ROTHAMSTED RESEARCH

Yields of the Field Experiments 1976

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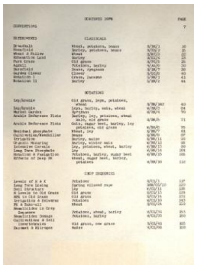

Annuals - Wheat

Rothamsted Research

Rothamsted Research (1977) *Annuals - Wheat ;* Yields Of The Field Experiments 1976, pp 251 - 293 **- DOI: https://doi.org/10.23637/ERADOC-1-15**

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 + 63 at flowering	126 in spring + 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. FUNGCIDE(1) — Fungicide to control eyespot, applied to (RD) only:

NONE	None
CARBENDA	Carbendazim at 0.2 kg in 430 l on 21 May

5. FUNGCIDE(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: Chlormequat 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): Paraquet 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 (Cercosporella 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.

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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 VARIETY	GRWTHREG VARIETY	FUNGCIDE(2) 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

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

GRAIN TONNES/HECTARE

VARIETY N	AT	BO	CA	HD	FR	FU	HU	ME	MEAN
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	3.96	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 VARIETY	GRWTHREG VARIETY	FUNGCIDE(1) 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

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

GRAIN TONNES/HECTARE

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

VARIETY N	AT	BO	CA	FL	HD	FR	HU	ME	MEAN
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
FUNGCIDE(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	FUNGCIDE(2)	VARIETY
SED	0.071	0.050	0.378

TABLE	N	FUNGCIDE(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

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76/R/WW/2 and 76/W/WW/2

WINTER WHEAT

AQUEOUS N AND NITRIFICATION INHIBITORS

Object: To study the effects of adding a range of nitrification inhibitors to aqueous urea and aqueous ammonia on the yield and nitrogen uptake of winter wheat - Rothamsted (R), Gt. Knott III and Woburn (W) Horsepool.

Sponsors: F.V. Widdowson, J. Ashworth, A. Penny, G.G. Briggs.

Design: 2 randomised blocks of 24 plots.

Whole plot dimensions: 2.44 x 12.2.

Treatments: All combinations of:-

1. N FORM — Form of aqueous nitrogen:

AMMONIA	Aqueous ammonia 26% N
UREA	Aqueous urea 18% N

2. N RATE — Rate of nitrogen (kg N):

(R)	(W)	(R)	(W)
70	60	70	60
100	90	100	90

3. NIT INHB — Nitrification inhibitors added to aqueous fertiliser:

NONE	None
CS2	Carbon disulphide at 11 kg
NITRAPYR	Nitrapyrin ('N-Serve') at 1.25 kg
AMM TRI	Ammonium trithiocarbonate at 16 kg

plus eight extra treatments given solid fertiliser, 'Nitro-Chalk', (kg N):-

NITRO CH	
0	0
50	50 (Woburn only)
60	60
70	70
80	80
90	90
100	100
110	110
120	120 (Rothamsted only)

NOTE: Aqueous nitrogen was applied by injectors spaced 30 cm apart 10.2 cm deep.

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Basal applications:-
Gt Knott III (R): Manures: (0:20:20) at 310 kg, combine drilled. Weedkillers: Paraquat at 0.42 kg ion in 220 l. Ioxynil at 0.53 kg plus mecoprop at 1.6 kg in 220 l. Growth regulator: Chlormequat at 1.7 kg in 220 l.
Horsepool (W): Manures: (0:20:20) at 250 kg, combine drilled. Weedkillers: Ioxynil at 0.63 kg plus mecoprop at 1.9 kg in 280 l. Growth regulator: Chlormequat at 1.7 kg in 280 l.

Seed: Gt Knott III (R): Maris Huntsman, sown at 200 kg.
Horsepool (W): Maris Huntsman, sown at 190 kg.

Cultivations, etc.:-
Gt Knott (R): Heavy spring-tine cultivated: 25 Sept, 1975. Paraquat applied: 6 Oct. Ploughed, rotary cultivated: 13 Oct. Seed sown: 14 Oct. Aqueous urea injected: 8 Mar, 1976. Aqueous ammonia injected: 9 Mar. Solid N treatments applied: 14 Apr. Ioxynil plus mecoprop applied: 22 Apr. Chlormequat applied: 7 May. Combine harvested:-22 July. Previous crops: Barley 1974, winter oats 1975.
Horsepool (W): Heavy spring-tine cultivated twice: 30, 31 Aug, 1975. Spring-tine cultivated: 3 Oct. Seed sown: 4 Oct. Aqueous urea and ammonia injected: 10 Mar, 1976. Solid N treatments applied: 13 Apr. Weedkiller applied: 21 Apr. Chlormequat applied: 4 May. Combine harvested: 23 July. Previous crops: Winter wheat 1974, beans 1975.

NOTES: (1) Soil samples were taken during the growing season to estimate rates of nitrification.
(2) Horsepool (W) after harvest the grain from one plot:- NITRO CH 70 was spilt, an estimated value was used in the analysis.

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76/R/WW/2 GREAT KNOTT III (R)

GRAIN TONNES/HECTARE

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

N RATE	70	100	MEAN
N FORM			
AMMONIA	4.78	5.08	4.93
UREA	4.99	5.27	5.13
MEAN	4.89	5.18	5.03

NIT INHB	NONE	CS2	NITRAPYR	AMM TRI	MEAN
N FORM					
AMMONIA	4.92	4.93	4.99	4.88	4.93
UREA	5.06	5.06	5.02	5.39	5.13
MEAN	4.99	5.00	5.00	5.14	5.03

NIT INHB	NONE	CS2	NITRAPYR	AMM TRI	MEAN
N RATE					
70	4.92	4.87	4.78	4.98	4.89
100	5.06	5.12	5.23	5.30	5.18
MEAN	4.99	5.00	5.00	5.14	5.03

	NIT INHB	NONE	CS2	NITRAPYR	AMM TRI
N FORM	N RATE				
AMMONIA	70	4.80	4.83	4.78	4.72
	100	5.04	5.03	5.21	5.04
UREA	70	5.05	4.91	4.78	5.23
	100	5.07	5.21	5.25	5.55

NITRO CH	0	60	70	80	90	100	110	120	MEAN
	3.30	4.47	4.65	5.02	4.93	5.11	5.30	5.18	4.74

GRAND MEAN 4.94

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

TABLE	NITRO CH	N FORM	N RATE	NIT INHB
SED	0.197	0.070	0.070	0.099

TABLE	N FORM N RATE	N FORM NIT INHB	N RATE NIT INHB	N FORM N RATE NIT INHB
SED	0.099	0.139	0.139	0.197

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

STRATUM	DF	SE	CV%
BLOCK.WP	23	0.197	4.0

GRAIN MEAN DM% 85.4

PLOT AREA HARVESTED 0.00186

https://doi.org/10.23637/ERADOC-1-15

76/W/WW/2 HORSEPOOL (W)

GRAIN TONNES/HECTARE

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

N RATE	60	90	MEAN
N FORM			
AMMONIA	3.90	3.86	3.88
UREA	4.15	3.97	4.06
MEAN	4.02	3.91	3.97

NIT INHB	NONE	CS2	NITRAPYR	AMM TRI	MEAN
N FORM					
AMMONIA	3.81	3.84	4.06	3.79	3.88
UREA	3.99	3.97	3.94	4.35	4.06
MEAN	3.90	3.90	4.00	4.07	3.97

NIT INHB	NONE	CS2	NITRAPYR	AMM TRI	MEAN
N RATE					
60	3.98	3.95	3.98	4.19	4.02
90	3.82	3.86	4.02	3.95	3.91
MEAN	3.90	3.90	4.00	4.07	3.97

N FORM	NIT INHB / N RATE	NONE	CS2	NITRAPYR	AMM TRI
AMMONIA	60	3.64	3.84	4.06	4.05
	90	3.99	3.84	4.06	3.53
UREA	60	4.32	4.05	3.90	4.33
	90	3.66	3.88	3.99	4.37

NITRO CH	0	50	60	70	80	90	100	110	MEAN
	3.63	3.88	3.92	4.66	3.81	3.92	4.12	4.40	4.04

GRAND MEAN 3.99

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

TABLE	NITRO CH	N FORM	N RATE	NIT INHB
SED	0.340	0.120	0.120	0.170

TABLE	N FORM N RATE	N FORM NIT INHB	N RATE NIT INHB	N FORM N RATE NIT INHB
SED	0.170	0.240	0.240	0.340

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

STRATUM	DF	SE	CV%
BLOCK.WP	22	0.340	8.5

GRAIN MEAN DM% 84.7

PLOT AREA HARVESTED 0.00186

https://doi.org/10.23637/ERADOC-1-15

76/R/WW/3 and 76/W/WW/3

WINTER WHEAT

GROWTH AND YIELD ON CONTRASTED SITES

Object: To study the growth and yield of wheat on sites at Rothamsted and Woburn. The effects of rates and times of application of nitrogen and irrigation are also studied - Rothamsted (R) Gt Knott I and Woburn (W) Butt Close III.

