ROTHAMSTED RESEARCH

Yields of the Field Experiments 1979

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79/S/CS/1 Fungicides, N and Growth Regulator - W. Barley

Rothamsted Research

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79/S/CS/1

FUNGICIDES, N AND GROWTH REGULATOR

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

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The 14th year, winter 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 73-78/S/CS/1.

Design: A single replicate of 2^6 in 4 blocks of 4 plots each split into half and quarter plots, plus one additional plot per block similarly split. Most treatments to wheat 1966-1976 and to barley 1977-1978 have been ignored.

Whole plot dimensions: 5.49 x 40.2.

Treatments: All combinations of:-

Whole plots

1. EYESFUNG — Fungicide to control eyespot: Carbendazim (as 'Bavistin' at 0.51 kg) in 220 l

   NONE — None
   SPRAYED — Sprayed 15 May, 1979

2. MILDFUNG — Fungicide to control mildew: Tridemorph at 0.53 kg in 220 l

   NONE — None
   SPRAYED — Sprayed 15 May

Half plots

3. APRIL N — Nitrogen fertiliser (kg N) applied on 2 May, 1979:

   0
   40

4. GRTH REG — Growth regulator: applied on 16 May

   NONE — None
   MEP+ETH — Mepiquat chloride + ethephon ('Terpal' at 2.46 kg) in 280 l

Quarter plots

5. E N RATE — Rates of early spring nitrogen fertiliser (kg N total):

   80
   120

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6. E N TIME — Times of applying early spring nitrogen fertiliser:

FEB+MAR	Half on 6 Mar, half on 10 Apr
MAR	All on 10 Apr

XTRA EMR — Plus one additional whole plot per block sprayed with fungicides to control eyespot and mildew and given growth regulator, testing all combinations of:

Half plots

1. SEEDBD N — Nitrogen fertiliser (kg N) applied to seedbed on 26 Sept, 1978:

0
50

2. APRIL N — Nitrogen fertiliser (kg N) applied on 2 May, 1979

0
40

Quarter plots

3. E N RATE — Rates of early spring nitrogen fertiliser (kg N total):

80
120

4. E N TIME — Times of applying early spring nitrogen fertiliser:

FEB+MAR	Half on 6 Mar, half on 10 Apr
MAR	All on 10 Apr

NOTE: Plots not receiving test of seedbed N received 50 kg N after drilling.

Basal applications: (0:14:28) at 290 kg. Autumn weedkiller: Chlortoluron at 4.5 kg in 220 l. Spring weedkiller: 'Wheatclene', 2.5 kg of solid (metoxuron and simazine) 2.5 l of liquid (barban) in 220 l.

Seed: Sonja, sown at 160 kg.

Cultivations, etc.:- PK applied: 19 Sept, 1978. Seed sown, chlortoluron applied: 26 Sept. Spring weedkillers applied: 10 Apr, 1979. Combine harvested: 8 Aug.

NOTES: (1) Soils were sampled and assessed for mineral N in March and April, leaf diseases were assessed in May and June and N content of grain was assessed at harvest.
(2) Because of a design error, in the main analysis many interactions are identified with each other and therefore only the main effects are presented.
(3) Because of bird damage the yields from two XTRA EMR sub plots were lost, the treatment combinations are marked with * in the table.

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GRAIN TONNES/HECTARE

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

EYESFUNG	NONE	SPRAYED	MEAN
	6.40	6.70	6.55

MILDFUNG	NONE	SPRAYED	MEAN
	6.53	6.57	6.55

APRIL N	0	40	MEAN
	6.29	6.81	6.55

GRTH REG	NONE	MEP+ETH	MEAN
	6.45	6.65	6.55

E N RATE	80	120	MEAN
	6.28	6.82	6.55

E N TIME	FEB+MAR	MAR	MEAN
	6.64	6.46	6.55

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

TABLE	EYESFUNG	MILDFUNG	APRIL N	GRTH REG
SED	0.123	0.123	0.199	0.199

TABLE	E N RATE	E N TIME
SED	0.071	0.071

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

STRATUM	DF	SE	CV%
BLOCK.WP	4	0.247	3.8
BLOCK.WP.HP	5	0.563	8.6
BLOCK.WP.HP.QP	12	0.282	4.3

GRAIN MEAN DM % 84.1

XTRA EMR

GRAIN TONNES/HECTARE

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

SEEDBD N	APRIL N	E N TIME / E N RATE	FEB+MAR	MAR
0	0	80	2.76	*
		120	6.59	3.78
	40	80	6.07	5.96
		120	6.72	6.80
50	0	80	5.11	5.75
		120	6.73	6.93
	40	80	*	5.03
		120	5.34	6.69

GRAIN MEAN DM % 84.2 SUB PLOT AREA HARVESTED 0.00466

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