1981 British Crop Protection Conference Pests and Diseases

(11th British Insecticide and Fungicide Conference) VOLUME 1

Proceedings of a Conference held at Hotel Metropole, Brighton, England November 16-19th, 1981

BCPC Publications 144-150 London Road Croydon CR0 2TD



Contents

	Page
The British Crop Protection Council	V
British Crop Protection Conference — Pests and Diseases 1981 Organising Committee and Programme Committee	vii
Abbreviations	viii
VOLUME 1	
SESSION 1	
THE NINTH BAWDEN LECTURE	
The use of chemicals in modern farming — a farmer's view J. S. MARTIN, C.B.E., M.A.(Cantab.)	Vol. 3)
SESSION 2	
NEW COMPOUNDS, FORMULATIONS AND USES	
α,α,α -Trifluoro-3 '-isopropoxy- σ -toluanilide (NNF-136), a new fungicide for the control of diseases caused by Basidiomycetes F. ARAKI and K. YABUTANI	3
Methyl N -phenylacetyl- N -2,6-xylyl-DL-alaninate (M9834), a new systemic fungicide controlling downy mildew and other diseases caused by Perono-	
sporales P. BERGAMASCHI, T. BORASARI, C. GARAVAGLIA and L. MIRENNA	11
Chlobenthiazone (S-1901), a new systemic fungicide for the control of rice blast S. INOUE, T. UEMATSU, C. NODA, T. OZAKI, K. UEDA and Y. KAWASE	19
(1RS,2RS)-2-Nitro-1-phenyltrimethylene di(acetate) (EGYT 2248), a novel fungicide A. KIS-TAMÁS, E. JAKUCS and GY. MIKITE	29
The efficacy of flowable and dust formulations of iprodione on a range of crops S. J. RUTHERFORD, A. CHALANDON, M. J. GRIFFIN and K. D. LOCKLEY	35
New carbaryl formulations reducing hazards of field applications to honey bees E. L. ATKINS	43

1.	(1-Methylundecyl)guani	dinium :	acetate	(EF	70513	an)	ew fui	ngicide	e for t	he	Page
C	ontrol of some potato tul I. EVEREST-TODD										(Vol. 3)
			SE	SSIC	N 3						
	NEW COM	IPOUN	DS, F	ORM	IULA	TION	IS AN	D US	SES		
	GA 73102, a new soil-ap . BACHMANN and J. D			carb	amate 	insect		•••	•••		51
	hiodicarb, a new insecti E. THURMAN and H.			ated p		anagei 	ment 				(Vol. 3)
	-tert-Butylimino-3-isopro	pyl-5-ph	enylpe	rhydr	0-1,3,5	-thiad	iazin-4	-one (N	NNI-75	0),	
_	I. KANNO, K. IKEDA, T	r. ASAI	and S.	MAE	KAW	Ά		•••			59
	IC 21314, a novel compo Iiss K. M. G. BRYAN, Q						mites 				67
	reliminary trials in the U.J.BLUETT and A.W.				e, a n		aricide 	•••	•••	•••	75
	irimiphos-methyl for rus . M. LYNE	st mite c	ontrol 		orch	ards 					83
	ontrol of fruit tree red sp . F. NICHOLLS and P. I						ethroid 	l fenpi	ropath 	rin 	89
					and the second						
					N 4A						
		UNUS									
e	bservations on broad : midae) attacking cucumb		olyphag	gotarso	memu:	s latus	s) (Ac	arina:	Tarso	on-	
	BASSETT									•••	99
u	roblems associated with rticae) causing hypertoxides. S. LEDIEU and N. L.	c damag	e to gl	train assho 	of red use to 	matoe:	er mit s 	e <i>(Tet</i> 	ranych 	us 	105
F G	ungal parasitism of the c. C. LEWIS, A. J. HEAR	eriophyi RD, B. L.	d mite BRAI	vecto OY an	r of ry d D. V	vegras: V. MIN	s mosa NTER	iic virī 	1S 		109
N	the coconut mite <i>Eriophy</i> Mexico	Ö			pecial	refere	nce to	the pr	oblem	in	
	. A. HALL and A. ESPI				•••	•••	•••	•••	•••		113
CI	hemical control of 'Fred acumber . BASSETT and D. R. W			hagus 	longi	or) (A 	carina 	: Acar	ridae) 	on 	121

