ROTHAMSTED RESEARCH

Yields of the Field Experiments 1983

Annuals - Winter Wheat

Rothamsted Research

Rothamsted Research (1984) *Annuals - Winter Wheat ;* Yields Of The Field Experiments 1983, pp 189 - 241 **- DOI: https://doi.org/10.23637/ERADOC-1-44**

83/S/CS/1

FACTORS AFFECTING YIELD

Object: To study the effects of a range of factors on the yield of w. wheat - Saxmundham.

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

The 18th year, w. wheat.

For previous years see 66/C/30(t), 67/C/23(t), 68/C/39, 69-82/S/CS/1.

Design: The experiment was on two sites, one after beans and one after wheat. On each site the design was a half replicate of 2 x 2 x 2 x 4 x 2 arranged as 8 whole plots split into 4 sub-plots. One extra sub-plot was included in each whole plot.

Whole plot dimensions: Wheat after wheat: 8.53 x 18.3.
Wheat after beans: 6.20 x 30.0.

Treatments: On each site, combinations of:-

Whole plots

1. VARIETY	Varieties:
AVALON	
NORMAN	
2. AUT N	Nitrogen fertilizer to the seedbed in autumn on 29 Sept, 1982:
0	None
40	40 kg as 'Nitro-Chalk':
3. PATHCONT	Pest and pathogen control:
NONE	None
FULL	Benomyl at 0.28 kg with sulphur (as 'Thiovit' at 9.9 kg) in 220 l on 4 May, 1983. Propiconazole at 0.12 kg with sulphur (as 'Thiovit' at 9.9 kg) in 220 l on 25 May. Carbendazim at 0.15 kg, maneb at 1.6 kg and tridemorph at 0.37 kg with captafol at 1.0 kg and pirimicarb at 0.14 kg in 220 l on 22 June. Propiconazole at 0.12 kg in 220 l, to wheat after beans only, on 13 July.

Sub plots

4 N RATE — Total nitrogen fertilizer applied in spring (kg N) as 'Nitro-Chalk':

After wheat	After beans
160	100
190	130
220	160
250	190

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83/S/CS/1

5. N TIME — Times of applying spring nitrogen fertilizer:

SINGLE	All on 27 April
DIVIDED	40 kg N on 8 March, remainder on 27 April

plus whole plot treatments as above but given no spring nitrogen

Basal applications: Manures: (0:20:20) at 630 kg. Weedkillers: Chlortoluron at 3.5 kg with mecoprop, bromoxynil and ioxynil (as 'Brittox' at 3.5 l) in 220 l with the permethrin. Insecticide: Permethrin at 0.05 kg.

Seed: Varieties sown at 400 seeds per m^2.

Cultivations, etc.:- PK applied: 3 Sept, 1982. Ploughed: 15 Sept. Power harrowed, seed sown: 29 Sept. Weedkillers and insecticide applied: 28 Oct. Combine harvested: 9 Aug, 1983.

NOTE: Mineral N content of soil to 90 cm depth and the nitrate content of the crop were assessed in autumn and spring. N content of grain and N content of straw (except after wheat) were measured.

https://doi.org/10.23637/ERADOC-1-44

83/S/CS/1 WHEAT AFTER WHEAT

GRAIN TONNES/HECTARE

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

SPRING NITROGEN APPLIED

AUT N	0	40	MEAN
VARIETY			
AVALON	8.45	8.76	8.60
NORMAN	10.42	10.88	10.65
MEAN	9.43	9.82	9.63

PATHCONT	NONE	FULL	MEAN
VARIETY			
AVALON	8.60	8.61	8.60
NORMAN	10.31	11.00	10.65
MEAN	9.46	9.80	9.63

PATHCONT	NONE	FULL	MEAN
AUT N			
0	9.26	9.61	9.43
40	9.65	10.00	9.82
MEAN	9.46	9.80	9.63

N TIME	SINGLE	DIVIDED	MEAN
VARIETY			
AVALON	8.39	8.82	8.60
NORMAN	10.51	10.80	10.65
MEAN	9.45	9.81	9.63

N TIME	SINGLE	DIVIDED	MEAN
AUT N			
0	9.13	9.74	9.43
40	9.77	9.88	9.82
MEAN	9.45	9.81	9.63

N TIME	SINGLE	DIVIDED	MEAN
PATHCONT			
NONE	9.37	9.54	9.46
FULL	9.53	10.07	9.80
MEAN	9.45	9.81	9.63

N RATE	160	190	220	250	MEAN
VARIETY					
AVALON	8.30	8.51	8.63	8.97	8.60
NORMAN	10.42	10.52	10.79	10.89	10.65
MEAN	9.36	9.51	9.71	9.93	9.63

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83/S/CS/1 WHEAT AFTER WHEAT

GRAIN TONNES/HECTARE

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

SPRING NITROGEN APPLIED

N RATE	160	190	220	250	MEAN
AUT N					
0	8.95	9.28	9.56	9.94	9.43
40	9.76	9.75	9.87	9.91	9.82
MEAN	9.36	9.51	9.71	9.93	9.63

N RATE	160	190	220	250	MEAN
PATHCONT					
NONE	9.09	9.40	9.48	9.85	9.46
FULL	9.63	9.63	9.94	10.00	9.80
MEAN	9.36	9.51	9.71	9.93	9.63

N RATE	160	190	220	250	MEAN
N TIME					
SINGLE	9.18	9.30	9.57	9.75	9.45
DIVIDED	9.54	9.73	9.86	10.10	9.81
MEAN	9.36	9.51	9.71	9.93	9.63

NO SPRING NITROGEN

AUT N	0	40	MEAN
VARIETY			
AVALON	1.94	2.34	2.14
NORMAN	3.40	4.23	3.81
MEAN	2.67	3.28	2.97

PATHCONT	NONE	FULL	MEAN
VARIETY			
AVALON	2.25	2.02	2.14
NORMAN	3.40	4.23	3.81
MEAN	2.82	3.13	2.97

PATHCONT	NONE	FULL	MEAN
AUT N			
0	2.37	2.96	2.67
40	3.28	3.29	3.28
MEAN	2.82	3.13	2.97

GRAND MEAN 8.30

GRAIN MEAN DM% 84.9

SUB PLOT AREA HARVESTED 0.00126

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83/S/CS/1 WHEAT AFTER BEANS

GRAIN TONNES/HECTARE

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

SPRING NITROGEN APPLIED

AUT N	0	40	MEAN
VARIETY			
AVALON	10.03	10.33	10.18
NORMAN	10.75	10.89	10.82
MEAN	10.39	10.61	10.50

PATHCONT	NONE	FULL	MEAN
VARIETY			
AVALON	9.66	10.69	10.18
NORMAN	10.74	10.90	10.82
MEAN	10.20	10.80	10.50

PATHCONT	NONE	FULL	MEAN
AUT N			
0	9.97	10.80	10.39
40	10.43	10.79	10.61
MEAN	10.20	10.80	10.50

N TIME	SINGLE	DIVIDED	MEAN
VARIETY			
AVALON	10.12	10.23	10.18
NORMAN	10.69	10.95	10.82
MEAN	10.41	10.59	10.50

N TIME	SINGLE	DIVIDED	MEAN
AUT N			
0	10.30	10.47	10.39
40	10.51	10.71	10.61
MEAN	10.41	10.59	10.50

N TIME	SINGLE	DIVIDED	MEAN
PATHCONT			
NONE	10.09	10.31	10.20
FULL	10.72	10.88	10.80
MEAN	10.41	10.59	10.50

N RATE	100	130	160	190	MEAN
VARIETY					
AVALON	9.48	10.13	10.49	10.61	10.18
NORMAN	10.32	10.67	11.03	11.27	10.82
MEAN	9.90	10.40	10.76	10.94	10.50

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83/S/CS/1 WHEAT AFTER BEANS

GRAIN TONNES/HECTARE

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

SPRING NITROGEN APPLIED

N RATE	100	130	160	190	MEAN
AUT N					
0	9.86	10.23	10.70	10.76	10.39
40	9.94	10.57	10.81	11.12	10.61
MEAN	9.90	10.40	10.76	10.94	10.50

N RATE	100	130	160	190	MEAN
PATHCONT					
NONE	9.72	10.11	10.45	10.52	10.20
FULL	10.08	10.69	11.06	11.36	10.80
MEAN	9.90	10.40	10.76	10.94	10.50

N RATE	100	130	160	190	MEAN
N TIME					
SINGLE	9.85	10.28	10.70	10.80	10.41
DIVIDED	9.95	10.53	10.82	11.08	10.59
MEAN	9.90	10.40	10.76	10.94	10.50

NO SPRING NITROGEN

AUT N	0	40	MEAN
VARIETY			
AVALON	4.99	6.08	5.53
NORMAN	5.55	6.75	6.15
MEAN	5.27	6.41	5.84

PATHCONT	NONE	FULL	MEAN
VARIETY			
AVALON	5.46	5.61	5.53
NORMAN	6.17	6.13	6.15
MEAN	5.82	5.87	5.84

PATHCONT	NONE	FULL	MEAN
AUT N			
0	5.17	5.37	5.27
40	6.46	6.36	6.41
MEAN	5.82	5.87	5.84

GRAND MEAN 9.57

GRAIN MEAN DM% 84.3

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83/S/CS/1 WHEAT AFTER BEANS

STRAW TONNES/HECTARE

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

SPRING NITROGEN APPLIED

AUT N	0	40	MEAN
VARIETY			
AVALON	5.97	6.68	6.33
NORMAN	6.32	6.42	6.37
MEAN	6.14	6.55	6.35

PATHCONT	NONE	FULL	MEAN
VARIETY			
AVALON	6.42	6.23	6.33
NORMAN	6.50	6.24	6.37
MEAN	6.46	6.24	6.35

PATHCONT	NONE	FULL	MEAN
AUT N			
0	6.01	6.28	6.14
40	6.91	6.20	6.55
MEAN	6.46	6.24	6.35

N TIME	SINGLE	DIVIDED	MEAN
VARIETY			
AVALON	5.95	6.70	6.33
NORMAN	6.08	6.66	6.37
MEAN	6.02	6.68	6.35

N TIME	SINGLE	DIVIDED	MEAN
AUT N			
0	5.76	6.53	6.14
40	6.27	6.84	6.55
MEAN	6.02	6.68	6.35

N TIME	SINGLE	DIVIDED	MEAN
PATHCONT			
NONE	6.15	6.77	6.46
FULL	5.88	6.59	6.24
MEAN	6.02	6.68	6.35

N RATE	100	130	160	190	MEAN
VARIETY					
AVALON	5.79	6.31	6.25	6.95	6.33
NORMAN	6.09	5.96	6.50	6.94	6.37
MEAN	5.94	6.13	6.38	6.95	6.35

