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# Yields of the Field Experiments 1976

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## 76/R/WW/1 and 76/W/WW/1 Varieties, N, Ccc and Fungicides - W. Wheat

### Rothamsted Research

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76/R/WW/1 and 76/W/WW/1

WINTER WHEAT

VARIETIES, N, CCC AND FUNGICIDES

Object: To study the yields and flour quality of a selection of the newer varieties of winter wheat and the effects of nitrogen, growth regulator, fungicides and aphicide on land in rotation (pathogen free) and after-cereal (pathogen infected) - Rothamsted Long Hoos I/II (pathogen free RH) and Long Hoos III (pathogen infected RD), Woburn Far-Field I (pathogen free WH).

Sponsors: R. Moffitt, J.F. Jenkyn, D.B. Slope.

Design: 4 randomised blocks of 8 plots split into 4 with confounding.

Whole plot dimensions: Long Hoos I/II (RH) & Long Hoos III (RD): 4.27 x 27.1  
Far Field (WH): 4.27 x 25.9

Treatments: Combinations of:-

Whole plots

1. VARIETY	Varieties:
AT	Atou
BO	Bouquet
CA	Cappelle
FL	Flinor (W only)
HO	Hobbit
FR	Maris Freeman
FU	Maris Fundin (R only)
HU	Maris Huntsman
ME	Mega

Sub plots

- |                |   |
|----------------|---|
| 2. N           | Nitrogen fertiliser (kg N):                                       |
| (RH) (RD)&(WH) | Long Hoos I/II (RH) Long Hoos III (RD) & Far Field I (WH)         |
| 0 63           | None 63 in spring   |
| 63 126         | 63 in spring 126 in spring  |
| 126 189        | 126 in spring 189 in spring                                       |
| 63+63 126+63   | 63 in spring + 126 in spring +<br>63 at flowering 63 at flowering |
- 
- |             |  |
|-------------|--|
| 3. GRWTHREG | Growth regulator, applied to (RH) & (RD) only: |
| NONE        | None   |
| CHLORMEQ    | Chlormequat (CCC) at 2.02 kg in 430 l          |
- 
- |                 |   |
|-----------------|---|
| 4. FUNGICIDE(1) | Fungicide to control eyespot, applied to (RD) only: |
| NONE            | None  |
| CARBENDA        | Carbendazim at 0.2 kg in 430 l on 21 May            |
- 
- |                 |  |
|-----------------|--|
| 5. FUNGICIDE(2) | Fungicide to control foliar diseases:  |
| NONE            | None   |
| C+C+T           | Carbendazim at 0.15 kg + captafol at 1.0 kg + tridemorph at 0.26 kg on 11 June |

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6. APHICIDE Aphicide at flowering, applied to (RH) only:

NONE None  
PIRIMICA Pirimicarb at 0.14 kg on 17 June

NOTE: Chloromequat was applied to 3 blocks on Long Hoos I/II (RH) on 7 May; and to the remaining block and Long Hoos III (RD) on 14 May.

Basal applications: Manures:

Long Hoos I/II (RH) and Long Hoos III (RD): (0:20:20) at 310 kg, combine drilled.

Far Field I (WH): (0:20:20) at 260 kg, combine drilled.

Weedkillers:

Long Hoos I/II (RH): Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l).

Long Hoos III (RD): Paraquat at 0.42 kg ion in 220 l. Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l).

Far Field I (WH): Ioxynil at 0.63 kg plus mecoprop at 1.9 kg in 280 l.

Seed: Long Hoos I/II (RH) and Long Hoos III (RD): Varieties sown at 200 kg.  
Far Field I (WH): Varieties sown at 210 kg.

NOTE: The variety Bouquet was resown at 190 kg on Far Field I, because the first sowing was damaged by birds.

Cultivations, etc.:-

Long Hoos I/II (RH): Heavy spring-tine cultivated twice: 17 Oct, 1975.

Seed sown: 24 Oct. Spring N applied: 6 Apr, 1976. Weedkiller applied: 13 Apr. Late N applied: 3 June. Combine harvested: 2 Aug. Previous crops: Beans 1974, potatoes 1975.

Long Hoos III (RD): Paraquat applied: 7 Oct, 1975. Ploughed: 11 Oct.

Heavy spring-tine cultivated: 16 Oct. Rotary harrowed: 21 Oct. Seed sown: 24 Oct. Spring N applied: 5 Apr, 1976. 'Banlene Plus' applied: 13 Apr. Late N applied: 3 June. Combine harvested: 3 Aug. Previous crops: Winter oats 1974, winter wheat 1975.

Far Field I: Deep-tine cultivated twice: 14 Oct, 20 Oct, 1975. Spring-tine cultivated, seed sown: 22 Oct. Plots sown to Bouquet spring-tine cultivated and resown: 8 Dec. Spring N applied: 1-5 Apr, 1976. Weedkiller applied: 21 Apr. Late N applied: 9 June. Combine harvested: 2 Aug. Previous crops: Beans 1974, potatoes 1975.

- NOTES: (1) Samples were taken in spring and summer, on Long Hoos III (RD) only, for estimates of eyespot (*Cercospora herpotrichoides*).  
(2) On Long Hoos III (RD) two plots with the following treatment combinations

VARIETY	BO	BO
N	126+63	126
GRWTH REG	NONE	CHLORMEQ
FUNGCIDE(1)	CARBENDA	NONE
FUNGCIDE(2)	NONE	NONE

were treated as missing because of a combine blockage at harvest. Estimated values were used in the analysis.

