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76/R/B/4 N and Foliar Diseases - S. Barley

Rothamsted Research

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76/R/B/4

SPRING BARLEY

N AND FOLIAR DISEASES

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

Sponsors: J.F. Jenkyn, M.E. Finney.

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

Whole plot dimensions: 4.27 x 9.14.

Treatments: All combinations of:-

1. N RATE Amounts of nitrogen fertiliser (kg N):

25	25
50	50
70	70
90	90
110	110
135	135

2. N TIME Times of applying N:

SB	Seedbed (1 Apr, 1976)
TD	Top dressed (21 May)
SB/TD	Half to seedbed, half top dressed

3. MILDEW F Mildew fungicide:

NONE	None
TRIDEMOR	Tridemorph on 21 May and 7 June

4. RUST F Rust fungicide:

NONE	None
BENODANI	Benodanil on 17 June

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, combine drilled.

Weedkillers: Paraquat at 0.42 kg ion in 220 l in autumn. Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l) in spring.

Seed: Zephyr, sown at 160 kg.

Cultivations, etc.:- Autumn weedkiller applied: 6 Nov, 1975.

Ploughed: 18-24 Nov. Spring-tine cultivated: 2, 12 Mar, 1976.

Seed sown: 22 Mar. Spring weedkiller applied: 11 May. Combine harvested: 26 July. Previous crops: Potatoes 1974, wheat 1975.

NOTE: Seedling emergence counts were made. Leaf diseases were assessed on three occasions and ear counts made in early July.

75/R/B/4

GRAIN TONNES/HECTARE

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

MILDEW F	NONE	TRIDEMOR					MEAN
N TIME							
SB	4.04	4.85					4.45
TD	3.93	4.47					4.20
SB/TD	4.11	4.81					4.46
MEAN	4.03	4.71					4.37
RUST F	NONE	BENODANI					MEAN
N TIME							
SB	4.43	4.46					4.45
TD	4.21	4.19					4.20
SB/TD	4.41	4.51					4.46
MEAN	4.35	4.39					4.37
RUST F	NONE	BENODANI					MEAN
MILDEW F							
NONE	3.99	4.06					4.03
TRIDEMOR	4.70	4.72					4.71
MEAN	4.35	4.39					4.37
N RATE	25	50	70	90	110	135	MEAN
N TIME							
SB	3.85	4.38	4.25	4.64	4.79	4.77	4.45
TD	3.96	4.01	4.09	4.46	4.41	4.27	4.20
SB/TD	4.18	4.41	4.59	4.50	4.62	4.45	4.46
MEAN	4.00	4.26	4.31	4.53	4.61	4.50	4.37
N RATE	25	50	70	90	110	135	MEAN
MILDEW F							
NONE	3.77	3.96	3.91	4.02	4.24	4.25	4.03
TRIDEMOR	4.22	4.56	4.71	5.05	4.97	4.75	4.71
MEAN	4.00	4.26	4.31	4.53	4.61	4.50	4.37
N RATE	25	50	70	90	110	135	MEAN
RUST F							
NONE	3.90	4.29	4.25	4.59	4.56	4.50	4.35
BENODANI	4.10	4.23	4.37	4.48	4.65	4.50	4.39
MEAN	4.00	4.26	4.31	4.53	4.61	4.50	4.37
N TIME	N RATE	25	50	70	90	110	135
SB	MILDEW F						
	NONE	3.65	3.96	4.06	4.04	4.31	4.22
	TRIDEMOR	4.06	4.79	4.44	5.23	5.27	5.31
TD	NONE	3.72	4.02	3.62	4.01	3.96	4.27
	TRIDEMOR	4.21	4.00	4.56	4.91	4.86	4.28
SB/TD	NONE	3.95	3.91	4.05	4.01	4.46	4.26
	TRIDEMOR	4.41	4.90	5.13	4.99	4.79	4.65

76/R/B/4 GRAIN TONNES/HECTARE

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

	N RATE	25	50	70	90	110	135
N TIME	RUST F						
SB	NONE	3.82	4.28	4.11	4.54	4.78	5.04
	BENODANI	3.89	4.47	4.39	4.73	4.81	4.50
TD	NONE	3.77	4.18	3.99	4.63	4.55	4.12
	BENODANI	4.15	3.83	4.18	4.29	4.26	4.43
SB/TD	NONE	4.10	4.42	4.65	4.59	4.36	4.35
	BENODANI	4.26	4.39	4.53	4.41	4.88	4.56
	N RATE	25	50	70	90	110	135
MILDEW F	RUST F						
	NONE	3.59	3.85	3.85	4.05	4.33	4.29
	BENODANI	3.96	4.07	3.98	3.99	4.15	4.20
TRIDEMOR	NONE	4.21	4.74	4.66	5.13	4.79	4.70
	BENODANI	4.24	4.39	4.76	4.96	5.15	4.79

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

TABLE	N TIME	MILDEW F	RUST F	N RATE
SED	0.076	0.062	0.062	0.108

TABLE	N TIME MILDEW F	N TIME RUST F	MILDEW F RUST F	N TIME N RATE
SED	0.108	0.108	0.088	0.187

TABLE	MILDEW F N RATE	RUST F N RATE	N TIME MILDEW F RUST F	N TIME MILDEW F N RATE
SED	0.153	0.153	0.153	0.264

TABLE	N TIME RUST F N RATE	MILDEW F RUST F N RATE
SED	0.264	0.216

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

STRATUM	DF	SE	CV%
WP	10	0.264	6.1

GRAIN MEAN DM% 88.2

PLOT AREA HARVESTED 0.00195