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Yields of the Field Experiments 1982

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82/R/WW/3 Factors Limiting Yield - Winter Wheat

Rothamsted Research

Rothamsted Research (1983) *82/R/WW/3 Factors Limiting Yield - Winter Wheat ;* Yields Of The Field Experiments 1982, pp 210 - 226 **- DOI: https://doi.org/10.23637/ERADOC-1-33**

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82/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 - Gt. Knott I.

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: P.B. Barraclough, D.S. Jenkinson, A.H. Weir, P.J. Welbank, F.V. Widdowson.

Design: Half replicate of 2^8 + 46 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 1979, w. wheat 1980, s. barley 1981
OATS	Potatoes 1979, w. wheat 1980, s. oats 1981

Whole plots

2. SOWDATE — Dates of sowing:

22 SEP	22 September, 1981
22 OCT	22 October

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

150
220

4. N TIME — Timing of nitrogen fertilizer applications:

EARLY	2 February, 1982, 9 March, 10 May
LATE	9 March, 13 April, 24 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 23 March for SOWDATE 22 SEPT and 16 April for SOWDATE 22 OCT

6. SPR FUNG — Spring fungicide:

NONE	None
BENOMYL	Benomyl at 0.25 kg on 24 March

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7. SUM FUNG — Summer fungicide:

NONE	None
PROPICON	Propiconazole at 0.125 kg on 26 May and 24 June

8. PESTCIDE — Autumn and summer pesticides:

NONE	None
ALD+PIR	Aldicarb at 7 kg worked into seedbed + pirimicarb at 0.14 kg on 14 June

Plus all combinations of the following (all given chlormequat chloride + choline chloride, benomyl, propiconazole, aldicarb, pirimicarb; the plots sown 22 Sept were given N timed early and plots sown 22 Oct given N timed late):

Blocks

1. PRECROPX — Previous cropping:

BARLEY	Potatoes 1979, w. wheat 1980, s. barley 1981
OATS	Potatoes 1979, w. wheat 1980, s. oats 1981

Whole plots

2. SOWDATEX — Dates of sowing:

22 SEPT	22 September, 1981
22 OCT	22 October

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

0
115
185
255

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, benomyl, propiconazole, aldicarb and pirimicarb):

Blocks

1. PRECROPI — Previous cropping:

BARLEY	Potatoes 1979, w. wheat 1980, s. barley 1981
OATS	Potatoes 1979, w. wheat 1980, s. oats 1981

Whole plots

2. SOWDATEI — Dates of sowing:

22 SEPT	22 September, 1981
22 OCT	22 October

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

   150
   220

4. N TIMEI — Timing of fertilizer application:

   EARLY — 3 February, 9 March, 10 May
   LATE — 9 March, 13 April, 24 May

5. AUT NI — Autumn applied N fertilizer:

   NONE — None
   AUT N — 40 kg N of the total N, applied to seedbed instead of in spring

Plus six extra treatments (all, except SE NONE, given chlormequat chloride + choline chloride, benomyl, propiconazole, aldicarb, pirimicarb):

EXTRA

SE GREGX — Sown 22 Sept, after barley given additional chlormequat chloride + choline chloride (as '5 C Cycocel' at 1.0 l) at Zadoks GS 13/21 on 26 Nov, 1981, and 220 kg N at N TIME EARLY (duplicated)
SL GREGX — Sown 22 Oct, after barley given additional chlormequat chloride + choline chloride (as 5 C Cycocel' at 1.0 l) at Zadoks GS 13/21 on 10 Feb, 1982 and 220 kg N at N TIME LATE (duplicated)
SE FAL — Sown 22 Sept after fallow and given 220 kg N at N TIME EARLY (triplicated)
SL FAL — Sown 22 Oct after fallow and given 220 kg N at N TIME LATE (triplicated)
SE OEXTR — Sown 22 Sept after oats and given 220 kg N at N TIME EARLY
SE NONE — Sown 22 Sept after oats

NOTE: 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.

Basal applications: Manures: (0:14:28) at 540 kg. Weedkillers: Chlortoluron at 5.6 l in 250 l. Mecoprop, bromoxynil and ioxynil (as 'Brittox' at 3.0 l) in 340 l.

Seed: Avalon, sown at 210 kg.