SESSION 4B

BEHAVIO	OUR AN	D FATE	OF P	EST	ICID	ES.	AFTE	R AP	PLICA	ATI	ON Page
Relationships	between	chemical	struct	ure	and	the	behavio	our an	d fate	of	
pesticides G. G. BRIGGS			•••		•••	•••					(Vol. 3)
Factors which M. C. SHEPH			ical pe	erforr 	nance	e of p	esticid 	les 			(Vol. 3)
Factors affect	ing the a	poplastic t	ranslo	cation	n of s	syste	mic fu	ngicide	s in p	lant	
stems E. BARAK, A	. DINOOI	R and B. JA	COBY	Y				•••			129
Uptake, transl E. C. WYNN a	ocation a and I. R. C	nd degrada CRUTE	ition o	f met 	alaxy 	l in l	ettuce 				137
The effect of abehaviour and applicators	formulation fate of s	on, structurelected pes	re type sticides	e, and s app	d env	ironn n gre	nental e enhous	conditions ses with	ons on h pulse	the e-jet	
R. K. LINDQU	JIST and	C. C. POW	ELL J	IR.				•••	•••		147
Influence of availability in D. L. SUETT	soil			riabl	es or	n ins	ecticid	e beha	viour	and	157
						т.			ing tro	otod	
Oviposition ar with known a M. J. O'DONN	mounts of	pirimipho	s-meth	ıyl	anarı 	us L. 	in who	eat gra 			165
Toxicity of s physico-chem P. NICHOLLS	ical prope	rties						ect in	relatio	n to	1.75
Residues of	organoph	osphorus	pestic	ides	in v	whole	emeal	flour	and b	read	
produced from D. R. WILKI	n treated	wheat				•••					183
			SES	SSIC)N 4	C					
	CEF	EAL PE	ST A	ND I	DISE	ASE	CON	TROL			
Carabid beetl C. A. EDWA	es as pred RDS and	lators of co K. S. GEO	ereal a RGE	phids	s 						. 191
Towards inte W. POWELL	grated co , G. J. DE	ntrol of ce AN, A. DE	real ap CWAR	hids and	N. W	ILDI	NG				. 201
Settling beha K. F. A. WAI	viour of c LTERS at	ereal aphiond N. CAR	ds and TER	fored	castin	ig ou					. 207

	Pag
Yield benefit from autumn control of aphids and barley yellow dwarf virus winter barley	
D. A. KENDALL and B. D. SMITH	219
Assessment of losses caused by stem-base and root diseases in cereals J. D. S. CLARKSON and R. W. POLLEY	223
The use of spring barley cultivar mixtures as a technique for the control powdery mildew	of 233
M. S. WOLFE	
Prediction of the economic need for a fungicide programme on winter wheat a the effects of this programme on some parameters of grain quality C. MYRAM and J. R. KELLY	na 241
Evaluation of fungicide treatments for control of barley net blotch caused <i>Pyrenophora teres</i>	
V. W. L. JORDAN and G. R. BEST	249
Control of <i>Septoria</i> spp. in winter wheat with chlorothalonil G. A. JARRETT and P. M. ALLARD	259
Prochloraz: the control of net blotch and septoria in winter cereals R. G. HARRIS and G. BARNES	267
SESSION 5A	
CEREAL PEST AND DISEASE CONTROL (I)	
Autumn diseases of cereals and their control D. B. STEVENS and D. J. YARHAM	(Vol. 3)
The cost effective use of fungicides in winter wheat in an area of high disease	se
The cost effective use of fungicides in winter wheat in an area of high disease risk R. W. CLARE, D. BOOTHROYD and M. B. SIMKIN	se 275
risk R. W. CLARE, D. BOOTHROYD and M. B. SIMKIN A review of factors influencing net blotch of barley and current information of	275
risk R. W. CLARE, D. BOOTHROYD and M. B. SIMKIN	275
risk R. W. CLARE, D. BOOTHROYD and M. B. SIMKIN A review of factors influencing net blotch of barley and current information of fungicidal control	275 on
risk R. W. CLARE, D. BOOTHROYD and M. B. SIMKIN A review of factors influencing net blotch of barley and current information of fungicidal control T. LOCKE, E. J. EVANS, S. C. DOBSON and W. MORGAN Propiconazole; disease control in cereals in Western Europe J. M. SMITH and J. SPEICH Triadimenol seed treatment on spring barley; results of a 60 site evaluation the United Kingdom, 1980	275 on 283 291 in
risk R. W. CLARE, D. BOOTHROYD and M. B. SIMKIN	275 on 283 291 in 299
risk R. W. CLARE, D. BOOTHROYD and M. B. SIMKIN	275 on 283 291 in 299 in
risk R. W. CLARE, D. BOOTHROYD and M. B. SIMKIN	275 on 283 291 in 299 in 307

