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86/R/B/3

WINTER BARLEY
ANTI-FEEDANTS AND BYDV

Object: To study the effects of insecticides and insect anti-feedants and their interaction with control of autumn volunteers on the incidence of BYDV - Scout N.

Sponsors: D.C. Griffiths, B.J. Pye, G.R. Cayley, J.H. Stevenson, R.T. Plumb.

Design: 3 blocks of 2 whole plots, one divided into 6 sub-plots the other into 8 sub-plots.

Whole plot dimensions: VOLNTEER KILLED 21 x 41.
VOLNTEER PRESENT 21 x 30.

Treatments: All combinations of:-

Whole plots

- | | |
|-------------|---|
| 1. VOLNTEER | Control of volunteers prior to ploughing shortly before sowing: |
| KILLED | Control of all green plant matter |
| PRESENT | Volunteer germination and survival encouraged |

Sub plots

- | | |
|-------------|--|
| 2. SPRY INS | Sprays of insecticides and pheromone derivatives applied electrostatically on 8 Oct, 1985, 17 Oct and 29 Oct. (Cypermethrin only on 29 Oct): |
| NONE | None |
| CYP | Cypermethrin at 25 g |
| AJUG E | Ajuga extract at 200 g in ethanol |
| AJUG W | Ajuga extract at 200 g in water |
| UEBF | Undecyladduct of E-beta farnesene at 1.0 kg |
| POLYGOD | Polygodial at 50 g |

plus 2 extra sub plot treatments applied to VOLNTEER KILLED only

- | | |
|-------------|--|
| 1. INOCULUM | Inoculated with BYDV: |
| INOC 00 | Inoculated and unsprayed |
| INOC CYP | Inoculated and sprayed with cypermethrin at 25 g |

NOTES: (1) VOLNTEER KILLED plots were sprayed with paraquat at 0.60 kg ion in 200 l on 9 Sept, 1985.

(2) Treatment sprays were applied in 10 l.

(3) INOCULUM - For plots inoculated with BYDV, plants infected with BYDV were introduced into the centre row.

Basal applications: Manures: (5:14:30) at 340 kg. 'Nitram' at 130 kg and later at 340 kg. Weedkillers: Isoproturon at 2.0 kg, clopyralid at 0.07 kg, bromoxynil octanoate at 0.34 kg and mecoprop at 2.5 kg applied in 200 l with the mixed fungicides. Fungicides: Prochloraz at 0.40 kg with carbendazim at 0.15 kg. Triadimenol at 0.062 kg in 200 l.

86/R/B/3

Seed: Igri, sown at 150 kg.

Cultivations, etc.:- Rotary grubbed: 14 Aug, 1985. NPK applied: 16 Sept. Rotary harrowed, seed sown: 18 Sept. First N applied: 13 Mar, 1986. Second N applied: 11 Apr. Weedkillers with fungicides applied: 28 Apr. Triadimenol applied: 12 June. Combine harvested: 30 July. Previous crops: W. barley 1984 and 1985.

NOTE: Aphids were sampled in early November 1985, early February 1986 and mid-April. BYDV was assessed in early June.

GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

SPRY INS VOLNTEER KILLED PRESENT MEAN	NONE	CYP	AJUG E	AJUG W	UEBF	POLYGOD	MEAN
	5.64	6.55	5.68	6.04	6.03	5.60	5.92
	3.83	5.85	4.62	4.48	3.41	5.22	4.57
	4.73	6.20	5.15	5.26	4.72	5.41	5.25
INOCULUM	INOC 00 5.76	INOC CYP 6.05	MEAN 5.90				
GRAND MEAN	5.34						

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	SPRY INS	SPRY INS* VOLNTEER

SED	0.526	0.744

* WITHIN THE SAME LEVEL OF VOLNTEER ONLY

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP.SP	20	0.911	17.4
GRAIN MEAN DM%	80.2		
SUB PLOT AREA HARVESTED	0.00163		