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83/S/CS/1 WHEAT AFTER BEANS

STRAW TONNES/HECTARE

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

SPRING NITROGEN APPLIED

N RATE	100	130	160	190	MEAN
AUT N					
0	5.95	5.71	6.39	6.53	6.14
40	5.93	6.56	6.36	7.36	6.55
MEAN	5.94	6.13	6.38	6.95	6.35

N RATE	100	130	160	190	MEAN
PATHCONT					
NONE	6.04	6.50	6.23	7.07	6.46
FULL	5.84	5.76	6.53	6.82	6.24
MEAN	5.94	6.13	6.38	6.95	6.35

N RATE	100	130	160	190	MEAN
N TIME					
SINGLE	5.70	5.65	6.20	6.52	6.02
DIVIDED	6.18	6.62	6.56	7.37	6.68
MEAN	5.94	6.13	6.38	6.95	6.35

NO SPRING NITROGEN

AUT N	0	40	MEAN
VARIETY			
AVALON	3.69	4.30	4.00
NORMAN	3.28	3.49	3.38
MEAN	3.48	3.89	3.69

PATHCONT	NONE	FULL	MEAN
VARIETY			
AVALON	4.15	3.84	4.00
NORMAN	3.45	3.31	3.38
MEAN	3.80	3.58	3.69

PATHCONT	NONE	FULL	MEAN
AUT N			
0	3.23	3.74	3.48
40	4.37	3.42	3.89
MEAN	3.80	3.58	3.69

GRAND MEAN 5.82

STRAW MEAN DM% 79.5

SUB PLOT AREA HARVESTED 0.00189

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83/R/WW/1 and 83/W/WW/1

WINTER WHEAT

VARIETIES

Object: To study a selection of the newer varieties of w. wheat and the effects of growth regulator on them on land in rotation (pathogen free) and after wheat and barley (pathogen infected) - Rothamsted Long Hoos I/II (pathogen free RH) and New Zealand (pathogen infected RD), Woburn White Horse (pathogen free WH).

Sponsors: R. Moffitt, R.J. Gutteridge.

Design: 2 randomised blocks of 2 whole plots split into 10.

Whole plot dimensions: (RH, RD) 3.0 x 10.0 (WH) 4.0 x 12.0.

Treatments: All combinations of:-

Whole plots

1. GROWREG Growth regulator:

NONE	None
CHLORMEQ	Chlormequat at 1.1 l in 250 l (RH, RD), 1.7 l in 280 l (WH)

Sub plots

2. VARIETY Varieties:

AQUILA
AVALON
AVOCET
FENMAN
FLANDERS
GALAHAD
LONGBOW
NORMAN
RAPIER
STETSON

Basal applications:
Long Hoos I/II (RH): Manures: (0:18:36) at 280 kg. N at 170 kg as 'Nitro-Chalk'. Weedkillers: Mecoprop with bromoxynil and ioxynil (as 'Brittox' at 3.5 l) in 250 l. Fungicide: Carbendazim at 0.15 kg, tridemorph at 0.38 kg and maneb at 1.6 kg in 500 l.
New Zealand (RD): Manures: (0:18:36) at 250 kg; N at 170 kg as 'Nitro-Chalk'. Weedkiller: Paraquat at 0.6 kg ion in 250 l. Isoproturon at 2.0 l, and mecoprop at 3.4 l with the prochloraz in 250 l. Glyphosate at 1.4 kg in 250 l. Fungicides: Propiconazole at 0.12 kg in 250 l. Prochloraz at 0.40 l.
White Horse (WH): Manures: N at 160 kg as 'Nitro-Chalk'. Weedkillers: Mecoprop with bromoxynil and ioxynil (as 'Brittox' at 3.5 l) with the prochloraz in 250 l. Fungicide: Propiconazole at 0.12 kg in 250 l. Prochloraz at 0.40 l.

Seed: Long Hoos I/II (RH), New Zealand (RD): Varieties sown at 180 kg.
White Horse (WH): Varieties sown at 190 kg.

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83/R/WW/1 and 83/W/WW/1

Cultivations, etc.:-

Long Hoos I/II (RH): PK applied: 10 Sept, 1982. Heavy spring-tine cultivated twice: 13 Sept. Rotary harrowed, seed sown: 28 Oct. N applied: 15 Apr, 1983. Weedkillers applied: 16 Apr. Chlormequat applied: 29 Apr. Fungicides applied: 13 June. Combine harvested: 10 Aug.

New Zealand (RD): Disced twice: 9 Sept, 1982, 21 Sept. PK applied: 10 Sept. Paraquat applied: 15 Oct. Spring-tine cultivated, rotary harrowed, seed sown: 28 Oct. N applied: 15 Apr, 1983. Weedkillers with fungicide applied: 16 Apr. Chlormequat applied: 29 Apr. Fungicide applied: 8 June. Glyphosate applied: 4 Aug. Combine harvested: 12 Aug.

White Horse (WH): Spring-tine cultivated twice: 28 Oct, 1982, 29 Oct. Heavy spring-tine cultivated, seed sown: 29 Oct. Weedkillers with fungicide applied: 15 Apr, 1983. N applied: 16 Apr. Chlormequat applied: 29 Apr. Fungicide applied: 10 June. Combine harvested: 15 Aug.

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83/R/WW/1 LONG HOOS I/II (R)

HEALTHY SITE

GRAIN TONNES/HECTARE

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

GROWREG	NONE	CHLORMEQ	MEAN
VARIETY			
AQUILA	9.27	9.43	9.35
AVALON	10.38	10.77	10.58
AVOCET	10.82	10.70	10.76
FENMAN	10.91	10.94	10.92
FLANDERS	9.00	9.37	9.18
GALAHAD	10.82	10.95	10.89
LONGBOW	11.37	11.01	11.19
NORMAN	11.04	11.00	11.02
RAPIER	9.72	9.95	9.83
STETSON	9.98	9.65	9.81
MEAN	10.33	10.38	10.35

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

TABLE	GROWREG	VARIETY	GROWREG VARIETY
SED	0.175	0.192	0.312
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
GROWREG			0.272

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	18	0.272	2.6

GRAIN MEAN DM% 86.5

SUB PLOT AREA HARVESTED 0.00204

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83/R/WW/1 NEW ZEALAND (R)

DISEASED SITE

GRAIN TONNES/HECTARE

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

GROWREG VARIETY	NONE	CHLORMEQ	MEAN
AQUILA	8.49	9.56	9.02
AVALON	11.13	10.67	10.90
AVOCET	9.99	10.57	10.28
FENMAN	10.31	10.84	10.57
FLANDERS	8.39	8.89	8.64
GALAHAD	9.66	10.53	10.10
LONGBOW	11.36	11.23	11.29
NORMAN	9.98	10.71	10.35
RAPIER	9.43	9.87	9.65
STETSON	9.49	8.74	9.11
MEAN	9.82	10.16	9.99

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

TABLE	GROWREG	VARIETY	GROWREG VARIETY
SED	0.349	0.410	0.651
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
GROWREG			0.580

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	18	0.580	5.8

GRAIN MEAN DM% 87.3

SUB PLOT AREA HARVESTED 0.00203

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83/W/WW/1 WHITE HORSE (W)

HEALTHY SITE

GRAIN TONNES/HECTARE

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

GROWREG VARIETY	NONE	CHLORMEQ	MEAN
AQUILA	8.87	8.99	8.93
AVALON	8.73	9.56	9.15
AVOCET	8.09	6.89	7.49
FENMAN	9.34	8.31	8.83
FLANDERS	8.08	10.01	9.04
GALAHAD	7.96	8.58	8.27
LONGBOW	9.27	9.07	9.17
NORMAN	7.12	8.54	7.83
RAPIER	8.78	7.97	8.38
STETSON	8.82	9.38	9.10
MEAN	8.51	8.73	8.62

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

TABLE	GROWREG	VARIETY	GROWREG VARIETY
SED	0.672	0.637	1.087
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
GROWREG			0.900

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	18	0.900	10.4

GRAIN MEAN DM% 88.2

SUB PLOT AREA HARVESTED 0.00330

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83/R/WW/2

WINTER WHEAT

GROWTH AND YIELD ON A CONTRASTED SITE

Object: To compare the effects of some of the factors tested in 83/W/WW/2 on the growth and yield of w. wheat on a contrasted site - Long Hoos I/II.

Sponsors: F.V. Widdowson, P.J. Welbank, A.H. Weir.

Design: Half replicate of 2^5 + 16 extra plots.

Whole plot dimensions: 3.0 x 15.2.

