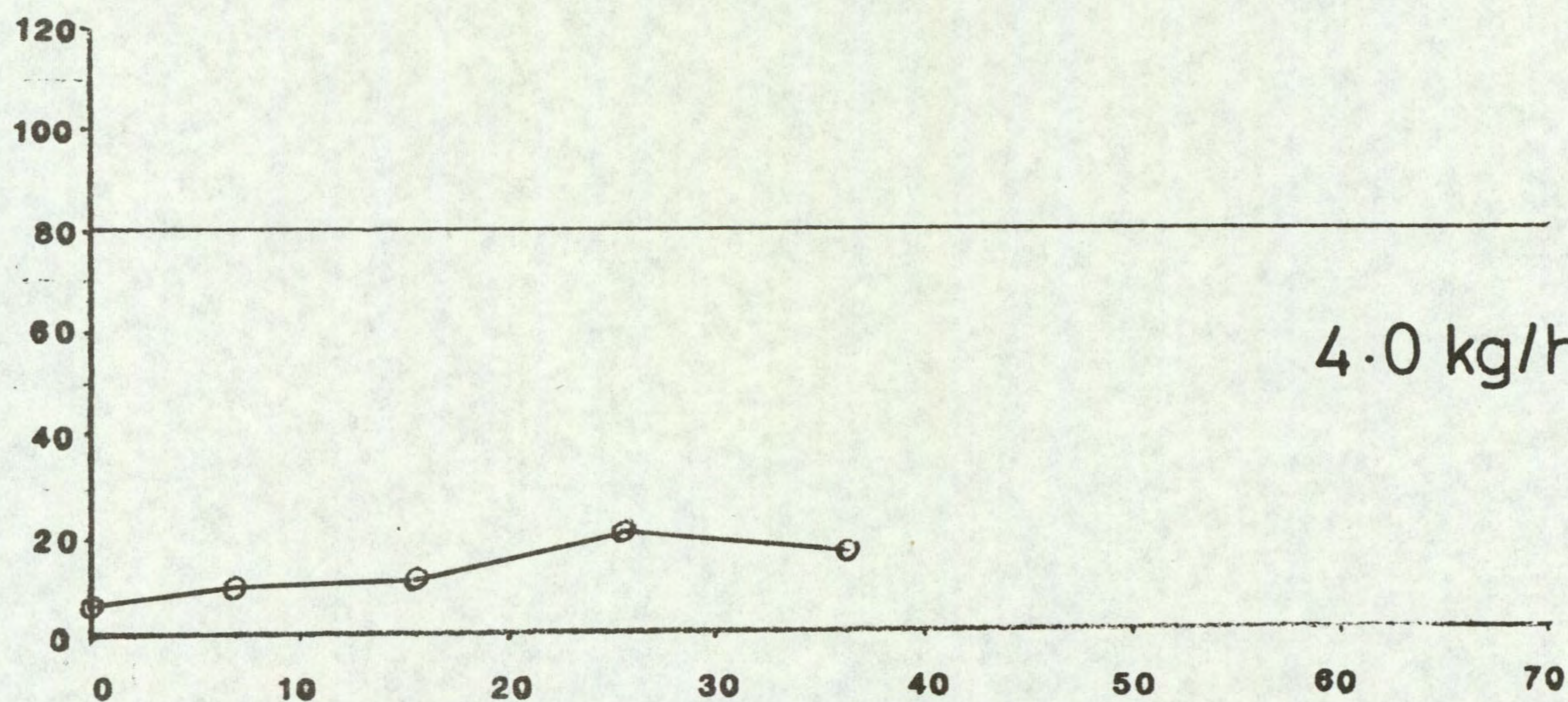
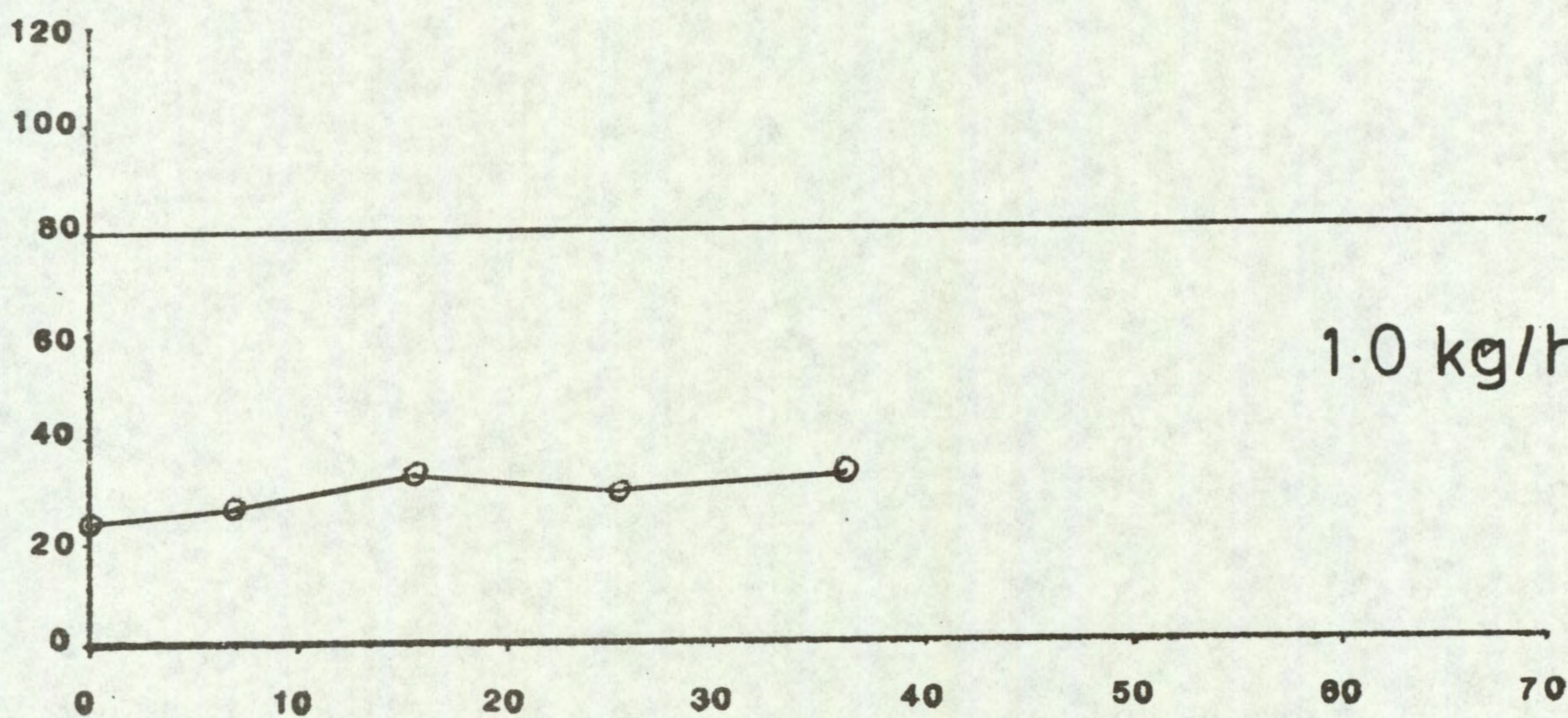
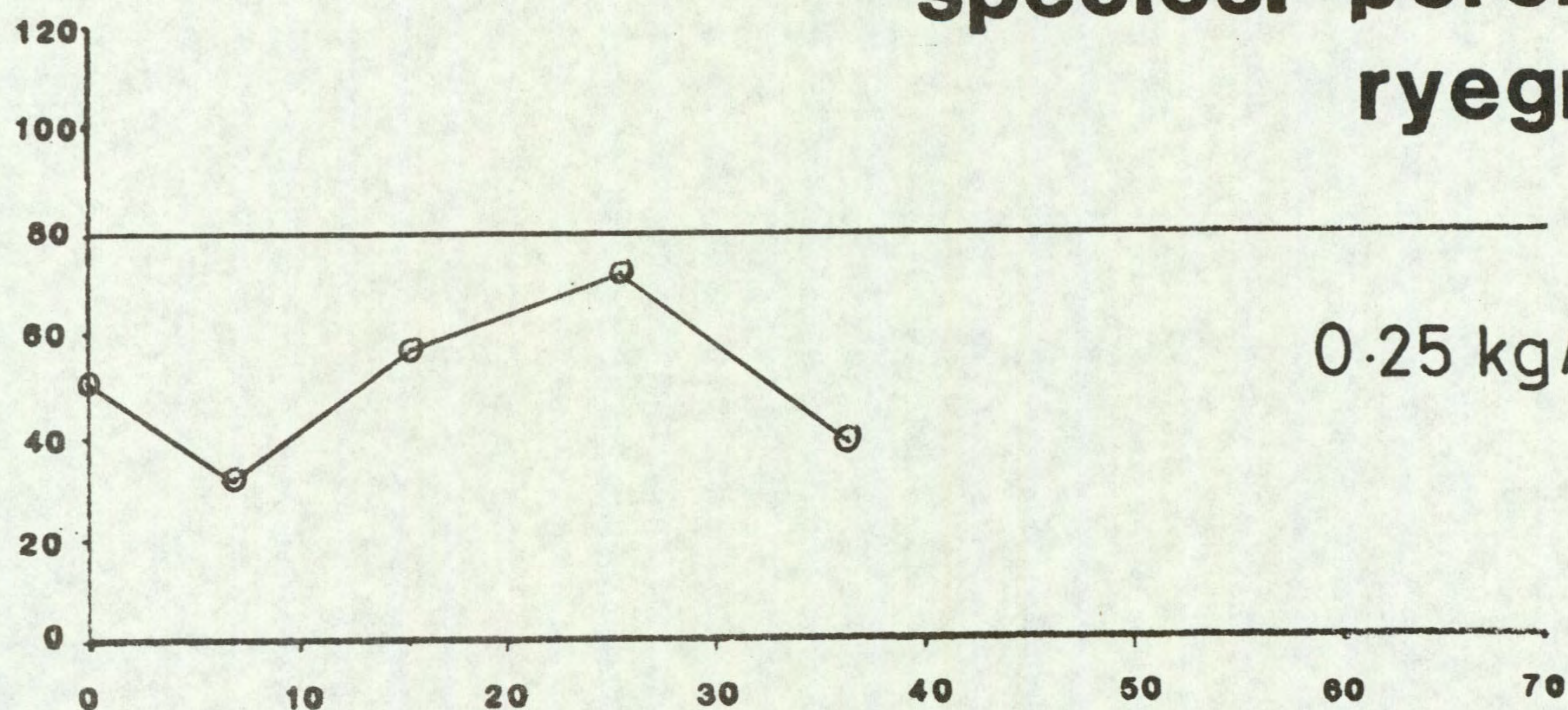
SPECIES		WL 83801 0.25 kg/ha		WL 83801 1.0 kg/ha		WL 83801 4.0 kg/ha
SOL NIG (81)	46 100	xxxxxxx xxxxxxxxxxxxxxxxxxxxx	46 79	xxxxxxx xxxxxxxxxxxxxxxxxxxxx	46 29	xxxxxxx xxxxxx
BROM PEC (82)	108 86	xxxxxxxxxxxxxxxxxxxxx + xxxxxxxxxxxxxxxxxxxxx	102 71	xxxxxxxxxxxxxxxxxxxxx + xxxxxxxxxxxxxxxxxxxxx	91 57	xxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxx
SNO POL (83)	54 57	xxxxxxx xxxxxxx	74 50	xxxxxxx xxxxxxx	0 0	
PHAL MIN (84)	88 71	xxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxx	124 57	xxxxxxxxxxxxxxxxxxxxx + xxxxxxxxxxxxx	100 36	xxxxxxxxxxxxxxxxxxxxx xxxxxxx
CYP ESCU (85)	86 100	xxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxx	79 100	xxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxx	50 64	xxxxxxx xxxxxxxxxxxxx
CYP ROTU (86)	91 100	xxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxx	112 93	xxxxxxxxxxxxxxxxxxxxx + xxxxxxxxxxxxxxxxxxxxx	91 93	xxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxx

