ROTHAMSTED RESEARCH

Yields of the Field Experiments 1984

Full Table of Content

Barley

Rothamsted Research

Rothamsted Research (1985) *Barley ;* Yields Of The Field Experiments 1984, pp 242 - 279 **- DOI: https://doi.org/10.23637/ERADOC-1-32**

84/R/B/1

WINTER BARLEY

FACTORS LIMITING YIELD

Object: To study the importance of factors that may limit the yield of early-sown winter barley - Pastures.

Sponsors: F.V. Widdowson, R.J. Darby, R.J. Gutteridge, J.F. Jenkyn, B.R. Kerry, D.W. Lawlor, R.T. Plumb, G.J.S. Ross, G.C. Scott, D.W. Wood.

Design: Half replicate of 2^6 x 2 (E FUNG) arranged in 2 blocks of 32 plots + 10 extra plots in each block.

Whole plot dimensions: 3.0 x 15.2.

Treatments: Combinations of the following treatments, all variety Panda following a previous barley crop:-

1. SEEDRATE	Seed rate (seeds per m^2):	
	300	
	450	
2. WINTER N	Rates of nitrogen fertilizer in winter (kg N) as prilled urea (46% N):	
	0	None
	30+30	30 on 9 Nov, 1983, 30 on 1 Feb, 1984
3. SPRING N	Rates of nitrogen fertilizer in spring (kg N) as 'Nitro-Chalk' on 2 Apr:	
	90	
	150	
4. E FUNG	Early fungicides:	
	NONE	None
	TFSD	Triadimenol and fuberidazole seed dressing
5. L FUNG	Late fungicides:	
	NONE	None
	TR+CA+MA	Tridemorph at 0.52 kg in 220 l on 10 Feb, 1984. Carbendazim at 0.25 kg with prochloraz at 0.39 kg in 220 l on 27 Mar. Carbendazim at 0.15 kg with maneb at 1.6 kg and tridemorph at 0.038 kg in 220 l on 1 May and 21 May
6. GRTH REG	Growth regulator:	
	NONE	None
	CHLORMEQ	Chlormequat applied at GS 13, 24, 30, at 0.52 kg in 220 l on 21 Oct, 1983, 29 Nov, 21 Mar, 1984

https://doi.org/10.23637/ERADOC-1-32

84/R/B/1

7. INSCTCDE — Insecticide:

NONE	None
CY	Cypermethrin at 0.02 kg in 220 l on 28 Oct, 1983

plus 8 extra treatments with variety Panda sown at 300 seeds per m^2 and given cypermethrin, late fungicides, no chlormequat and all combinations of the following:-

1. PRECROPX — Previous cropping:

OATS
FALLOW

2. N DIVX — Division of nitrogen fertilizer (kg N):

30+30+90	30 on 9 Nov, 1983, 30 on 1 Feb, 1984 (both as prilled urea) plus 90 as 'Nitro-Chalk' on 2 Apr
150	150 as 'Nitro-Chalk' on 2 Apr

3. E FUNGX — Early fungicide:

NONE	None
TFSD	Triadimenol and fuberidazole seed dressing

plus 8 extra treatments with variety Pirate sown at 300 seeds per m^2 and given cypermethrin, late fungicides, no chlormequat and all combinations of the following:-

1. PRECROPV — Previous cropping:

BARLEY
OATS

2. N DIVV — Division of nitrogen fertilizer (kg N):

30+30+90	30 on 9 Nov, 1983, 30 on 1 Feb, 1984 (both as prilled urea) plus 90 as 'Nitro-Chalk' on 2 Apr
150	150 as 'Nitro-Chalk' on 2 Apr

3. E FUNGV — Early fungicide:

NONE	None
TFSD	Triadimenol and fuberidazole seed dressing

plus 2 extra treatments following previous barley, with variety Panda and given no nitrogen fertilizer or chlormequat but given early fungicide, late fungicide and cypermethrin.

EXTRA NO	
SD 300	Seed sown at 300 seeds per m^2 (duplicated)
SD 450	Seed sown at 450 seeds per m^2 (duplicated)

https://doi.org/10.23637/ERADOC-1-32

84/R/B/1

Basal applications: Manures: (0:18:36) at 280 kg. Weedkillers: Paraquat at 0.42 kg ion in 250 l on two occasions. Methabenzthiazuron at 2.4 kg in 250 l. Growth regulator: Mepiquat chloride with ethephon (as 'Terpal' at 2.8 l) in 220 l.

Cultivations, etc.:- Heavy spring-tine cultivated: 22 Aug, 1983. PK applied: 23 Aug. Heavy spring-tine cultivated: 7 Sept. First paraquat applied: 13 Sept. Second paraquat applied, rotary harrowed, seed sown: 19 Sept. Methabenzthiazuron applied: 24 Sept. Basal growth regulator applied: 25 Apr, 1984. Combine harvested: 26 July.

NOTES: (1) Samples were taken at the end of February, March and May for measurements of dry weight, shoot numbers, leaf area index and percentage N. Soil samples were taken in October 1983, November and February 1984, for amounts of nitrate and ammonium.
(2) Measurements were made of leaf diseases, take-all, eyespot, and barley yellow dwarf virus. Counts were made of aphids, and plants examined for stem borers.
(3) A cage was erected over the crop from late May to maturity to prevent damage by birds.

