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# Yields of the Field Experiments 1983

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## 83/W/B/1 Mildew Study - W. Barley

### Rothamsted Research

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83/W/B/1

WINTER AND SPRING BARLEY

MILDEW STUDY

Object: To study the effects of fungicides applied to w. and s. barley on the incidence of mildew and on yield and whether these effects are influenced by neighbouring treatments - Woburn, Horsepool.

Sponsor: D.W. Hollomon.

Design: W. barley: 2 blocks of 12 plots split into 2  
S. barley: 2 blocks of 12 plots

Whole plot dimensions: 8.0 x 8.0.

Treatments to W. BARLEY seed treated triadimenol + fuberidazole:

All combinations of:-

Whole plots

- |           |  |
|-----------|--|
| 1. FS WB  | Foliar sprays to w. barley applied 15 Apr, 1983:   |
| NONE      | None   |
| FENPROP   | Fenpropimorph at 0.75 kg in 280 l  |
| PROPICON  | Propiconazole at 0.12 kg in 280 l  |
| 2. SD SB  | Seed dressings to one adjacent plot of s. barley, other adjacent plot given no fungicides:                                     |
| NONE      | None   |
| TRI+FUB   | Triadimenol + fuberidazole   |
| 3. VAR SB | Variety of adjacent s. barley testing seed dressing, other adjacent s. barley plot sown to Golden Promise given no fungicides: |
| G PROMIS  | Golden Promise   |
| KEG       | Keg  |

Sub plots

- |             |   |
|-------------|---|
| 4. POSITION | Position of w. barley plots in relation to s. barley plots testing seed dressing: |
| S EAST      | South east  |
| N WEST      | North west  |

Treatments to S. BARLEY: All combinations of:-

- |          |                              |
|----------|------------------------------|
| 1. SD SB | Seed dressings to s. barley: |
| NONE     | None                         |
| TRI+FUB  | Triadimenol + fuberidazole   |

83/W/B/1

2. VAR SB Variety of s. barley:

G PROMIS Golden Promise  
KEG Keg

3. FS WB Foliar sprays to both adjacent plots of w. barley, none to s. barley:

NONE None  
FENPROP Fenpropimorph as above  
PROPICON Propiconazole as above

NOTE: Tridemorph at 0.52 kg in 280 l was applied to the internal and external headlands on 10 June, 1983.

Standard applications: Manures: N at 30 kg as 'Nitro-Chalk' to w. barley, N at 160 kg to s. and w. barley. Weedkillers: Methabenzthiazuron at 1.6 kg in 250 l, mecoprop with bromoxynil and ioxynil (as 'Brittox' at 3.0 l) in 250 l.

Seed: W. barley: Maris Otter, sown at 180 kg.  
S. barley: Golden Promise, sown at 160 kg.  
Keg, sown at 160 kg.

Cultivations, etc.: - Discd: 1 Sept, 1982. Ploughed: 30 Sept. N applied for w. barley: 6 Oct. Spring-tine cultivated with crumbler attached for w. barley, w. barley seed sown: 7 Oct. Methabenzthiazuron applied to w. barley and for s. barley: 11 Oct. Deep-tine cultivated for s. barley: 12 Jan, 1983. Heavy spring-tine cultivated for s. barley: 7 Mar. Spring-tine cultivated with crumbler attached, s. barley seed sown: 12 Mar. N applied, 'Brittox' applied to w. and s. barley: 5 May. W. barley combine harvested: 28 July. S. barley combine harvested: 5 Aug. Previous crops: Potatoes 1981, w. wheat 1982.

NOTE: The incidence of barley powdery mildew (*Erysiphe graminis* f. sp. *hordei*) and leaf blotch (*Rhynchosporium secalis*) on w. barley were assessed in April before and after application of fungicide treatments. Disease assessments were made on four occasions on spring barley in May, June and July for mildew, leaf blotch and brown rust. The sensitivity of powdery mildew to triadimenol was measured in June.

83/W/B/1 WINTER BARLEY

GRAIN TONNES/HECTARE

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

SD SB	NONE	TRI+FUB	MEAN	
FS WB				
NONE	4.92	5.35	5.14	
FENPROP	5.86	6.02	5.94	
PROPICON	5.26	5.20	5.23	
MEAN	5.34	5.52	5.43	
VAR SB	G PROMIS	KEG	MEAN	
FS WB				
NONE	5.04	5.24	5.14	
FENPROP	5.61	6.27	5.94	
PROPICON	5.18	5.28	5.23	
MEAN	5.27	5.59	5.43	
VAR SB	G PROMIS	KEG	MEAN	
SD SB				
NONE	5.15	5.54	5.34	
TRI+FUB	5.40	5.65	5.52	
MEAN	5.27	5.59	5.43	
POSITION	S EAST	N WEST	MEAN	
FS WB				
NONE	4.91	5.36	5.14	
FENPROP	5.57	6.31	5.94	
PROPICON	4.83	5.63	5.23	
MEAN	5.10	5.77	5.43	
POSITION	S EAST	N WEST	MEAN	
SD SB				
NONE	4.99	5.70	5.34	
TRI+FUB	5.22	5.83	5.52	
MEAN	5.10	5.77	5.43	
POSITION	S EAST	N WEST	MEAN	
VAR SB				
G PROMIS	4.94	5.61	5.27	
KEG	5.26	5.92	5.59	
MEAN	5.10	5.77	5.43	
SD SB	NONE	TRI+FUB		
VAR SB	G PROMIS	KEG G PROMIS	KEG	
FS WB				
NONE	4.87	4.96	5.20	5.51
FENPROP	5.45	6.27	5.77	6.27
PROPICON	5.14	5.38	5.22	5.18