SESSION 5B

PEST AND DISEASE CONTROL IN FIELD CROPS (I)	
Experiments for the control of pea and bean weevil (Sitona lineatus) in peas,	ige
using granular and liquid insecticides J. M. KING	327
Aldicarb — its development and potential uses in field peas R. JOICE and F. J. BRESLIN	333
The use of metalaxyl seed treatments to control pea downy mildew M. W. MILLER and C. V. de WHALLEY	341
Control of Cladosporium leaf spot in spring-sown and over-wintered bulb onions E. W. RYAN, J. A. DOYLE and T. B. O'DONNELL	349
Comparison of the fungicides thiabendazole and 2-aminobutane used for the control of gangrene and skinspot on potatoes grown under Scottish conditions G. A. HAMILTON, D. A. LINDSAY, C. E. QUINN, A. D. RUTHVEN, P. J. SHIPTON and W. J. GRAY	355
VOLUME II	
SESSION 6A	
PEST CONTROL IN ANNUAL TROPICAL CROPS	
Can tropical crops be efficiently protected? P. T. HASKELL	. 3)
Insecticidal control of cabbage looper and diamond-back moth larvae on cabbage in Florida, USA, using different spray nozzles and nozzle arrangements R. B. WORKMAN	365
Evaluation of the "toxic carpet" spray strategy with cypermethrin on cotton N. MORTON, R. K. SMITH, O. VIGIL and C. VAN DER MERSCH	371
AC 222,705, A broad-spectrum pyrethroid insecticide: performance in Egypt ABDEL-FATTAH S. A. SAAD, A. EL-SEBAE and I. M. F. SHARAF	381
The use of the 'Electrodyn' sprayer to control pests of vegetables and rice R. M. PERRIN, A. KOHLI and J. TREVENNA	389
SESSION 6B	
SESSION 6B VIRUSES AND VECTOR CONTROL	

Pa	ge
Recent developments and prospects for direct control of viruses R. F. WHITE and J. F. ANTONIW (Vol.	3)
The significance of aphid monitoring in improving barley yellow dwarf virus control D. A. KENDALL and B. D. SMITH	99
The influence of rate and timing of autumn applied pyrethroid and carbamate insecticide sprays on the control of barley yellow dwarf virus in English and French winter cereals D. W. A. BARRETT, P. J. NORTHWOOD and A. HORRELOU 40	05
Use of mineral oils for the control of plant virus diseases	13
Prospects for improving the control of virus diseases of sugar beet P. C. JEPSON	3)
SESSION 7A	
CEREAL PEST AND DISEASE CONTROL (II)	
A review of cereal pests in the United Kingdom R. GAIR	3)
Control of cereal insect pests with triazophos D. M. SMITH and R. T. HEWSON 42	23
Damage assessment and chemical control of a grass and cereal fly (Opomyza florum) MARY SHORT	31
Experimental seed treatments for the control of wheat bulb fly and slugs	11
The effects of growth stage in cereals on yield reductions caused by aphids	19
SESSION 7B	
NEW APPROACHES TO THE CONTROL OF SOIL-BORNE PESTS AND DISEASES	
A rational integration of methods to control onion maggot in southwestern	
Ontario C. R. HARRIS, H. J. SVEC, J. H. TOLMAN, A. D. TOMLIN and F. L. McEWEN (Vol	3)
Possibilities for biological and integrated control of white rot disease of <i>Allium</i> J. R. COLEY-SMITH, G. A. ESLER and C. M. NEW 45	59