Cultivations, etc.:- Ploughed: 10 Sept, 1981. Deep-tine cultivated, disced: 14 Sept. PK applied, spring-tine cultivated: 16 Sept. Aldicarb applied for SOWDATE 22 SEPT, rotary harrowed, seed sown: 22 Sept. Aldicarb applied for SOWDATE 22 OCT, rotary harrowed, seed sown: 22 Oct. Chlortoluron applied: 24 Oct. Mecoprop, bromoxynil and ioxynil applied to SOWDATE 22 SEPT: 23 Mar, 1982. Mecoprop, bromoxynil and ioxynil applied to SOWDATE 22 OCT: 16 Apr. Combine harvested PREVCROP BARLEY plots: 10 Aug. Combine harvested PREVCROP OATS plots: 20 Aug.

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NOTE: Soil was sampled for nematodes, wheat bulb fly larvae, 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, growth stage, aphids, foliar diseases and general microflora. Light interception, dry weight, leaf area, and N and K content of the above-ground crop and stem nitrate were measured on several occasions. Volunteer oats were scored in July.

GRAIN TONNES/HECTARE

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

SOWDATE	22 SEPT	22 OCT	MEAN
PREVCROP			
BARLEY	4.89	5.15	5.02
OATS	8.09	8.26	8.17
MEAN	6.49	6.70	6.60

TOTAL N	150	220	MEAN
PREVCROP			
BARLEY	4.74	5.30	5.02
OATS	7.89	8.46	8.17
MEAN	6.31	6.88	6.60

TOTAL N	150	220	MEAN
SOWDATE			
22 SEPT	6.20	6.78	6.49
22 OCT	6.42	6.98	6.70
MEAN	6.31	6.88	6.60

N TIME	EARLY	LATE	MEAN
PREVCROP			
BARLEY	5.59	4.45	5.02
OATS	8.40	7.95	8.17
MEAN	6.99	6.20	6.60

N TIME	EARLY	LATE	MEAN
SOWDATE			
22 SEPT	6.96	6.03	6.49
22 OCT	7.03	6.37	6.70
MEAN	6.99	6.20	6.60

N TIME	EARLY	LATE	MEAN
TOTAL N			
150	6.60	6.02	6.31
220	7.38	6.38	6.88
MEAN	6.99	6.20	6.60

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GRAIN TONNES/HECTARE

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

GRTH REG	NONE	CHLORMEQ	MEAN
PREVCROP			
BARLEY	5.07	4.96	5.02
OATS	8.15	8.19	8.17
MEAN	6.61	6.58	6.60

GRTH REG	NONE	CHLORMEQ	MEAN
SOWDATE			
22 SEPT	6.56	6.42	6.49
22 OCT	6.67	6.74	6.70
MEAN	6.61	6.58	6.60

GRTH REG	NONE	CHLORMEQ	MEAN
TOTAL N			
150	6.38	6.25	6.31
220	6.85	6.91	6.88
MEAN	6.61	6.58	6.60

GRTH REG	NONE	CHLORMEQ	MEAN
N TIME			
EARLY	7.07	6.91	6.99
LATE	6.15	6.25	6.20
MEAN	6.61	6.58	6.60

SPR FUNG	NONE	BENOMYL	MEAN
PREVCROP			
BARLEY	4.94	5.10	5.02
OATS	8.12	8.23	8.17
MEAN	6.53	6.66	6.60

SPR FUNG	NONE	BENOMYL	MEAN
SOWDATE			
22 SEPT	6.36	6.62	6.49
22 OCT	6.70	6.71	6.70
MEAN	6.53	6.66	6.60

SPR FUNG	NONE	BENOMYL	MEAN
TOTAL N			
150	6.25	6.37	6.31
220	6.81	6.96	6.88
MEAN	6.53	6.66	6.60

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GRAIN TONNES/HECTARE

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

SPR FUNG N TIME	NONE	BENOMYL	MEAN
EARLY	6.86	7.12	6.99
LATE	6.19	6.21	6.20
MEAN	6.53	6.66	6.60

SPR FUNG GRTH REG	NONE	BENOMYL	MEAN