PRE-EMERGENCE SELECTIVITY TEST

PERSISTENCE^{- 49 -} OF WL 83801

species: perennial ryegrass

FRESH WEIGHT AS % OF CONTROL

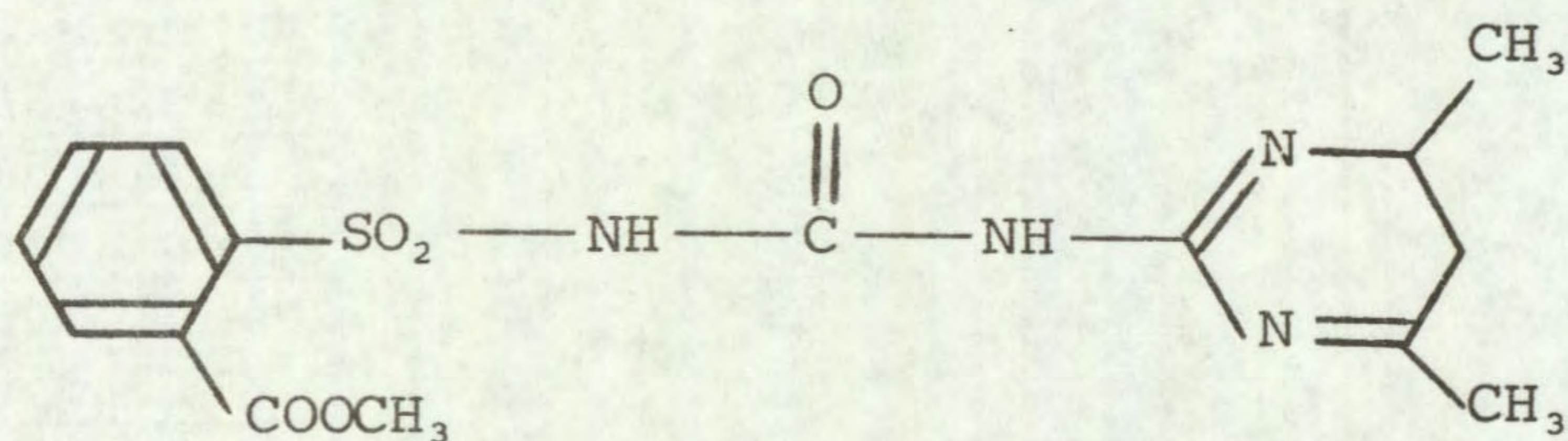


TIME OF SOWING
weeks after treatment

DPX 5648

Code number DPX 5648 Trade name Oust
Chemical name Methyl 2-(4,6-dimethylpyrimidin-2-ylureido) sulphonylbenzoate

Structure



Source Du Pont (UK) Ltd
 Biochemicals Department
 Maylands Avenue
 Hemel Hempstead
 Herts HP2 7DP

Information available and suggested uses

Suggested for pre- and post-emergence broad-spectrum weed control in industrial and fallow situations, in tree crops and forestry between 0.5 and 2.0 kg a.i./ha. Also as a sugar cane ripener at 0.25 kg a.i./ha.

Formulation used 80% w/w a.i. wettable powder

Spray volume 386 l/ha

RESULTS

Full results are given in the histograms on pages 53-60 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
0.016	None	None listed as no crops tolerant
0.004	barley + safener (NA)	<u>Bromus sterilis</u> <u>Raphanus raphanistrum</u> <u>Polygonum lapathifolium</u> <u>Veronica persica</u> <u>Agropyron repens</u> <u>Cirsium arvense</u> <u>Echinochloa crus-galli</u> <u>Digitaria sanguinalis</u> <u>Amaranthus retroflexus</u> <u>Solanum nigrum</u> <u>Bromus pectinatus</u> <u>Snowdenia polystachya</u> <u>Phalaris minor</u> <u>Cyperus esculentus</u> + 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
0.001	species above + wheat + safener (NA) field bean	<u>Beta vulgaris</u> <u>Festuca rubra</u> <u>Alopecurus myosuroides</u> <u>Poa annua</u> <u>Poa trivialis</u> <u>Sinapis arvensis</u> <u>Chrysanthemum segetum</u> <u>Tripleurospermum maritimum</u> <u>Senecio vulgaris</u> <u>Stellaris media</u> <u>Rumex obtusifolius</u> <u>Holcus lanatus</u> <u>Tussilago farfara</u> <u>Oryza rufipogon</u> <u>Eleusine indica</u>

Comments on results

Activity experiment

DPX 5648 was highly active on most species with all four application methods. The foliar spray was almost as active as the post-emergence soil drench on broad-leaved species but with the grasses, notably Avena fatua, the latter method of application was more active. However, the pre-emergence treatments were the most effective means of application with virtually complete kill of P. amphibium, perennial ryegrass and Agropyron repens even at 0.01 kg/ha. Activity pre-emergence, was so high on all species that further testing will be needed to determine whether surface or incorporated treatments are the most effective means of application. Results with dwarf bean, kale and Avena fatua suggest that both methods are equally effective.

Symptoms

The foliar spray caused some localised brown, necrotic spots on contact with the leaves, stems and petioles of dwarf bean, within a few days of spraying. However, a powerful inhibition of growth, accompanied by a pronounced yellowing or chlorosis, followed by necrosis were the main symptoms with all treatments. Certain species showed increased pigmentation effects with post-emergence treatments, for example, purple stems and lower leaf surfaces on kale, a reddening of leaves and stems of Polygonum amphibium and a more intense green colour of Agropyron repens. Severe inhibition of roots and rhizomes and eventual decay of these also occurred. Many species failed to emerge from the soil at higher doses applied pre-emergence. Those which did emerge were often stopped at an early growth stage, turning chlorotic and dying back. Increased tillering of some grass species eg the cereals, wheat and barley, was observed mainly at the lower doses, the tillers usually having thin leaf blades with a deeper green colouration. A rather flat dose response was evident with many species. These symptoms are reminiscent of chlorsulfuron and to some extent asulam (Richardson et al, 1980).

Persistence in the soil

Persistence in the soil is relatively long. Shoots of perennial ryegrass, the sensitive test species, were reduced in shoot fresh weight by 42 and 97% 36 weeks after treatment with doses of 0.004 and 0.016 kg/ha respectively.

Pre-emergence selectivity among temperate species

Of the 23 weeds tested, 13 were killed or controlled at the lowest dose of 0.001 kg/ha and a further seven at 0.004 kg/ha. These included annual and perennial grass and broad-leaved species. Avena fatua and Galium aparine were much more resistant however.

Field bean was the only crop to tolerate DPX 5648 and then only at the lowest dose of 0.001 kg/ha. Barley and wheat were sensitive at this dose, but the NA seed dressing caused appreciable safening effects, especially on the former species, which was able to withstand 0.004 kg/ha. A follow up pot experiment showed a lesser degree of safening however (10-30% on a shoot fresh weight basis) and further work is necessary. Most other crop species were very sensitive, notably legumes such as pea and white clover, brassica crops, lettuce and perennial ryegrass.

