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# Yields of the Field Experiments 1983

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## 83/R/WW/3 Factors Limiting Yield - W. Wheat

### Rothamsted Research

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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 1 on 25 May with carbendazim at 0.25 kg and maneb at 1.6 kg in 220 1 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 1 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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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

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GRAIN TONNES/HECTARE

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

SPR FUNG	NONE	TRIDEMOR	MEAN
GROWREG			
NONE	8.83	8.98	8.90
CHLORMEQ	8.68	9.04	8.86
MEAN	8.75	9.01	8.88
SUM FUNG	NONE	PROPICON	MEAN
PREVCROP			
BARLEY	7.64	8.24	7.94
OATS	9.48	10.17	9.82
MEAN	8.56	9.20	8.88
SUM FUNG	NONE	PROPICON	MEAN
SOWDATE			
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	NONE	PROPICON	MEAN
TOTAL N			
180	8.55	8.94	8.75
250	8.57	9.47	9.02
MEAN	8.56	9.20	8.88
SUM FUNG	NONE	PROPICON	MEAN
N TIME			
EARLY	8.45	9.10	8.78
LATE	8.66	9.31	8.99
MEAN	8.56	9.20	8.88
SUM FUNG	NONE	PROPICON	MEAN
GROWREG			
NONE	8.65	9.15	8.90
CHLORMEQ	8.47	9.26	8.86
MEAN	8.56	9.20	8.88
SUM FUNG	NONE	PROPICON	MEAN
SPR FUNG			
NONE	8.36	9.15	8.75
TRIDEMOR	8.76	9.26	9.01
MEAN	8.56	9.20	8.88



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GRAIN TONNES/HECTARE

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

PESTCIDE	NONE	ALD+PIR	MEAN
PREVCROP			
BARLEY	8.09	7.79	7.94
OATS	9.80	9.85	9.82
MEAN	8.94	8.82	8.88
PESTCIDE	NONE	ALD+PIR	MEAN
SOWDATE			
15 SEPT	8.90	8.75	8.83
26 OCT	8.98	8.89	8.94
MEAN	8.94	8.82	8.88
PESTCIDE	NONE	ALD+PIR	MEAN
TOTAL N			
180	8.79	8.70	8.75
250	9.10	8.94	9.02
MEAN	8.94	8.82	8.88
PESTCIDE	NONE	ALD+PIR	MEAN
N TIME			
EARLY	8.92	8.64	8.78
LATE	8.97	9.00	8.99
MEAN	8.94	8.82	8.88
PESTCIDE	NONE	ALD+PIR	MEAN
GROWREG			
NONE	8.99	8.81	8.90
CHLORMEQ	8.90	8.83	8.86
MEAN	8.94	8.82	8.88
PESTCIDE	NONE	ALD+PIR	MEAN
SPR FUNG			
NONE	8.81	8.70	8.75
TRIDEMOR	9.08	8.94	9.01
MEAN	8.94	8.82	8.88
PESTCIDE	NONE	ALD+PIR	MEAN
SUM FUNG			
NONE	8.64	8.47	8.56
PROPICON	9.24	9.17	9.20
MEAN	8.94	8.82	8.88

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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 GROWREG TOTAL N	EARLY		LATE	
	NONE	CHLORMEQ	NONE	CHLORMEQ
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	TRIDEMOR	CHLORMEQ	TRIDEMOR
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	TRIDEMOR	CHLORMEQ	TRIDEMOR
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	PROPICON	CHLORMEQ	PROPICON
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 SUM FUNG SOWDATE	NONE		CHLORMEQ	
	NONE	PROPICON	NONE	PROPICON
15 SEPT	8.62	8.93	8.51	9.24
26 OCT	8.68	9.37	8.42	9.28
GROWREG SUM FUNG TOTAL N	NONE		CHLORMEQ	
	NONE	PROPICON	NONE	PROPICON
180	8.67	8.85	8.43	9.03
250	8.63	9.45	8.51	9.49
GROWREG SUM FUNG N TIME	NONE		CHLORMEQ	
	NONE	PROPICON	NONE	PROPICON
EARLY	8.55	9.07	8.36	9.13
LATE	8.75	9.23	8.57	9.38
SPR FUNG SUM FUNG PREVCROP	NONE		TRIDEMOR	
	NONE	PROPICON	NONE	PROPICON
BARLEY	7.22	8.25	8.05	8.23
OATS	9.50	10.05	9.46	10.29
SPR FUNG SUM FUNG SOWDATE	NONE		TRIDEMOR	
	NONE	PROPICON	NONE	PROPICON
15 SEPT	8.40	8.95	8.73	9.21
26 OCT	8.32	9.34	8.78	9.31
SPR FUNG SUM FUNG TOTAL N	NONE		TRIDEMOR	
	NONE	PROPICON	NONE	PROPICON
180	8.33	9.05	8.77	8.83
250	8.39	9.25	8.74	9.69
SPR FUNG SUM FUNG N TIME	NONE		TRIDEMOR	
	NONE	PROPICON	NONE	PROPICON
EARLY	8.24	8.99	8.67	9.21
LATE	8.48	9.30	8.85	9.31
SPR FUNG SUM FUNG GROWREG	NONE		TRIDEMOR	
	NONE	PROPICON	NONE	PROPICON
NONE	8.60	9.05	8.70	9.25
CHLORMEQ	8.12	9.24	8.82	9.27
SOWDATE PESTCIDE PREVCROP	15 SEPT		26 OCT	
	NONE	ALD+PIR	NONE	ALD+PIR
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

83/R/WW/3

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		



83/R/WW/3

GRAIN TONNES/HECTARE

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

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

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

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

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

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

83/R/WW/3

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		