GRAIN TONNES/HECTARE

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

WINTER N	0	30+30	MEAN
SEEDRATE			
300	8.92	9.27	9.09
450	9.02	9.13	9.07
MEAN	8.97	9.20	9.08

E FUNG	NONE	TFSD	MEAN
SEEDRATE			
300	9.03	9.16	9.09
450	8.89	9.26	9.07
MEAN	8.96	9.21	9.08

E FUNG	NONE	TFSD	MEAN
WINTER N			
0	8.85	9.10	8.97
30+30	9.07	9.32	9.20
MEAN	8.96	9.21	9.08

L FUNG	NONE	TR+CA+MA	MEAN
SEEDRATE			
300	8.89	9.29	9.09
450	8.68	9.46	9.07
MEAN	8.79	9.38	9.08

https://doi.org/10.23637/ERADOC-1-32

84/R/B/1

GRAIN TONNES/HECTARE

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

L FUNG WINTER N	NONE	TR+CA+MA	MEAN
0	8.69	9.25	8.97
30+30	8.88	9.51	9.20
MEAN	8.79	9.38	9.08

L FUNG E FUNG	NONE	TR+CA+MA	MEAN
NONE	8.69	9.23	8.96
TFSD	8.89	9.53	9.21
MEAN	8.79	9.38	9.08

SPRING N SEEDRATE	90	150	MEAN
300	8.89	9.30	9.09
450	8.87	9.28	9.07
MEAN	8.88	9.29	9.08

SPRING N WINTER N	90	150	MEAN
0	8.70	9.25	8.97
30+30	9.06	9.33	9.20
MEAN	8.88	9.29	9.08

SPRING N E FUNG	90	150	MEAN
NONE	8.69	9.22	8.96
TFSD	9.06	9.36	9.21
MEAN	8.88	9.29	9.08

SPRING N L FUNG	90	150	MEAN
NONE	8.62	8.96	8.79
TR+CA+MA	9.14	9.62	9.38
MEAN	8.88	9.29	9.08

INSCTCDE SEEDRATE	NONE	CY	MEAN
300	9.06	9.13	9.09
450	9.05	9.10	9.07
MEAN	9.06	9.11	9.08

https://doi.org/10.23637/ERADOC-1-32

84/R/B/1

GRAIN TONNES/HECTARE

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

INSCTCDE WINTER N	NONE	CY	MEAN
0	9.01	8.94	8.97
30+30	9.11	9.29	9.20
MEAN	9.06	9.11	9.08

INSCTCDE E FUNG	NONE	CY	MEAN
NONE	8.93	8.98	8.96
TFSD	9.18	9.24	9.21
MEAN	9.06	9.11	9.08

INSCTCDE L FUNG	NONE	CY	MEAN
NONE	8.77	8.81	8.79
TR+CA+MA	9.34	9.42	9.38
MEAN	9.06	9.11	9.08

INSCTCDE SPRING N	NONE	CY	MEAN
90	8.83	8.92	8.88
150	9.28	9.30	9.29
MEAN	9.06	9.11	9.08

GRTH REG SEEDRATE	NONE	CHLORMEQ	MEAN
300	9.01	9.18	9.09
450	9.07	9.08	9.07
MEAN	9.04	9.13	9.08

GRTH REG WINTER N	NONE	CHLORMEQ	MEAN
0	8.90	9.05	8.97
30+30	9.18	9.21	9.20
MEAN	9.04	9.13	9.08

GRTH REG E FUNG	NONE	CHLORMEQ	MEAN
NONE	8.90	9.01	8.96
TFSD	9.18	9.24	9.21
MEAN	9.04	9.13	9.08

https://doi.org/10.23637/ERADOC-1-32

84/R/B/1

GRAIN TONNES/HECTARE

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

GRTH REG L FUNG	NONE	CHLORMEQ	MEAN
NONE	8.74	8.84	8.79
TR+CA+MA	9.34	9.42	9.38
MEAN	9.04	9.13	9.08

GRTH REG SPRING N	NONE	CHLORMEQ	MEAN
90	8.85	8.90	8.88
150	9.23	9.35	9.29
MEAN	9.04	9.13	9.08

GRTH REG INSCTCDE	NONE	CHLORMEQ	MEAN
NONE	9.06	9.05	9.06
CY	9.02	9.21	9.11
MEAN	9.04	9.13	9.08

N DIVX PRECROPX	30+30+90	150	MEAN
OATS	9.30	9.89	9.59
FALLOW	8.56	8.54	8.55
MEAN	8.93	9.22	9.07

E FUNGX PRECROPX	NONE	TFSD	MEAN
OATS	9.40	9.79	9.59
FALLOW	8.46	8.64	8.55
MEAN	8.93	9.22	9.07

E FUNGX N DIVX	NONE	TFSD	MEAN
30+30+90	8.76	9.10	8.93
150	9.10	9.34	9.22
MEAN	8.93	9.22	9.07

PRECROPX	E FUNGX N DIVX	NONE	TFSD
OATS	30+30+90	9.08	9.52
	150	9.72	10.06
FALLOW	30+30+90	8.45	8.67
	150	8.47	8.61

https://doi.org/10.23637/ERADOC-1-32

84/R/B/1

GRAIN TONNES/HECTARE

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

N DIVV / PRECROPV	30+30+90	150	MEAN
BARLEY	10.89	10.22	10.56
OATS	11.04	10.60	10.82
MEAN	10.97	10.41	10.69

E FUNGV / PRECROPV	NONE	TFSD	MEAN
BARLEY	10.55	10.57	10.56
OATS	10.63	11.01	10.82
MEAN	10.59	10.79	10.69

E FUNGV / N DIVV	NONE	TFSD	MEAN
30+30+90	10.73	11.20	10.97
150	10.44	10.37	10.41
MEAN	10.59	10.79	10.69

PRECROPV	E FUNGV / N DIVV	NONE	TFSD
BARLEY	30+30+90	10.82	10.97
	150	10.27	10.16
OATS	30+30+90	10.65	11.44
	150	10.61	10.58

