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# Yields of the Field Experiments 1980

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## 80/S/CS/1 Fungicides, N and Growth Regulator

### Rothamsted Research

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80/S/CS/1

FUNGICIDES, N AND GROWTH REGULATOR

Object: To study the effects of fungicides and of a growth regulator, and rates and times of applying nitrogen fertiliser on the incidence of foliar diseases and on the yield of w. barley - Saxmundham, Oldershaw's and Garner's plots.

Sponsors: F.V. Widdowson, J.F. Jenkyn, A. Penny.

The 15th year, w. barley.

For previous years see 66/C/30(t), 67/C/23(t), 68/C/39, 69-70/S/CS/1, 71/S/CS/1(t), 72/S/CS/1(t) and 73-79/S/CS/1.

Design: A single replicate of 24 plots split into 2, arranged as 2 blocks of 12 plots split into 2. Treatments to w. wheat 1966-1976 and to w. and s. barley 1977-1979 have been ignored.

Whole plot dimensions: 2.44 x 40.2.

Treatments: All combinations of:-

Whole plots

- |             |  |
|-------------|--|
| 1. MILDFUNG | Fungicide to control mildew: Tridemorph at 0.53 kg in 280 l.                           |
| NONE        | None   |
| SPRAYED     | Sprayed 23 Apr, 1980 and 14 May  |
| 2. E N RATE | Rates of early spring nitrogen fertiliser (kg N):                                      |
| 105         |  |
| 140         |  |
| 3. E N TIME | Times of applying early spring nitrogen fertiliser:                                    |
| FEB+MAR     | 35 kg on 12 Feb remainder on 25 Mar  |
| MAR         | All on 25 Mar  |
| 4. APR N GR | Nitrogen fertiliser in April (kg N) and growth regulator:                              |
| 0 0         | None   |
| 35 0        | 35 on 23 Apr   |
| 35 GR       | 35 on 23 Apr plus mepiquat chloride + ethephon ('Terpal' at 2.46 l) in 280 l on 23 Apr |

Half plots

- |             |   |
|-------------|---|
| 5. EYESFUNG | Fungicide to control eyespot: Carbendazim (as 'Bavistin' at 0.50 kg) in 280 l |
| NONE        | None  |
| SPRAYED     | Sprayed 23 Apr  |

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Basal applications: Manures: N, P<sub>2</sub>O<sub>5</sub> & K<sub>2</sub>O each at 51 kg as (15:15:15). Weedkillers: Chlortoluron at 5.6 kg in 220 l in autumn. 'Wheatclene' (1.26 kg of solid (metoxuron and simazine) plus 1.26 l of liquid (barban)) mixed with ioxynil at 1.3 kg plus mecoprop at 1.9 kg in 220 l.

Seed: Sonja, sown at 180 kg.

Cultivations, etc.:- Seed sown, NPK applied: 26 Sept, 1979. Chlortoluron applied: 27 Sept. Spring weedkillers applied: 31 Mar, 1980. Combine harvested: 29 July.

NOTE: Straw heights were measured in late June. N content of grain was measured.

GRAIN TONNES/HECTARE

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

E N RATE	105	140	MEAN	
MILDFUNG				
NONE	8.31	8.45	8.38	
SPRAYED	8.23	8.75	8.49	
MEAN	8.27	8.60	8.44	
E N TIME	FEB+MAR	MAR	MEAN	
MILDFUNG				
NONE	8.27	8.49	8.38	
SPRAYED	8.41	8.58	8.49	
MEAN	8.34	8.53	8.44	
E N TIME	FEB+MAR	MAR	MEAN	
E N RATE				
105	8.16	8.38	8.27	
140	8.52	8.68	8.60	
MEAN	8.34	8.53	8.44	
APR N GR	0 0	35 0	35 GR	MEAN
MILDFUNG				
NONE	8.13	8.40	8.61	8.38
SPRAYED	7.99	8.61	8.87	8.49
MEAN	8.06	8.51	8.74	8.44
APR N GR	0 0	35 0	35 GR	MEAN
E N RATE				
105	7.79	8.47	8.54	8.27
140	8.33	8.54	8.93	8.60
MEAN	8.06	8.51	8.74	8.44