Treatment: Combinations of:-

1. SOWDATE		Dates of sowing:
	15 SEPT	15 September, 1982
	20 OCT	20 October
2. TOTAL N		Total amount of N fertilizer (kg N) as 'Nitro-Chalk':
	140	100 on the first date, 40 on the second
	210	170 on the first date, 40 on the second
3. N TIME		Timing of fertilizer application:
	EARLY	7 Mar, 1983, 4 May
	LATE	7 Apr, 17 May
4. IRRIGATN		Irrigation:
	NONE	None
	FULL	Full (112.5 mm) to lessen a deficit of 37.5 mm to 12.5 mm
5. AUT PEST		Autumn pesticide:
	NONE	None
	ALDICARB	Aldicarb at 7.0 kg worked into seedbed

Plus all combinations of the following (all unirrigated, given aldicarb):

1. TOTAL NX		Total amount of N fertilizer (kg N) as 'Nitro-Chalk':
	0	None
	105	65 on the first date, 40 on the second
	140	100 on the first date, 40 on the second
	175	135 on the first date, 40 on the second
	210	170 on the first date, 40 on the second
	245	205 on the first date, 40 on the second
2. S DATE N		Dates of sowing and timing of N application:
	15 SEP NE	Sown 15 Sept 1982, N applied as N TIME EARLY
	20 OCT NL	Sown 20 Oct, N applied as N TIME LATE

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83/R/WW/2

Plus 4 extra plots for root sampling:

EXTRA

SE 210EX Sown 15 Sept with 210 kg N applied as N TIME EARLY, unirrigated and given aldicarb

NOTE: The irrigation treatment was as follows (mm water):-

24 June	25
28 June	25
14 July	37.5
21 July	25
Total	112.5

Basal applications: Manures: (0:18:36) at 280 kg. Weedkillers: Mecoprop, bromoxynil and ioxynil (as 'Brittox' at 2.0 l in 450 l on the first occasion, at 1.8 l in 220 l with the mecoprop on the second, and at 2.5 l with the benomyl in 225 l on the third). Mecoprop (as 'Farmon CMPP' at 2.1 l). Fungicides: Benomyl at 0.56 kg. Captafol at 1.4 kg with propiconazole at 0.12 kg in 220 l. Carbendazim at 0.25 kg with maneb at 1.6 kg and propiconazole at 0.12 kg and the insecticide in 220 l. Insecticide: Pirimicarb at 0.14 kg. Growth regulator: Chlormequat at 1.1 kg in 220 l.

Seed: Avalon, dressed chlorfenvinphos, sown at 180 kg.

Cultivations, etc.:- PK applied: 10 Sept, 1982. Heavy spring-tine cultivated twice: 13 Sept. Aldicarb applied for SOWDATE 15 SEPT, rotary harrowed, seed sown: 15 Sept. Aldicarb applied for SOWDATE 20 OCT, rotary harrowed, seed sown: 20 Oct. 'Brittox' applied: 25 Jan, 1983. Growth regulator applied to SOWDATE 15 SEPT plots: 8 Mar. 'Brittox' with mecoprop applied: 28 Mar. Growth regulator applied to SOWDATE 20 OCT plots: 14 Apr. 'Brittox' with benomyl applied: 27 Apr. Captafol with propiconazole applied: 24 May. Carbendazim, maneb, propiconazole and the insecticide applied: 23 June. Combine harvested: 10 Aug. Previous crops: W. oats 1981, potatoes 1982.

NOTES: (1) Light interception, dry weight, leaf area and N content of the above-ground crop were measured on several occasions. Stem nitrate was measured on three occasions during spring.
(2) Soil samples, to measure mineral N content, were taken on several occasions during winter and spring.

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83/R/WW/2

GRAIN TONNES HECTARE

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

SOWDATE	15 SEPT	20 OCT	MEAN
	10.16	9.96	10.06

TOTAL N	140	210	MEAN
	9.76	10.36	10.06

N TIME	EARLY	LATE	MEAN
	10.05	10.07	10.06

IRRIGATN	NONE	FULL	MEAN
	10.13	9.99	10.06

AUT PEST	NONE	ALDICARB	MEAN
	10.03	10.09	10.06

TOTAL NX S DATE N	0	105	140	175	210	245	MEAN
15 SEPT NE	5.59	9.08	9.70	10.55	10.94	10.92	9.46
20 OCT NL	4.58	8.68	9.92	9.99	10.38	10.31	8.98
MEAN	5.09	8.88	9.81	10.27	10.66	10.61	9.22

EXTRA SE 210EX 10.71

GRAND MEAN 9.83

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

TABLE	SOWDATE	TOTAL N	N TIME	IRRIGATN
SED	0.113	0.113	0.113	0.113

TABLE	AUT PEST
SED	0.113

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

STRATUM	DF	SE	CV%
WP	10	0.226	2.2

GRAIN MEAN DM% 86.5

PLOT AREA HARVESTED 0.00209

https://doi.org/10.23637/ERADOC-1-44

83/W/WW/2

WINTER WHEAT

GROWTH AND YIELD ON CONTRASTED SITES

Object: To study the effects of a range of factors on the incidence of pests and diseases and on the growth and yield of w.wheat grown on light and heavy land and to determine the extent to which differences between the sites can be eliminated by appropriate combinations of factors - Woburn Butt Close IV (BC - light land) and Broad Mead I (BM - heavy land).

Sponsors: F.V. Widdowson, P.J. Welbank, A.H. Weir.

Associate sponsors: P.B. Barraclough, T.D. Williams, R.D. Prew.

Design: Half replicate of 2^5, arranged as 16 plots plus 8 extra plots (BC); half replicate of 2^6, arranged as 32 plots, plus 18 extra plots (BM).

Whole plot dimensions: 3.00 x 14.8 (BC).
3.00 x 15.2 (BM).

Treatments: Combinations of:-

Whole plots

1. SOWDATE — Dates of sowing (only one date of sowing on BC):

16 SEPT	16 September, 1982 (BC and BM)
20 OCT	20 October (BM only)

2. WINTER N — Amounts of nitrogen fertilizer applied, as Urea, on 3 Feb, 1983 (kg N):

BC	BM
0	0
60	30

3. N RATE — Amounts of nitrogen fertilizer applied, as 'Nitro-Chalk', in spring (kg N):

BC	BM
180	100
240	160

4. N TIME — Times of applying spring fertilizer:

EARLY	All except 40 kg N on 2 Mar; remainder on 5 May
LATE	All except 40 kg N on 6 Apr; remainder on 17 May

5. IRRIGATN — Irrigation:

NONE	None
FULL	Full (112.5 mm BC, 87.5 mm BM) to lessen deficit of 25 mm to 12.5 mm

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6. AUT PEST — Autumn pesticide:

NONE	None
ALDICARB	Aldicarb at 5.6 kg worked into seedbed

Plus all combinations of the following (all given irrigation and aldicarb, but not winter nitrogen):

Whole plots

1. S DATE N — Dates of sowing and times of applying nitrogen fertilizer (only single date and time BC):

SEPT NE	Sown 16 SEPT, N applied at N TIME EARLY (timing and division as above) (BC and BM)
OCT NL	Sown 20 OCT, N applied at N TIME LATE (timing and division as above) (BM only)

2. N SCALE — Amounts of nitrogen fertilizer applied in spring (kg N):

BC	BM
0	0
120	40
150	70
210	130
240	160
270	190

Plus extra plots for root sampling (2 BC, 6 BM)

EXTRA

BC

SE 5E WA	Sown 16 SEPT, 240 kg N, N TIME EARLY, 60 kg WINTER N, ALDICARB
SE 5E --	Sown 16 SEPT, 240 kg N, N TIME EARLY

BM

SE 5E --	Sown 16 SEPT, 160 kg N, N TIME EARLY
SE 5E W-	Sown 16 SEPT, 160 kg N, N TIME EARLY, 30 kg WINTER N
SE 3E WA	Sown 16 SEPT, 100 kg N, N TIME EARLY, 30 kg WINTER N, ALDICARB
SE 3E -A	Sown 16 SEPT, 100 kg N, N TIME EARLY, ALDICARB
SL 5L --	Sown 20 OCT, 160 kg N, N TIME LATE
SL 3L W-	Sown 20 OCT, 100 kg N, N TIME LATE, 30 kg WINTER N

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Irrigation was applied as follows (mm water):

Butt Close IV (BC)		Broad Mead I (BM)	
17 June	25	17 June	25
23 June	12.5	23 June	12.5
24 June	12.5	24 June	12.5
6 July	12.5	13 July	25
15 July	12.5	19 July	12.5
18 July	12.5		
29 July	25		
Total	112.5	Total	87.5

Standard applications:
Butt Close IV (BC) and Broad Mead I (BM): Manures: (0:14:28) at 310 kg. Chelated manganese applied on two occasions (as 'Vytel' at 2.8 l on the first occasion and 1.4 l on the second occasion) in 280 l. Weedkillers: Chlortoluron at 3.5 kg with mecoprop (as 'Herrifex DS' at 4.2 l) in 280 l. Mecoprop (as 'Herrifex DS' at 4.9 l) in 280 l to (BM) only. Fungicides: Triadimefon at 0.13 kg in 280 l. Captafol at 1.8 kg with carbendazim at 0.13 kg, tridemorph at 0.32 kg and maneb at 1.3 kg with insecticide in 280 l. Insecticide: Pirimicarb at 0.14 kg. Growth regulator: Chlormequat at 1.7 kg in 280 l.

Seed: Avalon, sown at 180 kg.

Cultivations, etc.:-
Butt Close (BC) and Broad Mead I (BM): PK applied: 11 Sept, 1982. Spring-tine cultivated: 13 Sept. Heavy spring-tine cultivated on first occasion to both, second occasion (BM) only: 14 Sept. Aldicarb applied, rotary cultivated and seed sown for SOWDATE 16 SEP: 16 Sept. Chlortoluron and 'Herrifex DS' applied to SOWDATE 16 SEPT : 19 Nov. Fungicides with insecticide applied: 21 June, 1983. Combine harvested: 13 Aug.
Butt Close IV (BC): Growth regulator applied: 15 Mar, 1983. Triadimefon and first manganese applied: 10 May. Second manganese applied: 23 May.
Broad Mead I (BM): Aldicarb applied, rotary cultivated and seed sown for SOWDATE 20 OCT: 20 Oct, 1982. Chlortoluron and 'Herrifex DS' applied to SOWDATE 20 OCT: 3 Dec, 19 Jan, 1983. 'Herrifex DS' and growth regulator applied to SOWDATE 16 SEPT: 8 Apr, and to SOWDATE 20 OCT: 14 Apr. First managanese applied: 14 Apr. Triadimefon and second manganese applied: 10 May.