NONE	6.57	6.66	6.61
CHLORMEQ	6.49	6.67	6.58
MEAN	6.53	6.66	6.60

SUM FUNG PREVCROP	NONE	PROPICON	MEAN
BARLEY	4.89	5.15	5.02
OATS	8.05	8.29	8.17
MEAN	6.47	6.72	6.60

SUM FUNG SOWDATE	NONE	PROPICON	MEAN
22 SEPT	6.40	6.58	6.49
22 OCT	6.55	6.86	6.70
MEAN	6.47	6.72	6.60

SUM FUNG TOTAL N	NONE	PROPICON	MEAN
150	6.17	6.45	6.31
220	6.77	6.99	6.88
MEAN	6.47	6.72	6.60

SUM FUNG N TIME	NONE	PROPICON	MEAN
EARLY	6.93	7.06	6.99
LATE	6.02	6.39	6.20
MEAN	6.47	6.72	6.60

SUM FUNG GRTH REG	NONE	PROPICON	MEAN
NONE	6.55	6.68	6.61
CHLORMEQ	6.40	6.76	6.58
MEAN	6.47	6.72	6.60

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GRAIN TONNES/HECTARE

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

SUM FUNG	NONE	PROPICON	MEAN
SPR FUNG			
NONE	6.44	6.62	6.53
BENOMYL	6.51	6.82	6.66
MEAN	6.47	6.72	6.60

PESTCIDE	NONE	ALD+PIR	MEAN
PREVCROP			
BARLEY	5.24	4.79	5.02
OATS	8.16	8.19	8.17
MEAN	6.70	6.49	6.60

PESTCIDE	NONE	ALD+PIR	MEAN
SOWDATE			
22 SEPT	6.67	6.31	6.49
22 OCT	6.73	6.67	6.70
MEAN	6.70	6.49	6.60

PESTCIDE	NONE	ALD+PIR	MEAN
TOTAL N			
150	6.42	6.21	6.31
220	6.99	6.78	6.88
MEAN	6.70	6.49	6.60

PESTCIDE	NONE	ALD+PIR	MEAN
N TIME			
EARLY	7.12	6.86	6.99
LATE	6.28	6.12	6.20
MEAN	6.70	6.49	6.60

PESTCIDE	NONE	ALD+PIR	MEAN
GRTH REG			
NONE	6.75	6.48	6.61
CHLORMEQ	6.65	6.50	6.58
MEAN	6.70	6.49	6.60

PESTCIDE	NONE	ALD+PIR	MEAN
SPR FUNG			
NONE	6.59	6.47	6.53
BENOMYL	6.81	6.52	6.66
MEAN	6.70	6.49	6.60

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GRAIN TONNES/HECTARE

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

PESTCIDE	NONE	ALD+PIR	MEAN
SUM FUNG			
NONE	6.61	6.33	6.47
PROPICON	6.79	6.65	6.72
MEAN	6.70	6.49	6.60

SOWDATE	22 SEPT		22 OCT	
TOTAL N	150	220	150	220
PREVCROP				
BARLEY	4.57	5.21	4.90	5.39
OATS	7.83	8.35	7.94	8.57

SOWDATE	22 SEPT		22 OCT	
N TIME	EARLY	LATE	EARLY	LATE
PREVCROP				
BARLEY	5.50	4.28	5.67	4.62
OATS	8.41	7.77	8.39	8.13

TOTAL N	150		220	
N TIME	EARLY	LATE	EARLY	LATE
PREVCROP				
BARLEY	5.11	4.36	6.06	4.55
OATS	8.09	7.68	8.71	8.21

TOTAL N	150		220	
N TIME	EARLY	LATE	EARLY	LATE
SOWDATE				
22 SEPT	6.52	5.88	7.39	6.17
22 OCT	6.69	6.16	7.37	6.59

SOWDATE	22 SEPT		22 OCT	
GRTH REG	NONE	CHLORMEQ	NONE	CHLORMEQ
PREVCROP				
BARLEY	5.04	4.74	5.11	5.19
OATS	8.09	8.10	8.22	8.29

TOTAL N	150		220	
GRTH REG	NONE	CHLORMEQ	NONE	CHLORMEQ
PREVCROP				
BARLEY	4.85	4.62	5.30	5.31
OATS	7.90	7.87	8.41	8.51

TOTAL N	150		220	
GRTH REG	NONE	CHLORMEQ	NONE	CHLORMEQ
SOWDATE				
22 SEPT	6.39	6.01	6.74	6.83
22 OCT	6.37	6.48	6.97	6.99

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GRAIN TONNES/HECTARE

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

N TIME	EARLY		LATE	
GRTH REG	NONE	CHLORMEQ	NONE	CHLORMEQ
PREVCROP				
BARLEY	5.78	5.39	4.37	4.53
OATS	8.37	8.43	7.94	7.96

