

632.954

British Crop Protection Conference

Weeds 1982 Volume 1

CONFERENCE

1982

19 JUL 1982

Contents

	Page
British Crop Protection Conference — Weeds 1982 Organising Sub-Committee and Programme Committee	vii
Abbreviations	viii

VOLUME 1

SESSION 2

NEW COMPOUNDS AND NEW CONCEPTS IN WEED CONTROL

PP 333 — a new broad-spectrum growth retardant B. G. LEVER, S. J. SHEARING and J. J. BATCH	3
Hoe 33171 — a new selective herbicide for the control of annual and perennial warm-climate grass weeds in broadleaf crops H. BIERINGER, G. HÖRLEIN, P. LANGELÜDDEKE and R. HANDTE ...	11
Hoe 35609 — a new selective herbicide for the control of annual and perennial temperate climate grass weeds in broadleaf crops R. HANDTE, H. BIERINGER, G. HÖRLEIN and F. SCHWERDTLE	19
AC 222,293 a new post-emergent herbicide for cereals: greenhouse studies D. L. SHANER, K. UMEDA, D. R. CIARLANTE and M. LOS	25
AC 222,293 a new post-emergence herbicide for cereals: field studies K. KIRKLAND and N. E. SHAFER	33
CGA 84446: a new herbicide for the control of broadleaved weeds in cereals, pre- and post-emergence H. R. GERBER and W. MAURER	39
EL-107 a new selective herbicide for use in cereals F. HUGGENBERGER, E. A. JENNINGS, P. J. RYAN and K. W. BUROW ...	47

SESSION 3A

WEED CONTROL AND WEED CONTROL STRATEGY IN ARABLE CROPS

Understanding how to control weed beet in sugar beet P. C. LONGDEN	55
Population dynamics of weed beet J. S. GUNN	61

The control of sugar beet bolters and weed beet by the height-selective application of the isopropylamine salt of glyphosate A. J. NORTON	67
The "Little and Often approach" for weed control in sugar beet W. R. MADGE	73
Repeat low dose herbicide treatments for weed control in sugar beet M. J. MAY... ..	79
Environmental factors influencing sugar beet tolerance to herbicides P. E. PRESTON and P. V. BISCOE	85
Developing a strategy for weed control in sugar beet S. P. McCLEAN	91
Weed control in winter oilseed rape J. T. WARD	97
The use of metazachlor for the control of weeds in winter oilseed rape D. A. STORMONTH and R. WOODROFFE	103
The evaluation of the selectivity of metamiltron post-emergence in sequence with different pre-emergence herbicides, 1979-1981 J. G. HILTON and W. E. BRAY	109
Effects of several herbicides on diseases of winter oilseed rape P. GLADDERS and T. M. MUSA	115
Tiocarbazyl for the control of grass weeds in sugar beet — a new field of application A. GELMETTI, C. A. LASAGNA, C. LUSETTI and A. MENEZES	123
Tebutam and alachlor, a herbicide combination for winter oilseed rape E. D. EBERHARD	129

SESSION 3B

HERBICIDE — SOIL INTERACTIONS

Effect of spring wheat and temperature on chlorsulfuron persistence in soil J. C. CASELEY	137
Crop responses to low doses of pendimethalin, napropamide, metazachlor and chlorsulfuron in the soil A. WALKER and P. A. BROWN	141
Effect of soil pH on the phytotoxicity of eleven soil-acting herbicides D. J. EAGLE and C. R. RAHN	149
The effect of tillage method and soil factors on the performance of chlortoluron and isotroturon G. W. CUSSANS, S. R. MOSS, R. J. HANCE, S. J. EMBLING, D. J. CAVERLY, T. G. MARKS and J. J. PALMER	153

Influence of weather on herbicide behaviour in soils P. H. NICHOLLS and B. S. M. BUXTON... ..	161
Effects of soil moisture on the activity and persistence of propachlor A. WALKER and P. A. BROWN	171