Sponsors: P.J. Welbank, F.V. Widdowson.

Design: Single replicate of 2 x 6 x 2 arranged as 12 whole plots split into 2.

Whole plot dimensio: Gt Knott I (R): 13.4 x 15.2.
Butt Close III (W): 14.3 x 14.5.

Treatments: All combinations of:-

Whole plots

1. IRRIGTN Irrigation:

NONE	None
FULL	Full irrigation

NOTE: Because of practical difficulties the amounts of water applied (see below) were less than intended.

2. N RATE Nitrogen fertiliser (kg N):

	R	W
0	0	0
25	25	-
50	50	50
75	75	75
100	100	100
125	125	125
150	-	150

3. N TIME Times of applying nitrogen fertiliser:

SINGLE	Single dressing in spring
DIVIDED	Half in spring, quarter four and eight weeks later

Irrigation treatments (mm water):

Gt Knott I (R):	2 June	25.4
	15 June	25.4
	7 July	19.0

	Total	69.8

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Butt Close III (W):

18 May	19.0	22 June	12.7
26-27 May	19.0	28-29 June	25.4
2-3 June	19.0	5-8 July	25.4
8-9 June	25.4	14-15 July	25.4
14-15 June	25.4		

Total 196.7

Basal applications:
Gt Knott I (R): Manures: (0:14:28) at 500 kg, combine drilled. Weedkillers: Ioxynil at 0.53 kg plus mecoprop at 1.6 kg in 220 l. Growth Regulator: Chlormequat at 2.8 kg in 220 l.
Butt Close III (W): Manures: (0:14:28) at 520 kg, combine drilled. Weedkiller: Ioxynil at 0.63 kg plus mecoprop at 1.9 kg in 280 l. Growth Regulator: Chlormequat at 1.7 kg in 280 l.

Seed: Both sites: Maris Huntsman, sown at 190 kg.

Cultivations, etc.:-
Gt Knott I (R): Ploughed: 17 Sept, 1975. Spring-tine cultivated three times: 16 Sept, 17 Sept, 10 Oct. Seed sown: 31 Oct. Weedkiller applied, first N treatment applied: 22 Apr, 1976. Chlormequat applied: 5 May. Second N treatment applied: 17 May. Third N treatment applied: 23 June. Combine harvested: 3 Aug. Previous crops: Barley 1974, beans 1975.
Butt Close III (W): Heavy spring-tine cultivated: 2 Sept, 1975. Deep-tine cultivated: 24 Sept. Rotary cultivated: 25 Oct. Spring-tine cultivated twice: 28 Oct, 30 Oct. Seed sown: 30 Oct. Weedkiller applied: 21 Apr, 1976. First N treatment applied: 23 Apr. Chlormequat applied: 4 May. Second N treatment applied: 19 May. Third N treatment applied: 14 June. Combine harvested: 30 July. Previous crops: Barley 1974, beans 1975.

NOTES: (1) Estimates were made of leaf areas and number of tillers and spikelets during the season. Root samples were taken on one occasion.
(2) Stomatal resistance and measurements of photosynthetic rates were made on Gt Knott I (R) only.
(3) Shoot samples were taken for N determinations.
(4) Soil water measurements were made weekly from April to July.
(5) The percentages of N, P and K in grain were measured.
(6) 1000 grain weights were determined.

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76/R/WW/3 GREAT KNOTT I(R)

GRAIN TONNES/HECTARE

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

N RATE / IRRIGTN	0	25	50	75	100	125	MEAN
NONE	4.49	4.00	4.82	4.74	5.05	4.80	4.65
FULL	3.87	4.95	5.29	4.59	5.19	5.49	4.90
MEAN	4.18	4.48	5.05	4.66	5.12	5.14	4.77

EXCLUDING N RATE 0

N TIME / IRRIGTN	SINGLE	DIVIDED	MEAN
NONE	4.51	4.86	4.68
FULL	5.59	4.62	5.10
MEAN	5.05	4.74	4.89

N TIME / N RATE	SINGLE	DIVIDED	MEAN
25	4.42	4.54	4.48
50	5.11	5.00	5.05
75	4.26	5.07	4.66
100	5.63	4.61	5.12
125	5.82	4.47	5.14
MEAN	5.05	4.74	4.89

N RATE	IRRIGTN / N TIME	NONE	FULL
25	SINGLE	3.28	5.55
	DIVIDED	4.73	4.35
50	SINGLE	4.50	5.72
	DIVIDED	5.13	4.86
75	SINGLE	3.77	4.74
	DIVIDED	5.71	4.44
100	SINGLE	5.50	5.76
	DIVIDED	4.60	4.63
125	SINGLE	5.47	6.16
	DIVIDED	4.13	4.81

GRAIN MEAN DM% 88.2

PLOT AREA HARVESTED 0.00434

https://doi.org/10.23637/ERADOC-1-15

76/R/WW/3 GREAT KNOTT I(R)

STRAW TONNES/HECTARE

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

N RATE / IRRIGTN	0	25	50	75	100	125	MEAN
NONE	2.71	2.77	3.18	2.86	2.98	3.59	3.02
FULL	2.79	3.51	3.28	3.17	3.84	3.54	3.36
MEAN	2.75	3.14	3.23	3.01	3.41	3.56	3.19

EXCLUDING N RATE 0

N TIME / IRRIGTN	SINGLE	DIVIDED	MEAN
NONE	3.09	3.07	3.08
FULL	3.54	3.40	3.47
MEAN	3.31	3.23	3.27

N TIME / N RATE	SINGLE	DIVIDED	MEAN
25	2.80	3.48	3.14
50	3.26	3.20	3.23
75	3.13	2.90	3.01
100	3.60	3.22	3.41
125	3.77	3.36	3.56
MEAN	3.31	3.23	3.27

N RATE / IRRIGTN	NONE	FULL
25 / SINGLE	2.28	3.32
25 / DIVIDED	3.26	3.70
50 / SINGLE	3.40	3.12
50 / DIVIDED	2.96	3.44
75 / SINGLE	2.86	3.40
75 / DIVIDED	2.86	2.94
100 / SINGLE	3.03	4.17
100 / DIVIDED	2.93	3.51
125 / SINGLE	3.85	3.68
125 / DIVIDED	3.32	3.40

STRAW MEAN DM% 93.3

PLOT AREA HARVESTED 0.00434

https://doi.org/10.23637/ERADOC-1-15

76/W/WW/3 BUTT CLOSE III(W)

GRAIN TONNES/HECTARE

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

N RATE / IRRIGTN	0	50	75	100	125	150	MEAN
NONE	1.13	2.25	2.02	2.61	1.87	1.96	1.97
FULL	3.07	4.32	4.20	4.96	4.42	3.64	4.10
MEAN	2.10	3.29	3.11	3.78	3.14	2.80	3.04

EXCLUDING N RATE 0

N TIME / IRRIGTN	SINGLE	DIVIDED	MEAN
NONE	2.03	2.25	2.14
FULL	4.56	4.06	4.31
MEAN	3.29	3.16	3.23

N TIME / N RATE	SINGLE	DIVIDED	MEAN
50	2.53	4.05	3.29
75	3.11	3.11	3.11
100	3.98	3.59	3.78
125	3.99	2.29	3.14
150	2.86	2.75	2.80
MEAN	3.29	3.16	3.23

N RATE	IRRIGTN / N TIME	NONE	FULL
50	SINGLE	1.35	3.71
	DIVIDED	3.16	4.94
75	SINGLE	1.95	4.27
	DIVIDED	2.09	4.13
100	SINGLE	3.35	4.61
	DIVIDED	1.87	5.31
125	SINGLE	2.25	5.74
	DIVIDED	1.49	3.10
150	SINGLE	1.26	4.46
	DIVIDED	2.67	2.83

GRAIN MEAN DM% 85.5

PLOT AREA HARVESTED 0.00408

https://doi.org/10.23637/ERADOC-1-15

76/W/WW/3 BUTT CLOSE III(W)