DPX 5648 would appear to have considerable potential as a total herbicide in view of the sensitivity shown by most plant species in these tests. The post- as well as pre-emergence activity will be advantageous in this respect together with its long period of persistence in the soil.

Selectivity among tropical species

Kenaf almost tolerated 0.001 kg/ha and cotton, soyabean and cowpea were apparently not too badly damaged at this dose, but most weeds required somewhat higher amounts and the chances of selectivity in annual crops appear small. There was only slight protection of maize, sorghum and rice by safeners.

Cyperus esculentus and C. rotundus were effectively suppressed for six months by 0.004 and 0.016 kg/ha respectively, and the compound would appear to have great potential for long-term non-selective vegetation control.

ACTIVITY EXPERIMENT

DPX 5648

		0.01 kg/ha	0.04 kg/ha	0.16 kg/ha
DWARF BEAN	F	XXXXXXXXXXXXXXXXXX XXXXXX	XXXXXXXXXXXXXXXXXX XXXXX	XXXXXXXXXXXXXXXXXX XXX
	S	XXXXXXXXXXXXXXXXXX XXXXXX	XXXXXXXXXXXXXXXXXX XXXXXX	XXXXXXXXXXXXXXXXXX XXXXX
	P	XXXXXXX XXX	XX XX	XXXXX XXXX
	I	XXXXXXXXXXXXX XXXXX	XXXXXXXXXXXXX XXXXX	XXXXXXXXXXXXX XXXX
KALE	F	XXXXXXXXXXXXXXXXXX XXXXXX	XXXXXXXXXXXXXXXXXX XXXXXX	XXXXXXXXXXXXXXXXXX XXXX
	S	XXXXXXXXXXXXXXXXXX XXXX	XXXXXXXXXXXXXXXXXX XXXX	XXXXXXXXXXXXXXXXXX XXX
	P	XXXXXXXXXXXXXXXXXX XXXX	XXXXXXXXXXXXX XXXX	XXXXXXXXXXXXXXXXXX + XXXX
	I	XXXXXXXXXXXXXXXXXX XXXX	XXXXXXXXXXXXX XXXX	XXXXXX XXXX
<u>POLYGONUM AMPHIBIUM</u>	F	XXXXXXXXXXXXXXXXXX XXXX	XXXXXXXXXXXXXXXXXX XXX	XXXXXXXXXXXXXXXXXX XX
	S	XXXXXXXXXXXXXXXXXX XXXX	XXXXXXXXXXXXXXXXXX XXX	XXXXXXXXXXXXXXXXXX XX
	P	o o	o o	o o
	I	o o	o o	o o
PERENNIAL RYEGRASS	F	XXXXXXXXXXXXXXXXXX XXXXXX	XXXXXXXXXXXXXXXXXX XXXX	XXXXXXXXXXXXXXXXXX XXX
	S	XXXXXXXXXXXXXXXXXX XX	XXXXXXXXXXXXXXXXXX XX	XXXXXXXXXXXXX XX
	P	o o	o o	o o
	I	x x	x x	o o
<u>AVENA FATUA</u>	F	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX
	S	XXXXXXXXXXXXXXXXXX XXXX	XXXXXXXXXXXXXXXXXX XX	XXXXXXXXXXXXXXXXXX XX
	P	xxx xxxx	xxxxxx xxx	xxxxxxxxx xx
	I	XXXXXXXXXXXXXXXXXX XXXXXX	xxxxx xxxxx	xxxxxx xxxxx
<u>AGROPYRON REPENS</u>	F	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXX XXXXXX
	S	XXXXXXXXXXXXXXXXXX XXXXXX	XXXXXXXXXXXXXXXXXX XXXXX	XXXXXXXXXXXXXXXXXX XXXXX
	P	o o	o o	o o
	I	o o	o o	o o

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

UNTREATED xxxxxxxxxxxxxxxx no. of survivors
 CONTROL xxxxxxxxxxxxxxxx vigour of survivors

SPECIES		DPX 5648 0.001 kg/ha		DPX 5648 0.004 kg/ha		DPX 5648 0.016 kg/ha
WHEAT	80	XXXXXXXXXXXXXXXXXXXX	67	XXXXXXXXXXXXXXXXXXXX	7	x
(1)	50	XXXXXXXXXXXX	29	XXXXXXX	7	x
WHEAT + S	95	XXXXXXXXXXXXXXXXXXXX	110	XXXXXXXXXXXXXXXXXXXX +	44	XXXXXXXXXX
(2)	93	XXXXXXXXXXXXXXXXXXXX	71	XXXXXXXXXXXXXXXXXXXX	36	XXXXXXXXXX
BARLEY	100	XXXXXXXXXXXXXXXXXXXX	100	XXXXXXXXXXXXXXXXXXXX	94	XXXXXXXXXXXXXXXXXXXX
(3)	71	XXXXXXXXXXXXXXXXXXXX	50	XXXXXXXXXXXX	29	XXXXXXX
BARLEY + S	87	XXXXXXXXXXXXXXXXXXXX	100	XXXXXXXXXXXXXXXXXXXX	100	XXXXXXXXXXXXXXXXXXXX
(4)	100	XXXXXXXXXXXXXXXXXXXX	93	XXXXXXXXXXXXXXXXXXXX	50	XXXXXXXXXXXX
OAT	102	XXXXXXXXXXXXXXXXXXXX	89	XXXXXXXXXXXXXXXXXXXX	96	XXXXXXXXXXXXXXXXXXXX
(5)	79	XXXXXXXXXXXXXXXXXXXX	43	XXXXXXXXXXXX	29	XXXXXXX
PER RYGR	51	XXXXXXXXXXXX	17	xxx	13	xxx
(6)	36	XXXXXXX	14	xxx	7	x
ONION	72	XXXXXXXXXXXXXXXXXXXX	36	XXXXXXX	0	
(8)	43	XXXXXXX	21	xxxx	0	
DWF BEAN	104	XXXXXXXXXXXXXXXXXXXX +	104	XXXXXXXXXXXXXXXXXXXX +	91	XXXXXXXXXXXXXXXXXXXX
(9)	79	XXXXXXXXXXXXXXXXXXXX	57	XXXXXXXXXXXX	43	XXXXXXXXXXXX
FLD BEAN	105	XXXXXXXXXXXXXXXXXXXX +	105	XXXXXXXXXXXXXXXXXXXX +	60	XXXXXXXXXXXX
(10)	86	XXXXXXXXXXXXXXXXXXXX	57	XXXXXXXXXXXX	36	XXXXXXX
PEA	40	XXXXXXXXXX	20	xxxx	0	
(11)	14	xxx	7	x	0	
W CLOVER	73	XXXXXXXXXXXXXXXXXXXX	87	XXXXXXXXXXXXXXXXXXXX	27	XXXXXX
(12)	29	XXXXXXX	14	xxx	14	xxx
LUCERNE	93	XXXXXXXXXXXXXXXXXXXX	83	XXXXXXXXXXXXXXXXXXXX	119	XXXXXXXXXXXXXXXXXXXX +
(13)	71	XXXXXXXXXXXXXXXXXXXX	57	XXXXXXXXXXXX	43	XXXXXXXXXXXX

PRE-EMERGENCE SELECTIVITY TEST

SPECIES	DPX 5648 0.001 kg/ha		DPX 5648 0.004 kg/ha		DPX 5648 0.016 kg/ha	
RAPE (14)	96 36	XXXXXXXXXXXXXXXXXXXXX XXXXXXX	45 29	XXXXXXXXXX XXXXXXX	45 21	XXXXXXXXXX XXXX
KALE (15)	106 36	XXXXXXXXXXXXXXXXXXXXX + XXXXXXX	115 29	XXXXXXXXXXXXXXXXXXXXX + XXXXXXX	111 29	XXXXXXXXXXXXXXXXXXXXX + XXXXXXX
SWEDE (17)	78 29	XXXXXXXXXXXXXXXXXXXXX XXXXXXX	28 29	XXXXXXX XXXXXXX	60 14	XXXXXXXXXXXXXXXXXXXXX XXX
CARROT (18)	104 79	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	92 57	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	35 21	XXXXXXX XXXX
LETTUCE (20)	104 29	XXXXXXXXXXXXXXXXXXXXX + XXXXXXX	107 29	XXXXXXXXXXXXXXXXXXXXX + XXXXXXX	89 14	XXXXXXXXXXXXXXXXXXXXX XXX
FENUGREK (21)	100 50	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	100 43	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	94 29	XXXXXXXXXXXXXXXXXXXXX XXXXXXX
SUG BEET (22)	80 50	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	73 21	XXXXXXXXXXXXXXXXXXXXX XXXX	55 14	XXXXXXXXXXXXXXXXXXXXX XXX
BETA VUL (23)	43 29	XXXXXXXXXXXXX XXXXXXX	16 14	XXX XXX	11 7	XX X
BROM STE (24)	81 50	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	27 21	XXXXXX XXXX	22 14	XXXX XXX
FEST RUB (25)	28 29	XXXXXX XXXXXX	11 14	XX XXX	0 0	
AVE FATU (26)	85 79	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	85 50	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	45 43	XXXXXXXXXXXXX XXXXXXXXXXXXX
ALO MYOS (27)	6 7	X X	6 7	X X	0 0	

