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78/R/WW/6 Fungicides and Grain Microflora - W. Wheat

Rothamsted Research

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78/R/WW/6

WINTER WHEAT

FUNGICIDES AND GRAIN MICROFLORA

Object: To study the effects of a range of fungicides applied at a range of times on the yield, quality and grain microflora of winter wheat - Geescroft.

Sponsor: R.A. Hill.

Design: 2 randomised blocks of 3 x 2 x 2 x 2.

Whole plot dimensions: 4.27 x 13.1.

Treatments: All combinations of:

1. FUNGICIDE	Broad spectrum fungicides:		
CAPTAFOL	Captafol at 0.57 kg		
CARB+MAN	Carbendazim at 0.10 kg + maneb at 0.65 kg		
BENOMYL	Benomyl at 0.45 kg		
2. APP TIME	Application times of broad spectrum fungicides:		
	4 July 1978	12 July	24 July
NONE	None	None	None
E	Sprayed	None	None
M	None	Sprayed	None
L	None	None	Sprayed
E+M	Sprayed	Sprayed	None
E+L	Sprayed	None	Sprayed
M+L	None	Sprayed	Sprayed
E+M+L	Sprayed	Sprayed	Sprayed

NOTE: Treatment sprays were applied in 340 l.

Basal applications: Manures: (0:20:20) at 310 kg, combine drilled. 'Nitra-shell 34' at 300 kg. Weedkillers: Mecoprop, bromoxynil and ioxynil ('Brittox' at 3.5 l in 220 l).

Seed: Maris Freeman, sown at 190 kg.

Cultivations, etc.:— Ploughed: 7 Oct, 1977. Rotary harrowed, seed sown: 14 Oct. N applied: 24 Apr, 1978. Weedkiller applied: 9 May. Combine harvested: 6 Sept. Previous crops: Barley 1976, beans 1977.

- NOTES: (1) Grain microflora were assessed at 7-10 day intervals after heading on unsprayed plots, after each application of fungicide on treated plots and on all plots just before harvest.
- (2) Thousand grain weights, germination of harvested produce and bread making quality were assessed.

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GRAIN TONNES/HECTARE

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

APP TIME	E	M	L	E+M	E+L	M+L	E+M+L	MEAN
FUNGICIDE								
CAPTAFOL	7.34	7.20	7.67	7.30	7.38	7.51	7.07	7.35
CARB+MAN	7.22	7.69	7.08	7.20	7.39	7.61	7.31	7.36
BENOMYL	7.27	7.11	7.08	7.43	7.28	7.23	7.83	7.32
MEAN	7.28	7.33	7.28	7.31	7.35	7.45	7.40	7.34

APP TIME NONE 7.12

GRAND MEAN 7.32

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

TABLE	FUNGICIDE	APP TIME	FUNGICIDE APP TIME
SED	0.151	0.231	0.400

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

STRATUM	DF	SE	CV%
BLOCK.WP	25	0.400	5.5

GRAIN MEAN DM% 81.8

PLOT AREA HARVESTED 0.00260