STRAW TONNES/HECTARE

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

	MEAN						
N RATE	0	50	75	100	125	150	MEAN
IRRIGTN							
NONE	0.54	1.24	1.36	1.41	1.31	1.38	1.21
FULL	1.85	3.35	2.77	3.88	4.36	3.40	3.27
MEAN	1.20	2.30	2.07	2.65	2.83	2.39	2.24

EXCLUDING N RATE 0

N TIME	SINGLE	DIVIDED	MEAN
IRRIGTN			
NONE	1.39	1.29	1.34
FULL	3.50	3.60	3.55
MEAN	2.45	2.45	2.45

N TIME	SINGLE	DIVIDED	MEAN
N RATE			
50	2.07	2.52	2.30
75	2.13	2.01	2.07
100	2.27	3.03	2.65
125	3.47	2.20	2.83
150	2.29	2.49	2.39
MEAN	2.45	2.45	2.45

	IRRIGTN	NONE	FULL
N RATE	N TIME		
50	SINGLE	1.09	3.05
	DIVIDED	1.39	3.65
75	SINGLE	1.34	2.91
	DIVIDED	1.37	2.64
100	SINGLE	1.62	2.91
	DIVIDED	1.20	4.85
125	SINGLE	1.61	5.34
	DIVIDED	1.02	3.37
150	SINGLE	1.29	3.30
	DIVIDED	1.48	3.50

STRAW MEAN DM% 93.4

PLOT AREA HARVESTED 0.00408

https://doi.org/10.23637/ERADOC-1-15

76/B/WW/4

WINTER WHEAT

SOWING DATES AND INSECTICIDES

Object: To study the effects of dates of sowing and times of applying insecticides on the incidence of cereal aphids, barley yellow dwarf virus(BYDV) and yield of winter wheat - Great Knott I.

Sponsor: R.T. Plumb.

Design: 4 randomised blocks of 12 plots.

Whole plot dimensions: 6.40 x 22.9.

Treatments: All combinations of:-

1. SOW DATE Dates of sowing:

26 SEPT	26 September 1975
20 OCT	20 October
24 NOV	24 November

2. INSCTCDE(1) Phorate granules to seedbed:

NONE	None
PHORATE	Phorate at 5 kg

3. INSCTCDE(2) Menazon spray:

NONE	None
MENAZON	Menazon (0.7 l 'Saphi-Col' in 220 l on 14 May, 1976)

Basal applications: (0:20:20) at 310 kg, combine drilled. 'Nitro-Chalk' at 380 kg. Weedkillers: Ioxynil at 0.53 kg with mecoprop at 1.6 kg (both as the potassium salt) in 220 l.

Seed: Cappelle, sown at 190 kg.

Cultivations, etc.:- Ploughed: 7 Sept, 1975. Spring-tine cultivated twice: 17 Sept. Phorate applied to early-sown plots: 19 Sept. Power harrowed these plots only: 22 Sept. Early plots sown: 26 Sept. Phorate to middle-sown plots and these plots only rotary cultivated and sown: 20 Oct. Phorate to late-sown plots, rotary cultivated and sown: 24 Nov. N applied to all plots: 9 Apr, 1976. Weedkiller applied: 10 Apr. Combine harvested: 30 July. Previous crops: Barley 1974, beans 1975.

NOTE: Emergence counts were made. Aphids were counted on six occasions from May to July. Ladybirds were counted in June and tiller numbers in late July.

https://doi.org/10.23637/ERADOC-1-15

76/R/WW/4

GRAIN TONNES/HECTARE

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

INSCTCDE(2) / INSCTCDE(1)	NONE	MENAZON	MEAN
NONE	4.25	4.33	4.29
PHORATE	4.55	4.52	4.53
MEAN	4.40	4.42	4.41

SOW DATE / INSCTCDE(1)	26 SEPT	20 OCT	24 NOV	MEAN
NONE	4.30	4.73	3.84	4.29
PHORATE	4.56	5.05	4.00	4.53
MEAN	4.43	4.89	3.92	4.41

SOW DATE / INSCTCDE(2)	26 SEPT	20 OCT	24 NOV	MEAN
NONE	4.41	4.87	3.92	4.40
MENAZON	4.44	4.91	3.92	4.42
MEAN	4.43	4.89	3.92	4.41

INSCTCDE(2)	NONE			MENAZON		
SOW DATE / INSCTCDE(1)	26 SEPT	20 OCT	24 NOV	26 SEPT	20 OCT	24 NOV
NONE	4.23	4.67	3.86	4.36	4.79	3.83
PHORATE	4.60	5.07	3.99	4.52	5.03	4.01

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

TABLE	INSCTCDE(1)	INSCTCDE(2)	SOW DATE	INSCTCDE(1) INSCTCDE(2)
SED	0.054	0.054	0.066	0.076

TABLE	INSCTCDE(1) SOW DATE	INSCTCDE(2) SOW DATE	INSCTCDE(1) INSCTCDE(2) SOW DATE
SED	0.093	0.093	0.132

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

STRATUM	DF	SE	CV%
BLOCK.WP	33	0.186	4.2

GRAIN MEAN DM% 88.1

PLOT AREA HARVESTED 0.00358

https://doi.org/10.23637/ERADOC-1-15

76/R/WW/5

WINTER WHEAT

FUNGICIDES

Object: To study the effects of a range of fungicides on control of foliar and root diseases and on yield of winter wheat - Long Heos III.

Sponsors: J.F. Jenkyn, R.D. Prew.

Design: 3 randomised blocks of 12 plots.

Whole plot dimensions: 2.13 x 13.4.

Treatments: All combinations of:-

1. F FORM — Fungicides, applied as foliar sprays:

ME 125	'ME 125' at 0.37 l a.i.
MEB 6447	'MEB-6447' (Triadimefon at 0.25 kg)
S	Wettable sulphur at 2.4 kg

2. F TIME — Times of applying foliar fungicides:

E	Early (14 May, 1976, growth stage 6-7)
L	Late (15 June, growth stage 10.5.2)
E+L	Early plus late

EXTRA — Plus two extra treatments:

NONE	None (2 plots/block)
U 34910	Seed dressed with 'U-34,910' at 2.23 g a.i. per kg seed

NOTE: Sprays were applied in 340 l.

Basal applications: Manures: (10:24:24) at 250 kg, combine drilled, 'Nitro-Chalk' at 380 kg. Weedkillers: Paraquat at 0.42 kg ion in 220 l. Chlortoluron at 2.7 kg in 220 l. Dicamba with mecoprop and MCPA. ('Banlene Plus' at 5.6 l in 220 l).

Seed: Cama, sown at 190 kg.

Cultivations, etc.:- Paraquat applied to stubble: 7 Oct, 1975. Ploughed: 11 Oct. Heavy spring-tine cultivated: 16 Oct. Seed sown: 6 Nov. Chlortoluron applied: 23 Mar, 1976. N applied to all plots: 6 Apr. 'Banlene Plus' applied: 13 Apr. Combine harvested: 2 Aug. Previous crops: Oats 1974, wheat 1975.

NOTE: Mildew was assessed twice and samples were taken for root disease assessments.

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76/R/WW/5

WINTER WHEAT

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

F TIME / F FORM	E	L	E+L	MEAN
ME 125	3.41	2.72	3.04	3.05
MEB 6447	3.12	2.92	3.66	3.23
S	2.87	2.94	2.87	2.89
MEAN	3.13	2.86	3.19	3.06

EXTRA	NONE	U 34910	MEAN
	2.78	2.38	2.64

GRAND MEAN 2.96

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

TABLE	EXTRA	F FORM	F TIME	F FORM F TIME
SED	0.204	0.136	0.136	0.235

SED OF F FORM.F TIME v EXTRA NONE 0.204
SED OF F FORM.F TIME v EXTRA U 34910 0.235

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

STRATUM	DF	SE	CV%
BLOCK.WP	23	0.288	9.8

GRAIN MEAN DM% 89.0

PLOT AREA HARVESTED 0.00195

https://doi.org/10.23637/ERADOC-1-15 *pp 20*

76/R/WW/6

WINTER WHEAT

VARIETIES AND RATES OF N

Object: To study the physiological basis of the response of three varieties of winter wheat to a wide range of nitrogen rates - Long Hoos VI/VII 5.

Sponsor: G.N. Thorne.

Design: 2 randomised blocks of 24 plots.

Whole plot dimensions: 1.65 x 9.14.