NOTES: (1) The planned late sowing date on Butt Close IV was not done because the ground was too wet. Spring wheat, not taken for yield, was sown instead in March.
(2) Measurements were made of plant and shoot numbers, dry weight of tops and ears, leaf area and N contents during growth. Weekly measurements were made of soil moisture (between April and harvest). Plant water stress and stomatal resistance were measured. Disease assessments were made during the growing season. Soil samples were taken in autumn and spring to determine N contents.

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83/W/WW/2 BUTT CLOSE IV (BC)

GRAIN TONNES/HECTARE

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

N RATE	180	240	MEAN
	9.39	8.84	9.11

N TIME	EARLY	LATE	MEAN
	9.11	9.12	9.11

WINTER N	0	60	MEAN
	8.97	9.26	9.11

IRRIGATN	NONE	FULL	MEAN
	9.36	8.87	9.11

AUT PEST	NONE	ALDICARB	MEAN
	9.05	9.18	9.11

N SCALE	0	120	150	210	240	270	MEAN
	2.86	7.13	8.41	8.56	8.61	9.41	7.50

EXTRA	SE 5E WA	SE 5E --
	9.46	9.52

GRAND MEAN 8.75

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

TABLE	N RATE	N TIME	WINTER N	IRRIGATN
SED	0.349	0.349	0.349	0.349

TABLE	AUT PEST
SED	0.349

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

STRATUM	DF	SE	CV%
WP	10	0.699	7.7

GRAIN MEAN DM% 86.2

PLOT AREA HARVESTED 0.00202

https://doi.org/10.23637/ERADOC-1-44

83/W/WW/2 BROAD MEAD I (BM)

GRAIN TONNES/HECTARE

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

N RATE	100	160	MEAN
SOWDATE			
16 SEPT	8.60	7.99	8.29
20 OCT	8.60	8.92	8.76
MEAN	8.60	8.46	8.53

N TIME	EARLY	LATE	MEAN
SOWDATE			
16 SEPT	8.19	8.40	8.29
20 OCT	8.88	8.63	8.76
MEAN	8.53	8.52	8.53

N TIME	EARLY	LATE	MEAN
N RATE			
100	8.63	8.56	8.60
160	8.44	8.47	8.46
MEAN	8.53	8.52	8.53

WINTER N	0	30	MEAN
SOWDATE			
16 SEPT	8.21	8.38	8.29
20 OCT	8.54	8.97	8.76
MEAN	8.38	8.68	8.53

WINTER N	0	30	MEAN
N RATE			
100	8.48	8.71	8.60
160	8.27	8.64	8.46
MEAN	8.38	8.68	8.53

WINTER N	0	30	MEAN
N TIME			
EARLY	8.45	8.62	8.53
LATE	8.31	8.73	8.52
MEAN	8.38	8.68	8.53

AUT PEST	NONE	ALDICARB	MEAN
SOWDATE			
16 SEPT	8.24	8.35	8.29
20 OCT	8.44	9.07	8.76
MEAN	8.34	8.71	8.53

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83/W/WW/2 BROAD MEAD I (BM)

GRAIN TONNES/HECTARE

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

AUT PEST N RATE	NONE	ALDICARB	MEAN
100	8.40	8.79	8.60
160	8.28	8.63	8.46
MEAN	8.34	8.71	8.53

AUT PEST N TIME	NONE	ALDICARB	MEAN
EARLY	8.41	8.66	8.53
LATE	8.27	8.77	8.52
MEAN	8.34	8.71	8.53

AUT PEST WINTER N	NONE	ALDICARB	MEAN
0	8.09	8.66	8.38
30	8.60	8.76	8.68
MEAN	8.34	8.71	8.53

IRRIGATN SOWDATE	NONE	FULL	MEAN
16 SEPT	8.65	7.94	8.29
20 OCT	9.17	8.35	8.76
MEAN	8.91	8.14	8.53

IRRIGATN N RATE	NONE	FULL	MEAN
100	9.05	8.14	8.60
160	8.77	8.14	8.46
MEAN	8.91	8.14	8.53

IRRIGATN N TIME	NONE	FULL	MEAN
EARLY	8.83	8.24	8.53
LATE	8.98	8.05	8.52
MEAN	8.91	8.14	8.53

IRRIGATN WINTER N	NONE	FULL	MEAN
0	8.77	7.98	8.38
30	9.05	8.31	8.68
MEAN	8.91	8.14	8.53

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83/W/WW/2 BROAD MEAD I (BM)

GRAIN TONNES/HECTARE

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

IRRIGATN	NONE	FULL	MEAN
AUT PEST			
NONE	8.67	8.01	8.34
ALDICARB	9.15	8.27	8.71
MEAN	8.91	8.14	8.53

N SCALE	0	40	70	130	160	190	MEAN
S DATE N							
SEPT NE	5.68	7.51	7.90	8.83	8.35	8.59	7.81
OCT NL	5.26	7.15	8.51	8.50	9.23	9.72	8.06
MEAN	5.47	7.33	8.21	8.67	8.79	9.16	7.94

EXTRA	SE 5E --	SE 5E W-	SE 3E WA	SE 3E -A	SL 5L --	SL 3L W-
	7.83	7.30	8.20	8.53	7.75	8.61

GRAND MEAN 8.34

SED FOR TABLES EXCEPT THOSE INVOLVING N SCALE AND EXTRA ARE

MARGINS OF 2 WAY TABLES	0.265
TWO WAY TABLES	0.375

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

STRATUM	DF	SE	CV%
WP	10	0.751	8.8

GRAIN MEAN DM% 86.0

PLOT AREA HARVESTED 0.00202

https://doi.org/10.23637/ERADOC-1-44

83/R/WW/3

WINTER WHEAT

FACTORS LIMITING YIELD

Object: To study the effects of a range of factors on the incidence of pests and diseases and on the growth and yield of w. wheat - Little Hoos.

Sponsors: R.D. Prew, B.M. Church, A.M. Dewar, J. Lacey, A. Penny, R.T. Plumb, G.N. Thorne, A.D. Todd, T.D. Williams.

Associate sponsors: D.S. Jenkinson, A.H. Weir, P.J. Welbank, F.V. Widdowson.

Design: Half replicate of 2^8 + 49 extra plots, arranged in 4 blocks with PREVCROP on blocks.

Whole plot dimensions: 3.0 x 15.2.

Treatments: Combinations of:-

Blocks

1.	PREVCROP	Previous cropping:
	BARLEY	Potatoes 1980, w. wheat 1981, w. barley 1982
	OATS	Potatoes 1980, w. wheat 1981, w. oats 1982

Whole plots

2.	SOWDATE	Dates of sowing:
	15 SEP	15 September, 1982
	26 OCT	26 October
3.	TOTAL N	Total amount of N fertilizer (kg N) as 'Nitro-Chalk':
	180	
	250	
4.	N TIME	Timing of nitrogen fertilizer applications:
	EARLY	2 February, 1983, 4 March, 3 May
	LATE	4 March, 5 April, 16 May
5.	GROWREG	Growth regulator:
	NONE	None
	CHLORMEQ	Chlormequat chloride + choline chloride (as 'New 5 C Cycocel' at 1.75 l) at Zadoks GS 30 on 8 March for SOWDATE 15 SEPT and 14 April for SOWDATE 26 OCT
6.	SPR FUNG	Spring fungicide:
	NONE	None
	TRIDEMOR	Tridemorph at 0.52 kg on 13 April

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7. SUM FUNG — Summer fungicide:

NONE	None
PROPICON	Propiconazole at 0.12 kg, alone in 220 l on 25 May with carbendazim at 0.25 kg and maneb at 1.6 kg in 220 l on 22 June

8. PESTCIDE — Autumn and summer pesticides:

NONE	None
ALD+PIR	Aldicarb at 7.0 kg worked into seedbed + pirimicarb at 0.14 kg in 220 l on 23 June

Plus all combinations of the following (all given chlormequat chloride + choline chloride, tridemorph, propiconazole, carbendazim, maneb, aldicarb, pirimicarb; the plots sown 15 Sept were given N timed early and plots sown 26 Oct given N timed late):

Blocks

1. PRECROPX — Previous cropping:

BARLEY	Potatoes 1980, w. wheat 1981, w. barley 1982
OATS	Potatoes 1980, w. wheat 1981, w. oats 1982

Whole plots

2. SOWDATEX — Dates of sowing:

15 SEPT	15 September, 1982
26 OCT	26 October

3. TOTAL NX — Total amount of N fertilizer (kg N) as 'Nitro-Chalk':

0
145
215
285

Plus a half replicate of the following combinations (all trickle irrigated to lessen a deficit of 37.5 mm to 12.5 mm, and given chlormequat chloride + choline chloride, tridemorph, propiconazole, carbendazim, maneb, aldicarb and pirimicarb):

Blocks

1. PRECROPI — Previous cropping:

BARLEY	Potatoes 1980, w. wheat 1981, w. barley 1982
OATS	Potatoes 1980, w. wheat 1981, w. oats 1982

Whole plots

2. SOWDATEI — Dates of sowing:

15 SEPT	15 September, 1982
26 OCT	26 October

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3. TOTAL NI — Total amount of N fertilizer (kg N) as 'Nitro-Chalk':

   180
   250

4. N TIMEI — Timing of fertilizer application:

   EARLY — 2 February, 1983, 4 March, 3 May
   LATE — 4 March, 5 April, 16 May

5. AUT NI — Autumn applied N fertilizer:

   NONE — None
   AUT N — 40 kg N applied to seedbed in addition to spring N

Plus seven extra treatments (all, except NONE plots, given chlormequat chloride + choline chloride, tridemorph, propiconazole, carbendazim, maneb, aldicarb, pirimicarb):

EXTRA

SE GREGX	Sown 15 Sept, after barley given additional chlormequat chloride + choline chloride (as '5 C Cycocel' at 1.0 l) at Zadoks GS 13/21 on 9 Nov, 1982, and 220 kg N at N TIME EARLY (duplicated)
SL GREGX	Sown 26 Oct, after barley given additional chlormequat chloride + choline chloride (as '5 C Cycocel' at 1.0 l) at Zadoks GS 13/21 on 27 Jan, 1983 and 220 kg N at N TIME LATE (duplicated)
SE FAL	Sown 15 Sept after fallow and given 250 kg N at N TIME EARLY (triplicated)
SL FAL	Sown 26 Oct after fallow and given 250 kg N at N TIME LATE (triplicated)
SE NONE B	Sown 15 Sept after barley
SE NONE F	Sown 15 Sept after fallow
SL NONE F	Sown 26 Oct after fallow

NOTES: (1) TOTAL N fertilizer was given in three applications, 40 kg N on the first and third dates for each N TIME the remainder on the second.