EXTRA NO	SD 300	SD 450	MEAN
	6.95	6.81	6.88

GRAND MEAN 9.13

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

(NOT INCLUDING EXTRA PLOTS)
MARGIN OF TWO FACTOR TABLES 0.065
TWO FACTOR TABLES 0.093

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

STRATUM	DF	SE	CV%
BLOCK.WP	34	0.262	2.9

GRAIN MEAN DM% 86.2

https://doi.org/10.23637/ERADOC-1-32

84/R/B/1

STRAW TONNES/HECTARE

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

WINTER N	0	30+30	MEAN
SEEDRATE			
300	5.01	5.79	5.40
450	4.97	5.76	5.36
MEAN	4.99	5.78	5.38

E FUNG	NONE	TFSD	MEAN
SEEDRATE			
300	5.42	5.38	5.40
450	5.25	5.48	5.36
MEAN	5.33	5.43	5.38

E FUNG	NONE	TFSD	MEAN
WINTER N			
0	4.94	5.04	4.99
30+30	5.73	5.82	5.78
MEAN	5.33	5.43	5.38

L FUNG	NONE	TR+CA+MA	MEAN
SEEDRATE			
300	5.38	5.43	5.40
450	5.25	5.48	5.36
MEAN	5.31	5.45	5.38

L FUNG	NONE	TR+CA+MA	MEAN
WINTER N			
0	4.90	5.08	4.99
30+30	5.73	5.82	5.78
MEAN	5.31	5.45	5.38

L FUNG	NONE	TR+CA+MA	MEAN
E FUNG			
NONE	5.28	5.39	5.33
TFSD	5.34	5.52	5.43
MEAN	5.31	5.45	5.38

SPRING N	90	150	MEAN
SEEDRATE			
300	5.21	5.59	5.40
450	5.18	5.55	5.36
MEAN	5.20	5.57	5.38

https://doi.org/10.23637/ERADOC-1-32

84/R/B/1

STRAW TONNES/HECTARE

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

SPRING N	90	150	MEAN
WINTER N			
0	4.73	5.25	4.99
30+30	5.66	5.89	5.78
MEAN	5.20	5.57	5.38

SPRING N	90	150	MEAN
E FUNG			
NONE	5.09	5.58	5.33
TFSD	5.31	5.56	5.43
MEAN	5.20	5.57	5.38

SPRING N	90	150	MEAN
L FUNG			
NONE	5.15	5.47	5.31
TR+CA+MA	5.24	5.67	5.45
MEAN	5.20	5.57	5.38

INSCTCDE	NONE	CY	MEAN
SEEDRATE			
300	5.32	5.48	5.40
450	5.36	5.37	5.36
MEAN	5.34	5.42	5.38

INSCTCDE	NONE	CY	MEAN
WINTER N			
0	4.98	5.01	4.99
30+30	5.71	5.84	5.78
MEAN	5.34	5.42	5.38

INSCTCDE	NONE	CY	MEAN
E FUNG			
NONE	5.27	5.40	5.33
TFSD	5.42	5.45	5.43
MEAN	5.34	5.42	5.38

INSCTCDE	NONE	CY	MEAN
L FUNG			
NONE	5.24	5.38	5.31
TR+CA+MA	5.44	5.47	5.45
MEAN	5.34	5.42	5.38

https://doi.org/10.23637/ERADOC-1-32

84/R/B/1

STRAW TONNES/HECTARE

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

INSCTCDE	NONE	CY	MEAN
SPRING N			
90	5.20	5.19	5.20
150	5.49	5.65	5.57
MEAN	5.34	5.42	5.38

GRTH REG	NONE	CHLORMEQ	MEAN
SEEDRATE			
300	5.44	5.36	5.40
450	5.38	5.35	5.36
MEAN	5.41	5.35	5.38

GRTH REG	NONE	CHLORMEQ	MEAN
WINTER N			
0	5.02	4.96	4.99
30+30	5.80	5.75	5.78
MEAN	5.41	5.35	5.38

GRTH REG	NONE	CHLORMEQ	MEAN
E FUNG			
NONE	5.27	5.39	5.33
TFSD	5.55	5.32	5.43
MEAN	5.41	5.35	5.38

GRTH REG	NONE	CHLORMEQ	MEAN
L FUNG			
NONE	5.36	5.26	5.31
TR+CA+MA	5.46	5.45	5.45
MEAN	5.41	5.35	5.38

GRTH REG	NONE	CHLORMEQ	MEAN
SPRING N			
90	5.24	5.15	5.20
150	5.58	5.56	5.57
MEAN	5.41	5.35	5.38

GRTH REG	NONE	CHLORMEQ	MEAN
INSCTCDE			
NONE	5.37	5.31	5.34
CY	5.45	5.39	5.42
MEAN	5.41	5.35	5.38

https://doi.org/10.23637/ERADOC-1-32

84/R/B/1

STRAW TONNES/HECTARE

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

N DIVX	30+30+90	150	MEAN
PRECROPX			
OATS	5.69	5.63	5.66
FALLOW	7.44	7.57	7.51
MEAN	6.57	6.60	6.59

E FUNGX	NONE	TFSD	MEAN
PRECROPX			
OATS	5.51	5.82	5.66
FALLOW	7.35	7.67	7.51
MEAN	6.43	6.74	6.59

E FUNGX	NONE	TFSD	MEAN
N DIVX			
30+30+90	6.13	7.01	6.57
150	6.73	6.48	6.60
MEAN	6.43	6.74	6.59

	E FUNGX	NONE	TFSD
PRECROPX	N DIVX		
OATS	30+30+90	5.20	6.19
	150	5.82	5.44
FALLOW	30+30+90	7.06	7.83
	150	7.63	7.51

N DIVV	30+30+90	150	MEAN
PRECROPV			
BARLEY	6.07	5.32	5.69
OATS	5.76	5.12	5.44
MEAN	5.91	5.22	5.57

E FUNGV	NONE	TFSD	MEAN
PRECROPV			
BARLEY	5.76	5.63	5.69
OATS	5.22	5.66	5.44
MEAN	5.49	5.64	5.57

E FUNGV	NONE	TFSD	MEAN
N DIVV			
30+30+90	5.64	6.18	5.91
150	5.34	5.10	5.22
MEAN	5.49	5.64	5.57

https://doi.org/10.23637/ERADOC-1-32

84/R/B/1

STRAW TONNES/HECTARE

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

PRECROPV	E FUNGV N DIVV	NONE	TFSD
BARLEY	30+30+90	6.07	6.06
	150	5.44	5.19
OATS	30+30+90	5.21	6.30
	150	5.23	5.01

EXTRA NO	SD 300	SD 450	MEAN
	3.54	3.36	3.45

GRAND MEAN 5.42

STRAW MEAN DM% 93.1

PLOT AREA HARVESTED 0.00252

https://doi.org/10.23637/ERADOC-1-32

84/W/B/1

WINTER AND SPRING BARLEY

MILDEW STUDY

Object: To study the effects of fungicides applied to w. and s. barley on the incidence of mildew and on yield and whether these effects are influenced by neighbouring treatments - Woburn, Far Field II.

Sponsor: D.W. Hollomon.

Design: W. barley: 2 blocks of 12 plots split into 2
S. barley: 2 blocks of 12 plots

Whole plot dimensions: 8.0 x 8.0.

Treatments to W. BARLEY seed treated triadimenol + fuberidazole and crop sprayed with fenpropimorph at 0.79 kg in 280 l on 3 May, 1984:

All combinations of:-

Whole plots

1. SD SB — Seed dressings to one adjacent plot of s. barley, other adjacent plot given no mildewicidal seed dressing, sprayed tridemorph at 0.52 kg in 250 l on 3 May:

NONE	None
TRI+FUB	Triadimenol + fuberidazole

2. VAR SB — Variety of adjacent s. barley testing seed dressing, other adjacent s. barley plot sown to Golden Promise given no mildewicidal seed dressing, sprayed tridemorph at 0.52 kg in 250 l on 3 May:

G PROMIS	Golden Promise
KEG	Keg

3. FS SB — Foliar sprays to s. barley testing seed dressing, other adjacent s. barley plot given tridemorph at 0.52 kg in 250 l on 3 May:

NONE	None
FENPROP	Fenpropimorph at 0.75 kg in 250 l on 15 June
ETHIRIM	Ethirimol at 0.28 kg in 250 l on 15 June

Sub plots

4. POSITION — Position of w. barley plots in relation to s. barley plots testing seed dressing:

N EAST	North east
S WEST	South west

Treatments to S. BARLEY, all flanked by plots of w. barley, seed treated triadimenol + fuberidazole and crop sprayed with fenpropimorph: All combinations of:-

https://doi.org/10.23637/ERADOC-1-32

84/W/B/1

1. SD SB		Seed dressings:
	NONE	None
	TRI+FUB	Triadimenol + fuberidazole
2. VAR SB		Variety:
	G PROMIS	Golden Promise
	KEG	Keg
3. FS SB		Foliar sprays:
	NONE	None
	FENPROP	Fenpropimorph as above
	ETHIRIM	Ethirimol as above

NOTE: Spring barley, variety Golden Promise, given no mildewicidal seed dressing, was sown on headlands and sprayed tridemorph at 0.52 kg in 250 l on 3 May, 1984.

Standard applications: 'Nitro-Chalk' at 550 kg. Weedkillers: Mecoprop with bromoxynil and ioxynil (as 'Brittox' at 1.4 l) in 250 l to w. barley only. 3, 6-dichloropicolinic acid 0.07 kg with bromoxynil octanoate at 3.4 kg and mecoprop at 2.1 kg in 250 l to s. barley only.

Seed: W. barley: Maris Otter, sown at 190 kg.
S. barley: Golden Promise and Keg, both sown at 160 kg.

Cultivations, etc.:- Heavy spring-tine cultivated twice, spring-tine cultivated with crumbler attached w. barley plots only: w. barley seed sown: 2 Nov, 1983. Heavy spring-tine cultivated s. barley plots: 20 Mar, 1984. Spring-tine cultivated with crumbler attached and s. barley seed sown: 21 Mar. N applied: 22 Mar. 'Brittox' applied: 3 May. 3, 6-dichloropicolinic acid with bromoxynil octanoate and mecoprop applied: 30 May. Combine harvested w. barley: 30 July. Combine harvested s. barley: 17 Aug. Previous crops: W. oats 1982, potatoes 1983.

NOTES: (1) The incidence of barley powdery mildew (Erysiphe graminis f. sp. hordei) and leaf blotch (Rhynchosporium secalis) were assessed before and after application of fungicide treatments. Mildew and leaf blotch assessments were made on four occasions on spring barley in May, June and July. The sensitivity of powdery mildew to triadimenol was measured in June.