SESSION 3C

NEW CONCEPTS AND NOVEL METHODS

A technique using rhizome nodes of <i>Agropyron repens</i> to assess herbicide activity. Some results using glyphosate and fluzafop-butyl D. COUPLAND and D. F. WYATT	181
The involvement of stomata in bentazone action in <i>Chenopodium album</i> P. J. DUNLEAVY, A. H. COBB, K. E. PALLETT and L. G. DAVIES	187
Selection for asulam tolerance in barley S. C. GIFFARD, H. A. COLLIN, P. D. PUTWAIN and R. H. HEWETT	193
The post-emergence control of <i>A. Fatua</i> , <i>A. Myosuroides</i> and some broad-leaved weeds in winter cereals with chlorsulfuron and AC 222293 A. W. LOVEGROVE, P. J. W. LUTMAN and M. E. THORNTON	199
R-33865: A novel concept for extended weed control by thiolcarbamate herbicides B. MIAULLIS, G. J. NOHYNEK and F. PEREIRO	205
Translocation of ¹⁴ C-labelled fosamine ammonium at different stages of development of <i>Pteridium aquilinum</i> and <i>Equisetum arvense</i> F. MÜLLER	211
The use of chlorsulfuron for the control of <i>Rumex obtusifolius</i> in grassland A. K. OSWALD, T. M. WEST and W. G. RICHARDSON	219
R-40244: a new herbicide for weed control in potatoes, sunflowers and winter wheat F. PEREIRO, J. C. BALLAUX and J. M. BÉRAUD	225
Glyphosate (N-(phosphonomethyl)glycine) as a pre-harvest retting agent in flax <i>Linum ussitatissimum</i> E. ROBINSON and A. D. COURTNEY	231

SESSION 4A

WEED CONTROL IN FRUIT: CROP TOLERANCE AND HERBICIDE EFFICIENCY

Evaluating the tolerance of fruit crops to herbicides: problems and progress D. V. CLAY	239
The tolerance of newly planted plum and apple trees to a number of graminicides C. M. CRISP and D. ATKINSON	249

SESSION 4C

HERBICIDES IN FORAGE PRODUCTION

The role of herbicides in increasing energy yields from UK grassland M. G. O'KEEFFE	357
Broad-leaved weed control and clover-safety of bentazone mixtures used in undersown cereals and direct-sown leys D. N. BOUGHTON, P. M. WOODCOCK, F. B. COOPER and J. JOHNSON ...	363
Triclopyr for controlling certain perennial broad-leaved weeds in grassland D. M. HILL and R. J. HOOD	369
Evaluating herbicides for selective control of <i>Senecio jacobaea</i> in grass/clover swards J. C. FORBES	375
Experiences in controlling <i>Bromus mollis</i> L. in permanent swards F. B. COOPER	381
Two surveys of the potential use of a technique for controlling tall weeds in grassland A. K. OSWALD	387
The effect of mefluidide on yield and quality of 8 grasses R. J. HAGGAR and C. J. STANDELL	395
Establishment of grass and clover direct-drilled into chemically killed swards W. I. C. DAVIES, T. CROMACK, M. V. JACKSON and J. JOHNSON	401
The effect of controlling volunteer cereals, <i>Poa trivialis</i> and ryegrass seedlings on the seed yield of perennial ryegrass J. JOHNSON, J. L. SCOTT, C. DIBB and M. A. GREENWOOD	407
Selective control of <i>Ulex gallii</i> and <i>Ulex europaeus</i> (gorse) in a <i>Calluna vulgaris</i> (heather) dominant hill sward T. A. EVANS and M. A. STANBURY	415
Economic evaluation of weed control in grassland C. J. DOYLE	419

VOLUME II

SESSION 5

CROP SAFENING: THE CONCEPT AND THE PRACTICE

The evolution of practical crop safeners R. A. GRAY, L. L. GREEN, P. E. HOCH and F. M. PALLOS	431
Crop safening in Japan K. WAKABAYASHI and S. MATSUNAKA	439