Control of soil-inhabiting arthropods with Neoaplectana carpocapsae	Page
C. A. EDWARDS and J. OSWALD	467
The use of iprodione for control of <i>Rhizoctonia</i> bottom rot of lettuce W. S. CLARK and G. M. McPHERSON	475
The performance against carrot fly and uptake by carrots of carbofuran and phorate incorporated as granular formulations in gels used for drilling pregerminated carrot seed A. R. THOMPSON, A. L. PERCIVALL, G. H. EDMONDS and D. L. SUETT	481
	401
Control of two soil-borne diseases of transplanted vegetables by incorporation of fungicides in peat blocks E. W. RYAN and J. A. DOYLE	489
Effects on carrot fly larvae and growth of celery of some insecticide formulations applied to peat blocks used for raising plants	
B. J. EMMETT	495
SESSION 8A	
PEST AND DISEASE CONTROL IN FIELD CROPS (II)	
Diseases of winter oilseed rape and their control, East and South-East England, 1977-81 E. J. EVANS and P. GLADDERS	505
The control of Alternaria brassicae and Sclerotinia sclerotiorum on oilseed rape	000
with iprodione T. W. COX, D. SWASH and J. PAVIOT	513
Control of Sclerotinia sclerotiorum and Botrytis cinerea on rape and sunflower with vinclozolin	
M. HAMPEL, F. LÖCHER and R. SAUR	521
Experiments with sulphur and other fungicides to control sugar-beet powdery mildew in England 1977-80	
W. J. BYFORD	529
Gappiness, sugar-beet yield loss and soil-inhabiting pests R. A. BROWN	Vol. 3)
SESSION 8B	
PEST AND DISEASE CONTROL IN FRUIT AND HOPS	
The place of new systemic pesticides in fruit and hop growing M. G. BANWELL	Vol. 3)
New approaches for chemical disease control in fruit and hops PROFESSOR F. SCHWINN and P. A. URECH (V	/ol. 3)

Protectant and post-inoculation activi	ities of f	ungici	des fo	r apple	e mild	ew cor	ntrol	Page
L. D. HUNTER, P. S. BLAKE and R							•••	537
A broad-spectrum fungicide of the tri P. A. BIRCH, P. W. ROSE and A. W.				in pon	e and 	bush	fruit 	545
A comparison of eleven fungicide (Sphaerotheca mors-uvae) of gooseberr F. Ó RIÓRDÁIN and D. KENNEDY		the co	ontrol	of p	owder 	y mil	dew 	555
AC 222,705 pyrethroid insecticide w	rith miti	cidal a	ctivit	v for i	ise in	fruits	and	
hops K. WETTSTEIN								563
Certain biological properties of fenar. I. F. BROWN and H. R. HALL	imol apı	olicable	e to it	s field	use 			573
The control of certain phycomycete of		of stra	awber	ries, a	pples,	vines	and	
hops with applications of fosetyl alun C. C. STEVENS, R. T. MERCER and		ALAN	DON					579
S.	ESSIC	N 80						
PESTICIDE RESISTAN	ICE IN	PEST	rs A	ND P	ATH	OGEN	NS	
Possibility of fly resistance to <i>Bacillu</i> G. CARLBERG and R. LINDSTRÖM		giensis 	exote	oxin 				591
Development of biological methods glasshouse industry M. DE LARA	of pest	contr	ol in	the U	nited	Kingo	dom	599
Housefly resistance to pyrethroids in	the vici	nity of	Harr	enden				
R. M. SAWICKI, A. W. FARNHAM,						ELL	•••	609
Resistance to pirimiphos-methyl in ch LORNA M. STABLES and D. R. WII		tes 						617
The spread of resistance among hous P. A. CHAPMAN and C. J. LLOYD	eflies fr 	om far 	ms in 	the U	nited 	Kingd 	om 	625
Insensitivity of <i>Erysiphe graminis</i> f. sother fungicides	sp. hord	ei to tı	riadim	efon,	triadii	menol	and	
J. T. FLETCHER and M. S. WOLFE								633
Resistance to metalaxyl in <i>Phytophthe</i> LOUISE R. COOKE	ora infes 	<i>itans</i> ir	Nort	hern l	reland	i 		641
Impact of fungicide treatment of wi	inter ba	rley o	n dise	ease c	ontrol	in sp	ring	
D. W. HOLLOMON and JENNY BUT	TERS							651