83/W/B/1 WINTER BARLEY

GRAIN TONNES/HECTARE

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

SD SB	NONE	TRI+FUB		
POSITION	S EAST	N WEST	S EAST	
FS WB			N WEST	
NONE	4.69	5.14	5.13	5.58
FENPROP	5.51	6.21	5.62	6.41
PROPICON	4.76	5.76	4.90	5.50

VAR SB G	PROMIS	KEG		
POSITION	S EAST	N WEST	S EAST	
FS WB			N WEST	
NONE	4.84	5.23	4.98	5.49
FENPROP	5.05	6.17	6.08	6.46
PROPICON	4.92	5.44	4.73	5.82

VAR SB G	PROMIS	KEG		
POSITION	S EAST	N WEST	S EAST	
SD SB			N WEST	
NONE	4.84	5.46	5.13	5.94
TRI+FUB	5.03	5.76	5.40	5.90

VAR SB G	PROMIS	KEG		
POSITION	S EAST	N WEST	S EAST	
FS WB			N WEST	
NONE	4.64	5.10	4.74	5.18
TRI+FUB	5.04	5.36	5.22	5.80
FENPROP	5.13	5.77	5.89	6.66
PROPICON	4.97	6.57	6.28	6.26
NONE	4.76	5.52	4.75	6.00
TRI+FUB	5.09	5.36	4.71	5.64

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

TABLE	FS WB	SD SB	VAR SB	POSITION
SED	0.271	0.221	0.221	0.181

TABLE	FS WB	FS WB	SD SB	FS WB
	SD SB	VAR SB	VAR SB	POSITION

SED	0.383	0.383	0.313	0.350
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
FS WB				0.313

83/W/B/1 WINTER BARLEY

GRAIN TONNES/HECTARE

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

TABLE	SD SB POSITION	VAR SB POSITION	FS WB SD SB VAR SB	FS WB SD SB POSITION
SED	0.286	0.286	0.542	0.495
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
SD SB	0.256			
VAR SB		0.256		
FS WB.SD SB				0.443

TABLE	FS WB VAR SB POSITION	SD SB VAR SB POSITION	FS WB SD SB VAR SB POSITION
SED	0.495	0.404	0.700
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
FS WB.VAR SB	0.443		
SD SB.VAR SB		0.362	
FS WB.SD SB.VAR SB			0.627

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

STRATUM	DF	SE	CV%
BLOCK.WP	11	0.542	10.0
BLOCK.WP.SP	12	0.627	11.5

GRAIN MEAN DM% 86.9

SUB PLOT AREA HARVESTED 0.00220

83/W/B/1 SPRING BARLEY

GRAIN TONNES/HECTARE

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

VAR SB	G PROMIS	KEG	MEAN			
SD SB						
NONE	3.47	5.04	4.25			
TRI+FUB	3.73	5.25	4.49			
MEAN	3.60	5.14	4.37			
FS WB	NONE	FENPROP	PROPICON	MEAN		
SD SB						
NONE	4.30	4.30	4.16	4.25		
TRI+FUB	4.83	4.38	4.26	4.49		
MEAN	4.57	4.34	4.21	4.37		
FS WB	NONE	FENPROP	PROPICON	MEAN		
VAR SB						
G PROMIS	3.97	3.42	3.40	3.60		
KEG	5.16	5.26	5.02	5.14		
MEAN	4.57	4.34	4.21	4.37		
VAR SB	G PROMIS	FENPROP	PROPICON	KEG	FENPROP	PROPICON
FS WB	NONE			NONE		
SD SB						
NONE	3.92	3.15	3.33	4.69	5.44	4.99
TRI+FUB	4.03	3.69	3.46	5.63	5.08	5.05

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

TABLE	SD SB	VAR SB	FS WB	SD SB VAR SB
SED	0.190	0.190	0.233	0.269
TABLE	SD SB FS WB	VAR SB FS WB	SD SB VAR SB FS WB	
SED	0.330	0.330	0.466	

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

STRATUM	DF	SE	CV%
BLOCK.WP	11	0.466	10.7
GRAIN MEAN DM%	87.2		
PLOT AREA HARVESTED	0.00220		