Treatments: All combinations of:-

1. VARIETY Varieties:

CAPPELLE	Cappelle
HOBBIT	Hobbit
HUNTSMAN	Maris Huntsman

2. N Nitrogen fertiliser (kg N):

0	None
30	30
60	60
90	90
120	120
150	150
180	180
210	210

Basal applications: Manures: (0:14:28) at 880 kg. Weedkiller: Terbutryne at 2.2 kg in 340 . Fungicide: Tridemorph at 0.53 kg in 340 l. Insecticide: Pirimicarb at 0.14 kg in 340 l.

Seed: Varieties sown at 200 kg.

Cultivations, etc.:- Spring-tine cultivated: 15 Sept, 1975. PK applied: 24 Sept. Ploughed: 29 Sept. Power harrowed and seed sown: 20 Oct. Weedkiller applied: 24 Oct. Test N applied: 6 May, 1976. Fungicide applied: 10 June. Insecticide applied: 22 June. Harvested by hand: 21 July. Previous crops: Maize 1974, oats 1975.

NOTE: Plant counts were made after germination and shoot counts throughout the season. Dry weights and leaf areas were determined on five occasions in June and July. Soil moisture was measured from February to July. Light penetration of the canopy was measured in June and July. Rates of photosynthesis and translocation were measured once in May, June and July. Photorespiration was measured ten times from May to July and dark-respiration of shoots and ears in June and July. The N contents of the green crop at flowering and of the grain and straw at maturity were measured.

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76/R/WW/6

GRAIN TONNES/HECTARE

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

N VARIETY	0	30	60	90	120	150	180	210	MEAN
CAPPELLE	2.85	3.55	3.96	3.89	4.03	4.28	4.39	4.51	3.93
HOBBIT	3.54	3.99	4.66	4.75	4.94	5.07	5.81	4.96	4.71
HUNTSMAN	3.85	3.60	3.83	4.67	4.53	4.50	4.83	4.57	4.30
MEAN	3.41	3.71	4.15	4.44	4.50	4.62	5.01	4.68	4.32

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

TABLE	VARIETY	N	VARIETY N
SED	0.104	0.170	0.295

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

STRATUM	DF	SE	CV%
BLOCK.WP	23	0.295	6.8

GRAIN MEAN DM% 90.4

PLOT AREA HARVESTED 0.00023

https://doi.org/10.23637/ERADOC-1-15

76/R/WW/7

WINTER WHEAT

RATES AND TIMES OF N AND K

Object: To study the effects of a range of rates and times of applying nitrogen and potassium on nutrient uptake and yield of winter wheat - Gt. Knott III.

Sponsors: O. Talibudeen, A. Penny, M. Page.

Design: Single replicate of 4 x 4 x 2 x 3 fully randomised plus 3 randomised blocks of 8 plots.

Whole plot dimensions: 2.67 x 4.57.

Treatments: All combinations of:-

1. N METHOD — Rates, forms and times of applying nitrogen (kg N):

	'Nitro-Chalk' at G.S.2 (9 Apr)		Urea spray at G.S.6 (11-13 May)		Urea spray at G.S.11 (28-30 June)
120 0 30	120	+	0	+	30
120 0 60	120	+	0	+	60
120 0 90	120	+	0	+	90
120 30 0	120	+	30	+	0
120 30 30	120	+	30	+	30
120 30 60	120	+	30	+	60
120 30 90	120	+	30	+	90
120 60 0	120	+	60	+	0
120 60 30	120	+	60	+	30
120 60 60	120	+	60	+	60
120 60 90	120	+	60	+	90
120 90 0	120	+	90	+	0
120 90 30	120	+	90	+	30
120 90 60	120	+	90	+	60
120 90 90	120	+	90	+	90

2. N CONC — Concentration of nitrogen in urea spray:-

2.5	2.5%
5.0	5.0%

3. K CONC — Concentration of potassium in urea spray, K:N atom ratio:

0	None
5	5%
10	10%

EXTRA — plus nine extra treatments given 'Nitro-Chalk' only, in spring at Growth Stage 2 (kg N) (9 Apr):

0	None
30	30
60	60
90	90
120 (duplicated)	120
150	150
180	180
240	240
300	300

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NOTE: Urea sprays were applied in 600 l to provide 30 kg N at N CONC 5.0 and in 1200 l to provide N CONC 2.5. The larger rates of urea were obtained by proportionate increases in volume.

Basal applications: Manures: (0:20:20) at 310 kg, combine drilled. Weedkillers: Paraquat at 0.42 kg ion in 220 l. Ioxynil at 0.53 kg with mecoprop at 1.6 kg (both as the potassium salt) in 220 l in spring. Fungicides: Tridemorph at 0.53 kg in 280 l. Benomyl at 0.28 kg with mancozeb plus maneb ('Kascade' at 2.2 kg) in 280 l. Insecticide: Pirimicarb at 0.14 kg in 280 l.

Seed: Cappelle, sown at 200 kg.

Cultivations, etc.:- Heavy spring-tine cultivated: 24 Sept, 1975. Paraquat applied: 6 Oct. Ploughed and rotary harrowed: 13 Oct. Seed sown: 14 Oct. Spring weedkiller applied: 22 Apr, 1976. Tridemorph applied: 29 Apr, 11 May. Benomyl with 'Kascade' applied, pirimicarb applied: 21 June. Combine harvested: 22 July. Previous crops: Barley 1974, winter oats 1975.

GRAIN TONNES/HECTARE

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

N CONC / N METHOD	2.5	5.0	MEAN
120 0 30	4.90	4.76	4.83
120 0 60	4.70	4.73	4.71
120 0 90	4.88	4.66	4.77
120 30 0	4.88	4.77	4.83
120 30 30	5.09	4.98	5.03
120 30 60	4.86	5.06	4.96
120 30 90	4.86	4.91	4.88
120 60 0	5.11	5.15	5.13
120 60 30	5.13	5.02	5.07
120 60 60	5.28	4.74	5.01
120 60 90	5.07	5.09	5.08
120 90 0	5.24	5.15	5.19
120 90 30	5.00	4.96	4.98
120 90 60	5.20	5.01	5.11
120 90 90	4.87	5.13	5.00
MEAN	5.00	4.94	4.97

https://doi.org/10.23637/ERADOC-1-15

76/R/WW/7

GRAIN TONNES/HECTARE

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

K CONC / N METHOD	0	5	10	MEAN
120 0 30	4.58	4.79	5.10	4.83
120 0 60	4.53	4.75	4.86	4.71
120 0 90	4.86	4.87	4.58	4.77
120 30 0	4.88	4.91	4.69	4.83
120 30 30	5.14	5.12	4.84	5.03
120 30 60	5.05	5.04	4.78	4.96
120 30 90	4.86	4.98	4.81	4.88
120 60 0	5.26	5.11	5.01	5.13
120 60 30	4.90	5.08	5.24	5.07
120 60 60	5.09	5.09	4.85	5.01
120 60 90	5.13	4.96	5.15	5.08
120 90 0	5.48	4.88	5.22	5.19
120 90 30	4.65	5.25	5.03	4.98
120 90 60	4.94	5.36	5.01	5.11
120 90 90	5.15	4.86	4.97	5.00
MEAN	4.97	5.00	4.94	4.97

K CONC / N CONC	0	5	10	MEAN
2.5	5.02	5.03	4.96	5.00
5.0	4.92	4.98	4.92	4.94
MEAN	4.97	5.00	4.94	4.97

EXTRA	0	30	60	90	120	150	180	240	300	MEAN
	3.25	3.45	4.30	4.47	4.89	5.22	4.79	5.29	5.06	4.56

GRAND MEAN 4.87

TABLE	N METHOD	N CONC	K CONC	EXTRA	
SED				0.215	MIN REP
	0.152	0.056	0.068	0.187	MAX-MIN

TABLE	N METHOD N CONC	N METHOD K CONC	N CONC K CONC
SED	0.215	0.263	0.096

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

STRATUM	DF	SE	CV%
BLOCK.WP	47	0.264	5.4

EXTRA
MAX-MIN 120 V ANY OF REMAINDER
MIN REP ANY OF REMAINDER

GRAIN MEAN DM% 82.5

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76/R/WW/7

STRAW TONNES/HECTARE

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

N CONC / N METHOD	2.5	5.0	MEAN
120 0 30	5.99	5.92	5.95
120 0 60	5.48	5.62	5.55
120 0 90	6.09	5.85	5.97
120 30 0	5.56	6.04	5.80
120 30 30	6.08	6.07	6.08
120 30 60	5.98	6.05	6.01
120 30 90	5.88	5.75	5.82
120 60 0	6.07	6.31	6.19
120 60 30	6.01	6.12	6.07
120 60 60	6.07	5.82	5.95
120 60 90	6.36	6.35	6.35
120 90 0	6.52	6.19	6.35
120 90 30	6.20	5.96	6.08
120 90 60	6.23	5.74	5.99
120 90 90	6.10	5.96	6.03
MEAN	6.04	5.98	6.01