N TIME	EARLY		LATE	
GRTH REG	NONE	CHLORMEQ	NONE	CHLORMEQ
SOWDATE				
22 SEPT	7.16	6.76	5.97	6.08
22 OCT	6.99	7.07	6.34	6.41

N TIME	EARLY		LATE	
GRTH REG	NONE	CHLORMEQ	NONE	CHLORMEQ
TOTAL N				
150	6.75	6.45	6.00	6.04
220	7.39	7.37	6.31	6.45

SOWDATE	22 SEPT		22 OCT	
SPR FUNG	NONE	BENOMYL	NONE	BENOMYL
PREVCROP				
BARLEY	4.67	5.11	5.21	5.08
OATS	8.05	8.14	8.18	8.33

TOTAL N	150		220	
SPR FUNG	NONE	BENOMYL	NONE	BENOMYL
PREVCROP				
BARLEY	4.66	4.81	5.22	5.39
OATS	7.84	7.94	8.39	8.53

TOTAL N	150		220	
SPR FUNG	NONE	BENOMYL	NONE	BENOMYL
SOWDATE				
22 SEPT	6.07	6.33	6.65	6.91
22 OCT	6.43	6.41	6.96	7.00

N TIME	EARLY		LATE	
SPR FUNG	NONE	BENOMYL	NONE	BENOMYL
PREVCROP				
BARLEY	5.47	5.70	4.41	4.49
OATS	8.26	8.54	7.97	7.93

N TIME	EARLY		LATE	
SPR FUNG	NONE	BENOMYL	NONE	BENOMYL
SOWDATE				
22 SEPT	6.78	7.14	5.94	6.11
22 OCT	6.95	7.11	6.44	6.31

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GRAIN TONNES/HECTARE

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

N TIME	EARLY		LATE	
SPR FUNG	NONE	BENOMYL	NONE	BENOMYL
TOTAL N				
150	6.44	6.76	6.06	5.98
220	7.29	7.48	6.33	6.44

GRTH REG	NONE		CHLORMEQ	
SPR FUNG	NONE	BENOMYL	NONE	BENOMYL
PREVCROP				
BARLEY	4.97	5.18	4.91	5.01
OATS	8.17	8.14	8.06	8.33

GRTH REG	NONE		CHLORMEQ	
SPR FUNG	NONE	BENOMYL	NONE	BENOMYL
SOWDATE				
22 SEPT	6.52	6.60	6.20	6.64
22 OCT	6.62	6.72	6.78	6.70

GRTH REG	NONE		CHLORMEQ	
SPR FUNG	NONE	BENOMYL	NONE	BENOMYL
TOTAL N				
150	6.28	6.47	6.22	6.27
220	6.86	6.85	6.76	7.07

GRTH REG	NONE		CHLORMEQ	
SPR FUNG	NONE	BENOMYL	NONE	BENOMYL
N TIME				
EARLY	6.98	7.17	6.75	7.07
LATE	6.16	6.15	6.22	6.27

SOWDATE	22 SEPT		22 OCT	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
PREVCROP				
BARLEY	4.80	4.98	4.98	5.32
OATS	7.99	8.19	8.12	8.40

TOTAL N	150		220	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
PREVCROP				
BARLEY	4.59	4.88	5.20	5.41
OATS	7.76	8.01	8.35	8.58

TOTAL N	150		220	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
SOWDATE				
22 SEPT	6.05	6.35	6.74	6.82
22 OCT	6.30	6.55	6.80	7.16

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GRAIN TONNES/HECTARE

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

N TIME	EARLY		LATE	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
PREVCROP				
BARLEY	5.58	5.59	4.20	4.70
OATS	8.28	8.52	7.83	8.07

N TIME	EARLY		LATE	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
SOWDATE				
22 SEPT	6.95	6.96	5.84	6.21
22 OCT	6.91	7.15	6.19	6.56

N TIME	EARLY		LATE	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
TOTAL N				
150	6.60	6.60	5.75	6.29
220	7.26	7.51	6.28	6.48

GRTH REG	NONE		CHLORMEQ	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
PREVCROP				
BARLEY	5.05	5.10	4.73	5.20
OATS	8.04	8.27	8.07	8.32

GRTH REG	NONE		CHLORMEQ	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
SOWDATE				
22 SEPT	6.48	6.64	6.31	6.53
22 OCT	6.61	6.72	6.48	6.99

GRTH REG	NONE		CHLORMEQ	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
TOTAL N				
150	6.29	6.47	6.06	6.43
220	6.81	6.90	6.73	7.09