PRE-EMERGENCE SELECTIVITY TEST

SPECIES		DPX 5648 0.001 kg/ha		DPX 5648 0.004 kg/ha		DPX 5648 0.016 kg/ha
POA ANN (28)	38 29	xxxxxxx xxxxxx	18 14	xxxx xxx	5 14	x xxx
POA TRIV (29)	23 14	xxxxx xxx	7 7	x x	7 14	x xxx
SIN ARV (30)	91 29	xxxxxxxxxxxxxxxxxxxx xxxxxx	68 29	xxxxxxxxxxxxxxxxxxxx xxxxxx	65 21	xxxxxxxxxxxxxxxxxxxx xxxx
RAPH RAP (31)	83 43	xxxxxxxxxxxxxxxxxxxx xxxxxxxx	97 29	xxxxxxxxxxxxxxxxxxxx xxxxxx	88 29	xxxxxxxxxxxxxxxxxxxx xxxxxx
CHRY SEG (32)	0 0		0 0		0 0	
TRIP MAR (33)	66 29	xxxxxxxxxxxxxxxx xxxxxx	114 21	xxxxxxxxxxxxxxxxxxxx + xxxx	42 14	xxxxxxx xxx
SEN VULG (34)	91 29	xxxxxxxxxxxxxxxxxxxx xxxxxx	10 21	xx xxxx	20 7	xxxx x
POL LAPA (35)	48 36	xxxxxxxxxx xxxxxx	35 21	xxxxxx xxxx	0 0	
GAL APAR (38)	74 86	xxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx	96 86	xxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx	85 64	xxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxx
CHEN ALB (39)	80 43	xxxxxxxxxxxxxxxx xxxxxx	71 36	xxxxxxxxxxxxxxxx xxxxxx	53 29	xxxxxxxxxxxx xxxxxx
STEL MED (40)	28 43	xxxxxx xxxxxx	23 29	xxxxxx xxxxxx	30 21	xxxxxx xxxx
VER PERS (42)	55 43	xxxxxxxxxx xxxxxx	0 0		0 0	

PRE-EMERGENCE SELECTIVITY TEST

SPECIES		DPX 5648 0.001 kg/ha		DPX 5648 0.004 kg/ha		DPX 5648 0.016 kg/ha	
RUM OBTU (44)	57 29	XXXXXXXXXXXXX XXXXXX	89 29	XXXXXXXXXXXXXXXXXXXXX XXXXXX	121 21	XXXXXXXXXXXXXXXXXXXXX + XXXX	
HOLC LAN (45)	0 0		0 0		0 0		
AG REPEN (47)	71 57	XXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	9 14	XX XXX	0 0		
ALL VIN (49)	59 50	XXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	38 43	XXXXXXXXXX XXXXXXXXXXXXX	4 7	X X	
CIRS ARV (50)	69 36	XXXXXXXXXXXXXXXXX XXXXXXX	23 14	XXXXXX XXX	0 0		
TUS FARF (51)	33 14	XXXXXXX XXX	0 0		0 0		
MILLET (55)	80 50	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	13 29	XXX XXXXXX	0 0		
MAIZE + S (56)	87 71	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	100 57	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	50 36	XXXXXXXXXXXXX XXXXXXX	
MAIZE (57)	104 64	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXXXXXXXXXX	91 36	XXXXXXXXXXXXXXXXXXXXX XXXXXXX	52 29	XXXXXXXXXXXXX XXXXXXX	
SORG + S (58)	60 57	XXXXXXXXXXXXX XXXXXXXXXXXXX	33 29	XXXXXXX XXXXXXX	27 14	XXXXXX XXX	
SORGHUM (59)	73 43	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXX	20 29	XXXX XXXXXX	0 0		

PRE-EMERGENCE SELECTIVITY TEST

SPECIES		DPX 5648 0.001 kg/ha		DPX 5648 0.004 kg/ha		DPX 5648 0.016 kg/ha
TOMATO (60)	109 29	XXXXXXXXXXXXXXXXXXXXX + XXXXXX	95 29	XXXXXXXXXXXXXXXXXXXXX XXXXXX	61 29	XXXXXXXXXXXXX XXXXXX
CHICKPEA (63)	83 43	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXX	50 21	XXXXXXXXXXXXX XXXX	33 21	XXXXXXXXXX XXXX
JUTE (67)	13 14	xxx xxx	13 14	xxx xxx	0 0	
KENAF (68)	97 79	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	82 64	XXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXX	30 21	XXXXXX XXXX
ORYZA (71)	66 21	XXXXXXXXXXXXXXXXXXXXX XXXX	47 29	XXXXXXXXXXXXX XXXXXX	0 0	
RICE (72)	21 14	XXXX xxx	0 0		0 0	
RICE + S (73)	0 0		17 14	xxx xxx	0 0	
ELEU IND (74)	0 0		0 0		0 0	
ECH CRUS (75)	108 50	XXXXXXXXXXXXXXXXXXXXX + XXXXXXXXXXXXX	49 29	XXXXXXXXXXXXX XXXXXX	0 0	
ROTT EXA (76)	62 50	XXXXXXXXXXXXX XXXXXXXXXXXXX	53 43	XXXXXXXXXXXXX XXXXXXXXXXXXX	35 21	XXXXXX XXXX
DIG SANG (77)	51 36	XXXXXXXXXXXXX XXXXXX	5 14	x xxx	14 14	xxx xxx
AMAR RET (78)	58 36	XXXXXXXXXXXXX XXXXXX	39 29	XXXXXXXXXXXXX XXXXXX	31 21	XXXXXX XXXX