(2) Because of an error at drilling yields from three plots were not taken and estimated values were used in the analysis. Treatment combinations affected on winter barley were

SD SB	NONE	NONE	TRI+FUB
VAR SB	KEG	KEG	KEG
FS SB	NONE	NONE	NONE
POSITION	S WEST	N EAST	S WEST

https://doi.org/10.23637/ERADOC-1-32

84/W/B/1

WINTER BARLEY

GRAIN TONNES/HECTARE

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

VAR SB SD SB	G PROMIS	KEG	MEAN
NONE	7.61	7.44	7.53
TRI+FUB	7.53	7.75	7.64
MEAN	7.57	7.60	7.58

FS SB SD SB	NONE	FENPROP	ETHIRIM	MEAN
NONE	7.20	7.65	7.72	7.53
TRI+FUB	7.74	7.66	7.53	7.64
MEAN	7.47	7.66	7.63	7.58

FS SB VAR SB	NONE	FENPROP	ETHIRIM	MEAN
G PROMIS	7.65	7.52	7.54	7.57
KEG	7.28	7.79	7.72	7.60
MEAN	7.47	7.66	7.63	7.58

POSITION SD SB	N EAST	S WEST	MEAN
NONE	7.68	7.37	7.53
TRI+FUB	7.73	7.55	7.64
MEAN	7.71	7.46	7.58

POSITION VAR SB	N EAST	S WEST	MEAN
G PROMIS	7.64	7.51	7.57
KEG	7.78	7.42	7.60
MEAN	7.71	7.46	7.58

POSITION FS SB	N EAST	S WEST	MEAN
NONE	7.53	7.40	7.47
FENPROP	7.78	7.53	7.66
ETHIRIM	7.80	7.45	7.63
MEAN	7.71	7.46	7.58

VAR SB	G PROMIS			KEG		
FS SB	NONE	FENPROP	ETHIRIM	NONE	FENPROP	ETHIRIM
SD SB						
NONE	7.64	7.54	7.64	6.76	7.77	7.80
TRI+FUB	7.67	7.50	7.43	7.80	7.81	7.63

https://doi.org/10.23637/ERADOC-1-32

84/W/B/1

WINTER BARLEY

GRAIN TONNES/HECTARE

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

VAR SB	G PROMIS		KEG	
POSITION	N EAST	S WEST	N EAST	S WEST
SD SB				
NONE	7.62	7.59	7.74	7.15
TRI+FUB	7.65	7.42	7.81	7.69

FS SB	NONE		FENPROP		ETHIRIM	
POSITION	N EAST	S WEST	N EAST	S WEST	N EAST	S WEST
SD SB						
NONE	7.38	7.03	7.77	7.54	7.90	7.54
TRI+FUB	7.69	7.78	7.80	7.52	7.70	7.36

FS SB	NONE		FENPROP		ETHIRIM	
POSITION	N EAST	S WEST	N EAST	S WEST	N EAST	S WEST
VAR SB						
G PROMIS	7.78	7.53	7.58	7.46	7.55	7.52
KEG	7.29	7.28	7.98	7.60	8.05	7.38

FS SB		NONE		FENPROP		ETHIRIM	
POSITION		N EAST	S WEST	N EAST	S WEST	N EAST	S WEST
SD SB	VAR SB						
NONE	G PROMIS	7.80	7.49	7.52	7.56	7.55	7.73
	KEG	6.95	6.57	8.01	7.52	8.25	7.36
TRI+FUB	G PROMIS	7.76	7.57	7.64	7.37	7.55	7.32
	KEG	7.63	7.98	7.95	7.68	7.86	7.40

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

TABLE	SD SB	VAR SB	FS SB	POSITION
SED	0.100	0.100	0.123	0.074
TABLE	SD SB	SD SB	VAR SB	SD SB
	VAR SB	FS SB	FS SB	POSITION
SED	0.142	0.173	0.173	0.124
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
SD SB				0.104

TABLE	VAR SB	FS SB	SD SB	SD SB
	POSITION	POSITION	VAR SB	VAR SB
			FS SB	POSITION
SED	0.124	0.152	0.245	0.176
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
VAR SB	0.104			
FS SB		0.128		
SD SB.VAR SB				0.148

https://doi.org/10.23637/ERADOC-1-32

84/W/B/1

WINTER BARLEY

GRAIN TONNES/HECTARE

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

TABLE	SD SB FS SB POSITION	VAR SB FS SB POSITION	SD SB VAR SB FS SB POSITION
SED	0.215	0.215	0.305
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
SD SB.FS SB	0.181		
VAR SB.FS SB		0.181	
SD SB.VAR SB.FS SB			0.255

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

STRATUM	DF	SE	CV%
BLOCK.WP	10	0.245	3.2
BLOCK.WP.SP	10	0.255	3.4

GRAIN MEAN DM% 88.7

SUB PLOT AREA HARVESTED 0.00220

https://doi.org/10.23637/ERADOC-1-32

84/W/B/1

SPRING BARLEY

GRAIN TONNES/HECTARE

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

VAR SB SD SB	G PROMIS	KEG	MEAN
NONE	3.77	4.63	4.20
TRI+FUB	4.12	4.04	4.08
MEAN	3.95	4.34	4.14

FS SB SD SB	NONE	FENPROP	ETHIRIM	MEAN
NONE	3.93	4.23	4.45	4.20
TRI+FUB	3.76	4.68	3.81	4.08
MEAN	3.84	4.46	4.13	4.14

FS SB VAR SB	NONE	FENPROP	ETHIRIM	MEAN
G PROMIS	3.67	4.20	3.97	3.95
KEG	4.01	4.71	4.28	4.34
MEAN	3.84	4.46	4.13	4.14

VAR SB	G PROMIS			KEG		
FS SB SD SB	NONE	FENPROP	ETHIRIM	NONE	FENPROP	ETHIRIM
NONE	3.62	3.80	3.90	4.23	4.66	5.00
TRI+FUB	3.72	4.60	4.05	3.79	4.76	3.57

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

TABLE	SD SB	VAR SB	FS SB	SD SB VAR SB
SED	0.309	0.309	0.378	0.437

TABLE	SD SB FS SB	VAR SB FS SB	SD SB VAR SB FS SB
SED	0.535	0.535	0.756

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

STRATUM	DF	SE	CV%
BLOCK.WP	11	0.756	18.3

GRAIN MEAN DM% 85.7

PLOT AREA HARVESTED 0.00220

https://doi.org/10.23637/ERADOC-1-32

84/R/B/2

WINTER BARLEY

ELECTROSTATIC SPRAYING AND FOLIAR DISEASES

Object: To study the penetration of sprays and control of foliar diseases with a range of electrostatic sprayers - Black Horse II.

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

Design: 4 randomised blocks of 8 plots.

Whole plot dimensions: 3.0 x 15.0.

Treatments:

SPRAYER	Sprayers applying propiconazole:
NONE	None
CNVNTL 2	Conventional hydraulic sprayer, at 125 g in 200 l
CNVNTL 1	Conventional hydraulic sprayer, at 62.5 g in 200 l
EL APE	'APE' electrostatic sprayer, at 62.5 g in 6 l (duplicated)
EL JUMBO	'Jumbo' electrostatic sprayer, at 62.5 g in 10 l (duplicated)
EL MICRO	'Micronex' electrostatic sprayer, at 62.5 g in 13 l

NOTES: (1) Propiconazole was applied on 3 November, 1983 and 14 March, 1984 by all sprayers except the 'Micronex' which was on 14 March only.
(2) The 'APE' electrostatic sprayer had four spinning-disc nozzles mounted on a hand-held boom, the 'Jumbo' had spinning-cone nozzles. Both are charged at 30 kv.
(3) The 'Micronex' is a commercial prototype, electrostatically-charged spinning-disc sprayer.
(4) Chopped straw infected with Rhynchosporium was spread evenly over the whole of the experimental area on 9 September, 1983.

