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90/R/RA/3 Effects of Isothiocyanates - W. Oilseed Rape

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90/R/RA/3

WINTER OILSEED RAPE

EFFECTS OF ISOTHIOCYANATES

Object: To study the effects of two formulations of plant-derived isothiocyanates on insect pests, diseases and yield - Black Horse I S.

Sponsors: L.E. Smart, K. Doughty.

Design: A quasi-complete 5 x 5 Latin square.

Whole plot dimensions: 3.0 x 10.0.

Treatments:

CHEMICAL	Chemicals:
NONE	None
BUTENYL	3,5-bis(3-butenyl)-1,3,5-thiadiazine-2-thione at 350 g a.i.
PHENYL	3,5-bis(2-phenylethyl)-1,3,5-thiadiazine-2-thione at 250 g a.i.
PHEN+BUT	Phenylethyl + butenyl products as above at 125 g a.i. + 175 g a.i. respectively
STANDARD	Prochloraz at 0.50 kg in 400 l and gamma-HCH at 0.56 kg in 400 l on 6 Nov, 1989 Prochloraz at 0.50 kg in 400 l and gamma-HCH at 0.28 kg in 400 l on 4 Apr, 1990. Iprodione at 0.50 kg applied with triazophos at 0.42 kg in 270 l on 23 May

NOTES: (1) Chemical treatments, except for STANDARD, were applied in tetrahydrofurfuryl alcohol at 4.2 l using a hand-held electrostatic sprayer on 6 Nov, 1989 repeated on 4 Apr, 1990 and 23 May.

(2) STANDARD treatments were applied with a hydraulic sprayer.

Basal applications: Manures: (0:17:34) at 980 kg. 'Nitram' at 140 kg, later at 290 kg and a third time at 290 kg. Weedkillers: Diquat at 0.24 kg ion and paraquat at 0.36 kg ion in 180 l. Metazachlor at 0.75 kg in 200 l. Fluazifop-P-butyl at 0.19 kg with a wetting agent ('Enhance' at 0.20 l) in 200 l. Benazolin at 0.30 kg and clopyralid at 0.05 kg in 200 l. Desiccant: Diquat at 0.60 kg ion with a wetting agent ('Enhance' at 0.52 l) in 520 l.

Seed: Cobra, dressed fenpropimorph, gamma-HCH and thiram, sown at 8.0 kg.

Cultivations, etc.:- PK applied: 18 July, 1989. Rotary cultivated: 19 July. Cultivated by rotary grubber: 2 Aug. Diquat and paraquat applied: 21 Aug. First N applied, rotary harrowed: 30 Aug. Seed sown: 1 Sept. Metazachlor applied: 4 Sept. Fluazifop-P-butyl with wetting agent applied: 17 Oct. Second N applied: 16 Feb, 1990. Benazolin and clopyralid applied: 22 Feb. Third N applied: 14 Feb. Desiccant with wetting agent applied: 17 July. Combine harvested: 23 July. Previous crops: W. wheat 1988, w. barley 1989.

90/R/RA/3

- NOTES: (1) Damage by cabbage stem flea beetle was assessed in autumn and winter.
(2) Pollen beetle adults, eggs and larvae were counted in spring.
(3) Seed weevils and pod midge damage were assessed in late May.
(4) Fungal diseases were assessed during the season.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

***** Tables of means *****

CHEMICAL	
NONE	1.52
BUTENYL	1.48
PHENYL	1.47
PHEN+BUT	1.50
STANDARD	2.24
Mean	1.64

*** Standard errors of differences of means ***

CHEMICAL
0.120

***** Stratum standard errors and coefficients of variation *****

Stratum	d.f.	s.e.	cv%
ROW.COL	12	0.189	11.5
GRAIN MEAN DM%	88.3		
PLOT AREA HARVESTED	0.00230		