PRE-EMERGENCE SELECTIVITY TEST

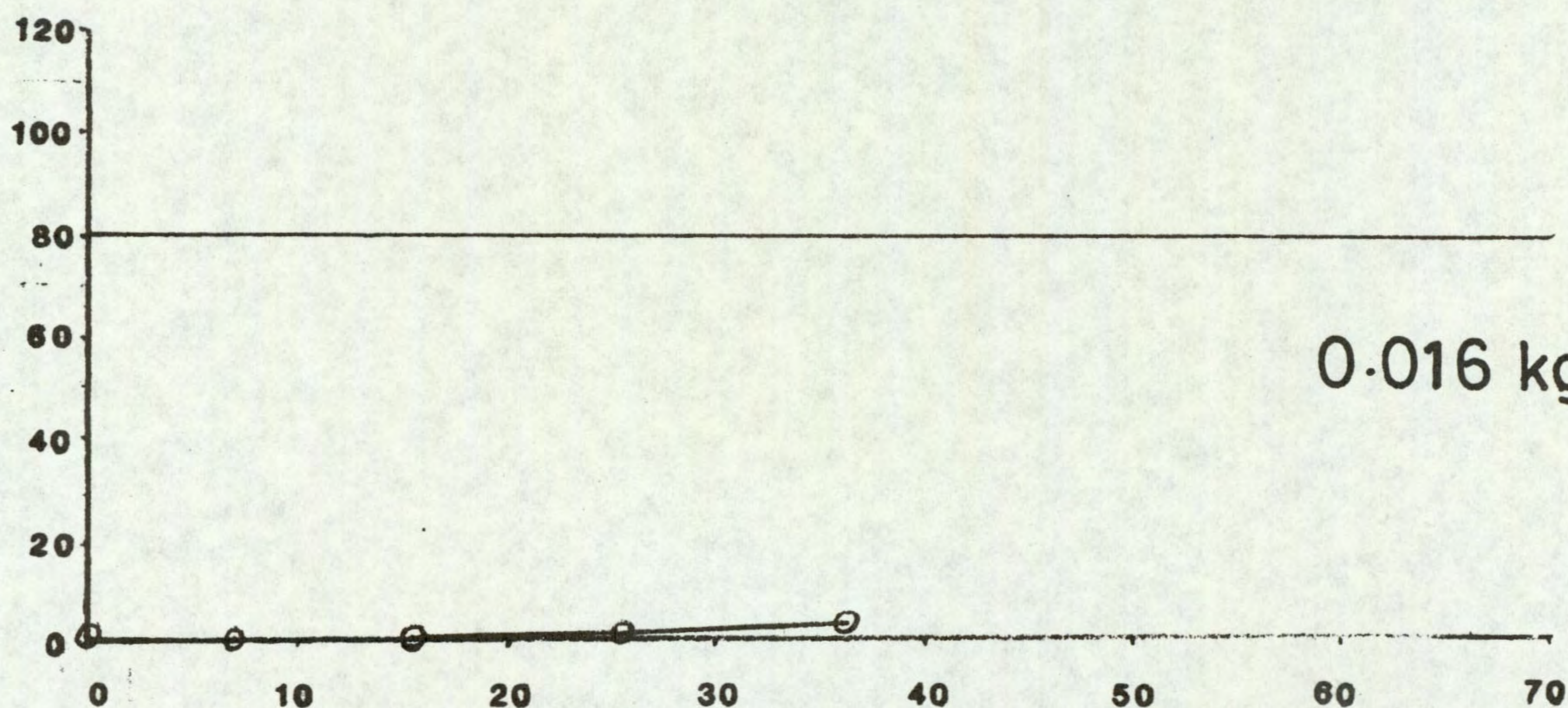
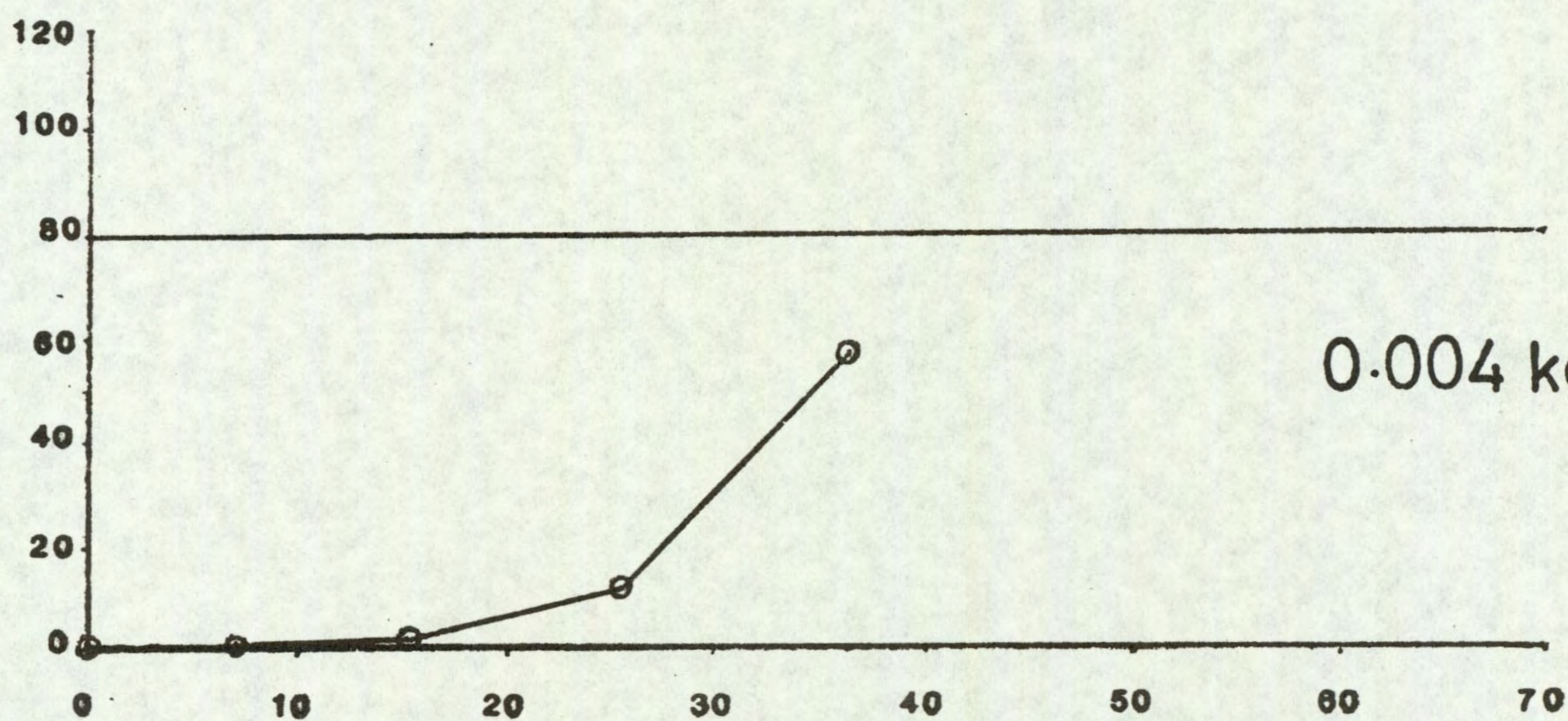
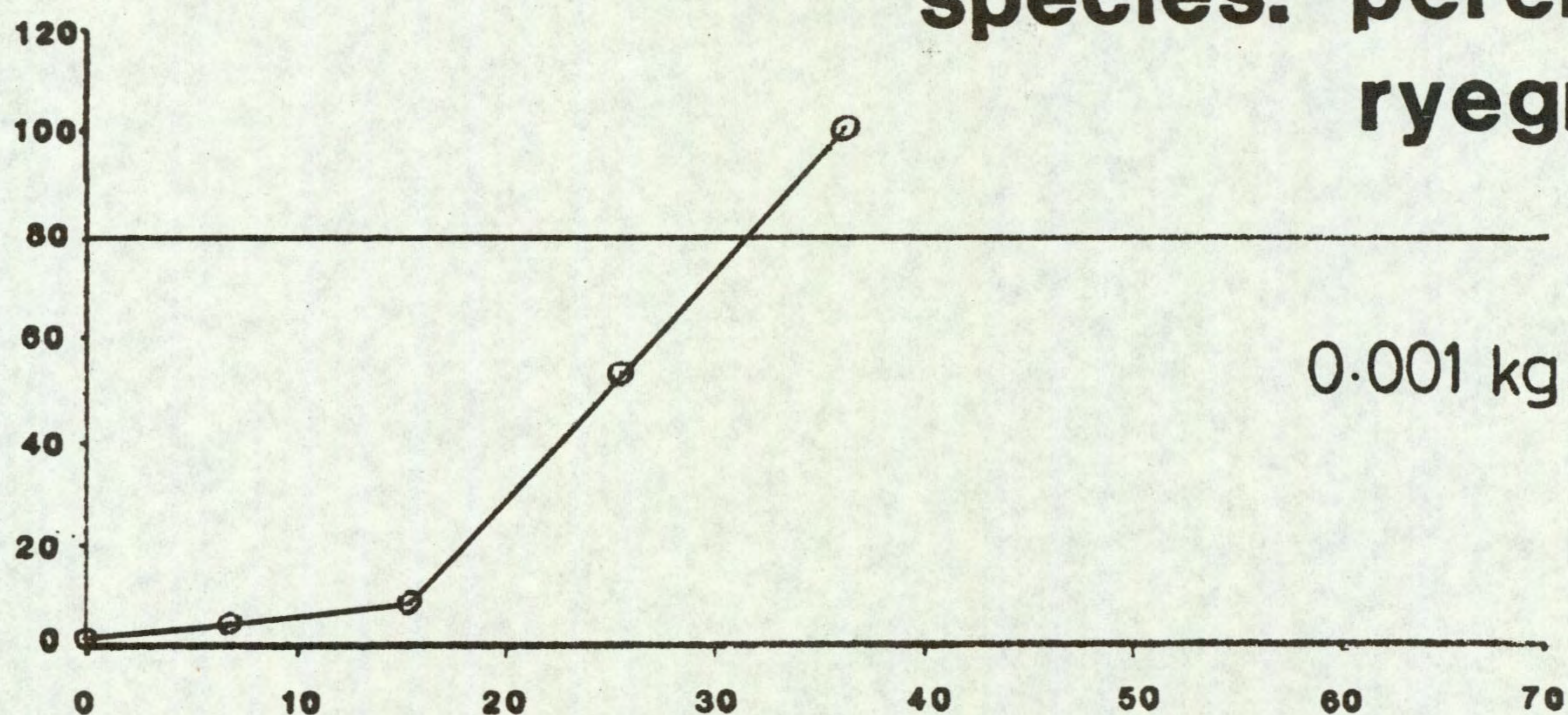
SPECIES		DPX 5648 0.001 kg/ha		DPX 5648 0.004 kg/ha		DPX 5648 0.016 kg/ha
SOL NIG (81)	46 86	xxxxxxx xxxxxxxxxxxxxxxxxxxx	46 29	xxxxxxx xxxxxx	0 0	
BROM PEC (82)	45 43	xxxxxxx xxxxxxx	11 14	xx xxx	11 14	xx xxx
SNO POL (83)	84 57	xxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxx	25 36	xxxxx xxxxxxx	0 0	
PHAL MIN (84)	35 50	xxxxxxx xxxxxxxxxxxx	0 0		0 0	
CYP ESCU (85)	79 57	xxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxx	14 36	xxx xxxxxxx	0 0	
CYP ROTU (86)	98 71	xxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxx	98 50	xxxxxxxxxxxxxxxxxxxx xxxxxxx	21 29	xxxx xxxxxx