(2) Half of the plots with treatment combinations including SOWDATE 15 SEPT and PREVCROP OATS had a second treatment of growth regulator in error on 14 April. Observations suggested that this had no further effect and the presentation of results has not been amended to take account of the error.

(3) The irrigation treatment was as follows (mm water):-

June 28	25
June 29	25
July 14	37.5
July 21	25
Total	112.5

Basal applications: Manures: (0:18:36) at 420 kg. Weedkillers: Paraquat at 0.56 kg ion in 250 l. Glyphosate at 1.4 kg in 250 l. Isoproturon at 2.1 kg with dicamba, mecoprop and MCPA (as 'Poly-Farmon CMPP' at 4.2 l) in 250 l.

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Seed: Avalon, sown at 170 kg.

Cultivations, etc.:- Glyphosate applied: 17 Aug, 1982. Disced: 25 Aug, 1 Sept. PK applied, paraquat applied: 10 Sept. Ploughed: 13 Sept. Aldicarb applied for SOWDATE 15 SEPT, rotary harrowed, seed sown: 15 Sept. Aldicarb applied for SOWDATE 26 OCT: 20 Oct. These plots rotary harrowed, seed sown: 26 Oct. Isoproturon with 'Poly-Farmon CMPP' applied: 11 Mar, 1983. Combine harvested: 11 Aug.

NOTE: Soil was sampled for nematodes, shoot borers, water and mineral N contents. Plants were assessed for foot and root rots throughout the season. The above-ground crop was examined for barley yellow dwarf virus, aphids, foliar diseases and microflora. Light interception, dry weight, leaf area, shoot numbers and N and K content of the above-ground crop and stem nitrate were measured on several occasions.

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GRAIN TONNES/HECTARE

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

SOWDATE	15 SEPT	26 OCT	MEAN
PREVCROP			
BARLEY	7.62	8.26	7.94
OATS	10.03	9.61	9.82
MEAN	8.83	8.94	8.88

TOTAL N	180	250	MEAN
PREVCROP			
BARLEY	7.75	8.12	7.94
OATS	9.74	9.91	9.82
MEAN	8.75	9.02	8.88

TOTAL N	180	250	MEAN
SOWDATE			
15 SEPT	8.72	8.94	8.83
26 OCT	8.77	9.10	8.94
MEAN	8.75	9.02	8.88

N TIME	EARLY	LATE	MEAN
PREVCROP			
BARLEY	7.82	8.06	7.94
OATS	9.74	9.91	9.82
MEAN	8.78	8.99	8.88

N TIME	EARLY	LATE	MEAN
SOWDATE			
15 SEPT	8.60	9.05	8.83
26 OCT	8.95	8.92	8.94
MEAN	8.78	8.99	8.88

N TIME	EARLY	LATE	MEAN
TOTAL N			
180	8.67	8.82	8.75
250	8.88	9.16	9.02
MEAN	8.78	8.99	8.88

GROWREG	NONE	CHLORMEQ	MEAN
PREVCROP			
BARLEY	7.98	7.90	7.94
OATS	9.82	9.83	9.82
MEAN	8.90	8.86	8.88

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83/R/WW/3

GRAIN TONNES/HECTARE

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

GROWREG	NONE	CHLORMEQ	MEAN
SOWDATE			
15 SEPT	8.78	8.87	8.83
26 OCT	9.03	8.85	8.94
MEAN	8.90	8.86	8.88

GROWREG	NONE	CHLORMEQ	MEAN
TOTAL N			
180	8.76	8.73	8.75
250	9.04	9.00	9.02
MEAN	8.90	8.86	8.88

GROWREG	NONE	CHLORMEQ	MEAN
N TIME			
EARLY	8.81	8.75	8.78
LATE	8.99	8.98	8.99
MEAN	8.90	8.86	8.88

SPR FUNG	NONE	TRIDEMOR	MEAN
PREVCROP			
BARLEY	7.74	8.14	7.94
OATS	9.77	9.88	9.82
MEAN	8.75	9.01	8.88

SPR FUNG	NONE	TRIDEMOR	MEAN
SOWDATE			
15 SEPT	8.68	8.97	8.83
26 OCT	8.83	9.04	8.94
MEAN	8.75	9.01	8.88

SPR FUNG	NONE	TRIDEMOR	MEAN
TOTAL N			
180	8.69	8.80	8.75
250	8.82	9.22	9.02
MEAN	8.75	9.01	8.88

SPR FUNG	NONE	TRIDEMOR	MEAN
N TIME			
EARLY	8.62	8.94	8.78
LATE	8.89	9.08	8.99
MEAN	8.75	9.01	8.88

https://doi.org/10.23637/ERADOC-1-44

83/R/WW/3

GRAIN TONNES/HECTARE

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

SPR FUNG GROWREG	NONE	TRIDEMOR	MEAN
NONE	8.83	8.98	8.90
CHLORMEQ	8.68	9.04	8.86
MEAN	8.75	9.01	8.88

SUM FUNG PREVCROP	NONE	PROPICON	MEAN
BARLEY	7.64	8.24	7.94
OATS	9.48	10.17	9.82
MEAN	8.56	9.20	8.88

SUM FUNG SOWDATE	NONE	PROPICON	MEAN
15 SEPT	8.57	9.08	8.83
26 OCT	8.55	9.33	8.94
MEAN	8.56	9.20	8.88

SUM FUNG TOTAL N	NONE	PROPICON	MEAN
180	8.55	8.94	8.75
250	8.57	9.47	9.02
MEAN	8.56	9.20	8.88

SUM FUNG N TIME	NONE	PROPICON	MEAN
EARLY	8.45	9.10	8.78
LATE	8.66	9.31	8.99
MEAN	8.56	9.20	8.88

SUM FUNG GROWREG	NONE	PROPICON	MEAN
NONE	8.65	9.15	8.90
CHLORMEQ	8.47	9.26	8.86
MEAN	8.56	9.20	8.88

SUM FUNG SPR FUNG	NONE	PROPICON	MEAN
NONE	8.36	9.15	8.75
TRIDEMOR	8.76	9.26	9.01
MEAN	8.56	9.20	8.88

https://doi.org/10.23637/ERADOC-1-44

83/R/WW/3

GRAIN TONNES/HECTARE

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

PESTCIDE PREVCROP	NONE	ALD+PIR	MEAN
BARLEY	8.09	7.79	7.94
OATS	9.80	9.85	9.82
MEAN	8.94	8.82	8.88

PESTCIDE SOWDATE	NONE	ALD+PIR	MEAN
15 SEPT	8.90	8.75	8.83
26 OCT	8.98	8.89	8.94
MEAN	8.94	8.82	8.88

PESTCIDE TOTAL N	NONE	ALD+PIR	MEAN
180	8.79	8.70	8.75
250	9.10	8.94	9.02
MEAN	8.94	8.82	8.88

PESTCIDE N TIME	NONE	ALD+PIR	MEAN
EARLY	8.92	8.64	8.78
LATE	8.97	9.00	8.99
MEAN	8.94	8.82	8.88

PESTCIDE GROWREG	NONE	ALD+PIR	MEAN
NONE	8.99	8.81	8.90
CHLORMEQ	8.90	8.83	8.86
MEAN	8.94	8.82	8.88

PESTCIDE SPR FUNG	NONE	ALD+PIR	MEAN
NONE	8.81	8.70	8.75
TRIDEMOR	9.08	8.94	9.01
MEAN	8.94	8.82	8.88

PESTCIDE SUM FUNG	NONE	ALD+PIR	MEAN
NONE	8.64	8.47	8.56
PROPICON	9.24	9.17	9.20
MEAN	8.94	8.82	8.88

https://doi.org/10.23637/ERADOC-1-44

83/R/WW/3

GRAIN TONNES/HECTARE

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

SOWDATE	15 SEPT		26 OCT	
TOTAL N	180	250	180	250
PREVCROP				
BARLEY	7.46	7.77	8.05	8.48
OATS	9.97	10.10	9.50	9.73

SOWDATE	15 SEPT		26 OCT	
N TIME	EARLY	LATE	EARLY	LATE
PREVCROP				
BARLEY	7.33	7.90	8.30	8.22
OATS	9.88	10.19	9.60	9.63

TOTAL N	180		250	
N TIME	EARLY	LATE	EARLY	LATE
PREVCROP				
BARLEY	7.70	7.80	7.93	8.32
OATS	9.65	9.83	9.83	9.99

TOTAL N	180		250	
N TIME	EARLY	LATE	EARLY	LATE
SOWDATE				
15 SEPT	8.54	8.89	8.67	9.20
26 OCT	8.81	8.74	9.09	9.11

SOWDATE	15 SEPT		26 OCT	
GROWREG	NONE	CHLORMEQ	NONE	CHLORMEQ
PREVCROP				
BARLEY	7.57	7.66	8.39	8.13
OATS	9.98	10.08	9.66	9.57