Basal applications: Manures: (5:14:30) at 340 kg. 'Nitro-Chalk' on two occasions, at 190 kg on the first and at 440 kg on the second. Weedkillers: Methabenzthiazuron at 2.4 kg in 250 l. 3, 6-dichloropicolinic acid at 0.07 kg and bromoxynil at 0.34 kg with mecoprop (as 'CMPP' at 4.2 l) in 200 l. Desiccant: Diquat at 0.70 kg ion with 'Agral', a wetting agent, at 0.2 l, in 200 l.

Seed: Maris Otter, sown at 160 kg.

Cultivations, etc.:- Ploughed: 4 Aug, 1983. NPK applied: 23 Aug. Spring-tine cultivated: 7 Sept. Straw applied, rotary harrowed, seed sown: 9 Sept. Methabenzthiazuron applied: 13 Sept. First N applied: 9 Mar, 1984. Second N applied: 4 Apr. 3, 6-dichloropicolinic acid, bromoxynil and mecoprop applied: 13 Apr. Desiccant applied: 23 July. Combine harvested: 26 July. Previous crops: W. barley 1982 and 1983.

NOTE: Plant samples were taken immediately after spraying to assess weedkiller deposits. Mildew was assessed in November and Rhynchosporium in April.

https://doi.org/10.23637/ERADOC-1-32 *pp 20*

84/R/B/2

GRAIN TONNES/HECTARE

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

SPRAYER	NONE	CNVNTL 2	CNVNTL 1	EL APE	EL JUMBO	EL MICRO	MEAN
	5.96	6.65	6.64	6.64	6.53	6.27	6.48

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

TABLE	SPRAYER	
SED	0.238	MIN REP
	0.206	MAX-MIN
	0.168	MAX REP

	SPRAYER
MAX REP	EL APE V EL JUMBO
MAX-MIN	EL APE OR EL JUMBO V ANY OF REMAINDER
MIN REP	ANY OF REMAINDER

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

STRATUM	DF	SE	CV%
BLOCK.WP	23	0.336	5.2

GRAIN MEAN DM% 78.6

PLOT AREA HARVESTED 0.00306

https://doi.org/10.23637/ERADOC-1-32

84/W/B/2

SPRING BARLEY

SOWING DATES AND INSECTS

Object: To study the effects of omethoate on insect pests and on yields of s. barley sown on two dates - Woburn White Horse.

Sponsor: G.C. Scott.

Design: 4 randomised blocks of 8 plots.

Whole plot dimensions: 8.0 x 12.0.

Treatments: All combinations of:-

1. SOW DATE	Dates of sowing:
9 MAR	9 Mar, 1984
16 APR	16 Apr
2. INSEARLY	Insecticide applied early:
NONE	None
OMETHO E	Omethoate on 31 May
3. INS LATE	Insecticide applied late:
NONE	None
OMETHO L	Omethoate on 29 June

NOTE: Omethoate was applied at 0.63 l in 250 l on both occasions.

Basal applications: Manures: Magnesian limestone at 7.5 t, FYM at 50 t, N at 110 kg as 'Nitro-Chalk'. Weedkiller: Mecoprop at 2.1 kg in 250 l. Fungicide: Tridemorph at 0.52 kg in 250 l.

Seed: Triumph, dressed with triadimenol plus fuberidazole, sown at 160 kg.

Cultivations, etc.:- Magnesian limestone applied: 30 Sept, 1983. FYM applied: 21-23 Nov. Ploughed: 25 Nov. N applied: 8 Mar, 1984. Spring-tine cultivated all plots, spring-tine cultivated with crumbler attached, seed sown for SOW DATE 9 MAR: 9 Mar. Spring-tine cultivated with crumbler attached, seed sown for SOW DATE 16 APR: 16 Apr. Weedkiller applied: 15 May. Fungicide applied: 31 May. Combine harvested: 15 Aug. Previous crops: Potatoes 1982, w. wheat 1983.

NOTES: (1) Aphids, thrips and stem borers were counted on several occasions during the growing season.
(2) Barley yellow dwarf virus infection was assessed.

https://doi.org/10.23637/ERADOC-1-32

84/W/B/2

GRAIN TONNES/HECTARE

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

INSEARLY	NONE	OMETHO E	MEAN
SOWDATE			
9 MAR	7.13	6.81	6.97
16 APR	5.55	5.99	5.77
MEAN	6.34	6.40	6.37

INS LATE	NONE	OMETHO L	MEAN
SOWDATE			
9 MAR	6.90	7.04	6.97
16 APR	5.58	5.97	5.77
MEAN	6.24	6.51	6.37

INS LATE	NONE	OMETHO L	MEAN
INSEARLY			
NONE	6.20	6.49	6.34
OMETHO E	6.28	6.52	6.40
MEAN	6.24	6.51	6.37

INSEARLY	NONE		OMETHO E	
INS LATE	NONE	OMETHO L	NONE	OMETHO L
SOWDATE				
9 MAR	7.19	7.07	6.61	7.01
16 APR	5.20	5.90	5.95	6.04

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

TABLE	SOWDATE	INSEARLY	INS LATE	SOWDATE INSEARLY
SED	0.265	0.265	0.265	0.375

TABLE	SOWDATE INS LATE	INSEARLY INS LATE	SOWDATE INSEARLY INS LATE
SED	0.375	0.375	0.531

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

STRATUM	DF	SE	CV%
BLOCK.WP	21	0.751	11.8

GRAIN MEAN DM% 87.1

PLOT AREA HARVESTED 0.00275

https://doi.org/10.23637/ERADOC-1-32

84/R/B/7 and 84/W/B/7

SPRING BARLEY

VARIETIES AND N

Object: To study the yields of some of the newer varieties of s. barley at three rates of nitrogen - Rothamsted (R), Stubbings and Woburn (W), Lansome II.

Sponsor: R. Moffitt.

Design: 2 randomised blocks of 3 plots split into 6.

Whole plot dimensions: (R) 33 x 10.0. (W) 32 x 10.0.

Treatments: All combinations of:-

Whole plots

1. N — Nitrogen fertilizer (kg N) as 'Nitro-Chalk':

75
113
150

Sub plots

2. VARIETY — Varieties:

APEX
ATEM
DELTA
KLAXON
KYM
TRIUMPH

Basal applications:
Stubbings (R): Weedkillers: Glyphosate at 1.4 kg in 250 l. 3, 6-dichloropicolinic acid at 0.07 kg with bromoxynil octanoate at 0.34 kg and mecoprop at 2.5 kg applied with the fungicide in 250 l. Fungicide: Tridemorph at 0.52 kg.
Lansome II (W): Manures: (0:18:36) at 1000 kg. Weedkillers: Mecoprop with bromoxynil and ioxynil (as 'Brittox' at 3.5 l) applied with the fungicide in 250 l. Fungicide: Tridemorph at 0.52 kg.

