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## Yields of the Field Experiments 1991

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

#### Rothamsted Research

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91/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 seventh year, w. wheat.

For previous years see 85-90/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. <b>FUNGICIDE</b>	Fungicides applied cumulatively 1985-91:
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. <b>EYE INOC</b>	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 15 Nov, 1990 and 12 Apr, 1991.

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

**Basal applications:** Manure: 'Nitram' at 120 kg and later at 460 kg. Weedkillers: Tri-allate at 2.2 kg. Diflufenican at 0.10 kg and isoproturon at 1.0 kg in 200 l. Glyphosate at 0.54 kg with a wetting agent, 'Team' at 1.0 l, in 200 l.

**Seed:** Mercia, sown at 170 kg.

**Cultivations, etc.:-** Straw burnt, heavy spring-tine cultivated: 22 Aug, 1990. Ploughed, furrow pressed: 24 Aug. Rotary harrowed, seed sown: 24 Sept. Tri-allate applied: 2 Nov. Diflufenican and isoproturon applied: 9 Nov. First N applied: 14 Mar, 1991. Second N applied: 8 Apr. Glyphosate with wetting agent applied: 12 Aug. Combine harvested: 22 Aug.

91/R/CS/302

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 \*\*\*\*\*

<b>EYE INOC FUNGICIDE</b>	<b>NATURAL</b>	<b>W 19R 1S</b>	<b>W 1R 19S</b>	<b>R 19R 1S</b>	<b>R 1R 19S</b>	<b>Mean</b>
NONE	5.32	5.14	5.12	5.01	4.90	5.14
CARB	5.37	5.20	4.99	5.19	4.90	5.17
PRO	5.54	5.51	5.12	5.40	5.84	5.49
CARB+PRO	5.61	5.72	5.44	5.44	5.51	5.55
Mean	5.46	5.39	5.17	5.26	5.29	5.34

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

<b>EYE INOC</b>	<b>FUNGICIDE*</b>
	<b>EYE INOC</b>
0.082	0.164 min.rep
0.071	0.142 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	0.164	3.1

GRAIN MEAN DM% 84.5

SUB PLOT AREA HARVESTED 0.00138