The mode of action of herbicide safeners G. R. STEPHENSON and G. EZRA	451
CGA 92194, a new safener to protect sorghum from injurious effects of metolachlor J. RUFENER, A. NYFFELER and J. W. PEEK	461
The effectiveness of MON 4606 as seed safener against alachlor and acetochlor in grain sorghum R. BRINKER, D. SCHAFER, R. RADKE, G. BOEKEN and H. FRAZIER	469
Further studies with herbicide safeners on rice and maize C. PARKER	475
Safening ryegrasses against pre-emergence herbicides by seed dressings of 1,8-naphthalic anhydride F. W. KIRKHAM, W. G. RICHARDSON and T. M. WEST	483

SESSION 6A

BROAD-LEAVED WEED PROBLEMS IN CEREALS

Broad-leaved weed control in cereals: progress and problems — a review R. J. MAKEPEACE	493
A combination of bifenox and linuron for broad-spectrum pre-emergence weed control in winter cereals C. T. LAKE	503
Pre-emergence broad-leaved weed control in winter cereals with novel combination of trifluralin, linuron and trietazine R. WHITEHEAD and B. L. REA	509
New formulated mixtures based on isoproturon for annual weed control in cereals P. J. BRAIN, R. T. HEWSON, B. L. REA and J. MARSHALL	515
New herbicide mixtures for flexible timing post-emergence broad-leaved weed control in cereals A. J. MAYES and J. MARSHALL	523
The control of broad-leaved weeds in cereals with combinations of bentazone, dichlorprop and cyanazine P. M. WOODCOCK and J. S. STATON	531
Annual broad-leaved weed control in winter cereals — ADAS 1982 results A. M. BRADFORD and J. SMITH	539

SESSION 6B

PLANT GROWTH REGULATORS: PHILOSOPHY, PROSPECTS AND TECHNICAL ADVANCES

The role of growth regulators in arable farming E. W. WOOLLEY	547
--	--------	-----

The reaction of different winter barley varieties to an application of the plant growth regulator — mepiquat chloride/2-chloro-ethyl phosphonic acid H. KNITTEL and S. BEHRENDT	557
Dimethipin: A unique plant maturity regulator for rice and sunflower R. B. AMES, A. R. BLEM, J. M. PRYZBYLEK, A. W. WALZ and D. JACKSON	563
Some new results on EGYT 2250 A. KIS-TAMAS, Z. BUDAI and Z. VIG	569
An integrated approach to the chemical control of fruit tree growth and cropping J. D. QUINLAN	575
Pre-harvest defoliation of grapes (<i>V. vinifera</i> L.) induced by chemicals G. COSTA and C. INTRIERI	585
Prospects for manipulating tree root systems using plant growth regulators: some preliminary results D. ATKINSON and C. M. CRISP	593
The control of grass growth in apple orchards with plant growth regulators G. R. STINCHCOMBE... .. .	601

SESSION 7A

GRASS WEEDS IN CEREALS: TRENDS, COST PENALTIES AND SOLUTIONS

A survey of commercially grown high yielding wheat and barley crops from 1977 to 1981 J. D. HOLLIES	609
Population trends of <i>Avena fatua</i> and <i>Alopecurus myosuroides</i> on a commercial arable and dairy farm B. J. WILSON and J. L. SCOTT	619
Control of <i>Alopecurus myosuroides</i> in UK by autumn application of chlorsulfuron plus methabenzthiazuron in winter wheat M. E. UPSTONE, N. B. SWANN and R. STICHBURY	629
Control of <i>Alopecurus myosuroides</i> and <i>Avena fatua</i> with a single granular herbicide application J. C. ATKIN and M. T. F. TURNER	637
The effect of sequential reduced rates of diclofop-methyl and isoproturon on the control of <i>Alopecurus myosuroides</i> in winter wheat P. AYRES	645
The control of <i>Agropyron repens</i> pre-harvest of wheat and barley with the isopropylamine salt of glyphosate: ADAS results 1980 and 1981 J. H. ORSON	653
Chemical control of <i>Phalaris paradoxa</i> in winter cereals J. F. MARTINDALE and D. B. LIVINGSTON	671