K CONC / N METHOD	0	5	10	MEAN
120 0 30	5.51	6.14	6.21	5.95
120 0 60	5.30	5.84	5.51	5.55
120 0 90	6.00	6.58	5.33	5.97
120 30 0	5.91	5.78	5.71	5.80
120 30 30	6.04	6.24	5.96	6.08
120 30 60	6.12	5.99	5.93	6.01
120 30 90	5.87	5.52	6.06	5.82
120 60 0	6.49	6.12	5.96	6.19
120 60 30	6.24	5.99	5.98	6.07
120 60 60	6.16	5.85	5.83	5.95
120 60 90	6.54	6.24	6.27	6.35
120 90 0	6.30	6.14	6.62	6.35
120 90 30	5.58	6.35	6.31	6.08
120 90 60	5.72	5.98	6.26	5.99
120 90 90	6.19	5.64	6.27	6.03
MEAN	6.00	6.03	6.01	6.01

K CONC / N CONC	0	5	10	MEAN
2.5	5.95	6.09	6.09	6.04
5.0	6.05	5.97	5.94	5.98
MEAN	6.00	6.03	6.01	6.01

EXTRA	0	30	60	90	120	150	180	240	300	MEAN
	4.05	4.50	4.89	5.40	5.99	5.92	6.40	6.21	6.99	5.63

GRAND MEAN 5.92

STRAW MEAN DM% 89.6

PLOT AREA HARVESTED 0.00073

https://doi.org/10.23637/ERADOC-1-15 *pp 26*

76/R/WW/8

WINTER WHEAT

FUNGICIDES AND GRAIN MICROFLORA

Object: To study the effects of a range of fungicides applied at a range of times on the yield, quality and grain microflora of winter wheat - Long Hoos IV 4.

Sponsor: R.A. Hill.

Design: Single replicate of 2 x 3 x 2 x 2 x 2 fully randomised.

Whole plot dimensions: 2.41 x 8.23.

Treatments: All combinations of:-

1. SPECFUNG — Specific fungicides for foliar pathogen control:

NONE	None
T+B	Tridemorph at 0.53 kg plus benodanil at 1.4 kg mixed and applied on 14 and 27 May

2. B S FUNG — Broad spectrum fungicides:

BENOMYL	Benomyl at 0.28 kg
CAPTAFOL	Captafol at 1.4 kg
BEN+CAP	Benomyl and captafol at above rates applied separately

3. APP TIME — Application of broad spectrum fungicides:

	3 June	24 June	8 July
NONE	None	None	None
E	Sprayed	None	None
M	None	Sprayed	None
L	None	None	Sprayed
E+M	Sprayed	Sprayed	None
E+L	Sprayed	None	Sprayed
M+L	None	Sprayed	Sprayed
E+M+L	Sprayed	Sprayed	Sprayed

NOTE: All sprays were applied in 340 l.

Basal applications: Manures: (0:14:28) at 880 kg. 'Nitro-Chalk' at 450 kg.

Seed: Cama, sown at 200 kg.

Cultivations, etc.:- PK applied: 23 Sept, 1975. Ploughed: 26 Sept. Power harrowed and sown: 14 Oct. N applied: 10 May, 1976. Combine harvested: 28 July. Previous crops: Spring wheat 1974, fallow 1975.

NOTE: Grain microflora were assessed at fortnightly intervals from late May to harvest. Mildew and rust were assessed on several occasions. Eyespot and glume blotch were assessed before harvest.

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76/R/WW/8

GRAIN TONNES/HECTARE

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

ALL PLOTS

APP TIME / SPECFUNG	NONE	E	M	L	E+M	E+L	M+L	E+M+L	MEAN
NONE	5.84	5.83	5.89	5.93	5.84	6.08	5.54	5.58	5.82
T+B	5.68	5.93	6.19	5.72	5.65	6.00	5.87	5.87	5.86
MEAN	5.76	5.88	6.04	5.82	5.75	6.04	5.70	5.73	5.84

EXCLUDING APP TIME NONE

APP TIME / B S FUNG	E	M	L	E+M	E+L	M+L	E+M+L	MEAN
BENOMYL	5.76	6.21	5.99	5.71	6.30	5.53	5.68	5.88
CAPTAFOL	5.98	5.60	6.26	5.54	5.83	5.73	5.57	5.79
BEN+CAP	5.90	6.31	5.21	5.98	6.01	5.85	5.93	5.89
MEAN	5.88	6.04	5.82	5.75	6.04	5.70	5.73	5.85

B S FUNG / SPECFUNG	BENOMYL	CAPTAFOL	BEN+CAP	MEAN
NONE	5.76	5.69	5.98	5.81
T+B	6.00	5.88	5.79	5.89
MEAN	5.88	5.79	5.89	5.85

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

TABLE	SPECFUNG	B S FUNG	APP TIME	SPECFUNG B S FUNG
SED	0.130 0.139*	0.170	0.260	0.241

TABLE	SPECFUNG APP TIME	B S FUNG APP TIME
SED	0.368	0.451

* USE ONLY WITH TABLES EXCLUDING APP TIME NONE

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

STRATUM	DF	SE	CV%
WP	16	0.451	7.7

GRAIN MEAN DM% 87.8

PLOT AREA HARVESTED 0.00111

https://doi.org/10.23637/ERADOC-1-15

76/R/WW/14

WINTER WHEAT

SEED RATES AND DIVIDED N DRESSINGS

Object: To study the separate and combined effects of a range of treatments on the growth and yield of winter wheat - White Horse II.

Sponsors: G.V. Dyke, J. McEwen, R. Moffitt, D.B. Slope.

Design: Single replicate of 2 x 2 x 2 x 2 x 6 plus 4 extra plots.

Whole plot dimensions: 2.67 x 8.53.

Treatments: All combinations of:-

1. VARIETY — Varieties:

CAPPELLE	Cappelle
HOBBIT	Hobbit

2. SEEDRATE — Seed rates:

HALF	Half standard (100 kg Cappelle; 83 kg Hobbit) (1.86 million/ha)
STANDARD	Standard (200 kg Cappelle; 166 kg Hobbit) (3.72 million/ha)

3. CCC — Chlormequat:

0.0	None
1.7	1.7 kg on 14 May

4. FUNGCIDE — Fungicide:

0	None
T+C+M	Tridemorph at 0.26 kg + carbendazim at 0.15 kg + maneb at 1.6 kg on 16 June

5. N — Nitrogen fertiliser, times and rates (kg N):

	1 March	13 April	27 May
1 1 1	25	25	25
1 2 1	25	50	25
0 2 0	0	50	0
0 3 0	0	75	0
0 4 0	0	100	0
0 2 1	0	50	25

EXTRA — plus four extra plots all sown at half standard seed rate, receiving chlormequat and the fungicidal mixture plus wettable sulphur at 2.66 kg a.i. in 340 l on 4 June:

C 111 S	Cappelle with N 1 1 1
C 121 S	Cappelle with N 1 2 1
H 111 S	Hobbit with N 1 1 1
H 121 S	Hobbit with N 1 2 1

https://doi.org/10.23637/ERADOC-1-15 *pp 29*

NOTES: (1) All sprays were applied in 340 l.
(2) One plot VARIETY CAPPELLE, SEEDRATE STANDARD, CCC 0.0, FUNGCIDE 0, N 0 2 1 received CCC 1.7 in error. An estimated value was used in the analysis.

Basal applications: Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l).

Cultivations, etc.:- Deep-tine cultivated and heavy spring-tine cultivated: 7 Oct, 1975. Heavy spring-tine cultivated: 15 Oct. Rotary harrowed: 17 Oct. Heavy spring-tine cultivated: 23 Oct. Seed sown: 28 Oct. Weedkiller applied: 20 Apr, 1976. Combine harvested: 3 Aug. Previous crops: Beans 1974 and 1975.

NOTE: Plant counts were made in late autumn and spring. Samples were taken for leaf area index, tiller numbers and dry weights in June. Samples were taken for grain weights, straw weights, 1000 grain weights and spikelet counts in late July.

