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91/R/M/3 Aphids and Bydv - W. Wheat, W. Barley - Mixed Crops

Rothamsted Research

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91/R/M/3

WINTER WHEAT AND WINTER BARLEY

APHIDS AND BYDV

Object: To study the effects of barley yellow dwarf virus (BYDV) on winter cereals - Bones Close.

Sponsors: N. Carter, R.T. Plumb.

Design: 3 randomised blocks of 8 plots.

Whole plot dimensions: 9.0 x 10.0.

Treatments: All combinations of:-

1. **CROP** Crops:
 W BARLEY Winter barley
 W WHEAT Winter wheat
2. **AUT INS** Autumn insecticide:
 NONE None
 CYPERMET Cypermethrin at 25 g in 200 l on 6 Nov, 1990
3. **FLO INS** Insecticide at flowering:
 NONE None
 PIRIMICA Pirimicarb at 0.14 kg in 200 l on 11 June, 1991
 (to barley) and 1 July (to wheat)

Basal applications: Manures: Magnesian limestone at 5.0 t. 'Nitram' at 290 kg (to barley) and 460 kg (to wheat). Weedkillers: Pendimethalin at 1.1 kg with mecoprop at 1.6 kg in 200 l. Fungicides: Prochloraz at 0.40 kg with tridemorph at 0.26 kg in 200 l. Propiconazole at 0.12 kg in 200 l.

Seed: W. barley: Magie, sown at 140 kg.
 W. wheat: Mercia, sown at 170 kg.

Cultivations, etc.:- Ploughed, furrow pressed: 20 Aug, 1990. Magnesian limestone applied: 22 Aug. Rotary harrowed: 12 Sept. Cultivated by rotary grubber twice, rotary harrowed, seed sown: 13 Sept. Weedkillers applied: 3 Dec. N applied: 27 Mar, 1991. Prochloraz with tridemorph applied: 23 Apr. Propiconazole applied: 23 May. Combine harvested: 12 Aug (barley) and 20 Aug (wheat). Previous crops: S. barley 1989, w. beans 1990.

NOTES: (1) Aphids were sampled from early October to early August.
(2) BYDV was assessed visually and virus isolates determined by enzyme-linked immunosorbent assay during April and June.
(3) Components of yield were measured.

91/R/M/3 W.WHEAT AND W.BARLEY

GRAIN TONNES/HECTARE

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

AUT INS CROP	NONE	CYPERMET	Mean
W BARLEY	7.76	7.95	7.85
W WHEAT	7.68	7.85	7.77
Mean	7.72	7.90	7.81

FLO INS CROP	NONE	PIRIMICA	Mean
W BARLEY	7.71	8.00	7.85
W WHEAT	7.56	7.97	7.77
Mean	7.64	7.98	7.81

FLO INS AUT INS	NONE	PIRIMICA	Mean
NONE	7.37	8.07	7.72
CYPERMET	7.90	7.90	7.90
Mean	7.64	7.98	7.81

	AUT INS CROP	FLO INS	NONE	PIRIMICA	CYPERMET NONE	PIRIMICA
W BARLEY			7.61	7.91	7.82	8.08
W WHEAT			7.14	8.22	7.99	7.72

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

CROP	AUT INS	FLO INS	CROP AUT INS
0.106	0.106	0.106	0.149
CROP FLO INS	AUT INS FLO INS	CROP AUT INS FLO INS	
0.149	0.149	0.211	

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	14	0.259	3.3
GRAIN MEAN DM%	85.9		
PLOT AREA HARVESTED	0.00230		