SESSION 7B

WEED CONTROL IN TROPICAL AND SUB-TROPICAL CROPS PART I

Economics of weed control in the tropics and sub-tropics S. F. MILLER	679
Managing a sustainable farming system in Sri Lanka W. L. WEERAKOON and A. M. SENEVIRATNE	689
Change of Crop Management by the use of bentazone and sethoxydim for post-emergence weed control in soybeans U. KIESSLING	697
Grass weed control in soybeans with HOE 33171 H. SCHUMACHER, M. ROTTELE and R. J. MARRESE	703
The use of MSMA and DSMA for post-emergence weed control in tropical and sub-tropical agricultural crops T. L. WUAN, S. P. WONG and T. C. ZAVESKY	709

SESSION 7C

THE BIOLOGICAL BACKGROUND TO WEED CONTROL

Herbicide resistance in weeds — an inevitable consequence of herbicide usage? P. D. PUTWAIN... ..	719
Weeds and crop yield R. W. SNAYDON	729
Biological and financial criteria of long-term control strategies for annual weeds A. J. MURDOCH and E. H. ROBERTS	741
Modelling wild oat populations and their control R. J. MANLOVE, A. M. MORTIMER and P. D. PUTWAIN	749
Effect of bean (<i>Vicia faba</i> L.) planting dates on broomrape (<i>Orobanche crenata</i> Forsk) phenology and competition J. MESA-GARCÍA and L. GARCÍA-TORRES	757
Broomrape (<i>Orobanche crenata</i> Forsk) control in bean (<i>Vicia faba</i> L.) with glyphosate as affected by infection intensity J. MESA-GARCÍA and L. GARCÍA-TORRES	765
Time, space and the growth of couch grass A. M. MORTIMER and D. J. McMAHON	771
Priorities in the selection of agents for the biological control of weeds A. J. WAPSHERE	779
Recent work on the assessment of the biological control agents of European blackberry (<i>Rubus fruticosus</i>) E. BRUZZESE	787

SESSION 8A

SPECIFIC GRAMINICIDES — THEIR INTEGRATION INTO ARABLE AND HORTICULTURAL BROAD-LEAVED CROPS

The control of grass weeds in annual and perennial broad-leaved crops in the United Kingdom A. G. JONES and J. H. ORSON	793
Post-emergence control of grass weeds in peas with fluazifop-butyl C. M. KNOTT	803
Grass weed control in oilseed rape, sugar beet and potatoes with Hoe 35609 H. SCHUMACHER, H. HESS, F. SCHWERDTLE and T. H. MANNING ...	811
Annual and perennial grass weed control with fluazifop-butyl in oilseed rape, potatoes and other broad-leaved crops M. GIBBARD, M. R. SMITH and G. B. STODDART	819
Annual and perennial grass weed control in sugar beet following sequential, and tank mix application of fluazifop-butyl and broad-leaved herbicides C. J. SIDDALL and S. F. B. COUSINS	827
Integration of new graminicides into weed control programmes for peas C. M. KNOTT	835
New post-emergence herbicides for grass weed control in sugar beet and their potential for changing herbicide management H. T. BREAY	843
Evaluation of some new herbicides for the control of <i>Agropyron repens</i> in sugar beet. J. ROLA	849

VOLUME III

SESSION 8B

WEED CONTROL IN TROPICAL AND SUB-TROPICAL CROPS II

Weed control in flue-cured tobacco in Zimbabwe L. T. V. COUSINS and J. LAPHAM	859
Greenhouse and field performance of butam and UBI-S734 for weed control in tobacco P. C. LOLAS and A. GALOPOULOS	867
Chemical control of weeds in transplanted rice E. L. RITOINE, H. A. LYATUU, C. J. MOSHA, L. M. SAMBAI and S. L. MOLLEL	875