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76/R/WW/14

GRAIN TONNES/HECTARE

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

SEEDRATE	HALF	STANDARD	MEAN
VARIETY			
CAPPELLE	3.99	4.75	4.37
HOBBIT	3.99	4.77	4.38
MEAN	3.99	4.76	4.37

CCC	0.0	1.7	MEAN
VARIETY			
CAPPELLE	4.41	4.33	4.37
HOBBIT	4.35	4.40	4.38
MEAN	4.38	4.37	4.37

CCC	0.0	1.7	MEAN
SEEDRATE			
HALF	4.05	3.93	3.99
STANDARD	4.71	4.81	4.76
MEAN	4.38	4.37	4.37

FUNGCIDE	0	T+C+M	MEAN
VARIETY			
CAPPELLE	4.24	4.50	4.37
HOBBIT	4.30	4.45	4.38
MEAN	4.27	4.48	4.37

FUNGCIDE	0	T+C+M	MEAN
SEEDRATE			
HALF	3.83	4.14	3.99
STANDARD	4.71	4.81	4.76
MEAN	4.27	4.48	4.37

FUNGCIDE	0	T+C+M	MEAN
CCC			
0.0	4.30	4.47	4.38
1.7	4.25	4.48	4.37
MEAN	4.27	4.48	4.37

N	1 1 1	1 2 1	0 2 0	0 3 0	0 4 0	0 2 1	MEAN
VARIETY							
CAPPELLE	4.23	4.27	4.59	4.37	4.30	4.49	4.37
HOBBIT	4.67	4.75	4.22	4.28	4.39	3.94	4.38
MEAN	4.45	4.51	4.41	4.32	4.34	4.22	4.37

https://doi.org/10.23637/ERADOC-1-15

76/R/WW/14

GRAIN TONNES/HECTARE

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

N	1 1 1	1 2 1	0 2 0	0 3 0	0 4 0	0 2 1	MEAN
SEEDRATE							
HALF	4.21	3.96	3.84	3.90	4.16	3.86	3.99
STANDARD	4.69	5.06	4.97	4.74	4.53	4.57	4.76
MEAN	4.45	4.51	4.41	4.32	4.34	4.22	4.37

N	1 1 1	1 2 1	0 2 0	0 3 0	0 4 0	0 2 1	MEAN
CCC							
0.0	4.50	4.41	4.48	4.42	4.22	4.26	4.38
0.7	4.41	4.60	4.34	4.23	4.47	4.17	4.37
MEAN	4.45	4.51	4.41	4.32	4.34	4.22	4.37

N	1 1 1	1 2 1	0 2 0	0 3 0	0 4 0	0 2 1	MEAN
FUNGCIDE							
0	4.31	4.39	4.62	4.20	4.23	3.90	4.27
T+C+M	4.59	4.62	4.20	4.45	4.46	4.53	4.48
MEAN	4.45	4.51	4.41	4.32	4.34	4.22	4.37

SEEDRATE	HALF		STANDARD	
CCC	0.0	1.7	0.0	1.7
VARIETY				
CAPPELLE	3.99	3.99	4.84	4.67
HOBBIT	4.10	3.87	4.59	4.94

SEEDRATE	HALF		STANDARD	
FUNGCIDE	0	T+C+M	0	T+C+M
VARIETY				
CAPPELLE	3.75	4.23	4.73	4.78
HOBBIT	3.92	4.05	4.69	4.84

CCC	0.0		1.7	
FUNGCIDE	0	T+C+M	0	T+C+M
VARIETY				
CAPPELLE	4.40	4.43	4.08	4.58
HOBBIT	4.19	4.51	4.42	4.39

CCC	0.0		1.7	
FUNGCIDE	0	T+C+M	0	T+C+M
SEEDRATE				
HALF	3.93	4.16	3.74	4.12
STANDARD	4.66	4.77	4.77	4.85

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76/R/WW/14

GRAIN TONNES/HECTARE

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

	N	1 1 1	1 2 1	0 2 0	0 3 0	0 4 0	0 2 1
VARIETY	SEEDRATE						
CAPPELLE	HALF	3.93	3.67	4.22	3.80	4.09	4.24
	STANDARD	4.53	4.86	4.97	4.93	4.50	4.74
HOBBIT	HALF	4.49	4.24	3.47	4.01	4.22	3.49
	STANDARD	4.86	5.25	4.97	4.55	4.56	4.40

	N	1 1 1	1 2 1	0 2 0	0 3 0	0 4 0	0 2 1
VARIETY	CCC						
CAPPELLE	0.0	4.44	4.24	4.61	4.48	4.09	4.63
	1.7	4.02	4.29	4.58	4.26	4.50	4.35
HOBBIT	0.0	4.55	4.58	4.35	4.36	4.35	3.89
	1.7	4.80	4.91	4.09	4.20	4.43	4.00

	N	1 1 1	1 2 1	0 2 0	0 3 0	0 4 0	0 2 1
SEEDRATE	CCC						
HALF	0.0	4.23	3.90	3.92	4.21	3.96	4.07
	1.7	4.19	4.01	3.77	3.59	4.35	3.66
STANDARD	0.0	4.76	4.93	5.04	4.62	4.48	4.45
	1.7	4.62	5.19	4.90	4.86	4.58	4.69

	N	1 1 1	1 2 1	0 2 0	0 3 0	0 4 0	0 2 1
VARIETY	FUNGCIDE						
CAPPELLE	0	4.29	3.98	4.79	4.18	4.19	4.03
	T+C+M	4.16	4.55	4.39	4.55	4.40	4.95
HOBBIT	0	4.33	4.80	4.44	4.22	4.26	3.78
	T+C+M	5.02	4.70	4.00	4.34	4.52	4.11

	N	1 1 1	1 2 1	0 2 0	0 3 0	0 4 0	0 2 1
SEEDRATE	FUNGCIDE						
HALF	0	4.14	3.82	4.09	3.91	3.81	3.24
	T+C+M	4.28	4.09	3.60	3.89	4.51	4.49
STANDARD	0	4.48	4.96	5.15	4.48	4.65	4.56
	T+C+M	4.91	5.16	4.79	5.00	4.41	4.58

	N	1 1 1	1 2 1	0 2 0	0 3 0	0 4 0	0 2 1
CCC	FUNGCIDE						
0.0	0	4.41	4.47	4.53	4.49	4.09	3.78
	T+C+M	4.58	4.35	4.43	4.34	4.36	4.75
1.7	0	4.21	4.30	4.71	3.90	4.36	4.03
	T+C+M	4.60	4.90	3.96	4.55	4.57	4.32

EXTRA	C 111 S	C 121 S	H 111 S	H 121 S	MEAN
	4.50	4.09	3.66	4.32	4.15

https://doi.org/10.23637/ERADOC-1-15 *pp 33*

76/R/WW/14

GRAIN TONNES/HECTARE

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

TABLE	VARIETY	SEEDRATE	CCC	FUNGCIDE
SED	0.134	0.134	0.134	0.134

TABLE	N	VARIETY SEEDRATE	VARIETY CCC	SEEDRATE CCC
SED	0.233	0.190	0.190	0.190

TABLE	VARIETY FUNGCIDE	SEEDRATE FUNGCIDE	CCC FUNGCIDE	VARIETY N
SED	0.190	0.190	0.190	0.329

TABLE	SEEDRATE N	CCC N	FUNGCIDE N	VARIETY SEEDRATE CCC
SED	0.329	0.329	0.329	0.269

TABLE	VARIETY SEEDRATE FUNGCIDE	VARIETY CCC FUNGCIDE	SEEDRATE CCC FUNGCIDE	VARIETY SEEDRATE N
SED	0.269	0.269	0.269	0.466

TABLE	VARIETY CCC N	SEEDRATE CCC N	VARIETY FUNGCIDE N	SEEDRATE FUNGCIDE N
SED	0.466	0.466	0.466	0.466

TABLE	CCC FUNGCIDE N
SED	0.466

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

STRATUM	DF	SE	CV%
WP	25	0.658	15.1

GRAIN MEAN DM% 87.8

PLOT AREA HARVESTED 0.00098

https://doi.org/10.23637/ERADOC-1-15 *pp 34*

76/R/WW/15

WINTER WHEAT

EFFECTS OF AUTUMN N ON BROADBALK

Object: To study the effects of applying nitrogen fertiliser in autumn, in addition to the classical treatments, on some of the Broadbalk plots - Broadbalk discards (see also 76/R/BK/1).

Sponsors: D.B. Slope, A.E. Johnston.

Design: Systematic 7 x 4 randomly split into 2.

Whole plot dimensions: 2.84 x 4.57.

