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## Yields of the Field Experiments 1990

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

#### Rothamsted Research

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90/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.

**Sponsor:** G.L. Bateman.

The sixth year, w. wheat.

For previous years see 85-89/R/CS/302.

**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. **FUNGICIDE** Fungicides applied cumulatively to 1985, 1986, 1987, 1988 and 1989 treatments:

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, applied in first year only:

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 24 Nov, 1989 and 30 Mar, 1990.

(2) The eyespot inoculum was colonised on oat seed and this was broadcast in October, 1984.

**Basal applications:** Manure: 'Nitram' at 580 kg. Weedkillers: Glyphosate at 0.27 kg in 200 l. Chlorotoluron at 3.0 kg with cyanazine at 0.75 kg in 200 l. Fluroxypyr at 0.15 kg with bromoxynil at 0.34 kg and clopyralid at 0.07 kg in 200 l. Insecticide: Deltamethrin at 6.2 g in 200 l.

**Seed:** Avalon, sown at 180 kg.

90/R/CS/302

**Cultivations, etc.:-** Heavy spring-tine cultivated: 22 Aug, 1989.  
 Glyphosate applied: 14 Sept. Ploughed: 22 Sept. Rotary harrowed twice, seed sown: 3 Oct. Chlorotoluron with cyanazine applied: 23 Nov. Deltamethrin applied: 22 Feb, 1990. N applied: 18 Apr. Fluroxypyr, bromoxynil and clopyralid applied: 30 Apr. Combine harvested: 10 Aug.

**NOTE:** Eyespot and sharp eyespot were assessed at fortnightly intervals from May - July on the EYE INOC NATURAL plots only.

**GRAIN TONNES/HECTARE**

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

EYE INOC FUNGicide	NATURAL	W 19R 1S	W 1R 19S	R 19R 1S	R 1R 19S	Mean
NONE	5.03	5.03	4.23	4.87	5.07	4.88
CARB	4.74	4.53	4.50	4.64	4.99	4.69
PRO	4.66	4.26	4.79	4.57	4.69	4.60
CARB+PRO	4.89	4.70	4.80	4.91	4.88	4.84
Mean	4.83	4.63	4.58	4.75	4.91	4.75

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

EYE INOC	FUNGicide*	EYE INOC
0.191	0.381	min.rep
0.165	0.330	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	d.f.	s.e.	cv%
BLOCK.WP.SP	24	0.381	8.0

GRAIN MEAN DM% 90.1

SUB PLOT AREA HARVESTED 0.00138