Pendimethalin: A review of its herbicidal potential in the tropics S. D. van HOOGSTRATEN and R. R. FINE	883
The position of hexazinone in mixtures for weed control in sugar cane in Southern Africa F. W. R. GONGGRIP, J. J. L. PRETORIUS and L. J. SMITH	891
Differential response of <i>Avena</i> spp. and <i>Phalaris</i> spp. to several pre- and post-emergence herbicides used in cereals N. T. YADURAJU, J. C. CASELEY and D. S. H. DRENNAN	897

SESSION 8C

APPLIED ASPECTS OF WEED CONTROL

The control of <i>Cynodon dactylon</i> in vines with fluzifop-butyl J. TARGANYI and J. MIKULAS	907
Further studies in the long term control of (<i>Sorghum halepense</i>) in soyabean crops with fluzifop-butyl, alloxym-sodium and glyphosate N. SARPE, F. POPA and C. DINU	913
The control of <i>Sorghum halepense</i> and <i>Agropyron repens</i> in potato crops with fluzifop-butyl, alloxym-sodium and sethoxydim N. SARPE, C. DINU, P. SEBOK, P. GUS and A. MESTER	919
Relative tolerance of calabrese and swede to three specific graminicides H. M. LAWSON and J. S. WISEMAN	927
Developments in weed control in swedes H. T. H. CROMACK and W. I. C. DAVIES	931
The evaluation of eight herbicides, in both pot and field experiments, for the control of volunteer potatoes P. J. W. LUTMAN, T. M. WEST and W. G. RICHARDSON	939
Sulphate of iron: new techniques with an old herbicide T. KAVANAGH and T. P. CORMICAN	947
The control of <i>Agropyron repens</i> by the pre-harvest application of glyphosate and its effect on grain yield, moisture, germination and on harvesting B. W. SHEPPARD, J. A. PASCAL, M. C. RICHARDS and H. GRANT	953
Bracken regrowth in upland pasture following asulam treatment H. C. LEE, J. A. COOKE and T. J. BINES	961
Giant Hogweed (<i>Heracleum mantegazzianum</i>): its spread and control with glyphosate in amenity areas J. A. WILLIAMSON and J. C. FORBES	967
A computer model for predicting changes in a population of <i>Bromus sterilis</i> in continuous winter cereals F. POLLARD	973

SESSION 9

APPLICATION — IMPROVING EFFICIENCY AND SAFETY

Application Technology: Review and Prospects	
H. J. NATION	983
The results of an investigation to determine the optimum drop size and volume of application for weed control with spinning disc applicators	
R. J. BAILEY, M. PHILLIPS, P. HARRIS and A. BRADFORD	995
The chemical estimation and biological activity of glyphosate deposited on four plant species by one rope-wick and two roller applicators	
P. J. W. LUTMAN, A. K. OSWALD and T. H. BYAST	1001
The effect of an aerofoil on the penetration of charged spray into barley	
J. R. LAKE, R. GREEN, M. TOFTS and A. J. DIX	1009
Weed control in arable crops with the 'Electrodyn' sprayer	
M. R. PARHAM	1017
Preliminary trials to examine the drift of charged spray droplets	
D. R. JOHNSTONE, J. F. COOPER, J. A. GLEDHILL and P. JOWAH	1025
The principles of and new developments in ULV spraying: some reflections	
E. J. BALS	1033
The quantification of spray drop drift	
N. THOMPSON and A. J. LEY	1039
Relative contamination of humans and the environment by spray drift from use of a tractor-mounted drift sprayer (the Ulvamast) and conventional hydraulic equipment	
G. A. LLOYD and G. J. BELL	1045

SESSION 1

THE TENTH BAWDEN LECTURE

Community agriculture: Achievements, Aggravations and Agrochemicals	
A. BUCHANAN-SMITH	1057
Author Index	1063