TOTAL N	180		250	
GROWREG	NONE	CHLORMEQ	NONE	CHLORMEQ
PREVCROP				
BARLEY	7.79	7.71	8.17	8.08
OATS	9.74	9.74	9.91	9.92

TOTAL N	180		250	
GROWREG	NONE	CHLORMEQ	NONE	CHLORMEQ
SOWDATE				
15 SEPT	8.63	8.80	8.92	8.95
26 OCT	8.89	8.66	9.16	9.04

N TIME	EARLY		LATE	
GROWREG	NONE	CHLORMEQ	NONE	CHLORMEQ
PREVCROP				
BARLEY	7.87	7.77	8.09	8.03
OATS	9.75	9.73	9.89	9.93

N TIME	EARLY		LATE	
GROWREG	NONE	CHLORMEQ	NONE	CHLORMEQ
SOWDATE				
15 SEPT	8.51	8.70	9.05	9.05
26 OCT	9.11	8.79	8.94	8.91

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GRAIN TONNES/HECTARE

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

N TIME	EARLY		LATE	
GROWREG	NONE	CHLORMEQ	NONE	CHLORMEQ
TOTAL N				
180	8.69	8.66	8.84	8.79
250	8.93	8.83	9.15	9.16

SOWDATE	15 SEPT		26 OCT	
SPR FUNG	NONE	TRIDEMOR	NONE	TRIDEMOR
PREVCROP				
BARLEY	7.32	7.91	8.15	8.37
OATS	10.03	10.04	9.51	9.72

TOTAL N	180		250	
SPR FUNG	NONE	TRIDEMOR	NONE	TRIDEMOR
PREVCROP				
BARLEY	7.68	7.82	7.79	8.46
OATS	9.69	9.79	9.85	9.97

TOTAL N	180		250	
SPR FUNG	NONE	TRIDEMOR	NONE	TRIDEMOR
SOWDATE				
15 SEPT	8.58	8.85	8.78	9.09
26 OCT	8.80	8.75	8.87	9.34

N TIME	EARLY		LATE	
SPR FUNG	NONE	TRIDEMOR	NONE	TRIDEMOR
PREVCROP				
BARLEY	7.49	8.14	7.98	8.14
OATS	9.74	9.73	9.80	10.02

N TIME	EARLY		LATE	
SPR FUNG	NONE	TRIDEMOR	NONE	TRIDEMOR
SOWDATE				
15 SEPT	8.34	8.87	9.01	9.08
26 OCT	8.90	9.01	8.77	9.08

N TIME	EARLY		LATE	
SPR FUNG	NONE	TRIDEMOR	NONE	TRIDEMOR
TOTAL N				
180	8.64	8.71	8.73	8.90
250	8.59	9.17	9.05	9.26

GROWREG	NONE		CHLORMEQ	
SPR FUNG	NONE	TRIDEMOR	NONE	TRIDEMOR
PREVCROP				
BARLEY	7.90	8.06	7.57	8.22
OATS	9.75	9.89	9.79	9.87

GROWREG	NONE		CHLORMEQ	
SPR FUNG	NONE	TRIDEMOR	NONE	TRIDEMOR
SOWDATE				
15 SEPT	8.77	8.78	8.58	9.16
26 OCT	8.89	9.17	8.78	8.92

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GRAIN TONNES/HECTARE

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

GROWREG	NONE		CHLORMEQ	
SPR FUNG	NONE	TRIDEMOR	NONE	TRIDEMOR
TOTAL N				
180	8.83	8.70	8.54	8.91
250	8.82	9.25	8.82	9.18

GROWREG	NONE		CHLORMEQ	
SPR FUNG	NONE	TRIDEMOR	NONE	TRIDEMOR
N TIME				
EARLY	8.69	8.92	8.54	8.95
LATE	8.96	9.03	8.82	9.14

SOWDATE	15 SEPT		26 OCT	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
PREVCROP				
BARLEY	7.31	7.93	7.97	8.56
OATS	9.83	10.24	9.13	10.09

TOTAL N	180		250	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
PREVCROP				
BARLEY	7.60	7.90	7.67	8.58
OATS	9.50	9.98	9.46	10.36

TOTAL N	180		250	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
SOWDATE				
15 SEPT	8.64	8.79	8.49	9.38
26 OCT	8.46	9.09	8.64	9.56

N TIME	EARLY		LATE	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
PREVCROP				
BARLEY	7.45	8.18	7.82	8.30
OATS	9.46	10.02	9.50	10.32

N TIME	EARLY		LATE	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
SOWDATE				
15 SEPT	8.30	8.90	8.83	9.27
26 OCT	8.60	9.30	8.50	9.35

N TIME	EARLY		LATE	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
TOTAL N				
180	8.36	8.99	8.74	8.89
250	8.55	9.21	8.59	9.72

GROWREG	NONE		CHLORMEQ	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
PREVCROP				
BARLEY	7.76	8.20	7.51	8.28
OATS	9.54	10.11	9.42	10.23

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GRAIN TONNES/HECTARE

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

GROWREG	NONE		CHLORMEQ	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
SOWDATE				
15 SEPT	8.62	8.93	8.51	9.24
26 OCT	8.68	9.37	8.42	9.28

GROWREG	NONE		CHLORMEQ	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
TOTAL N				
180	8.67	8.85	8.43	9.03
250	8.63	9.45	8.51	9.49

GROWREG	NONE		CHLORMEQ	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
N TIME				
EARLY	8.55	9.07	8.36	9.13
LATE	8.75	9.23	8.57	9.38

SPR FUNG	NONE		TRIDEMOR	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
PREVCROP				
BARLEY	7.22	8.25	8.05	8.23
OATS	9.50	10.05	9.46	10.29

SPR FUNG	NONE		TRIDEMOR	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
SOWDATE				
15 SEPT	8.40	8.95	8.73	9.21
26 OCT	8.32	9.34	8.78	9.31

SPR FUNG	NONE		TRIDEMOR	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
TOTAL N				
180	8.33	9.05	8.77	8.83
250	8.39	9.25	8.74	9.69

SPR FUNG	NONE		TRIDEMOR	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
N TIME				
EARLY	8.24	8.99	8.67	9.21
LATE	8.48	9.30	8.85	9.31

SPR FUNG	NONE		TRIDEMOR	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
GROWREG				
NONE	8.60	9.05	8.70	9.25
CHLORMEQ	8.12	9.24	8.82	9.27

SOWDATE	15 SEPT		26 OCT	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
PREVCROP				
BARLEY	7.83	7.40	8.34	8.18
OATS	9.97	10.10	9.62	9.61

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GRAIN TONNES/HECTARE

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

TOTAL N	180		250	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
PREVCROP				
BARLEY	7.84	7.67	8.34	7.91
OATS	9.74	9.73	9.85	9.97

TOTAL N	180		250	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
SOWDATE				
15 SEPT	8.78	8.65	9.02	8.85
26 OCT	8.79	8.76	9.17	9.03

N TIME	EARLY		LATE	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
PREVCROP				
BARLEY	8.12	7.52	8.06	8.06
OATS	9.72	9.76	9.88	9.95

N TIME	EARLY		LATE	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
SOWDATE				
15 SEPT	8.81	8.39	8.99	9.10
26 OCT	9.02	8.88	8.94	8.90

N TIME	EARLY		LATE	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
TOTAL N				
180	8.93	8.42	8.65	8.98
250	8.90	8.86	9.29	9.02

GROWREG	NONE		CHLORMEQ	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
PREVCROP				
BARLEY	8.23	7.73	7.94	7.85
OATS	9.74	9.90	9.85	9.81

GROWREG	NONE		CHLORMEQ	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
SOWDATE				
15 SEPT	8.97	8.58	8.83	8.91
26 OCT	9.01	9.05	8.96	8.74

GROWREG	NONE		CHLORMEQ	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
TOTAL N				
180	8.76	8.77	8.82	8.64
250	9.22	8.86	8.98	9.02

GROWREG	NONE		CHLORMEQ	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
N TIME				
EARLY	9.04	8.58	8.79	8.70
LATE	8.93	9.05	9.00	8.95

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GRAIN TONNES/HECTARE

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

SPR FUNG	NONE		TRIDEMOR	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
PREVCROP				
BARLEY	7.90	7.57	8.28	8.00
OATS	9.72	9.83	9.88	9.88

SPR FUNG	NONE		TRIDEMOR	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
SOWDATE				
15 SEPT	8.69	8.66	9.11	8.84
26 OCT	8.93	8.74	9.04	9.05

SPR FUNG	NONE		TRIDEMOR	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
TOTAL N				
180	8.71	8.67	8.87	8.74
250	8.91	8.73	9.28	9.15

SPR FUNG	NONE		TRIDEMOR	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
N TIME				
EARLY	8.71	8.53	9.13	8.75
LATE	8.91	8.87	9.02	9.14

SPR FUNG	NONE		TRIDEMOR	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
GROWREG				
NONE	8.89	8.77	9.09	8.86
CHLORMEQ	8.73	8.63	9.06	9.02

SUM FUNG	NONE		PROPICON	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
PREVCROP				
BARLEY	7.83	7.44	8.34	8.14
OATS	9.45	9.51	10.14	10.19

SUM FUNG	NONE		PROPICON	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
SOWDATE				
15 SEPT	8.81	8.32	8.99	9.18
26 OCT	8.47	8.63	9.49	9.16

SUM FUNG	NONE		PROPICON	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
TOTAL N				
180	8.65	8.45	8.93	8.95
250	8.64	8.50	9.56	9.38

SUM FUNG	NONE		PROPICON	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
N TIME				
EARLY	8.62	8.29	9.22	8.98
LATE	8.67	8.66	9.27	9.35