Seed: Stubbings (R), and Lansome II (W): Sown at 160 kg.

https://doi.org/10.23637/ERADOC-1-32 *pp 24*

84/R/B/7 and 84/W/B/7

Cultivations, etc.:-
Stubbings (R): Glyphosate applied: 5 Oct, 1983. Ploughed: 1 Dec. Spring-tine cultivated: 10 Mar, 1984. Test N applied: 15 Mar. Spring-tine cultivated: 16 Mar. Rotary harrowed, seed sown: 17 Mar. 3, 6-dichloropicolinic acid with bromoxynil octanoate and mecoprop with fungicide applied: 23 May. Combine harvested: 20 Aug. Previous crops: Potatoes 1982, s. barley 1983.
Lansome II (W): PK applied: 4 Oct, 1983. Ploughed: 5 Dec. Spring-tine cultivated with crumbler attached, seed sown: 20 Mar, 1984. Test N applied: 16 Apr. Weedkillers with fungicide applied: 31 May. Combine harvested: 15-17 Aug. Previous crops: Potatoes 1982, w. wheat 1983.

84/R/B/7

GRAIN TONNES/HECTARE

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

N	75	113	150	MEAN
VARIETY				
APEX	7.60	8.12	8.82	8.18
ATEM	7.70	8.43	8.52	8.22
DELTA	8.76	9.30	9.13	9.07
KLAXON	8.22	8.87	8.78	8.62
KYM	7.37	8.42	8.06	7.95
TRIUMPH	6.97	7.24	7.43	7.21
MEAN	7.77	8.40	8.46	8.21

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

TABLE	VARIETY	N* VARIETY
SED	0.171	0.297

* WITHIN THE SAME LEVEL OF N ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	15	0.297	3.6

GRAIN MEAN DM% 88.6

SUB PLOT AREA HARVESTED 0.00204

https://doi.org/10.23637/ERADOC-1-32 *pp 25*

84/W/B/7

GRAIN TONNES/HECTARE

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

N VARIETY	75	113	150	MEAN
APEX	5.53	5.88	5.35	5.59
ATEM	4.99	5.68	4.48	5.05
DELTA	5.46	4.91	5.14	5.17
KLAXON	5.14	5.88	5.52	5.51
KYM	5.11	6.17	5.45	5.58
TRIUMPH	5.42	5.70	5.14	5.42
MEAN	5.27	5.70	5.18	5.38

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

TABLE	VARIETY	N VARIETY
SED	0.535	0.926

* WITHIN THE SAME LEVEL OF N ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	15	0.926	17.2

GRAIN MEAN DM% 84.8

SUB PLOT AREA HARVESTED 0.00275

https://doi.org/10.23637/ERADOC-1-32

84/R/B/8

SPRING BARLEY

MILDEW SENSITIVITY

Object: To study the effects of varieties with differing resistance genes on the sensitivity of powdery mildew (Erysiphe graminis) to fungicides - Delafield.

Sponsor: D.W. Hollomon.

Design: 2 randomised blocks of 16 plots.

Whole plot dimensions: 9.0 x 9.0.

Treatments: All combinations of:-

1. VARIETY	Varieties:	
	CARNIVAL	
	TRIUMPH	
2. FUNG SD	Fungicidal seed dressings:	
	NONE	None
	ETHIRIMO	Ethirimol at 4 g per kg seed
	TR+FU	Triadimenol at 0.38 g per kg seed and fuberidazole at 0.045 g per kg seed (duplicated)
3. FUNG SP	Fungicidal foliar spray:	
	NONE	None
	TRIADIME	Triadimenol at 0.12 kg in 500 l on 11 June, 1984

NOTES: (1) The seed was sown at 160 kg.
(2) Plots were divided by 3m sown paths of undressed Golden Promise.

Basal applications: Manures: 'Nitro-Chalk' at 500 kg. Weedkillers: Dicamba, mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 250 l.

Cultivations, etc.:- Ploughed: 12 Dec, 1983. N applied: 9 Mar, 1984. Spring-tine cultivated: 16 Mar. Rotary harrowed, seed sown: 19 Mar. Weedkillers applied: 16 May. Combine harvested: 18 Aug. Previous crops: S. beans 1982, w. wheat 1983.

NOTE: Mildew was assessed on five occasions from mid-May to early July. Sensitivity of mildew to ethirimol and triadimenol was assessed by bioassay in early June.

https://doi.org/10.23637/ERADOC-1-32

84/R/B/8

GRAIN TONNES/HECTARE

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

FUNG SD	NONE	ETHIRIMO	TR+FU	MEAN
VARIETY				
CARNIVAL	6.92	7.23	7.13	7.10
TRIUMPH	6.43	7.08	6.38	6.57
MEAN	6.67	7.16	6.75	6.83

FUNG SP	NONE	TRIADIME	MEAN
VARIETY			
CARNIVAL	6.88	7.33	7.10
TRIUMPH	5.94	7.19	6.57
MEAN	6.41	7.26	6.83

FUNG SP	NONE	TRIADIME	MEAN
FUNG SD			
NONE	6.42	6.93	6.67
ETHIRIMO	6.88	7.43	7.16
TR+FU	6.17	7.33	6.75
MEAN	6.41	7.26	6.83

FUNG SD	NONE		ETHIRIMO		TR+FU	
FUNG SP	NONE	TRIADIME	NONE	TRIADIME	NONE	TRIADIME
VARIETY						
CARNIVAL	6.88	6.95	7.18	7.29	6.73	7.53
TRIUMPH	5.95	6.91	6.58	7.58	5.62	7.13

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

TABLE	VARIETY	FUNG SD	FUNG SP	VARIETY FUNG SD	
SED		0.196		0.277	MIN REP
	0.138	0.169	0.138	0.239	MAX-MIN

TABLE	VARIETY FUNG SP	FUNG SD FUNG SP	VARIETY FUNG SD FUNG SP	
SED		0.277	0.391	MIN REP
	0.196	0.239	0.339	MAX-MIN
		0.196	0.277	MAX REP

	FUNG SD
MAX REP	TR FU ONLY
MAX-MIN	TR FU V ANY OF REMAINDER
MIN REP	ANY OF REMAINDER

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

STRATUM	DF	SE	CV%
BLOCK.WP	19	0.391	5.7

GRAIN MEAN DM% 86.7 PLOT AREA HARVESTED 0.00248

https://doi.org/10.23637/ERADOC-1-32

84/R/B/10

SPRING BARLEY

PLOT SIZES AND MILDEW SPREAD

Object: To study the effects of plot size on the incidence of mildew (Erysiphe graminis) and on the yield of neighbouring plots - Gt. Harpenden II.

Sponsor: J.F. Jenkyn.

Design: A serially balanced sequence of 4 'blocks' of 3 plots with separating and flanking plots.

Whole plot dimensions: Narrow plots: 3.0 x 10.0.
Wide plots: 10.0 x 10.0.

Treatments:

TREATMNT	Plot width (all 10m long) and fungicide treatment:
3M NONE	3m, no fungicide
3M TRID	3m, tridemorph spray at 0.52 kg in 220 l on 25 May, 31 May, 1984
10M NONE	10m, no fungicide

NOTES: (1) The above plots were each separated by 3m wide plots sprayed with tridemorph.
(2) The effects of treatments to neighbouring plots (left - LHN, right - RHN) were estimated. In this experiment 'left' was north-west, 'right' was south-east.

Basal applications: Manures: 'Nitro-Chalk' at 480 kg. Weedkillers: Dicamba with mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 200 l.

Seed: Georgie, sown at 160 kg.

Cultivations, etc.:- Ploughed: 5 Dec, 1983. N applied, spring-tine cultivated, rotary harrowed, seed sown: 22 Mar, 1984. Weedkillers applied: 15 May. Combine harvested: 19 Aug. Previous crops: Potatoes 1982, w. wheat 1983.