Treatments: All combinations of:-

Whole plots

1. PLOT Fertiliser and organic manures:

	Plot	Treatments until 1967	Treatments from 1968
21DN2	21	D	DN2
22D	22	D	D
05MIN	05	PK Na Mg	PK (Na) Mg
06N1MIN	06	N1 PK Na Mg	N1 PK (Na) Mg
07N2MIN	07	N2 PK Na Mg	N2 PK (Na) Mg
08N3MIN	08	N3 PK Na Mg	N3 PK (Na) Mg
09N4MIN	09	N*1 PK Na Mg	N4 PK (Na) Mg

For explanation of symbols, basal applications and cultivations, etc. see 76/R/BK/1.

2. SEC CROP Section and previous crop:

0/1 W	Discards between Sections 0 and 1 - after wheat
5/6 F	Discards between Sections 5 and 6 - after fallow
6/7 F	Discards between Sections 6 and 7 - after fallow
9/ W	Discard on eastern end of Section 9 - after wheat

Sub plots

3. AUT N 'Nitro-Chalk' applied on 18 Nov, 1975 (kg N):

0	None
48(N2)	48

NOTES: (1) Harvested by hand: 22 July, 1976.
(2) Estimates of nitrate in stem tissues were made.

https://doi.org/10.23637/ERADOC-1-15 *pp 35*

76/R/WW/15

GRAIN TONNES/HECTARE

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

SEC CROP PLOT	0/1 W	5/6 F	6/7 F	9/ W	MEAN
21DN2	3.59	4.06	4.63	3.42	3.92
22D	4.02	3.90	4.37	3.46	3.94
05MIN	1.72	2.78	2.66	1.60	2.19
06N1MIN	2.24	3.69	3.60	2.91	3.11
07N2MIN	3.32	4.07	3.37	3.28	3.51
08N3MIN	3.37	3.38	3.75	3.21	3.43
09N4MIN	2.95	3.25	2.78	3.10	3.02
MEAN	3.03	3.59	3.59	2.99	3.30

AUT N PLOT	0	48(N2)	MEAN
21DN2	3.83	4.02	3.92
22D	3.78	4.10	3.94
05MIN	1.96	2.42	2.19
06N1MIN	2.94	3.28	3.11
07N2MIN	3.56	3.47	3.51
08N3MIN	3.47	3.38	3.43
09N4MIN	3.33	2.71	3.02
MEAN	3.27	3.34	3.30

AUT N SEC CROP	0	48(N2)	MEAN
0/1 W	2.95	3.11	3.03
5/6 F	3.44	3.74	3.59
6/7 F	3.69	3.49	3.59
9/ W	2.98	3.01	2.99
MEAN	3.27	3.34	3.30

PLOT	SEC CROP AUT N	0/1 W	5/6 F	6/7 F	9/ W
21DN2	0	3.64	4.19	4.05	3.43
	48(N2)	3.54	3.93	5.21	3.40
22D	0	3.94	3.31	4.61	3.26
	48(N2)	4.09	4.49	4.14	3.66
05MIN	0	1.42	2.54	2.48	1.39
	48(N2)	2.02	3.03	2.84	1.81
06N1MIN	0	2.08	3.54	3.51	2.65
	48(N2)	2.40	3.84	3.70	3.17
07N2MIN	0	3.09	4.08	3.57	3.49
	48(N2)	3.56	4.07	3.17	3.07
08N3MIN	0	3.38	3.14	4.06	3.29
	48(N2)	3.36	3.62	3.43	3.12
09N4MIN	0	3.13	3.26	3.58	3.34
	48(N2)	2.78	3.24	1.98	2.86

GRAIN MEAN DM% 89.0

https://doi.org/10.23637/ERADOC-1-15 *pp 36*

76/R/WW/15

STRAW TONNES/HECTARE

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

SEC CROP PLOT	0/1 W	5/6 F	6/7 F	9/ W	MEAN
21DN2	7.14	8.28	7.79	7.47	7.67
22D	8.43	8.80	9.01	7.27	8.38
05MIN	3.02	5.15	5.06	2.80	4.01
06N1MIN	4.44	6.74	5.91	4.80	5.47
07N2MIN	5.32	7.67	5.75	6.13	6.22
08N3MIN	6.13	6.87	5.99	6.25	6.31
09N4MIN	5.61	6.93	6.20	6.54	6.32
MEAN	5.73	7.21	6.53	5.89	6.34

AUT N PLOT	0	48(N2)	MEAN
21DN2	7.82	7.52	7.67
22D	8.30	8.45	8.38
05MIN	3.39	4.63	4.01
06N1MIN	5.06	5.88	5.47
07N2MIN	6.11	6.33	6.22
08N3MIN	6.41	6.21	6.31
09N4MIN	6.14	6.51	6.32
MEAN	6.18	6.50	6.34

AUT N SEC CROP	0	48(N2)	MEAN
0/1 W	5.40	6.05	5.73
5/6 F	7.21	7.21	7.21
6/7 F	6.42	6.64	6.53
9/ W	5.68	6.11	5.89
MEAN	6.18	6.50	6.34

PLOT	SEC CROP AUT N	0/1 W	5/6 F	6/7 F	9/ W
21DN2	0	7.04	8.29	8.31	7.64
	48(N2)	7.24	8.27	7.26	7.31
22D	0	7.98	9.66	9.00	6.57
	48(N2)	8.87	7.95	9.01	7.96
05MIN	0	2.24	4.64	4.36	2.30
	48(N2)	3.81	5.67	5.76	3.30
06N1MIN	0	4.00	6.28	5.58	4.39
	48(N2)	4.88	7.21	6.24	5.20
07N2MIN	0	4.69	7.77	5.75	6.21
	48(N2)	5.95	7.57	5.75	6.04
08N3MIN	0	6.12	7.04	6.23	6.26
	48(N2)	6.13	6.71	5.75	6.24
09N4MIN	0	5.71	6.76	5.68	6.39
	48(N2)	5.52	7.11	6.72	6.69

STRAW MEAN DM% 88.5

SUB PLOT AREA HARVESTED 0.00039

https://doi.org/10.23637/ERADOC-1-15 *pp 37*

76/R/WW/16

WINTER WHEAT

FACTORS LIMITING YIELD

Object: To study the effects of precision sowing and removal of factors liable to limit yield of wheat - Long Hoos I/II.

Sponsors: P.J. Welbank, F.V. Widdowson, J.F. Jenkyn.

Design: Single replicate of 4 x 3 plots fully randomised.

Whole plot dimensions: 2.67 x 9.14.

Treatments: All combinations of:-

1. TREATMNT Sowing method, seed rate, pathogen control:

P 120 C	Precision sown by hand, seeds spaced 6.3 cm x 6.3 cm (2.5 x 2.5 inches) (120 kg seed/ha), full pathogen control applied.
D 120 C	Sown by standard farm drill at 120 kg/ha in rows 17.8 cm (7 inches) apart, full pathogen control applied.
D 200 C	Sown by standard farm drill at 200 kg/ha in rows 17.8 cm (7 inches) apart, full pathogen control applied.
D 200 -	Sown by standard farm drill at 200 kg/ha in rows 17.8 cm (7 inches) apart, no pathogen control other than standard seed dressings.

NOTE: Full pathogen control included: Aldicarb to seedbed at 11.2 kg. Carbendazim at 0.15 kg with captafol at 1.0 kg and tridemorph at 0.26 kg in 340 l and pirimicarb at 0.14 kg in 340 l, applied on 15 June.

2. N Nitrogen fertiliser (kg N) on 27 Apr:

40	40
80	80
120	120

Basal applications: Manures: (0:14:28) at 500 kg. Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 220 l). Growth regulator: Chlormequat at 1.7 kg in 220 l.

Seed: Maris Huntsman.

Cultivations, etc.:- Heavy spring-tine cultivated twice: 17 Oct, 1975. PK applied: 20 Oct. Rotary cultivated: 22 Oct. Seed sown: 23 Oct. Weedkiller applied: 17 Apr, 1976. Growth regulator applied: 7 May. Combine harvested: 29 July. Previous crops: Beans 1974, potatoes 1975.

