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## 85/R/CS/302 Eyespot Resistance to Mbc - W. Wheat

### Rothamsted Research

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85/R/CS/302

EYESPOT RESISTANCE TO MBC

Object: To study the development of resistance to MBC fungicides in eyespot and the ability of resistant strains to survive, spread and infect - Meadow.

Sponsors: G.L. Bateman, B.D.L. Fitt.

The first year, w. wheat.

Design: 2 randomised blocks of 4 plots split into 6.

Whole plot dimensions: 12.0 x 24.0.

Treatments: All combinations of:-

Whole plots

1. FUNGCIDE	Fungicides:
NONE	None
CARB	Carbendazim at 0.25 kg
PRO	Prochloraz at 0.40 kg
CARB+PRO	Carbendazim at 0.15 kg + prochloraz at 0.40 kg

Sub plots

2. EYE INOC	Eyespot inoculum:
NATURAL	Natural background population (duplicated)
W 19R 1S	Inoculated with wheat strains in proportion 19 resistant to one sensitive
W 1R 19S	As above but one resistant to 19 sensitive
R 19R 1S	Inoculated with rye strains, 19 resistant to one sensitive
R 1R 19S	As above but one resistant to 19 sensitive

- NOTES: (1) Fungicide treatments were applied in 200 l on 26 Nov, 1984 repeated on 10 Apr, 1985.  
(2) The eyespot inoculum was colonised on oat seed and this was broadcast on 18 Oct, 1984.

Basal applications: Manures: Chalk at 5.0 t. (5:14:30) at 340 kg. 'Nitro-Chalk' (27.5% N) at 720 kg. Weedkillers: Chlortoluron at 3.5 kg in 250 l. Clopyralid at 0.07 kg and bromoxynil octanoate at 0.34 kg with mecoprop (as 'CMPP' at 4.2 l) in 200 l. Insecticide: Pirimicarb at 0.14 kg in 200 l.

Seed: Avalon, sown at 170 kg.

Cultivations, etc.:- Chalk applied, ploughed: 2 Oct, 1984. NPK applied, spring-tine cultivated, rotary harrowed, seed sown, chlortoluron applied: 4 Oct. Remaining weedkillers applied: 10 Apr, 1985. N applied: 16 Apr. Insecticide applied: 10 July. Combine harvested: 29 Aug. Previous crops: S. barley 1983, w. wheat 1984.

NOTE: Eyespot and sharp eyespot were assessed in April and July. Eyespot was characterized according to type and MBC resistance.

85/R/CS/302

GRAIN TONNES/HECTARE

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

FUNGICIDE	NATURAL	W 19R 1S	W 1R 19S	R 19R 1S	R 1R19S	MEAN
NONE	6.75	6.55	5.68	6.20	6.82	6.46
CARB	6.78	6.41	6.72	5.98	6.88	6.59
PRO	6.30	5.80	6.93	6.78	6.82	6.49
CARB+PRO	7.71	7.55	6.80	7.24	7.32	7.39
MEAN	6.89	6.58	6.53	6.55	6.96	6.73

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

TABLE	EYE INOC	FUNGICIDE*	EYE INOC
SED	0.255	0.510	MIN REP
	0.221	0.442	MAX-MIN

EYE INOC  
 MAX-MIN NATURAL V ANY OF THE REMAINDER  
 MIN REP ANY OF THE REMAINDER

\* WITHIN THE SAME LEVEL OF FUNGICIDE ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	24	0.510	7.6
GRAIN MEAN DM%	84.0		
PLOT AREA HARVESTED	0.00142		