NOTE: Leaf diseases were assessed in mid-June and early July.

https://doi.org/10.23637/ERADOC-1-32

84/R/B/10

GRAIN TONNES/HECTARE

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

TREATMNT	3M NONE	3M TRID	10M NONE
	6.99	8.60	6.92

LHN TREATMNT	3M NONE	3M TRID	10M NONE
3M NONE		6.87	7.12
3M TRID	8.60		8.60
10M NONE	6.87	6.97	

RHN TREATMNT	3M NONE	3M TRID	10M NONE
3M NONE		7.02	6.97
3M TRID	8.50		8.70
10M NONE	6.79	7.05	

GRAND MEAN 7.50

GRAIN MEAN DM% 85.0

PLOT AREA HARVESTED 0.00204

https://doi.org/10.23637/ERADOC-1-32 *pp 30*

84/R/B/11

SPRING BARLEY

INTERFERENCE BETWEEN PLOTS

Object: To study the influence of neighbouring varieties, on the occurrence of mildew and on yield, in three varieties grown singly or as a mixture - Gt. Harpenden II.

Sponsor: J.F. Jenkyn.

Designs: One was a serially balanced sequence of 9 'blocks' of 4 plots with flanking plots on the outsides, the other was four randomised blocks of 4 plots with spacing plots.

Whole plot dimensions: 2.04 x 18.3.

Treatments:

VARIETY	Varieties:
ATEM	Atem
PATTY	Patty
TRIUMPH	Triumph
MIXTURE	Mixture of Atem, Patty and Triumph

NOTES: (1) In the serially balanced design plots were separated only by fallow paths 61 cm wide; in the other design plots were separated by equal size 'plots' of Atem s. barley, seed dressed with triadimenol plus fuberidazole, with fallow paths 61 cm wide on each side.

(2) In the serially balanced design the effects of treatments to neighbouring plots (left - LHN, right - RHN) were estimated. In this experiment 'left' was north-west, 'right' was south-east.

Basal applications: Manures: 'Nitro-Chalk' at 480 kg. Weedkillers: Dicamba, mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 200 l.

Seed: Sown at 160 kg.

Cultivations, etc.:- Ploughed: 5 Dec, 1983. N applied: 21 Mar, 1984. Spring-tine cultivated, rotary harrowed, seed sown: 22 Mar. Weedkillers applied: 15 May. Combine harvested: 19 Aug. Previous crops: Potatoes 1982, w. wheat 1983.

NOTE: Leaf diseases were assessed in late June and mid-July.

https://doi.org/10.23637/ERADOC-1-32 *pp 31*

84/R/B/11

GRAIN TONNES/HECTARE

SERIALLY BALANCED DESIGN

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

VARIETY	ATEM	PATTY	TRIUMPH	MIXTURE
	9.30	8.74	7.64	8.80

LHN VARIETY	ATEM	PATTY	TRIUMPH	MIXTURE
ATEM		9.31	9.26	9.33
PATTY	8.66		8.96	8.59
TRIUMPH	7.36	7.89		7.68
MIXTURE	8.87	8.62	8.92	

RHN VARIETY	ATEM	PATTY	TRIUMPH	MIXTURE
ATEM		9.21	9.15	9.53
PATTY	8.68		8.97	8.56
TRIUMPH	7.38	7.85		7.70
MIXTURE	8.82	8.66	8.93	

GRAND MEAN 8.62

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

TABLE	VARIETY	VARIETY LHN	VARIETY RHN
SED	0.063	0.109	0.109

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

STRATUM	DF	SE	CV%
BLOCK.WP	16	0.133	1.5

GRAIN MEAN DM% 87.0

RANDOMISED BLOCK DESIGN

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

VARIETY	ATEM	PATTY	TRIUMPH	MIXTURE	MEAN
	9.39	8.66	7.45	8.97	8.62

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

TABLE	VARIETY
SED	0.119

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

STRATUM	DF	SE	CV%
BLOCK.WP	9	0.168	1.9

GRAIN MEAN DM% 86.8 PLOT AREA HARVESTED 0.00373

https://doi.org/10.23637/ERADOC-1-32

84/R/B/12

SPRING BARLEY

SOWING DATES AND INSECTS

Object: To study the effects of omethoate on insect pests and on yields of s. barley sown on two dates - Gt. Harpenden I.

Sponsor: G.C. Scott.

Design: 4 randomised blocks of 9 plots.

Whole plot dimensions: 9.0 x 10.0.

Treatments:

SDTE INS	Sowing dates and insecticides:
SE NONE	Sown 9 Mar, 1984, no insecticides
SE OME R	Sown 9 Mar, omethoate applied on 25 May, 13 June, 26 June, 11 July
SL NONE	Sown 13 Apr, no insecticides (duplicated)
SL OME 1	Sown 13 Apr, omethoate applied on 25 May
SL OME 2	Sown 13 Apr, omethoate applied on 13 June
SL OME 3	Sown 13 Apr, omethoate applied on 26 June
SL OME 4	Sown 13 Apr, omethoate applied on 11 July
SL OME R	Sown 13 Apr, omethoate applied 25 May, 13 June, 26 June, 11 July

NOTE: Omethoate was applied at 0.64 kg in 450 l.

Basal applications: Manures: 'Nitro-Chalk' at 500 kg. Weedkillers: Dicamba, mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 200 l. Fungicide: Tridemorph at 0.52 kg in 500 l.

Seed: Triumph, dressed triadimenol plus fuberidazole, sown at 160 kg.

Cultivations, etc.:- Ploughed: 5 Dec, 1983. N applied: 8 Mar, 1984. Early-sown plots rotary harrowed, seed sown: 9 Mar. Late-sown plots rotary harrowed, seed sown: 13 Apr. Weedkillers applied: 15 May. Fungicide applied: 11 June. Combine harvested: 18 Aug. Previous crops: Potatoes 1982, w. wheat 1983.

NOTE: Aphids, thrips and stem borers were counted between late April and mid-July

https://doi.org/10.23637/ERADOC-1-32 *pp 33*

84/R/B/12

GRAIN TONNES/HECTARE

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

SDTE INS	
SE NONE	8.32
SE OME R	8.86
SL NONE	7.85
SL OME 1	8.04
SL OME 2	8.09
SL OME 3	7.95
SL OME 4	7.76
SL OME R	8.14
MEAN	8.09

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

TABLE	SDTE INS	
SED	0.185	MIN REP
	0.160	MAX-MIN

	SDTE INS
MAX-MIN	SL NONE V ANY OF REMAINDER
MIN REP	ANY OF REMAINDER

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

STRATUM	DF	SE	CV%
BLOCK.WP	25	0.261	3.2

GRAIN MEAN DM% 86.0

PLOT AREA HARVESTED 0.00204

https://doi.org/10.23637/ERADOC-1-32

84/R/B/13

SPRING BARLEY

TIMING OF ELECTROSTATIC SPRAYS

Object: To study the effect of different times and rates of fungicides applied by hydraulic or electrostatic sprayers on mildew incidence and yield of spring barley - Webbs.

Sponsors: D.C. Griffiths, G.R. Cayley, P. Etheridge, R.E. Goodchild, B.J. Pye, G.C. Scott.

Design: 3 randomised blocks of 20 plots.

Whole plot dimensions: 3.0 x 15.0.

