ROTHAMSTED RESEARCH

Yields of the Field Experiments 1991

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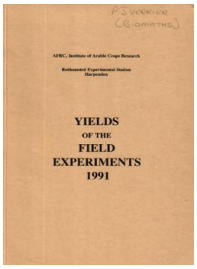

91/R/CS/302 Eyespot Resistance to Mbc - W. Wheat

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. **FUNGCIDE** 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. **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 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.

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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 *****

EYE INOC / **FUNGCIDE**	NATURAL	W 19R 1S	W 1R 19S	R 19R 1S	R 1R 19S	Mean
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 ***

EYE INOC	**FUNGCIDE*** **EYE INOC**	
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 **FUNGCIDE** 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

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