PRE-EMERGENCE SELECTIVITY TEST

PERSISTENCE OF DPX 5648

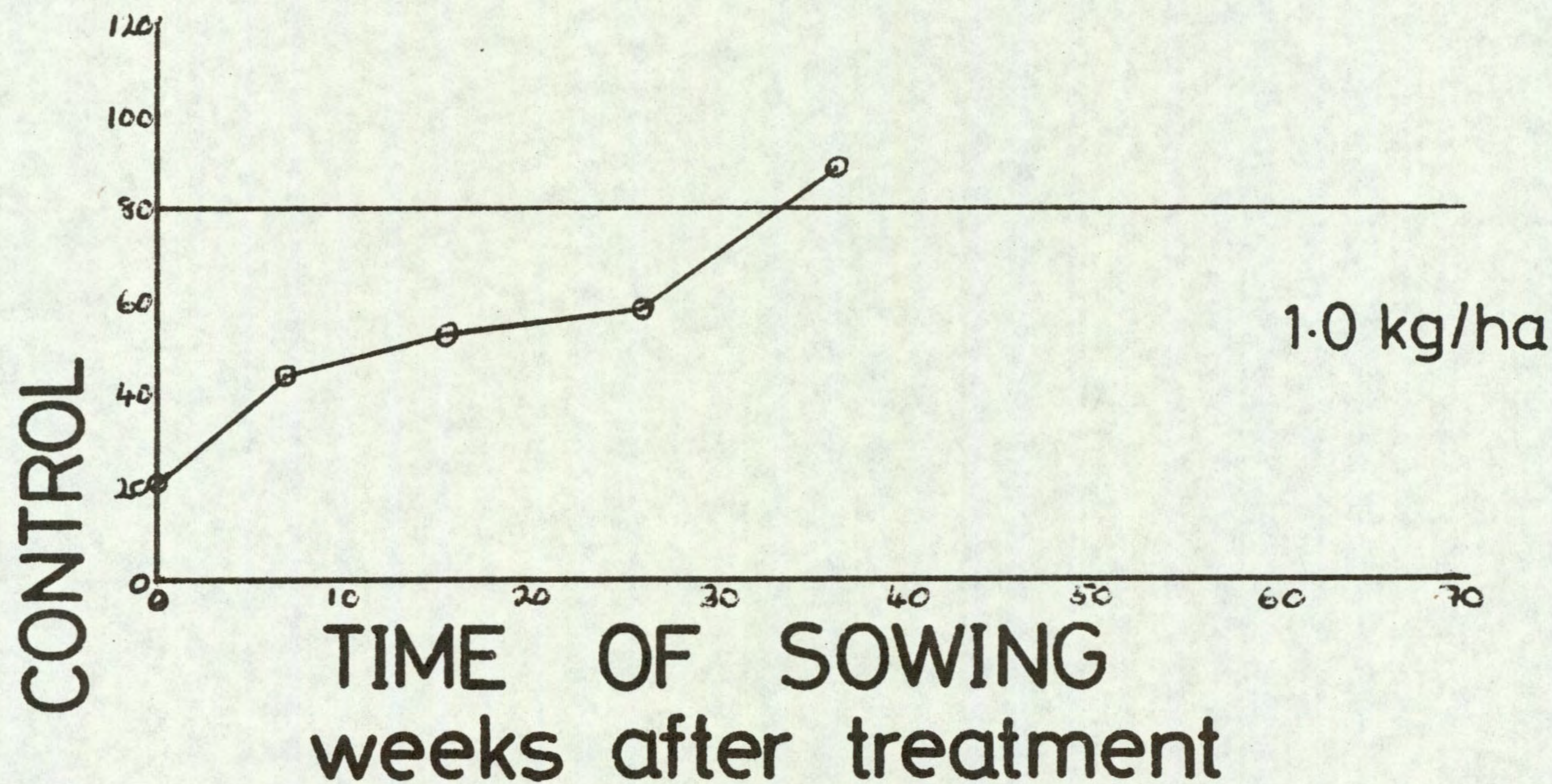
species: perennial ryegrass

FRESH WEIGHT AS % OF CONTROL

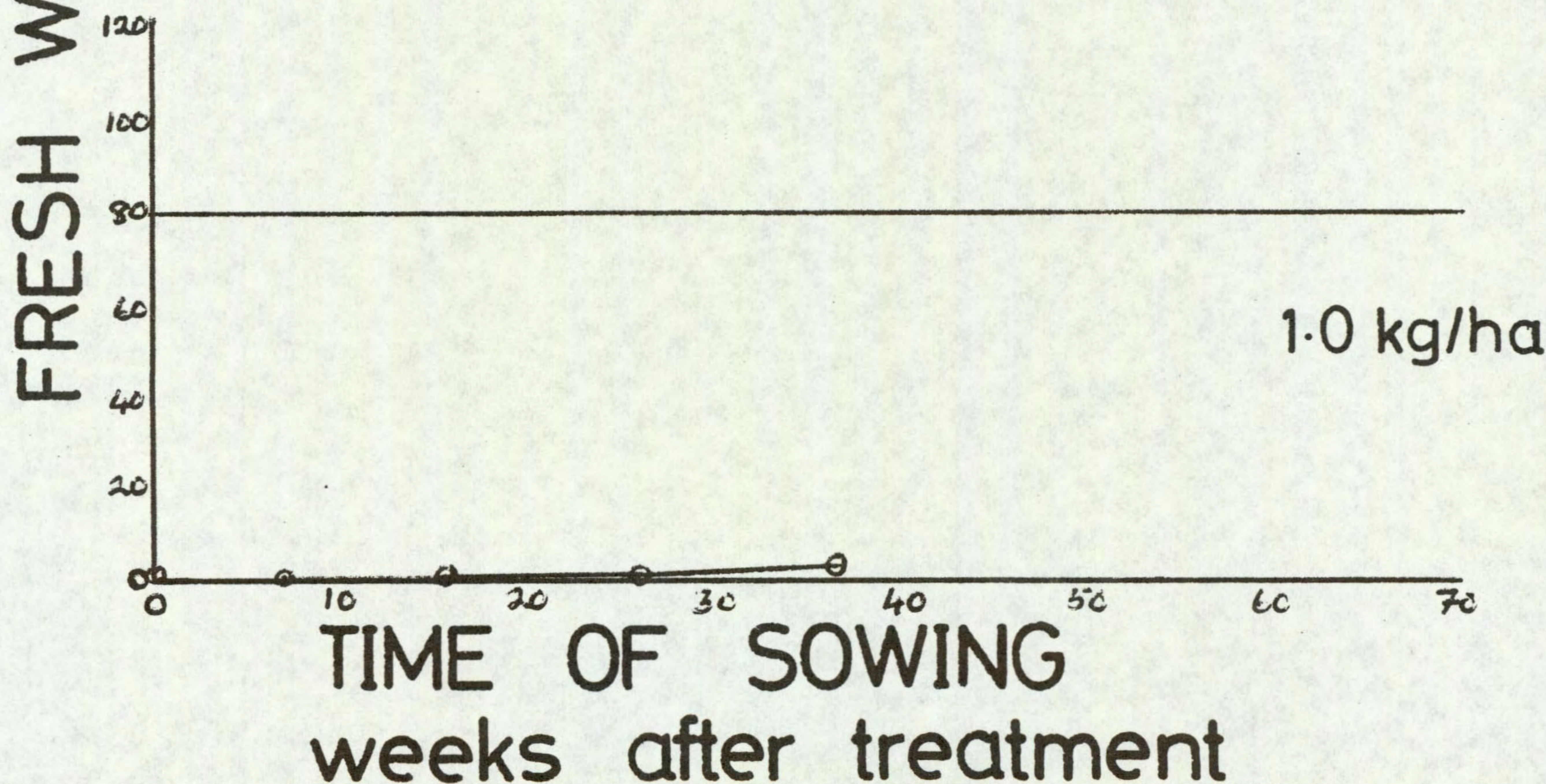


TIME OF SOWING
weeks after treatment

PERSISTENCE OF CYANAZINE species: Perennial Ryegrass



PERSISTENCE OF SIMAZINE species: Perennial Ryegrass



ACKNOWLEDGEMENTS

We are grateful to the joint Letcombe/WRO Statistics Section for processing the experimental data; to Mr G P White, Miss D Stringer and Messrs R H Webster and R M Porteous for technical and practical assistance; to Mrs J Souch for the preparation and typing of this report; to Mrs S Cox and her staff for its duplication and to the commercial firms who provided the herbicides and relevant data.

The work of the Tropical Weeds Group was carried out under Project D.11 (27) financed by HM Overseas Development Administration.

REFERENCES

- RICHARDSON, W.G. and DEAN, M.L. (1973) The pre-emergence selectivity of some recently developed herbicides: lenacil, RU 12068, metribuzin, cyprazine, EMD-IT 5914 and benthocarb. Technical Report Agricultural Research Council Weed Research Organization, 25, pp 57.
- RICHARDSON, W.G., WEST, T.M. and PARKER, C. (1980) The activity and post-emergence selectivity of some recently developed herbicides: R 40244, DPX 4189, acifluorfen, ARD 34/02 (NP 55) and PP 009. Technical Report Agricultural Research Council Weed Research Organization, 61, pp 57.

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

	Designation and computer serial number	Cultivar or source	No. per pot	Depth of planting (cm)	Stage of growth at assessment (untreated controls, leaf numbers exclusive of cotyledons)
<u>Temperate species</u>					
Wheat (<u>Triticum aestivum</u>)	WHEAT (1)	Maris Huntsman	8	1.0	7 leaves, tillering
Wheat + safener (<u>Triticum aestivum</u>)	WHEAT + S (2)	Maris Huntsman	8	1.0	7 leaves, tillering
Barley (<u>Hordeum vulgare</u>)	BARLEY (3)	Sonja	8	1.0	7½-8½ leaves, tillering
Barley + safener (<u>Hordeum vulgare</u>)	BARLEY + S (4)	Sonja	8	1.0	7½-8½ leaves, tillering
Oat (<u>Avena sativa</u>)	OAT (5)	Pennal	8	1.0	8-8½ leaves, tillering
Perennial ryegrass (<u>Lolium perenne</u>)	PER RYGR (6)	S 23	15	0.5	8 leaves, tillering
Onion (<u>Allium cepa</u>)	ONION (8)	Robusta	15	0.5	1½-3 leaves
Dwarf bean* (<u>Phaseolus vulgaris</u>)	DWF BEAN (9)	Masterpiece	4	1.5	2-3 trifoliolate leaves
Field bean (<u>Vicia faba</u>)	FLD BEAN (10)	Maris Blaze	4	2.0	7 leaves
Pea (<u>Pisum sativum</u>)	PEA (11)	Dark Skinned Perfection	4	1.5	8 leaves
White Clover (<u>Trifolium repens</u>)	W CLOVER (12)	Kent Wild White	20	0.5	Up to 6 trifoliolate leaves
Lucerne (<u>Medicago sativa</u>)	LUCERNE (13)	Europe	12	0.5	Up to 6 trifoliolate leaves
Rape (<u>Brassica napus oleifera</u>)	RAPE (14)	Jet Neuf	10	0.5	4 leaves
Kale (<u>Brassica oleracea acephala</u>)	KALE	Maris Kestrel	15	0.5	3-3½ leaves
Swede (<u>Brassica napus</u>)	SWEDE (17)	Acme	12	0.5	4-4½ leaves

* raised with tropical species until emergence, then transferred to lower temperature regime