76/R/WW/1 LONG HOOS I/II (RH) PATHOGEN FREE

GRAIN TONNES/HECTARE

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

VARIETY	AT	BO	CA	HD	FR	FU	HU	ME	MEAN
N									
0	5.79	5.16	5.34	6.26	5.31	6.58	5.90	5.34	5.71
63	6.23	4.89	4.90	6.61	5.67	6.65	5.75	5.58	5.79
126	5.38	5.21	5.15	6.39	5.99	6.16	6.60	5.93	5.85
63+63	6.01	5.26	5.07	6.42	5.17	6.39	6.06	6.18	5.82
GRWTHREG									
NONE	5.78	5.40	4.98	6.37	5.61	6.60	6.15	5.69	5.82
CHLORMEQ	5.92	4.86	5.25	6.47	5.46	6.30	6.01	5.82	5.76
FUNGCIDE(2)									
NONE	5.89	5.15	5.22	6.76	5.82	6.51	6.11	6.00	5.93
C+C+T	5.81	5.11	5.00	6.08	5.26	6.38	6.05	5.52	5.65
APHICIDE									
NONE	5.68	5.03	5.05	6.21	5.65	6.35	5.91	5.82	5.71
PIRIMICA	6.02	5.23	5.18	6.64	5.42	6.55	6.25	5.69	5.87
MEAN	5.85	5.13	5.11	6.42	5.54	6.45	6.08	5.76	5.79

TABLE	N	GRWTHREG	FUNGCIDE(2)	APHICIDE
SED	0.168	0.119	0.119	0.119

TABLE	VARIETY	N	GRWTHREG	FUNGCIDE(2)
		VARIETY	VARIETY	VARIETY
SED	0.154	0.439	0.283	0.283
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
VARIETY		0.475	0.336	0.336

TABLE	APHICIDE
	VARIETY
SED	0.283
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:	
VARIETY	0.336

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

STRATUM	DF	SE	CV%
BLOCK.WP	17	0.218	3.8
BLOCK.WP.SP	40	0.672	11.6

GRAIN MEAN DM% 88.5

SUB PLOT AREA HARVESTED 0.00173

76/R/WW/1 LONG HOOS III (RD) PATHOGEN INFECTED

GRAIN TONNES/HECTARE

VARIETY	AT	BO	CA	HD	FR	FU	HU	ME	MEAN
N									
63	3.40	2.60	3.35	4.41	3.22	3.70	3.76	3.28	3.46
126	3.85	3.34	4.01	4.43	3.76	4.01	3.80	4.04	3.90
189	4.39	3.36	3.94	4.96	4.26	4.73	5.04	4.41	4.39
126+63	4.11	3.75	3.75	4.10	4.07	3.54	4.17	3.95	3.93
GRWTHREG									
NONE	3.91	3.18	3.92	4.34	3.62	4.13	4.22	3.85	3.90
CHLORMEQ	3.96	3.35	3.60	4.60	4.04	3.86	4.16	3.99	3.94
FUNGCIDE(1)									
NONE	3.98	3.11	3.75	4.45	4.09	3.92	4.12	3.82	3.91
CARBENDA	3.89	3.41	3.77	4.50	3.56	4.07	4.27	4.02	3.94
FUNGCIDE(2)									
NONE	3.93	3.29	3.64	4.59	3.86	4.07	4.15	3.84	3.92
C+C+T	3.94	3.24	3.88	4.36	3.79	3.92	4.23	4.00	3.92
MEAN	3.94	3.26	3.76	4.47	3.83	3.99	4.19	3.92	3.92

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

TABLE	N	GRWTHREG	FUNGCIDE(1)	FUNGCIDE(2)
SED	0.124	0.088	0.088	0.088

TABLE	VARIETY	N	GRWTHREG	FUNGCIDE(1)
		VARIETY	VARIETY	VARIETY
SED	0.233	0.382	0.291	0.291
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
VARIETY		0.350	0.248	0.248

TABLE	FUNGCIDE(2)
	VARIETY
SED	0.291
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:	
VARIETY	0.248

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

STRATUM	DF	SE	CV%
BLOCK.WP	17	0.329	8.4
BLOCK.WP.SP	38	0.496	12.6

GRAIN MEAN DM% 87.7

SUB PLOT AREA HARVESTED 0.00171

76/W/WW/1 FAR FIELD 1 (WH) PATHOGEN FREE

GRAIN TONNES/HECTARE

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

VARIETY	AT	BO	CA	FL	HD	FR	HU	ME	MEAN
N									
63	3.07	2.08	2.82	3.69	3.58	3.13	4.00	2.69	3.13
126	2.78	1.96	2.73	3.28	3.26	3.03	3.66	2.75	2.93
189	2.84	2.02	2.67	3.02	3.23	3.12	3.54	2.85	2.91
126+63	3.03	2.19	2.72	3.35	3.19	2.89	3.88	3.02	3.03
FUNGICIDE(2)									
NONE	2.99	2.10	2.70	3.47	3.38	2.98	3.78	2.83	3.03
C+C+T	2.86	2.02	2.77	3.19	3.25	3.10	3.75	2.83	2.97
MEAN	2.93	2.06	2.74	3.33	3.31	3.04	3.77	2.83	3.00

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

TABLE	N FUNGICIDE(2)	VARIETY
SED	0.071	0.378

TABLE	N FUNGICIDE(2)	
	VARIETY	VARIETY
SED	0.416	0.391
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:		
VARIETY	0.202	0.143

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

STRATUM	DF	SE	CV%
BLOCK.WP	14	0.534	17.8
BLOCK.WP.SP	48	0.285	9.5

GRAIN MEAN DM% 88.8

SUB PLOT AREA HARVESTED 0.00165