GRTH REG	NONE		CHLORMEQ	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
N TIME				
EARLY	7.00	7.15	6.86	6.96
LATE	6.10	6.21	5.93	6.56

SPR FUNG	NONE		BENOMYL	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
PREVCROP				
BARLEY	4.89	4.99	4.89	5.30
OATS	7.99	8.24	8.12	8.35

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GRAIN TONNES/HECTARE

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

SPR FUNG	NONE		BENOMYL	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
SOWDATE				
22 SEPT	6.35	6.36	6.44	6.81
22 OCT	6.52	6.87	6.57	6.84

SPR FUNG	NONE		BENOMYL	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
TOTAL N				
150	6.16	6.34	6.19	6.55
220	6.72	6.89	6.82	7.09

SPR FUNG	NONE		BENOMYL	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
N TIME				
EARLY	6.76	6.97	7.10	7.15
LATE	6.12	6.27	5.92	6.50

SPR FUNG	NONE		BENOMYL	
SUM FUNG	NONE	PROPICON	NONE	PROPICON
GRTH REG				
NONE	6.64	6.50	6.46	6.86
CHLORMEQ	6.24	6.73	6.55	6.79

SOWDATE	22 SEPT		22 OCT	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
PREVCROP				
BARLEY	5.25	4.53	5.24	5.06
OATS	8.09	8.10	8.23	8.29

TOTAL N	150		220	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
PREVCROP				
BARLEY	4.93	4.54	5.56	5.05
OATS	7.90	7.88	8.42	8.50

TOTAL N	150		220	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
SOWDATE				
22 SEPT	6.41	5.99	6.93	6.63
22 OCT	6.42	6.42	7.04	6.92

N TIME	EARLY		LATE	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
PREVCROP				
BARLEY	5.86	5.31	4.63	4.28
OATS	8.38	8.42	7.93	7.96

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GRAIN TONNES/HECTARE

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

N TIME	EARLY		LATE	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
SOWDATE				
22 SEPT	7.08	6.83	6.25	5.80
22 OCT	7.16	6.90	6.31	6.44

N TIME	EARLY		LATE	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
TOTAL N				
150	6.77	6.44	6.06	5.98
220	7.48	7.29	6.50	6.26

GRTH REG	NONE		CHLORMEQ	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
PREVCROP				
BARLEY	5.39	4.76	5.10	4.83
OATS	8.11	8.20	8.21	8.18

GRTH REG	NONE		CHLORMEQ	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
SOWDATE				
22 SEPT	6.74	6.39	6.60	6.24
22 OCT	6.76	6.57	6.71	6.77

GRTH REG	NONE		CHLORMEQ	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
TOTAL N				
150	6.54	6.22	6.29	6.20
220	6.96	6.75	7.02	6.80

GRTH REG	NONE		CHLORMEQ	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
N TIME				
EARLY	7.23	6.92	7.01	6.81
LATE	6.26	6.05	6.30	6.19

SPR FUNG	NONE		BENOMYL	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
PREVCROP				
BARLEY	5.06	4.82	5.42	4.77
OATS	8.12	8.12	8.20	8.26

SPR FUNG	NONE		BENOMYL	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
SOWDATE				
22 SEPT	6.52	6.19	6.82	6.43
22 OCT	6.66	6.74	6.81	6.60

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GRAIN TONNES/HECTARE

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

SPR FUNG	NONE		BENOMYL	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
TOTAL N				
150	6.43	6.07	6.40	6.34
220	6.75	6.86	7.22	6.69

SPR FUNG	NONE		BENOMYL	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
N TIME				
EARLY	7.04	6.69	7.20	7.04
LATE	6.14	6.24	6.42	6.00

SPR FUNG	NONE		BENOMYL	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
GRTH REG				
NONE	6.61	6.53	6.88	6.44
CHLORMEQ	6.57	6.41	6.74	6.60

SUM FUNG	NONE		PROPICON	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
PREVCROP				
BARLEY	5.21	4.57	5.28	5.01
OATS	8.02	8.09	8.30	8.29

SUM FUNG	NONE		PROPICON	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
SOWDATE				
22 SEPT	6.66	6.14	6.68	6.49
22 OCT	6.57	6.53	6.90	6.81

SUM FUNG	NONE		PROPICON	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
TOTAL N				
150	6.38	5.97	6.45	6.44
220	6.85	6.69	7.12	6.86