	Designation and computer serial number	Cultivar or source	No. per pot	Depth of planting (cm)	Stage of growth at assessment (untreated controls, leaf numbers exclusive of cotyledons)
Carrot (<u>Daucus carota</u>)	CARROT (18)	Chantenay Red Core	12	0.5	4-5 leaves
Lettuce (<u>Lactuca sativa</u>)	LETTUCE (20)	Ravel	15	0.5	7 leaves
Fenugreek (<u>Trigonella foenumgraecum</u>)	FENUGREK (21)	Paul	10	0.5	2-9 trifoliolate leaves
Sugar beet (<u>Beta vulgaris</u>)	SUG BEET (22)	Monotri	15	1.0	4-5 leaves
<u>Beta vulgaris</u>	BETA VUL (23)	Attleborough 1979	15	0.5	4-5 leaves
<u>Bromus sterilis</u>	BROM STE (24)	WRO 1981	12	0.5	6 leaves, tillering
<u>Festuca rubra</u>	FEST RUB (25)	Boreal CDN 86-0192	25	0.25	6-7 leaves, tillering
<u>Avena fatua</u>	AVE FATU (26)	Bampton 1979	10	1.0	3½-6½ leaves, some tillering
<u>Alopecurus myosuroides</u>	ALO MYOS (27)	B and S Supplies 1980	25	0.25	8-14 leaves, tillering
<u>Poa annua</u>	POA ANN (28)	B and S Supplies 1980	25	0.5	7-9 leaves, tillering
<u>Poa trivialis</u>	POA TRIV (29)	B and S Supplies 1981	25	0.25	6-8 leaves, tillering
<u>Sinapis arvensis</u>	SIN ARV (30)	WRO 1978	20	0.5	6 leaves, flowering
<u>Raphanus raphanistrum</u>	RAPH RAP (31)	Long Black Spanish	12	0.5	4 leaves
<u>Chrysanthemum segetum</u>	CHRY SEG (32)	WRO 1980	50	sur- face	6-8 leaves
<u>Tripleurospermum maritium</u>	TRIP MAR (33)	WRO 1980	25	sur- face	Up to 8 leaves

	Designation and computer serial number	Cultivar or source	No. per pot	Depth of planting (cm)	Stage of growth at assessment (untreated controls, leaf numbers exclusive of cotyledons)
<u>Senecio vulgaris</u>	SEN VULG (34)	B and S Supplies 1979	30	surface	8 leaves
<u>Polygonum lapathifolium</u>	POL LAPA (35)	WRO 1980	20	0.5	Up to 3 leaves
<u>Galium aparine</u>	GAL APAR (38)	WRO 1979	12	1.0	Up to 10 whorls
<u>Chenopodium album</u>	CHEN ALB (39)	WRO 1979	40	0.5	Up to 6 leaves
<u>Stellaria media</u>	STEL MED (40)	B and S Supplies 1979	40	0.5	16-20 leaves
<u>Veronica persica</u>	VER PERS (42)	WRO 1980	15	0.5	Up to 8 leaves
<u>Rumex obtusifolius</u>	RUM OBTU (44)	WRO 1981	25	0.25	3-4 leaves
<u>Holcus lanatus</u>	HOLC LAN (45)	B and S Supplies 1980	20	0.5	4-8 leaves, 50% tillering
<u>Agropyron repens</u>	AG REPEN (47)	WRO Clone 31	6 7	1.5	9-12 leaves, tillering
<u>Allium vineale</u>	ALL VIN (49)	WRO 1981	12+	1.0	2 leaves
<u>Cirsium arvense</u>	CIRS ARV (50)	WRO Clone 1	4 7	1.5	Up to 10 leaves
<u>Tussilago farfara</u>	TUS FARF (51)	WRO Clone 1	4 7	2.0	4 leaves
<u>Tropical species (grown under higher temperature regime)</u>					
<u>Millet (Pennisetum americanum)</u>	MILLET (55)	ex Bornu	10	0.5	3-4½ leaves
<u>Maize + safener (Zea mays)</u>	MAIZE + S (56)	Caldera 535	4	1.5	4-4½ leaves
<u>Maize (Zea mays)</u>	MAIZE (57)	Caldera 535	4	1.5	4-4½ leaves

	Designation and computer serial number	Cultivar or source	No. per pot	Depth of planting (cm)	Stage of growth at assessment (untreated controls, leaf numbers exclusive of cotyledons)
Sorghum + safener (<u>Sorghum bicolor</u>)	SORG + S (58)	Funk G 268	8	1.0	4-4½ leaves
Sorghum (<u>Sorghum bicolor</u>)	SORGHUM (59)	Funk G 268	8	1.0	4-4½ leaves
Tomato (<u>Lycopersicum esculentum</u>)	TOMATO (60)	Ailsa Craig	8	0.5	3-4 leaves
Pigeon pea (<u>Cajanus cajan</u>)	PIGEON P (61)	ICRISAT 1 G 1981	6	1.0	1-3 trifoliolate leaves
Cowpea (<u>Vigna unguiculata</u>)	COWPEA (62)	ICRISAT 88-63 1980	6	1.0	3 trifoliolate leaves
Chickpea (<u>Cicer arietinum</u>)	CHICKPEA (63)	Jygthi 1981	6	1.0	10-12 pinnate leaves
Groundnut (<u>Arachis hypogaea</u>)	GRNDNUT (64)	Valencia 1980	6	2.0	Nil germination
Soyabean (<u>Glycine max</u>)	SOYABEAN (65)	Fiskby V.	6	1.5	2 trifoliolate leaves
Cotton (<u>Gossypium hirsutum</u>)	COTTON (66)	S 71 Nigeria 1977	8	1.5	2-3 leaves
Jute (<u>Corchorus olitorius</u>)	JUTE (67)	WRO 1980	15	0.5	3-4 leaves
Kenaf (<u>Hibiscus cannabinus</u>)	KENAF (68)	Ghana A63-440, 1978	12	1.0	3-4 leaves
Sesamum (<u>Sesamum indicum</u>)	SESAMUM (70)	Sudan 1981	15	0.5	4 leaves
<u>Oryza rufipogon</u>	ORYZA (71)	Bangladesh 1980	15	1.0	2½-3 leaves
Rice (<u>Oryza sativa</u>)	RICE (72)	IR 298	10	1.0	2½-3 leaves
Rice + safener (<u>Oryza sativa</u>)	RICE + S (73)	IR 298	10	1.0	2½-3 leaves
<u>Eleusine indica</u>	ELEU IND (74)	Zimbabwe 1980	15	0.25	3-4 leaves

	Designation and computer serial number	Cultivar or source	No. per pot	Depth of planting (cm)	Stage of growth at assessment (untreated controls, leaf numbers exclusive of cotyledons)
<u>Echinochloa crus-galli</u>	ECH CRUS (75)	WRO 1979	12	0.5	4-4½ leaves
<u>Rottboellia exaltata</u>	ROTT EXA (76)	Zimbabwe 1978	12	0.5	4-4½ leaves
<u>Digitaria sanguinalis</u>	DIG SANG (77)	WRO 1979	15	0.25	4-4½ leaves
<u>Amaranthus retroflexus</u>	AMAR RET (78)	WRO 1980	40	0.25	4-7 leaves
<u>Solanum nigrum</u>	SOL NIG (81)	WRO 1980	15	surface	6-8 leaves
<u>Bromus pectinatus</u>	BROM PEC (82)	Tanzania 1978	10	0.25	3½ leaves
<u>Snowdenia polystachya</u>	SNO POL (83)	Ethiopia 1980	20	0.5	4-5 leaves
<u>Phalaris minor*</u>	PHAL MIN (84)	WRO 1979	15	0.25	4-4½ leaves
<u>Cyperus esculentus</u>	CYP ESCU (85)	WRO Clone 2 (ex South Africa)	8**	2.0	5-7 leaves
<u>Cyperus rotundus</u>	CYP ROTU (86)	WRO Clone 1 (Zimbabwe)	6**	2.0	7-8 leaves
<u>Oxalis latifolia</u>	OXAL LAT (87)	WRO Clone 2 (Cornwall)	15 bulbs	2.0	1 leaf

* = raised with temperate species until emergence, then transferred to higher temperature regime

** = tubers

/ = one node rhizome fragments

// = 4 cm root fragments

+ = aerial bulbils

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*	°C	medium volume	MV
degree centigrade	°C	melting point	m.p.
degree Fahrenheit*	°F	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	pre-emergence	pre-em.
millimicro* (nano: $\times 10^{-9}$)	n or μ	quart	quart
minimum	min.	relative humidity	r.h.
minus	-	revolution per minute*	rev/min
minute	min	second	s
molar concentration*	M (small cap)	soluble concentrate	s.c.
molecule, molecular	mol.	soluble powder	s.p.
more than	>	solution	soln
multiplied by*	x	species (singular)	sp.
normal concentration*	N (small cap)	species (plural)	spp.
not dated	n.d.	specific gravity	sp. gr.
oil miscible concentrate	o.m.c. (tables only)	square foot*	ft ²
organic matter	o.m.	square inch	in ²
ounce	oz	square metre*	m ²
ounces per gallon	oz/gal	square root of*	$\sqrt{\quad}$
page	p.	sub-species*	ssp.
pages	pp.	summary	s.
parts per million	ppm	temperature	temp.
parts per million by volume	ppmv	ton	ton
parts per million by weight	ppmw	tonne	t
percent(age)	%	ultra-low volume	ULV
pico (micromicro: $\times 10^{-12}$)	p or μ	ultra violet	u.v.
pint	pint	vapour density	v.d.
pints per acre	pints/ac	vapour pressure	v.p.
plus or minus*	+ -	<u>varietas</u>	var.
post-emergence	post-em	volt	V
pound	lb	volume	vol.
pound per acre*	lb/ac	volume per volume	v/v
pounds per minute	lb/min	water soluble powder	w.s.p. (tables only)
pound per square inch*	lb/in ²	watt	W
powder for dry application	p. (tables only)	weight	wt
power take off	p.t.o.	weight per volume*	w/v
precipitate (noun)	ppt.	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.



