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# Yields of the Field Experiments 1972

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## 72/R/WW/1 and 72/W/WW/1 Winter Wheat Varieties and N

### Rothamsted Research

Rothamsted Research (1973) *72/R/WW/1 and 72/W/WW/1 Winter Wheat Varieties and N ; Yields Of The Field Experiments 1972*, pp 270 - 273 - DOI: <https://doi.org/10.23637/ERADOC-1-62>

72/R/WW/1 and 72/W/WW/1

WINTER WHEAT

VARIETIES AND N

**Object:** To study the yield of newer varieties of wheat grown at a range of nitrogen levels, on land in rotation or after several cereals. Nitrogen applied at flowering is also tested, and bread-making quality is determined. Rothamsted (R) Whittlocks (pathogen free) and Claycroft (pathogen infected) and Woburn (W) Great Hill II (pathogen free).

**Sponsors:** J.R. Moffatt, R. Moffitt.

**Design:** 3 randomised blocks of 8 plots, split into 4.

**Whole plot dimensions:** 4.27 x 27.1. Sub plot area harvested: 0.00173.

**Treatments:** All combinations of:-

**Whole plots:** 1. Varieties: Champlain (CH), Cama (CM), Cappelle (CP), Joss Cambier (JC), Maris Huntsman (MH), Maris Nimrod (MN), Maris Widgeon (MW), Tommy (TO).

**Sub plots:** 2. Levels of nitrogen (in kg N): 63, 126, 189 in spring, and 126 in spring plus 63 at flowering. All N as 'Nitro-Chalk'.

**Basal applications:**

**Manures:** Claycroft (R) and Whittlocks (R): 300 kg (0:20:20).

Great Hill II (W): 290 kg (0:20:20).

**Weedkillers:** Paraquat at 0.56 kg ion in 220 l to Claycroft (R) only. 2,4-D at 0.7 kg plus dichlorprop at 2.8 kg in 220 l (280 l on Great Hill II (W)) to Claycroft (R) and Great Hill II (W). MCPA, mecoprop and dicamba ('Banlene Plus' at 5.6 l in 220 l) to Whittlocks (R).

**Seed:** Varieties sown at 200 kg on Claycroft (R) and Whittlocks (R) and at 180 kg on Great Hill II (W).

**Cultivations, etc.:**

Claycroft (R): Paraquat applied: 28 Sept, 1971. Deep-tine cultivated on 3 occasions: 12, 22 and 25 Oct. Seed combine drilled: 27 Oct. N applied: 5 Apr, 1972. Weedkiller applied: 26 Apr. Late N applied: 15 June. Combine harvested: 30 Aug. Previous crops: Winter wheat 1970 and 1971.

72/R/WW/1 and 72/W/WW/1

Whittlocks (R): Deep-tine cultivated on 2 occasions: 25 and 26 Oct, 1971. Seed combine drilled: 28 Oct. N applied: 5 Apr, 1972. Weedkiller applied: 27 Apr. Late N applied: 15 June. Combine harvested: 30 Aug. Previous crops: Fallow 1970, potatoes 1971.

Great Hill II (W): Deep-tine cultivated on 2 occasions: 8 and 9 Oct, 1971. Seed combine drilled: 22 Oct. N applied: 17 Apr, 1972. Weedkiller applied: 27 Apr. Late N applied: 19 June. Combine harvested: 30 Aug. Previous crops: Fallow 1970, potatoes 1971.

Standard errors per plot. Grain, tonnes/hectare:

Whittlocks (R):	Whole plot: 0.398 or 6.0% (14 d.f.)
	Sub plot: 0.740 or 11.1% (48 d.f.)
Claycroft (R):	Whole plot: 0.449 or 7.3% (14 d.f.)
	Sub plot: 0.433 or 7.0% (44 d.f.)
Great Hill II (W):	Whole plot: 0.449 or 10.9% (14 d.f.)
	Sub plot: 0.444 or 10.8% (48 d.f.)

NOTE: On Claycroft (R) four plots of one block were damaged by cattle and yields were not taken. Estimated values were used in the analysis. The treatment combinations affected were:-

Variety	N
TO	126
CH	63
CM	63
MN	63

72/R/WW/1 and 72/W/WW/1

TABLES OF MEANS

GRAIN: TONNES/HECTARE

	VARIETY								Mean
	CH	CM	CP	JC	MH	MN	MW	TO	
WHITTLOCKS (R) PATHOGEN FREE									
N: KG/HA									
63	7.27	6.24	6.21	5.81	6.74	7.44	5.92	6.35	6.50
126	6.12	6.82	6.19	4.67	8.40	8.41	6.40	7.23	6.78
189	6.31	4.80	6.08	4.14	8.22	7.49	6.89	5.84	6.22
126+63	7.60	6.19	7.63	4.71	8.37	8.33	6.98	6.88	7.09
Mean	6.82	6.01	6.53	4.83	7.93	7.91	6.55	6.58	6.65

STANDARD ERRORS OF DIFFERENCES

VARIETY	NITROGEN	VARIETY NITROGEN
0.325	0.214	0.616
Unless same levels of VARIETY		0.604

Mean D.M. %: 84.1

	CLAYCROFT (R) PATHOGEN INFECTED								Mean
	CH	CM	CP	JC	MH	MN	MW	TO	
N: KG/HA									
63	5.62	5.24	5.28	5.35	6.06	6.80	5.55	5.71	5.70
126	6.56	5.68	5.91	5.58	7.11	7.02	6.20	6.60	6.33
189	6.13	5.71	5.54	4.80	7.32	7.52	6.36	5.89	6.16
126+63	7.09	5.59	5.86	5.49	7.81	7.70	6.03	6.50	6.51
Mean	6.35	5.56	5.65	5.30	7.07	7.26	6.03	6.17	6.17

STANDARD ERRORS OF DIFFERENCES

VARIETY	NITROGEN	VARIETY NITROGEN
0.366	0.125	0.477
Unless same levels of VARIETY		0.355

Mean D.M. %: 85.4

272

72/R/WW/1 and 72/W/WW/1

GRAIN: TONNES/HECTARE

GREAT HILL II (W) PATHOGEN FREE

	VARIETY								Mean
	CH	CM	CP	JC	MH	MN	MW	TO	
N: KG/HA									
63	4.16	3.62	4.85	3.66	4.33	4.65	4.06	4.15	4.19
126	4.75	3.10	4.99	3.69	4.55	4.42	4.69	4.02	4.28
189	5.07	2.73	3.84	2.96	3.54	4.61	3.90	3.22	3.73
126+63	5.25	3.38	4.62	3.36	4.62	4.70	4.51	3.58	4.25
Mean	4.81	3.21	4.57	3.42	4.26	4.59	4.29	3.74	4.11

STANDARD ERRORS OF DIFFERENCES

VARIETY	NITROGEN	VARIETY NITROGEN
0.367	0.128	0.483
Unless same levels of VARIETY		0.363

Mean D.M. %: 85.8