SUM FUNG	NONE		PROPICON	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
N TIME				
EARLY	7.11	6.75	7.13	6.98
LATE	6.12	5.91	6.44	6.33

SUM FUNG	NONE		PROPICON	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
GRTH REG				
NONE	6.64	6.46	6.86	6.51
CHLORMEQ	6.59	6.21	6.72	6.80

SUM FUNG	NONE		PROPICON	
PESTCIDE	NONE	ALD+PIR	NONE	ALD+PIR
SPR FUNG				
NONE	6.55	6.33	6.63	6.61
BENOMYL	6.68	6.34	6.95	6.70

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GRAIN TONNES/HECTARE

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

SOWDATEX	22 SEPT	22 OCT	MEAN
PRECROPX			
BARLEY	3.62	3.65	3.64
OATS	6.78	6.97	6.87
MEAN	5.20	5.31	5.26

TOTAL NX	0	115	185	255	MEAN
PRECROPX					
BARLEY	0.71	3.57	4.66	5.61	3.64
OATS	3.12	7.32	8.15	8.90	6.87
MEAN	1.92	5.45	6.41	7.25	5.26

TOTAL NX	0	115	185	255	MEAN
SOWDATEX					
22 SEPT	1.72	4.90	6.92	7.25	5.20
22 OCT	2.11	5.99	5.89	7.25	5.31
MEAN	1.92	5.45	6.41	7.25	5.26

TOTAL NX	0	115	185	255
PRECROPX SOWDATEX				
BARLEY 22 SEPT	0.66	2.92	5.54	5.37
BARLEY 22 OCT	0.76	4.22	3.79	5.84
OATS 22 SEPT	2.78	6.89	8.30	9.14
OATS 22 OCT	3.47	7.75	7.99	8.67

SOWDATEI	22 SEPT	22 OCT	MEAN
PRECROPI			
BARLEY	4.64	4.88	4.76
OATS	7.47	7.86	7.67
MEAN	6.06	6.37	6.21

TOTAL NI	150	220	MEAN
PRECROPI			
BARLEY	4.43	5.09	4.76
OATS	7.35	7.99	7.67
MEAN	5.89	6.54	6.21

TOTAL NI	150	220	MEAN
SOWDATEI			
22 SEPT	6.08	6.04	6.06
22 OCT	5.71	7.03	6.37
MEAN	5.89	6.54	6.21

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GRAIN TONNES/HECTARE

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

N TIMEI	EARLY	LATE	MEAN
PRECROPI			
BARLEY	5.35	4.17	4.76
OATS	8.11	7.23	7.67
MEAN	6.73	5.70	6.21

N TIMEI	EARLY	LATE	MEAN
SOWDATEI			
22 SEPT	6.56	5.56	6.06
22 OCT	6.89	5.85	6.37
MEAN	6.73	5.70	6.21

N TIMEI	EARLY	LATE	MEAN
TOTAL NI			
150	6.24	5.54	5.89
220	7.21	5.86	6.54
MEAN	6.73	5.70	6.21

AUT NI	NONE	AUT N	MEAN
PRECROPI			
BARLEY	5.08	4.44	4.76
OATS	7.71	7.63	7.67
MEAN	6.39	6.03	6.21

AUT NI	NONE	AUT N	MEAN
SOWDATEI			
22 SEPT	6.34	5.77	6.06
22 OCT	6.44	6.29	6.37
MEAN	6.39	6.03	6.21

AUT NI	NONE	AUT N	MEAN
TOTAL NI			
150	6.28	5.51	5.89
220	6.51	6.56	6.54
MEAN	6.39	6.03	6.21

AUT NI	NONE	AUT N	MEAN
N TIMEI			
EARLY	6.57	6.88	6.73
LATE	6.21	5.19	5.70
MEAN	6.39	6.03	6.21

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GRAIN TONNES/HECTARE

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

EXTRA	
SE GREGX	5.09
SL GREGX	6.03
SE FAL	9.44
SL FAL	9.00
SE OEXTR	8.54
SE NONE	4.95

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

SED APPLY TO MAIN FACTORIAL PLOTS ONLY

MARGINS OF TWO FACTOR TABLES 0.109*
TWO FACTOR TABLES 0.154**
THREE FACTOR TABLES 0.217**

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

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

STRATUM	DF	SE	CV%
BLOCK.WP	33	0.615	9.3

GRAIN MEAN DM% 83.5

PLOT AREA HARVESTED 0.00210

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