SESSION 9

PESTICI	DE KE			SE CO			or Or	PES	ol Ar		Page
Insecticide resistan V. DITTRICH	ce, how	can in	dustry 	beat	the cl	nalleng 	ge? 			(Ve	ol. 3)
Present trends and resistance	future	needs i	n moo	delling	for th	ne mar	nagem	ent of	pestic		
I. A. DENHOLM		•••	•••							(V	ol. 3)
Impact of fungicide PROFESSOR J. DI			disea 	se con	trol 	•••	•••	•••		(V	ol. 3)
Strategies for deali C. J. DELP		fungici	ide re 	sistano 	ce 	***	•••		•••	(V	ol. 3)
SESSION 10											
ROLE OF AP	PLICA	TION	TEC	CHNO	LOG	Y IN	PEST	MA	NAGI	EMEN	T
Some factors affec N. E. A. SCOPES	ting the 	efficier	ncy o	f small	pesti 	cide d 		s	•••	(V	ol. 3)
Recent development R. COFFEE		the 'E'	lectro 	dyn' s	praye	r 	•••	•••		(V	ol. 3)
The 'Electrodyn'	sprayer	biolog	ical p	perform	nance	again	st He	liothis	spp.	and	
other pests of cotto N. MORTON	on 						•••			(V	ol. 3)
Electrostatic spray A. J. ARNOLD and			ith th	e APE	80						661
Biological effective D. C. GRIFFITHS PHILLIPS, B. PYI	S, A. J.	ARNO	LD, C	c elect	trostat CAYL	tic spr EY, P.	ayers . ETH 	ERID	GE, F	т. 	667
New insecticide di P. GRANT	spensin			ng pre 	ssuris 	ed gas	cylin	der 		(V	oļ. 3)
Recent developme N. B. AKESSON	nts on s	pray ap				JSA 			•••	(V	7ol. 3)

1981 British Crop Protection Conference Pests and Diseases

(11th British Insecticide and Fungicide Conference) VOLUME 3

Invited Papers and certain research reports that were not available for Volumes 1 and 2

Proceedings of a Conference held at Hotel Metropole, Brighton, England November 16-19th, 1981

BCPC Publications 144-150 London Road Croydon CR0 2TD



Contents

British Crop Pro									ses 19	981	
Organising Co	mmitte	ee an	id Pr	ogra	mme	Com	mitte	ee	***	***	v
Abbreviations			***	***	***	•••		•••		***	vi
			VC	LUI	ME:	3					
			SI	ESSI	ON 1						
	тн	ENIN		BAW			TURI	E			
TD1											
The use of chemica J. S. MARTIN				ig — a 	iarme	er s vie		****	***		675
			SI	ESSI	ON 3						
NEW	СОМР	OUN	-				NC A	ND I	icre		
									SES		
Thiodicarb — a nev H. S. YANG and D.	v insection E. THU	RMA	or inte	egrated	d pest	mana,	gemen 		***	***	687
			SE	SSIC	N 41	В					
BEHAVIOUR	AND	FATI	E OF	PES:	FICIL	DES A	FTE	R AP	PLIC	ATI	ON
Relationships betw	veen che	emica	l stru	cture	and	the b	ehavio	ur ar	nd fat	e of	
pesticides G. G. BRIGGS								***	***	***	701
Factors which influ		biolo	ogical	perfor	mance	e of pe	esticid	es			711