Treatments: All combinations of:-

1. SPRAYER — Spraying machines:

ELECTRO	Electrostatic sprayer applying fungicide in 6 l water
CNVNTL	Conventional hydraulic sprayer applying fungicide in 200 l water

2. FUNGRATE — Rates of fungicides:

1	Propiconazole at 0.03 kg, tridemorph at 0.06 kg
2	Twice rate 1
4	Four times rate 1

3. SPR TIME — Spray timing:

E	Early, 24 May, 1984
L	Late, 8 June
E+L	Early + Late, 24 May and 8 June

plus one extra treatment:

EXTRA	
NONE	None (duplicated)

NOTES: (1) The electrostatic sprayer had 4 spinning-disc nozzles mounted on a hand-held boom.
(2) The conventional machine was a hand-held knapsack sprayer.
(3) Sides and ends of plots, 3 m and 5 m respectively, were seperated by Atem s. barley, seed dressed with triadimenol plus fuberidazole.

Basal applications: Manures: FYM at 25 t. 'Nitro-Chalk' at 500 kg. Weedkillers: 3, 6-dichloropicolinic acid at 0.05 kg and bromoxynil at 0.24 kg with mecoprop (as 'CMPP' at 3.0 l) in 250 l.

Seed: Georgie, sown at 160 kg.

https://doi.org/10.23637/ERADOC-1-32 *pp 35*

84/R/B/13

Cultivations, etc.:- Heavy spring-tine cultivated: 1 Oct, 1983. FYM applied: 11 Nov. Ploughed: 28 Nov. N applied, spring-tine cultivated: 8 Mar, 1984. Rotary harrowed, seed sown: 9 Mar. Weedkillers applied: 15 May. Combine harvested: 19 Aug. Previous crops: S. barley 1982 and 1983.

NOTE: Mildew assessments were made twice during June.

GRAIN TONNES/HECTARE

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

FUNGRATE	1	2	4	MEAN
SPRAYER				
ELECTRO	6.24	6.54	6.62	6.47
CNVNTL	6.54	6.98	6.79	6.77
MEAN	6.39	6.76	6.71	6.62

SPR TIME	E	L	E+L	MEAN
SPRAYER				
ELECTRO	6.44	6.14	6.83	6.47
CNVNTL	6.40	6.58	7.33	6.77
MEAN	6.42	6.36	7.08	6.62

SPR TIME	E	L	E+L	MEAN
FUNGRATE				
1	6.22	6.04	6.90	6.39
2	6.51	6.62	7.15	6.76
4	6.53	6.41	7.18	6.71
MEAN	6.42	6.36	7.08	6.62

SPR TIME		E	L	E+L
SPRAYER	FUNGRATE			
ELECTRO	1	6.40	5.81	6.51
	2	6.30	6.24	7.09
	4	6.63	6.36	6.89
CNVNTL	1	6.05	6.26	7.30
	2	6.71	7.01	7.21
	4	6.43	6.46	7.47

NONE	6.00
GRAND MEAN	6.56

https://doi.org/10.23637/ERADOC-1-32 *pp 36*

84/R/B/13

GRAIN TONNES/HECTARE

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

TABLE	SPRAYER	FUNGRATE	SPR TIME	SPRAYER FUNGRATE
SED	0.163	0.200	0.200	0.283

TABLE	SPRAYER SPR TIME	FUNGRATE SPR TIME	SPRAYER FUNGRATE SPR TIME
SED	0.283	0.346	0.490

SED FOR COMPARING EXTRA NONE WITH ANY ITEM IN
SPRAYER.FUNGRATE.SPR TIME TABLE IS 0.424

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

STRATUM	DF	SE	CV%
BLOCK.WP	39	0.600	9.1

GRAIN MEAN DM% 88.9

PLOT AREA HARVESTED 0.00306

https://doi.org/10.23637/ERADOC-1-32

84/R/B/14

SPRING BARLEY

MILDEW CONTROL BY ELECTROSTATIC SPRAYERS

Object: To compare the effects of a range of electrostatic sprayers on mildew (Erysiphe graminis) control and on the yield of spring barley - Webbs.

Sponsors: D.C. Griffiths, G.R. Cayley, P. Etheridge, R.E. Goodchild, B.J. Pye, G.C. Scott.

Design: 4 randomised blocks of 14 plots.

Whole plot dimensions: 3.0 x 15.0.

Treatments:

SPRAYER	Sprayers and rates of application of propiconazole (kg):
CNVNTL 1	Conventional, 0.125 kg
CNVNTL 2	Conventional, 0.250 kg
	Electrostatic sprayers, applying at 0.125 kg:
E NO 1	NIAE, uncharged hydraulic sprayer in 60 l
E NC 1	NIAE, charged hydraulic sprayer in 60 l
E JC 1	'Jumbo', charged in 10.1 l
E AC 1	'APE' charged in 5.6 l
E MMC 1	'Micromax' charged in 9.0 l
E MNC 1	'Micronex' charged in 9.0 l
E JAAC 1	'Jumbo', air assisted, nozzles mounted at 20^0 to vertical, charged, in 10.1 l
E JAVC 1	'Jumbo', air assisted, nozzles mounted vertically, charged, in 10.1 l
E AAAC 1	'APE', air assisted, nozzles mounted at 20^0 to vertical, charged, in 5.6 l
E AAVC 1	'APE', air assisted, nozzles mounted vertically, charged, in 5.6 l
NONE	None (duplicated)

NOTES: (1) Sides and ends of plots, 3m and 5m respectively, were separated by Atem s. barley, seed dressed with triadimenol plus fuberidazole.
(2) The 'Jumbo' has electrostatically charged spinning-cone nozzles.
(3) The 'APE' has electrostatically charged spinning-disc nozzles.
(4) The 'Micromax' has inductively-charged spinning-cone nozzles.
(5) The 'Micronex' is a commercial prototype, electrostatically-charged spinning-disc sprayer.
(6) Spray treatments were applied in the period 11 to 12 June, 1984.

Basal applications: Manures: FYM at 25 t. 'Nitro-Chalk' at 500 kg.
Weedkillers: 3, 6-dichloropicolinic acid at 0.05 kg and bromoxynil at 0.24 kg with mecoprop (as 'CMPP' at 3.0 l) in 250 l.

Seed: Georgie, sown at 160 kg.

https://doi.org/10.23637/ERADOC-1-32 *pp 38*

84/R/B/14

Cultivations, etc.:- Heavy spring-tine cultivated: 10 Oct, 1983. FYM applied: 11 Nov. Ploughed: 28 Nov. N applied, spring-tine cultivated: 8 Mar, 1984. Rotary harrowed, seed sown: 10 Mar. Weedkillers applied: 15 May. Combine harvested: 20 Aug. Previous crops: S. barley 1982 and 1983.

NOTE: Plant samples were taken immediately after spraying to assess weedkiller deposits. Mildew assessments were made in June.

GRAIN TONNES/HECTARE

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

SPRAYER	
CNVNTL 1	6.30
CNVNTL 2	6.19
E NO 1	5.96
E NC 1	6.20
E JC 1	5.65
E AC 1	5.74
E MMC 1	5.72
E MNC 1	5.83
E JAAC 1	6.19
E JAVC 1	6.12
E AAAC 1	5.92
E AAVC 1	6.19
NONE	5.42
MEAN	5.92

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

TABLE	SPRAYER	
SED	0.185	MIN REP
	0.160	MAX-MIN

	SPRAY
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	40	0.261	4.4

GRAIN MEAN DM% 87.0

PLOT AREA HARVESTED 0.00306

https://doi.org/10.23637/ERADOC-1-32