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Yields of the Field Experiments 1975

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75/ R/B/5 - Nitrogen & Foliar Diseases - Barley

Rothamsted Research

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75/R/B/5

SPRING BARLEY

NITROGEN AND FOLIAR DISEASES

Object: To study the effects of mildew and brown rust on the response to a range of nitrogen rates applied at different times - Gt. Knott II.

Sponsor: J.F. Jenkyn.

Design: Single replicate of 6 x 3 x 2 x 2.

Whole plot dimensions: 4.27 x 9.14.

Treatments: All combinations of:-

1. Amounts of nitrogen fertiliser (kg N):	N RATE
25	25
50	50
70	70
90	90
110	110
135	135
2. Times of applying N:	N TIME
Seedbed	SB
Top dressed	TD
Half to seedbed, half top dressed	SB/TD
3. Mildew fungicide:	MILDEW F
None	NONE
Tridemorph on 6, 24 June and 21 July	TRIDEMOR
4. Rust fungicide:	RUST F
None	NONE
Benodanil on 24 June	BENODANI

NOTE: Fungicides were applied in 340 l:-

- (a) Tridemorph at 0.53 kg
- (b) Benodanil at 1.12 kg with 175 ml 'Citowett'

Basal applications: Manures: (0:20:20) at 310 kg. Weedkiller: Dicamba, with mecoprop and MCPA ('Tetralix Plus' at 7.0 l in 220 l).

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Seed: Zephyr, sown at 160 kg.

Cultivations, etc.:— Ploughed: 6 Nov, 1974. Spring-tine cultivated: 14 and 21 Apr, 1975. Rotary harrowed: 22 Apr. Seed sown and harrowed in: 23 Apr. Seedbed N applied: 29 Apr. N top dressing applied: 22 May. Weedkiller applied: 6 June. Combine harvested: 22 Aug. Previous crops: Beans 1973, winter wheat 1974.

- NOTES: (1) Counts were made of seedling emergence. Mildew was assessed twice and brown rust once.
- (2) There was evidence of a pattern of yields across the site and the results presented have been adjusted for covariance on a dummy variate representing the comparison between plots 1 to 36 and plots 37 to 72.

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GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

RUST F	NONE BENODANI		MEAN
MILDEW F			
NONE	2.92	3.15	3.03
TRIDEMOR	3.52	3.64	3.58
MEAN	3.22	3.39	3.31

N TIME	SB	TD	SB/TD	MEAN
MILDEW F				
NONE	3.19	2.73	3.18	3.03
TRIDEMOR	3.82	3.38	3.54	3.58
MEAN	3.50	3.06	3.36	3.31

N TIME	SB	TD	SB/TD	MEAN
RUST F				
NONE	3.46	2.90	3.30	3.22
BENODANI	3.54	3.22	3.42	3.39
MEAN	3.50	3.06	3.36	3.31

N RATE	25	50	70	90	110	135	MEAN
MILDEW F							
NONE	2.63	3.03	3.00	3.17	3.19	3.19	3.03
TRIDEMOR	3.10	3.18	3.52	3.96	3.78	3.92	3.58
MEAN	2.86	3.11	3.26	3.57	3.48	3.56	3.31

N RATE	25	50	70	90	110	135	MEAN
RUST F							
NONE	2.75	2.94	3.30	3.59	3.32	3.41	3.22
BENODANI	2.97	3.28	3.22	3.54	3.65	3.70	3.39
MEAN	2.86	3.11	3.26	3.57	3.48	3.56	3.31

N RATE	25	50	70	90	110	135	MEAN
N TIME							
SB	2.89	3.12	3.29	3.63	4.02	4.05	3.50
TD	2.86	3.13	2.99	3.25	3.05	3.06	3.06
SB/TD	2.84	3.06	3.50	3.82	3.38	3.56	3.36
MEAN	2.86	3.11	3.26	3.57	3.48	3.56	3.31

RUST F	NONE		BENODANI			
N TIME	SB	TD	SB/TD	SB	TD	SB/TD
MILDEW F						
NONE	3.08	2.54	3.13	3.29	2.93	3.23
TRIDEMOR	3.83	3.25	3.48	3.80	3.51	3.60

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GRAIN TONNES/HECTARE

*** TABLES OF MEANS ***

	N RATE	25	50	70	90	110	135
MILDEW F	RUST F						
NONE	NONE	2.42	2.88	2.93	3.13	3.11	3.04
	BENODANI	2.83	3.18	3.06	3.21	3.26	3.34
TRIDEMOR	NONE	3.09	2.99	3.68	4.05	3.53	3.78
	BENODANI	3.11	3.37	3.37	3.88	4.03	4.07
	N RATE	25	50	70	90	110	135
MILDEW F	N TIME						
NONE	SB	2.84	3.00	2.99	3.10	3.62	3.57
	TD	2.49	3.00	2.61	2.84	2.62	2.84
	SB/TD	2.54	3.09	3.39	3.58	3.32	3.15
TRIDEMOR	SB	2.95	3.24	3.60	4.16	4.42	4.52
	TD	3.22	3.26	3.37	3.67	3.49	3.27
	SB/TD	3.13	3.04	3.60	4.06	3.44	3.97
	N RATE	25	50	70	90	110	135
RUST F	N TIME						
NONE	SB	2.57	2.74	3.67	3.97	3.83	3.97
	TD	2.81	3.10	2.74	3.12	2.66	2.94
	SB/TD	2.88	2.97	3.50	3.69	3.47	3.32
BENODANI	SB	3.22	3.50	2.92	3.29	4.21	4.13
	TD	2.90	3.17	3.24	3.39	3.44	3.18
	SB/TD	2.79	3.16	3.50	3.96	3.28	3.81

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

TABLE	MILDEW F	RUST F	N TIME	N RATE
SED	0.075	0.075	0.099	0.137
TABLE	MILDEW F RUST F	MILDEW F N TIME	RUST F N TIME	MILDEW F N RATE
SED	0.107	0.135	0.135	0.192
TABLE	RUST F N RATE	N TIME N RATE	MILDEW F RUST F N TIME	MILDEW F RUST F N RATE
SED	0.191	0.239	0.189	0.268
TABLE	MILDEW F N TIME N RATE	RUST F N TIME N RATE		
SED	0.335	0.331		

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

STRATUM	DF	SE	CV%
WP	9	0.318	9.6

GRAIN MEAN DM% 83.5

PLOT AREA HARVESTED 0.00195