SESSION 5A

CI	EREAL PE	ST AND	DISEA	SE C	ONT	ROL	(I)		Page
Autumn diseases of D. B. STEVENS and	cereals and d D. J. YARI	their cont HAM	rol			***			505
		SESS	ION 6A	A					
PEST	CONTROL	IN AN	NUAL '	TROF	PICAL	L CR	OPS		
Can tropical crops be P. T. HASKELL				Q.					741
		SESS	ION 61	3					
	VIRUSES	AND V	ЕСТОБ	CON	NTRO	L			
Two sensitive serole their suitability for e B. D. HARRISON	pidemiologic	al studies		olant v	viruses	s in ve	ectors	and	751
							***	1444	751
Current research and R. F. WHITE and J.	future pros F. ANTONI	w	direct co	introl o	of viru	s dise	ases		759
Prospects for improve P. C. JEPSON	ring the cont	rol of viru	us diseas	ses of	sugar 	beet		1044	769
		SESS	ION 7	A					
CEI	REAL PES	T AND I	DISEAS	SE CC	NTR	OL ((II)		
A review of cereal p R. GAIR	ests in the U	nited Kin	igdom 	441		***	117	***	779
		SESS	SION 7	В					
NEW APPRO		THE C			F SOI	L-BC	RNE	PES	TS
A rational integrati Ontario C. R. HARRIS, H. McEWEN	J. SVEC,	Ј. Н. ТО	LMAN,	A. D	. TON	MLIN	and I	F. L.	789

SESSION 8A

PES	T AN	D DI	SEAS	SE C	ONTE	ROL I	N FII	ELD	CROI	PS (II	()	Page
2												0-
Gappiness, suga R. A. BROWN							pests 		111	***	***	803
					SSIO					200		
PES	T AN	D DI	SEAS	SE C	ONTE	OL I	N FR	UIT .	AND	НОР	S	
The place of ne									nent			813
and an entitle of the												
New approache F. J. SCHWINN	N and	P. A. U	UREC	H					***	***	***	819
				SE	ESSIC)N 9						
PEST	ICID	E RE			E – I SE C			T ON	V PES	ST A	ND	
Insecticide resis V. DITTRICH	stance	-how	can in	ndust	ry mee	et the	challer	nge?	-112-			837
Present trends a	and fu	ture n	eeds ir	1 mod	lelling	for the	e mana	igeme	nt of 1	nsecti	cide	
I. DENHOLM				24.5		410	***	***	***	***	***	847
Impact of fungi	cide r	esistar	nce on	disea	ase cor	itrol						055
J. DEKKER	***	***	***	***		***	***	151	***	444	***	857
Strategies for d	ealing	with	fungic	ide re	esistan	ce pro	blems					0.05
C. J. DELP	***	444		141	***	***	***	***	***	107	70	865
				SI	ESSIC	ON 1	0					
ROLE OF	APP	LICA	TION	N TE	CHNO	OLOG	Y IN	PES	T MA	NAC	EME	NT
Some factors a	ffectir	or the	efficie	ncv c	of smal	l pesti	icide d	roplet	S			
N. E. A. SCOP										12.5		875
Recent develop R. A. COFFEE								***		***	***	883
The 'Electrody	n' en	aver_	-contr	ol of	Helioth	is spn	in co	tton				
N MORTON										***		89

													Page
A new d		ing sy	stem 1	using :	a pres	surise	d gas	cylind 	er 				903
Precision N. B. Al						esticid	les						907
	22000	T. dille			20								301
INDEX													
Author	***							***					923
Subject		•••	***	***				205	***	***	m		925
NOTE:		me in		s title	s of p	apers	have 1	been r	evised	l since	Volu	mes 1	and 2