NOTE: Plant establishment counts were made. Shoot counts were made in May and June. Shoot numbers and components of yield were measured before harvest. Leaf diseases were assessed on one occasion.

https://doi.org/10.23637/ERADOC-1-15 *pp 38*

76/R/WW/16

GRAIN TONNES/HECTARE

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

TREATMNT N	P 120 C	D 120 C	D 200 C	D 200 -	MEAN
40	6.30	5.88	6.05	6.20	6.11
80	7.64	5.91	6.33	5.70	6.40
120	6.35	5.96	6.69	5.16	6.04
MEAN	6.77	5.92	6.36	5.69	6.18

GRAIN MEAN DM% 87.8

STRAW TONNES/HECTARE

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

TREATMNT N	P 120 C	D 120 C	D 200 C	D 200 -	MEAN
40	5.39	6.77	5.49	5.80	5.86
80	7.39	5.05	5.34	5.21	5.75
120	4.87	3.82	7.62	6.39	5.67
MEAN	5.88	5.21	6.15	5.80	5.76

STRAW MEAN DM% 88.6

PLOT AREA HARVESTED 0.00154

https://doi.org/10.23637/ERADOC-1-15 *pp 39*

76/S/WW/1

WINTER WHEAT

RATES AND TIMES OF N AND FUNGICIDE

Object: To study the effects of rates and times of solid and liquid nitrogen fertilisers and foliar pathogen control on foliar disease incidence and yield of winter wheat - Saxmundham, Grove Plot.

Sponsors: F.V. Widdowson, A. Penny.

Design: Single replicate of 4 x 2 x 2 x 2 fully randomised.

Whole plot dimensions: 6.10 x 3.04.

Treatments: All combinations of:-

1. S N RATE — Rates of solid nitrogen fertiliser ('Nitro-Chalk') (kg N):

0	None
50	50
100	100
150	150

2. S N TIME — Times of applying solid nitrogen fertiliser:

APRIL	21 April
MAY	18 May

3. L N RATE — Rates of liquid nitrogen fertiliser ('Agsol N26' - Urea + NH_4NO_3) (kg N):

0	None
25+25	25 on 15 June + 25 on 8 July

4. FUNGCIDE — Fungicides:

NONE	None
BE+MZ+MB	Benomyl + mancozeb + maneb on 18 May and 15 June

NOTE: Benomyl applied at 0.28 kg with mancozeb plus maneb ('Kascade' at 2.24 kg) in 380 l.

Basal applications: Manures: (20:10:10) at 310 kg. Weedkillers: Methabenzthiazuron at 3.1 kg in 380 l in autumn. Isoproturon at 2.2 kg with mecoprop at 0.63 kg plus ioxynil at 0.21 kg in 340 l in spring. Growth regulator: Chlormequat at 1.7 kg in 340 l.

Seed: Maris Huntsman, sown at 190 kg.

Cultivations, etc.:- Ploughed: 2 Oct, 1975. Seed sown and fertiliser applied: 14 Oct. Autumn weedkiller applied: 15 Oct. Spring weedkiller applied: 25 Mar, 1976. Growth regulator applied: 4 May. Combine harvested: 20 July. Previous crops: Beans 1975, barley 1974.

https://doi.org/10.23637/ERADOC-1-15 *pp 40*

76/S/WW/1

GRAIN TONNES/HECTARE

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

ALL PLOTS

S N RATE	0	50	100	150	MEAN
L N RATE					
0	6.15	6.46	6.68	6.86	6.54
25+25	6.27	6.69	6.36	6.73	6.51
MEAN	6.21	6.58	6.52	6.80	6.53

S N RATE	0	50	100	150	MEAN
FUNGCIDE					
NONE	6.33	6.52	6.60	6.61	6.51
BE+MZ+MB	6.10	6.63	6.45	6.99	6.54
MEAN	6.21	6.58	6.52	6.80	6.53

FUNGCIDE	NONE	BE+MZ+MB	MEAN
L N RATE			
0	6.63	6.45	6.54
25+25	6.39	6.64	6.51
MEAN	6.51	6.54	6.53

EXCLUDING S N RATE 0

S N RATE	50	100	150	MEAN
S N TIME				
APRIL	6.89	6.45	7.17	6.84
MAY	6.26	6.59	6.43	6.43
MEAN	6.58	6.52	6.80	6.63

L N RATE	0	25+25	MEAN
S N TIME			
APRIL	6.78	6.89	6.84
MAY	6.56	6.30	6.43
MEAN	6.67	6.59	6.63

FUNGCIDE	NONE	BE+MZ+MB	MEAN
S N TIME			
APRIL	6.61	7.06	6.84
MAY	6.54	6.32	6.43
MEAN	6.57	6.69	6.63

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GRAIN TONNES/HECTARE

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

TABLE	L N RATE	FUNGCIDE	S N RATE	S N TIME
SED	0.138 0.160*	0.138 0.160*	0.196	0.160

TABLE	L N RATE FUNGCIDE	S N RATE S N TIME	S N RATE L N RATE	S N TIME L N RATE
SED	0.196	0.276	0.276	0.226

TABLE	S N RATE FUNGCIDE	S N TIME FUNGCIDE
SED	0.276	0.226

* USE ONLY WITH TABLES EXCLUDING S N RATE 0

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

STRATUM	DF	SE	CV%
WP	13	0.391	6.0

GRAIN MEAN DM% 78.8

PLOT AREA HARVESTED 0.00089

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76/R/WS/1

SPRING WHEAT

FUNGICIDES AND GRAIN MICROFLORA

Object: To study the effects of a range of fungicides applied at a range of times on the yield, quality and grain microflora of spring wheat - Long Hoos V 1.

Sponsor: R.A. Hill.

Design: Single replicate of 2 x 3 x 2 x 2 x 2 fully randomised.

Whole plot dimensions: 2.41 x 8.23.

Treatments: All combinations of:-

1. SPECFUNG — Specific fungicides for foliar pathogen control:

NONE	None
T+B	Tridemorph at 0.53 kg plus benodanil at 1.4 kg, mixed and applied on 27 May

2. B S FUNG — Broad spectrum fungicides:

BENOMYL	Benomyl at 0.28 kg
CAPTAFOL	Captafol at 1.4 kg
BAYER	'Bayer 6447' (Triadimefon) at 0.25 kg a.i.

3. APP TIME — Application of broad spectrum fungicides:

	10 June	5 July	22 July
NONE	None	None	None
E	Sprayed	None	None
M	None	Sprayed	None
L	None	None	Sprayed
E+M	Sprayed	Sprayed	None
E+L	Sprayed	None	Sprayed
M+L	None	Sprayed	Sprayed
E+M+L	Sprayed	Sprayed	Sprayed

NOTE: All sprays were applied in 340 l.

Basal applications: Manures: (0:20:20) at 820 kg. 'Nitro-Chalk' at 450 kg.

Seed: Sappo, sown at 170 kg.

Cultivations, etc.:- PK applied: 8 Dec, 1975. Ploughed: 19 Dec. Spring-tine cultivated: 8 Mar, 1976. Seed sown, N applied: 9 Mar. Combine harvested: 30 July. Previous crops: Barley 1974, potatoes 1975.

NOTES: Grain microflora were assessed at fortnightly intervals from early June to harvest. Mildew and rust were assessed on several occasions.

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GRAIN TONNES/HECTARE

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

ALL PLOTS

APP TIME / SPECFUNG	NONE	E	M	L	E+M	E+L	M+L	E+M+L	MEAN
NONE	2.76	2.77	2.83	3.34	2.90	3.03	3.10	3.25	3.00
T+B	3.06	3.19	2.86	2.97	3.10	2.86	3.01	3.03	3.01
MEAN	2.91	2.98	2.85	3.15	3.00	2.95	3.05	3.14	3.00

EXCLUDING APP TIME NONE

B S FUNG / SPECFUNG	BENOMYL	CAPTAFOL	BAYER	MEAN
NONE	3.03	3.07	2.99	3.03
T+B	2.96	3.01	3.04	3.00
MEAN	3.00	3.04	3.01	3.02

APP TIME / B S FUNG	E	M	L	E+M	E+L	M+L	E+M+L	MEAN
BENOMYL	2.99	2.74	3.48	3.20	2.76	2.86	2.94	3.00
CAPTAFOL	3.00	2.89	3.03	2.87	2.91	3.29	3.30	3.04
BAYER	2.95	2.90	2.96	2.91	3.17	3.01	3.18	3.01
MEAN	2.98	2.85	3.15	3.00	2.95	3.05	3.14	3.02

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

TABLE	SPECFUNG	B S FUNG	APP TIME	SPECFUNG B S FUNG
SED	0.090 0.096*	0.118	0.180	0.166

TABLE	SPECFUNG APP TIME	B S FUNG APP TIME
SED	0.254	0.311

* USE ONLY WITH TABLES EXCLUDING APP TIME NONE

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

STRATUM	DF	SE	CV%
WP	16	0.311	10.4

GRAIN MEAN DM% 88.5

PLOT AREA HARVESTED 0.00111

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