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GRAIN TONNES/HECTARE

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

SUM FUNG	NONE		PROPICON	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
GROWREG				
NONE	8.76	8.55	9.22	9.08
CHLORMEQ	8.53	8.40	9.26	9.25

SUM FUNG	NONE		PROPICON	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
SPR FUNG				
NONE	8.51	8.21	9.11	9.19
TRIDEMOR	8.78	8.74	9.38	9.14

SOWDATEX	15 SEPT	26 OCT	MEAN
PREVCROPX			
BARLEY	6.54	6.46	6.50
OATS	8.64	8.32	8.48
MEAN	7.59	7.39	7.49

TOTAL NX	0	145	215	285	MEAN
PREVCROPX					
BARLEY	2.26	8.28	7.53	7.94	6.50
OATS	3.89	9.35	10.08	10.59	8.48
MEAN	3.08	8.81	8.80	9.27	7.49

TOTAL NX	0	145	215	285	MEAN
SOWDATEX					
15 SEPT	3.17	8.45	9.20	9.53	7.59
26 OCT	2.99	9.17	8.40	9.01	7.39
MEAN	3.08	8.81	8.80	9.27	7.49

SOWDATEI	15 SEPT	26 OCT	MEAN
PRECROPI			
BARLEY	6.97	8.68	7.83
OATS	10.21	9.22	9.71
MEAN	8.59	8.95	8.77

TOTAL NI	180	250	MEAN
PRECROPI			
BARLEY	7.89	7.76	7.83
OATS	9.37	10.06	9.71
MEAN	8.63	8.91	8.77

TOTAL NI	180	250	MEAN
SOWDATEI			
15 SEPT	8.35	8.83	8.59
26 OCT	8.91	8.99	8.95
MEAN	8.63	8.91	8.77

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GRAIN TONNES/HECTARE

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

N TIMEI	EARLY	LATE	MEAN
PRECROPI			
BARLEY	7.80	7.85	7.83
OATS	9.64	9.79	9.71
MEAN	8.72	8.82	8.77

N TIMEI	EARLY	LATE	MEAN
SOWDATEI			
15 SEPT	8.65	8.53	8.59
26 OCT	8.79	9.12	8.95
MEAN	8.72	8.82	8.77

N TIMEI	EARLY	LATE	MEAN
TOTAL NI			
180	8.60	8.66	8.63
250	8.83	8.98	8.91
MEAN	8.72	8.82	8.77

AUT NI	NONE	AUT N	MEAN
PRECROPI			
BARLEY	7.95	7.70	7.83
OATS	9.65	9.78	9.71
MEAN	8.80	8.74	8.77

AUT NI	NONE	AUT N	MEAN
SOWDATEI			
15 SEPT	8.42	8.76	8.59
26 OCT	9.18	8.73	8.95
MEAN	8.80	8.74	8.77

AUT NI	NONE	AUT N	MEAN
TOTAL NI			
180	8.59	8.68	8.63
250	9.01	8.80	8.91
MEAN	8.80	8.74	8.77

AUT NI	NONE	AUT N	MEAN
N TIMEI			
EARLY	8.79	8.64	8.72
LATE	8.80	8.84	8.82
MEAN	8.80	8.74	8.77

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GRAIN TONNES/HECTARE

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

SE GREGX	9.93
SL GREGX	10.15
SE FAL	7.49
SL FAL	10.39
SE NONE B	1.57
SE NONE F	7.33
SL NONE F	6.15
MEAN	8.37
GRAND MEAN	8.59

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

SED APPLY TO MAIN FACTORIAL PLOTS ONLY

MARGINS OF TWO FACTOR TABLES	0.090*
TWO FACTOR TABLES	0.189**
THREE FACTOR TABLES	0.267**

* NOT INCLUDING PREVCROP
** WITHIN SAME LEVEL OF PREVCROP ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	33	0.756	8.5

GRAIN MEAN DM% 86.8

PLOT AREA HARVESTED 0.00209

https://doi.org/10.23637/ERADOC-1-44

83/R/WW/4

WINTER WHEAT

SEED RATES AND DIVIDED N DRESSINGS

Object: To study the effects of a range of rates of early nitrogen dressings on the growth and yield of wheat sown at one third or at standard seed rate - Little Hoos.

Sponsors: J. McEwen, R. Moffitt.

Design: 2 randomised blocks of 30 plots.

Whole plot dimensions: 3.0 x 10.0.

Treatments: All combinations of:-

1. SD RATE — Seed rates (kg):

   67
   200

2. EARLY N — Nitrogen fertilizer applied 22 Feb, 1983 (kg N) as 'Nitro-Chalk':

   0
   25
   50
   75

3. APRIL N — Nitrogen fertilizer applied 13 Apr (kg N) as 'Nitro-Chalk':

   75
   100
   125

plus extra treatments, all combinations of:-

1. SD RATEX — Seed rates (kg):

   67
   200

2. APRIL NX — Nitrogen fertilizer applied 13 Apr (kg N):

   150
   175
   200

Basal applications: Manures: (0:18:36) at 420 kg. Weedkillers: Paraquat at 0.83 kg ion in 250 l. Isoproturon at 2.1 kg with dicamba, mecoprop, and MCPA (as 'Poly-Farmon CMPP' at 4.2 l) in 250 l. Fungicides: Carbendazim at 0.15 kg, maneb at 1.6 kg and tridemorph at 0.38 kg in 500 l. Growth regulator: Chlormequat at 1.1 kg in 250 l.

Seed: Avalon.

https://doi.org/10.23637/ERADOC-1-44

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Cultivations, etc.:- Disced: 25 Aug and 1 Sept, 1982. PK applied: 10 Sept. Paraquat applied: 15 Oct. Rotary harrowed, seed sown: 27 Oct. Isoproturon with 'Poly-Farmon CMPP' applied: 11 Mar, 1983. Growth regulator applied: 29 Apr. Fungicides applied: 13 June. Combine harvested: 10 Aug. Previous crops: W. wheat 1981, w. oats 1982.

NOTES: (1) Plant counts were made in February, shoot counts in March and April and ear counts in July.
(2) 1000 grain weights and N content of grain were measured.

GRAIN TONNES/HECTARE

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

EARLY N	0	25	50	75	MEAN
SD RATE					
67	7.81	8.56	8.64	9.09	8.52
200	7.88	8.62	8.98	9.19	8.67
MEAN	7.85	8.59	8.81	9.14	8.60

APRIL N	75	100	125	MEAN
SD RATE				
67	8.30	8.60	8.67	8.52
200	8.16	8.72	9.13	8.67
MEAN	8.23	8.66	8.90	8.60

APRIL N	75	100	125	MEAN
EARLY N				
0	7.19	8.06	8.28	7.85
25	8.13	8.73	8.90	8.59
50	8.49	8.81	9.14	8.81
75	9.10	9.04	9.28	9.14
MEAN	8.23	8.66	8.90	8.60

	APRIL N	75	100	125
SD RATE	EARLY N			
67	0	7.26	8.04	8.12
	25	8.23	8.80	8.65
	50	8.65	8.64	8.64
	75	9.07	8.92	9.27
200	0	7.13	8.07	8.45
	25	8.04	8.67	9.15
	50	8.34	8.97	9.64
	75	9.12	9.17	9.29

APRIL NX	150	175	200	MEAN
SD RATEX				
67	9.00	8.65	9.16	8.94
200	8.38	9.58	9.23	9.06
MEAN	8.69	9.12	9.19	9.00

GRAND MEAN 8.68

https://doi.org/10.23637/ERADOC-1-44

83/R/WW/4

GRAIN TONNES/HECTARE

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

TABLE	SD RATE	EARLY N	APRIL N	SD RATE EARLY N
SED	0.099	0.139	0.121	0.197

TABLE	SD RATE APRIL N	EARLY N APRIL N	SD RATE EARLY N APRIL N	SDRATEX
SED	0.171	0.241	0.341	0.197

TABLE	APRIL NX	SD RATEX APRIL NX
SED	0.241	0.341

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

STRATUM	DF	SE	CV%
BLOCK.WP	29	0.341	3.9

GRAIN MEAN DM% 85.8

PLOT AREA HARVESTED 0.00229

https://doi.org/10.23637/ERADOC-1-44

83/R/WW/6

WINTER WHEAT

ALL PURPOSE ELECTROSTATIC SPRAYING

Object: To compare the efficiency of a range of sprays when applied with electrostatic or hydraulic sprayers - Bylands.

Sponsors: D.C. Griffiths, A.J. Arnold, G.R. Cayley, P. Etheridge, J.F. Jenkyn, F.T. Phillips, B. Pye, G.C. Scott.

Design: 4 randomised blocks of 5 plots.

Whole plot dimensions: 8.0 x 30.0.

Treatments:

SPRAYER	Sprayers:
CNVNTL A	Conventional hydraulic sprayer for all sprays
CNVNTL W	Conventional hydraulic sprayer, only weedkillers applied
ELECT CA	Electrostatic sprayer, charged particles, for all sprays
ELECT UA	Electrostatic sprayer, uncharged particles, for all sprays
EL UW CR	Electrostatic sprayer, uncharged particles to spray weedkillers, charged particles, for all remaining sprays.

NOTE: Details of treatments are shown below:

Date	Chemical	kg per ha	Volume, l per ha Electrostatic	Hydraulic
1 Oct, 1982	Isoproturon +)	1.4	7.0	380
	Trifluralin)	1.4		
20 Nov	Permethrin	0.05	5.6	380
9 Apr, 1983	Mecoprop +)	1.68		
	Ioxynil +)	0.2	6.25	380
	Benazolin)	0.2		
15 Apr	Prochloraz +)	0.4		
	Carbendazim)	0.15	6.25	380
29 Apr	Chlormequat chloride	1.68	6.25	380
16 June	Propiconazole	0.12	8.33	380
7 July	Dimethoate	0.44	8.33	380

Basal applications: Manures: (5:14:30) at 340 kg. 'Nitro-Chalk' at 280 kg followed by 630 kg.

