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

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00/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 16th year, w. wheat.

For previous years see 85-93,95-99/R/CS/302

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

Whole plot dimensions: 12.0 x 24.0.

Sub-plot dimensions: 4.5 x 6.0.

Treatments: All combinations of:-

Whole plots

1. **FUNGICIDE** Fungicide applied cumulatively 1985-93 and 1995-2000:

NONE	None
CARB	Carbendazim at 0.25 kg
PRO	Prochloraz at 0.40 kg (0.50 kg in 1993, 1995-2000)
CARB+PRO	Carbendazim and prochloraz as above

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

NOTE: The inoculum was colonized on oat seed and broadcast in October, 1984.

Experimental diary:

23-Sep-99	: B :	: Ploughed.
28-Sep-99	: B :	: Combination drilled, Hereward, tr. Sibutol, at 380 seeds/m ² with the Accord drill.
15-Nov-99	: B :	: tm)Lexus Class WSB at 60 g in 200 l.
	: B :	: tm)Toppel 10 at 250 ml in 200 l.
06-Mar-00	: B :	: Sulphan 30% N, 7.6% S at 266 kg.
17-Mar-00	: T : CARB	: Bavistin DF at 0.5 kg in 220 l.
	: T : CARB+PRO	: Sportak 45 EW at 1.1 l with Bavistin DF at 0.5 kg in 220 l.
	: T : PRO	: Sportak 45 EW at 1.1 l in 220 l.
27-Apr-00	: B :	: Sulphur Gold (30.0% N, 7.6% S), at 400 kg.

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Experimental diary:

09-May-00 : T : CARB : Bavistin DF at 0.5 kg in 220 l.
 : T : CARB+PRO : Sportak 45 EW at 1.1 l with Bavistin DF at 0.5 kg
 in 220 l.
 : T : PRO : Sportak 45 EW at 1.1 l in 220 l.
 20-May-00 : B : : tm)Grasp at 0.5 l in 100 l.
 : B : : tm)Opus at 0.75 l in 100 l.
 : B : : tm)Output at 0.75 l in 100 l.
 07-Aug-00 : B : : Combine harvested.

Previous crops: W. wheat 1998 and 1999.

NOTE: Plant samples were taken from the natural background population plots in June to assess eyespot and other stem base diseases, to characterise eyespot fungus populations by species and sensitivity to fungicides.

GRAIN TONNES/HECTARE

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

EYE INOC FUNGICIDE	NATURAL	W 19R 1S	W 1R 19S	R 19R 1S	R 1R 19S	Mean
NONE	6.10	5.92	7.00	4.92	6.14	6.03
CARB	5.47	5.55	5.20	5.69	6.09	5.58
PRO	5.72	6.25	6.70	5.57	5.99	5.99
CARB+PRO	6.33	5.70	6.34	5.03	6.05	5.96
Mean	5.90	5.85	6.31	5.30	6.07	5.89

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

EYE INOC	FUNGICIDE*
	EYE INOC
0.392	0.784 min.rep
0.340	0.679 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	0.784	13.3
GRAIN MEAN DM%	85.3		
SUB-PLOT AREA HARVESTED	0.00144		