WEED RESEARCH ORGANIZATION

TECHNICAL REPORTS

(Price includes surface mail; airmail £1.00 extra)

(* denotes Reports now out of print)

6. The botany, ecology, agronomy and control of Poa trivialis L. rough-stalked meadow-grass. November 1966. G P Allen. Price - £0.25
7. Flame cultivation experiments 1965. October, 1966. G W Ivens. Price - £0.25
8. The development of selective herbicides for kale in the United Kingdom. 2. The methylthiotriazines. Price - £0.25
10. The liverwort, Marchantia polymorpha L. as a weed problem in horticulture; its extent and control. July 1968. I E Henson. Price - £0.25
11. Raising plants for herbicide evaluation; a comparison of compost types. July 1968. I E Henson. Price - £0.25
- *12. Studies on the regeneration of perennial weeds in the glasshouse; I. Temperate species. May 1969. I E Henson. Price - £0.25
13. Changes in the germination capacity of three Polygonum species following low temperature moist storage. June 1969. I E Henson. Price. - £0.25
14. Studies on the regeneration of perennial weeds in the glasshouse. II. Tropical species. May 1970. I E Henson. Price - £0.25
15. Methods of Analysis for herbicide residues. February 1977. (second edition) - price £5.75
16. Report on a joint survey of the presence of wild oat seeds in cereal seed drills in the United Kingdom during Spring 1970. November 1970. J G Elliott and P J Attwood. Price - £0.25
17. The pre-emergence selectivity of some newly developed herbicides, Orga 3045 (in comparison with dalapon), haloxydine (PP 493), HZ 52.112, pronamide (RH 315) and R 12001. January 1971. W G Richardson, C Parker and K Holly. Price - £0.25
18. A survey from the roadside of the state of post-harvest operations in Oxfordshire in 1971. November 1971. A Phillipson. Price - £0.12
- * 19. The pre-emergence selectivity of some recently developed herbicides in jute, kenaf and sesamum, and their activity against Oxalis latifolia. December 1971. M L Dean and C Parker. Price - £0.25.

- * 20. A survey of cereal husbandry and weed control in three regions of England. July 1972. A Phillipson, T W Cox and J G Elliott. Price - £0.35
21. An automatic punching counter. November 1972. R C Simmons. Price - £0.30
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 benthocarb. 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
27. Selectivity of benzene sulphonyl carbamate herbicides between various pasture grasses and clover. October 1973. A M Blair. Price - £1.05
28. The post-emergence selectivity of eight herbicides between pasture grasses: RP 17623, HOE 701, BAS 3790, metoxuron, RU 12068, cyprazine, MC 4379, metribuzin. October 1973. A M Blair. Price - £1.00
- * 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
30. Herbicides for the control of the broad-leaved dock (Rumex obtusifolius L.). November 1973. A M Blair and J Holroyd. Price - £1.06
31. Factors affecting the selectivity of six soil acting herbicides against Cyperus rotundus. February 1974. M L Dean and C Parker. Price - £1.10
32. The activity and post-emergence selectivity of some recently developed herbicides: oxadiazon, U-29,722, U-27,658, metflurazone, norflurazone, AC 50-191, AC 84,777 and iprymidam. June 1974. W G Richardson and M L Dean. Price - £3.62
33. A permanent automatic weather station using digital integrators. September 1974. R C Simmons. Price £0.63.
34. The activity and pre-emergence selectivity of some recently developed herbicides: trifluralin, isopropalin, oryzalin, dinitramine, bifenoxy and perfluidone. November 1974. W G Richardson and M L Dean. Price - £2.50

35. A survey of aquatic weed control methods used by Internal Drainage Boards, 1973. January 1975. T O Robson. Price - £1.39
36. The activity and pre-emergence selectivity of some recently developed herbicides: Bayer 94871, tebuthiuron, AC 92553. March 1975. W G Richardson and M L Dean. Price - £1.54
37. Studies on Imperata cylindrica (L.) Beauv. and Eupatorium odoratum L. October 1975. G W Ivens. Price - £1.75
38. The activity and pre-emergence selectivity of some recently developed herbicides: metamitron, HOE 22870, HOE 23408, RH 2915, RP 20630. March 1976. W G Richardson, M L Dean and C Parker. Price - £3.25
39. The activity and post-emergence selectivity of some recently developed herbicides: HOE 22870, HOE 23408, flamprop-methyl, metamitron and cyperquat. May 1976. W G Richardson and C Parker. Price - £3.20
40. The activity and pre-emergence selectivity of some recently developed herbicides: RP 20810, oxadiazon, chlornitrofen, nitrofen, flamprop-isopropyl. August 1976. W G Richardson, M L Dean and C Parker. Price - £2.75.
41. The activity and pre-emergence selectivity of some recently developed herbicides: K 1441, mefluidide, WL 29226, epronaz, Dowco 290 and triclopyr. November 1976. W G Richardson and C Parker. Price - £3.40.
42. The activity and post-emergence selectivity of some recently developed herbicides: KUE 2079A, HOE 29152, RH 2915, Triclopyr and Dowco 290. March 1977. W G Richardson and C Parker. Price - £3.50
43. The activity and pre-emergence selectivity of some recently developed herbicides: dimefuron, hexazinone, trifop-methyl, fluothiuron, buthidazole and butam. November 1977. W G Richardson and C Parker. Price - £3.75.
44. The activity and selectivity of the herbicides: ethofumesate, RU 12709 and isoproturon. December 1977. W G Richardson, C Parker, & M L Dean. Price - £4.00
45. Methods of analysis for determining the effects of herbicides on soil soil micro-organisms and their activities. January 1978. M P Greaves, S L Cooper, H A Davies, J A P Marsh & G I Wingfield. Price - £4.00
46. Pot experiments at the Weed Research Organization with forest crop and weed species. February 1978. D J Turner and W G Richardson. Price - £2.70
47. Field experiments to investigate the long-term effects of repeated applications of MCPA, tri-allate, simazine and linuron - effects on the quality of barley, wheat, maize and carrots. July 1978. J D Fryer, P D Smith and J W Ludwig. Price - £1.20.
48. Factors affecting the toxicity of paraquat and dalapon to grass swards. March 1978. A K Oswald. Price - £2.90
49. The activity and post-emergence selectivity of some recently developed herbicides: NP 48, RH 5205 and Pyridate. May 1978. W G Richardson and C Parker. Price - £2.50

50. Sedge weeds of East Africa - II. Distribution. July 1978. P J Terry. Price - £1.50
51. The activity and selectivity of the herbicides methabenzthiazuron, metoxuron, chlortoluron and cyanazine. September 1978. W G Richardson and C Parker. Price - £2.20.
52. Antidotes for the protection of field bean (*Vicia faba* L.) from damage by EPTC and other herbicides. February 1979. A M Blair. Price - £1.35
53. Antidotes for the protection of wheat from damage by tri-allylate. February 1979. A M Blair. Price - £2.00
54. The activity and pre-emergence selectivity of some recently developed herbicides: alachlor, metolachlor, dimethachlor, alloxym-sodium and fluridone. April 1979. W G Richardson and C Parker. Price - £3.00
55. The activity and selectivity of the herbicides carbetamide, methazole, R 11913 and OCS 21693. May 1979. W G Richardson and C Parker. Price - £1.80
56. Growing weeds from seeds and other propagules for experimental purposes. July 1979. R H Webster. Price - £1.10
57. The activity and pre-emergence selectivity of some recently developed herbicides: R 40244, AC 206784, pendimethalin, butralin, acifluorfen and FMC 39821. December 1979. W G Richardson, T M West and C Parker - Price - £3.55
58. The tolerance of fenugreek (*Trigonella foenumgraecum* L.) to various herbicides. December 1979. W G Richardson. Price - £1.55
59. Recommended tests for assessing the side-effects of pesticides on the soil microflora. April 1980. M P Greaves, N J Poole, K H Domsch, G Jagnow and W Verstraete. Price - £2.00
60. Properties of natural rainfalls and their simulation in the laboratory for pesticide research. September 1980. R C Simmons. Price - £1.25
61. The activity and post-emergence selectivity of some recently developed herbicides: R 40244, DPX 4189, acifluorfen, ARD 34/02 (NP 55) and PP 009. November 1980. W G Richardson, T M West and C Parker. Price - £3.75
62. The activity and pre-emergence selectivity of some recently developed herbicides: UBI S-734, SSH-43, ARD 34/02 (= NP 55), PP 009 and DPX 4189. February 1981. W G Richardson, T M West and C Parker. Price - £3.50
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
64. The activity and pre-emergence selectivity of some recently developed herbicides: chlomethoxynil, NC 20484 and MBR 18337. March 1982. W G Richardson, T M West and C Parker. Price - £3.00
65. A system for monitoring environmental factors in controlled environment chambers and glasshouses. June 1982. R C Simmons. Price - £1.50

66. The activity and pre-emergence selectivity of some recently developed herbicides: AC 213087 and AC 222293. December 1982. W G Richardson, T M West and C Parker. Price - £2.00
67. The activity and post-emergence selectivity of some recently developed herbicides: trifopsime, glufosinate, RH 8817, MBR 18337 and NC 20484. December 1982. W G Richardson, T M West and C Parker. Price - £3.25
68. The activity and pre-emergence selectivity of some recently developed herbicides: WL 49818, WL 82830, WL 83627, WL 83801 and DPX 5648. December 1982. W G Richardson, T M West and C Parker. Price - £4.00