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GRAIN TONNES/HECTARE

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

APR N GR	0 0	35 0	35 GR	MEAN
E N TIME				
FEB+MAR	8.00	8.37	8.64	8.34
MAR	8.13	8.64	8.84	8.53
MEAN	8.06	8.51	8.74	8.44

EYESFUNG	NONE	SPRAYED	MEAN
MILDFUNG			
NONE	8.44	8.32	8.38
SPRAYED	8.38	8.60	8.49
MEAN	8.41	8.46	8.44

EYESFUNG	NONE	SPRAYED	MEAN
E N RATE			
105	8.22	8.32	8.27
140	8.60	8.60	8.60
MEAN	8.41	8.46	8.44

EYESFUNG	NONE	SPRAYED	MEAN
E N TIME			
FEB+MAR	8.31	8.36	8.34
MAR	8.50	8.56	8.53
MEAN	8.41	8.46	8.44

EYESFUNG	NONE	SPRAYED	MEAN
APR N GR			
0 0	8.02	8.11	8.06
35 0	8.53	8.48	8.51
35 GR	8.68	8.80	8.74
MEAN	8.41	8.46	8.44

E N RATE	105		140	
E N TIME	FEB+MAR	MAR	FEB+MAR	MAR
MILDFUNG				
NONE	8.14	8.48	8.40	8.50
SPRAYED	8.18	8.28	8.63	8.87

E N RATE	105			140		
APR N GR	0 0	35 0	35 GR	0 0	35 0	35 GR
MILDFUNG						
NONE	7.95	8.48	8.50	8.32	8.32	8.71
SPRAYED	7.63	8.47	8.59	8.35	8.76	9.15

E N TIME	FEB+MAR			MAR		
APR N GR	0 0	35 0	35 GR	0 0	35 0	35 GR
MILDFUNG						
NONE	8.11	8.18	8.51	8.16	8.62	8.70
SPRAYED	7.88	8.56	8.77	8.10	8.67	8.97



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GRAIN TONNES/HECTARE

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

E N TIME	FEB+MAR		MAR			
APR N GR	0 0	35 0	35 GR	0 0	35 0	35 GR
E N RATE						
105	7.81	8.31	8.35	7.78	8.64	8.74
140	8.19	8.43	8.93	8.48	8.64	8.94
E N RATE	105		140			
EYESFUNG	NONE	SPRAYED	NONE	SPRAYED		
MILDFUNG						
NONE	8.25	8.37	8.62	8.27		
SPRAYED	8.20	8.26	8.57	8.93		
E N TIME	FEB+MAR		MAR			
EYESFUNG	NONE	SPRAYED	NONE	SPRAYED		
MILDFUNG						
NONE	8.37	8.17	8.50	8.48		
SPRAYED	8.26	8.55	8.51	8.65		
E N TIME	FEB+MAR		MAR			
EYESFUNG	NONE	SPRAYED	NONE	SPRAYED		
E N RATE						
105	8.08	8.23	8.36	8.41		
140	8.54	8.49	8.65	8.72		
APR N GR	0 0		35 0		35 GR	
EYESFUNG	NONE	SPRAYED	NONE	SPRAYED	NONE	SPRAYED
MILDFUNG						
NONE	8.16	8.11	8.47	8.33	8.68	8.53
SPRAYED	7.88	8.10	8.59	8.63	8.68	9.06
APR N GR	0 0		35 0		35 GR	
EYESFUNG	NONE	SPRAYED	NONE	SPRAYED	NONE	SPRAYED
E N RATE						
105	7.66	7.92	8.40	8.55	8.60	8.49
140	8.38	8.29	8.65	8.42	8.76	9.10
APR N GR	0 0		35 0		35 GR	
EYESFUNG	NONE	SPRAYED	NONE	SPRAYED	NONE	SPRAYED
E N TIME						
FEB+MAR	7.97	8.03	8.49	8.25	8.48	8.80
MAR	8.07	8.18	8.56	8.72	8.88	8.79

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GRAIN TONNES/HECTARE

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

TABLE	EYESFUNG	MILDFUNG* EYESFUNG	E N RATE* EYESFUNG	E N TIME* EYESFUNG
SED	0.091	0.129	0.129	0.129

TABLE	APR N GR* EYESFUNG	MILDFUNG* E N RATE EYESFUNG	MILDFUNG* E N TIME EYESFUNG	E N RATE* E N TIME EYESFUNG
SED	0.158	0.182	0.182	0.182

TABLE	MILDFUNG* APR N GR EYESFUNG	E N RATE* APR N GR EYESFUNG	E N TIME* APR N GR EYESFUNG
SED	0.223	0.223	0.223

\* USE ONLY TO COMPARE THE TWO LEVELS OF EYESFUNG FOR THE SAME LEVEL(S) OF THE OTHER FACTOR(S)

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	9	0.316	3.7

GRAIN MEAN DM% 84.7

SUB PLOT AREA HARVESTED 0.00380