Seed: Aquila, sown at 200 kg.

https://doi.org/10.23637/ERADOC-1-44

83/R/WW/6

Cultivations, etc.:- Disced: 9 Sept, 1982. Heavy spring-tine cultivated: 14 Sept. NPK applied: 18 Sept. Seed sown: 24 Sept. First N applied: 15 Mar, 1983. Second N applied: 13 Apr. Combine harvested: 14 Aug. Previous crops: S. barley 1981, w. wheat 1982.

NOTE: Weed counts were made in December, February and July. Straw length, percentage eyespot infection and aphids were assessed in July. Samples for chemical analysis were taken immediately after each spray application.

GRAIN TONNES/HECTARE

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

SPRAYER	CNVNTL A	CNVNTL W	ELECT CA	ELECT UA	EL UW CR	MEAN
	7.96	6.74	7.72	7.65	7.93	7.60

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

TABLE	SPRAYER
SED	0.373

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

STRATUM	DF	SE	CV%
BLOCK.WP	12	0.528	6.9

GRAIN MEAN DM% 87.0

PLOT AREA HARVESTED 0.00828

https://doi.org/10.23637/ERADOC-1-44

83/R/WW/7

WINTER WHEAT

NUARIMOL AND TAKE-ALL

Object: To study the effects of nuarimol applied to the soil on the incidence of take-all (Gaeumannomyces graminis) and on yield - Gt. Knott I.

Sponsor: G.L. Bateman.

Design: 5 randomised blocks of 4 plots.

Whole plot dimensions: 3.0 x 13.0.

Treatments:

NUARIMOL	Nuarimol fungicide (kg) rotary harrowed into the seedbed:
0.00	
0.55	
1.10	
2.20	

Basal applications: Manures: Chalk at 5.0 t. 'Nitro-Chalk' at 130 kg followed by 500 kg. Weedkillers: Paraquat at 0.70 kg ion in 250 l. Isoproturon at 2.1 kg with dicamba, mecoprop and MCPA (as 'Poly-Farmon' at 4.2 l) in 250 l. Fungicide: Propiconazole at 0.12 kg in 250 l.

Seed: Avalon, sown at 180 kg.

Cultivations, etc.:- Paraquat applied: 23 Aug, 1982. Ploughed: 31 Aug. Chalk applied: 16 Sept. First N applied: 20 Sept. Spring-tine cultivated: 23 Sept. Rotary harrowed, seed sown: 1 Oct. Isoproturon and 'Poly-Farmon' applied: 10 Mar, 1983. Second N applied: 15 Apr. Fungicide applied: 16 June. Combine harvested: 11 Aug. Previous crops: S. barley 1981, w. wheat 1982.

NOTE: Take-all and foot rots were assessed in early April, mid-May and mid-June.

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GRAIN TONNES/HECTARE

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

NUARIMOL	0.00	0.55	1.10	2.20	MEAN
	7.50	7.91	9.00	8.03	8.11

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

TABLE	NUARIMOL
SED	0.489

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

STRATUM	DF	SE	CV%
BLOCK.WP	12	0.774	9.5

GRAIN MEAN DM% 87.1

PLOT AREA HARVESTED 0.00248

https://doi.org/10.23637/ERADOC-1-44

83/R/WW/8

WINTER WHEAT

APHID ALARM PHEROMONE AND BYDV

Object: To study the effects of insecticides and an alarm pheromone on aphids, barley yellow dwarf virus (BYDV) and the yield of w. wheat - White Horse II.

Sponsors: D.C. Griffiths, R.T. Plumb, J.A. Pickett.

Design: 4 blocks of 5 plots.

Whole plot dimensions: 6.0 x 12.0.

Treatments:

TREATMNT	Application of insecticides or alarm pheromone:
NONE	None
PHORA SD	Phorate as a seed dressing at 2 g per kg of seed
PERMET A	Permethrin at 0.08 kg
PHER ADD	'ADD 11' at 4 kg
PHER MAN	'Mana' at 4 kg

NOTES: (1) Permethrin was applied by hydraulic sprayer in 450 l on 15 Nov, 1982.
(2) 'ADD 11' is a non-systemic behaviour controlling chemical.
(3) 'Mana' is a systemic behaviour controlling chemical.
(4) Both 'ADD 11' and 'Mana' were applied by electrostatic sprayer in 12 l on 12 Oct, 1982, 27 Oct and 15 Nov.

Basal applications: Manures: 'Nitro-Chalk' at 630 kg. Weedkillers: Methabenzthiazuron at 3.2 kg in 250 l. Mecoprop (as 'Mecoprop 40' at 4.2 l) in 250 l. Fungicide: Triadimefon at 0.12 kg in 250 l.

Seed: Aquila, sown at 180 kg.

Cultivations, etc.:- Deep-tine cultivated: 7 Sept, 1982. Disced twice: 10 Sept. Heavy spring-tine cultivated: 13 Sept. Rotary harrowed, seed sown: 14 Sept. Methabenzthiazuron applied: 24 Sept. Mecoprop applied: 17 Nov. N applied: 14 Apr, 1983. Fungicide applied: 17 June. Combine harvested: 14 Aug. Previous crops: S. barley 1981, w. beans 1982.

NOTE: Counts were made of barley yellow dwarf virus.

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83/R/WW/8

GRAIN TONNES/HECTARE

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

TREATMNT	NONE	PHORA SD	PERMET A	PHER ADD	PHER MAN	MEAN
	9.16	9.42	8.17	9.80	8.40	8.99

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

TABLE	TREATMNT
SED	0.841

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

STRATUM	DF	SE	CV%
BLOCK.WP	12	1.189	13.2

GRAIN MEAN DM% 86.4

PLOT AREA HARVESTED 0.00259

https://doi.org/10.23637/ERADOC-1-44

83/R/WW/9

WINTER WHEAT

ERYNIA AND APHID CONTROL

Object: To compare the effects of introducing Erynia neoaphidis with two forms and times of applying pirimicarb on cereal aphid population and grain yield - Little Knott I.

Sponsor: N. Wilding.

Design: 3 randomised blocks of 7 plots.

Whole plot dimensions: 6.0 x 6.0.

Treatments:

APH CONT	Chemical and biological aphid control:
NONE	None (triplicated)
PS MY	Pirimicarb standard formulation on 27 May, 1983
PS JN	Pirimicarb standard formulation on 27 June
PM MY	Pirimicarb microencapsulated on 27 May
PM JN	Pirimicarb microencapsulated on 27 June

NOTES: (1) Because aphids were very few it was decided to omit the planned introduction of Erynia.
(2) The pirimicarb was applied at 0.14 kg in 340 l.

Basal applications: Manures: (5:14:30) at 310 kg. 'Nitro-Chalk' at 750 kg. Weedkillers: Glyphosate at 1.4 kg in 250 l. Paraquat at 0.84 kg ion in 250 l. Mecoprop, bromoxynil and ioxynil (as 'Brittox' at 3.5 l) with isoproturon at 2.0 kg in 250 l.

Seed: Maris Huntsman, sown at 190 kg.

Cultivations, etc.:- Glyphosate applied: 3 Aug, 1982. Disced three times: 26 Aug. Paraquat applied: 13 Oct. NPK applied, spring-tine cultivated, seed sown: 15 Oct. N applied: 13 Apr, 1983. 'Brittox' with isoproturon applied: 16 Apr. Combine harvested: 13 Aug. Previous crops: S. barley 1981, grass 1982.

NOTE: Aphid counts were made weekly from May to July.

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83/R/WW/9

GRAIN TONNES/HECTARE

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

APH CONT	
NONE	7.76
PS MY	7.86
PS JN	7.36
PM MY	7.55
PM JN	7.66
MEAN	7.67

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

TABLE	APH CONT	
SED	0.484	MIN REP
	0.396	MAX-MIN

	APH CONT
MAX-MIN	NONE V ANY OF REMAINDER
MIN REP	ANY OF REMAINDER

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

STRATUM	DF	SE	CV%
BLOCK.WP	14	0.593	7.7

GRAIN MEAN DM% 88.5

PLOT AREA HARVESTED 0.00173

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83/R/WW/10

WINTER WHEAT

ERYNIA AND APHID CONTROL IN CAGES

Object: To determine whether Erynia neoaphidis can be established in cereal aphid populations by the distribution of triturated bodies of fungus-killed aphids - Long Hoos VI/VII 5.

Sponsor: N. Wilding.

Design: 3 blocks of 3 plots.

Whole plot dimensions: 2.03 x 2.13.

Treatments:

TREATMNT	Introduction of fungal-infected dead aphids:
NONE	None
ER JUNE	Erynia neoaphidis, 2 kg on 22 June
ER JULY	Erynia neoaphidis, 2 kg on 7 July

NOTE: Plots were enclosed by mesh-sided cages and Sitobion avenae and Metopolophium dirhodum were introduced in May.

Basal applications: Manures: 'Nitro-Chalk' at 540 kg. Weedkiller: Glyphosate at 1.5 kg in 340 l.

Seed: Maris Huntsman, sown at 210 kg.

Cultivations, etc.:- Weedkiller applied: 14 Sept, 1982. Ploughed: 15 Oct. Seed sown with harrow, seed drill combination: 17 Jan, 1983. N applied: 14 Apr. Harvested by hand: 18 Aug. Previous crops: Fallow 1981, w. and s. beans 1982.

NOTE: Aphids were counted weekly during June and July. Samples of live aphids were taken to determine proportions infected with Erynia.

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83/R/WW/10

GRAIN TONNES/HECTARE

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

TREATMNT	NONE	ER JUNE	ER JULY	MEAN
	2.42	2.60	2.71	2.57

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

TABLE	TREATMNT
SED	0.654

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

STRATUM	DF	SE	CV%
BLOCK.WP	4	0.801	31.1

GRAIN MEAN DM% 86.7

PLOT AREA HARVESTED 0.00010

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