ROTHAMSTED RESEARCH

Yields of the Field Experiments 1983

Full Table of Content

Barley

Rothamsted Research

Rothamsted Research (1984) *Barley ;* Yields Of The Field Experiments 1983, pp 242 - 271 **- DOI: https://doi.org/10.23637/ERADOC-1-44**

83/R/B/1

WINTER BARLEY

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. barley - Long Hoos I/II.

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

Design: Half replicate of 2^7 in 2 blocks of 32 plots + 2 extra plots in each block.

Whole plot dimensions: 3.0 x 15.2.

Treatments: Combinations of:-

1. SOWDATE		Dates of sowing:
	15 SEP	15 September, 1982
	26 OCT	26 October
2. N RATE		Rates of nitrogen fertilizer (kg N) as 'Nitro-Chalk':
	100	
	150	
3. N TIME		Times of applying nitrogen fertilizer:
	10 MAR	10 March, 1983
	12 APR	12 April
4. AUT PEST		Autumn pesticide to seedbed:
	NONE	None
	ALDICARB	Aldicarb at 7.1 kg
5. E FUNG		Early fungicides:
	NONE	None
	TFSD	Triadimenol and fuberidazole seed dressing
6. L FUNG		Late fungicides:
	NONE	None
	TR+CA+MA	Tridemorph at 0.70 kg in 450 l on 21 Jan 1983, and at 0.70 kg in 220 l on 18 Mar. Carbendazim at 0.15 kg, maneb at 1.6 kg and tridemorph at 0.38 kg in 220 l on 26 Apr and 23 May
7. GRTH REG		Growth regulator:
	NONE	None
	MEP+ETH	Mepiquat chloride + ethephon (as 'Terpal' at 2.8 l) in 220 l

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

plus two extra treatments given no nitrogen fertilizer, pesticides, fungicides or growth regulator:

EXTRA

15 SEP 0	Sown 15 September
26 OCT 0	Sown 26 October

NOTE: (1) Aldicarb was applied before sowing on each occasion, and worked in by a rotary harrow seed drill combination.
(2) The growth regulator was applied at the recommended growth stage (Zadoks 31/32) which occurred on 27 April for the first sowing, and 11 May for the second.

Basal applications: Manures: (0:18:36) at 280 kg. Weedkillers: Mecoprop, bromoxynil and ioxynil (as 'Brittox' at 3.5 l) in 450 l on SOWDATE 15 SEP plots and again (as 'Brittox' at 1.76 l) with mecoprop (as 'Farmon CMPP' at 2.1 l) in 220 l on SOWDATE 26 OCT plots.

Seed: Igri, sown at 130 kg.

Cultivations, etc.:- PK applied: 10 Sept, 1982. Heavy spring-tine cultivated twice: 13 Sept. Aldicarb applied to SOWDATE 15 SEP, rotary harrowed, seed sown: 15 Sept. Aldicarb applied to SOWDATE 26 OCT: 20 Oct. These plots rotary harrowed, seed sown: 26 Oct. 'Brittox' applied to SOWDATE 15 SEP plots: 26 Nov. 'Brittox' with 'Farmon CMPP' applied to SOWDATE 26 OCT: 28 Mar, 1983. Combine harvested: 26 July. Previous crops: W. oats 1981, potatoes 1982.

NOTES: (1) Stem nitrate and nitrate in the soil were measured on several occasions during the season. Plant counts were taken and leaf diseases were assessed periodically. Crop height and ear numbers were measured in June and blind spikelets were assessed during the season.
(2) A cage was erected over the crop from late May to maturity to prevent damage by birds.

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

83/R/B/1

GRAIN TONNES/HECTARE

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

N RATE	100	150	MEAN
SOWDATE			
15 SEPT	7.92	7.84	7.88
26 OCT	7.64	7.75	7.70
MEAN	7.78	7.79	7.79

N TIME	10 MAR	12 APR	MEAN
SOWDATE			
15 SEPT	7.73	8.03	7.88
26 OCT	7.67	7.73	7.70
MEAN	7.70	7.88	7.79

N TIME	10 MAR	12 APR	MEAN
N RATE			
100	7.76	7.81	7.78
150	7.64	7.94	7.79
MEAN	7.70	7.88	7.79

AUT PEST	NONE	ALDICARB	MEAN
SOWDATE			
15 SEPT	7.72	8.04	7.88
26 OCT	7.66	7.74	7.70
MEAN	7.69	7.89	7.79

AUT PEST	NONE	ALDICARB	MEAN
N RATE			
100	7.68	7.89	7.78
150	7.71	7.88	7.79
MEAN	7.69	7.89	7.79

AUT PEST	NONE	ALDICARB	MEAN
N TIME			
10 MAR	7.62	7.78	7.70
12 APR	7.76	7.99	7.88
MEAN	7.69	7.89	7.79

E FUNG	NONE	TFSD	MEAN
SOWDATE			
15 SEPT	7.71	8.05	7.88
26 OCT	7.68	7.71	7.70
MEAN	7.70	7.88	7.79

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

83/R/B/1

GRAIN TONNES/HECTARE

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

E FUNG	NONE	TFSD	MEAN
N RATE			
100	7.65	7.92	7.78
150	7.74	7.85	7.79
MEAN	7.70	7.88	7.79

E FUNG	NONE	TFSD	MEAN
N TIME			
10 MAR	7.59	7.81	7.70
12 APR	7.80	7.95	7.88
MEAN	7.70	7.88	7.79

E FUNG	NONE	TFSD	MEAN
AUT PEST			
NONE	7.56	7.82	7.69
ALDICARB	7.83	7.94	7.89
MEAN	7.70	7.88	7.79

L FUNG	NONE	TR+CA+MA	MEAN
SOWDATE			
15 SEPT	7.37	8.39	7.88
26 OCT	7.32	8.07	7.70
MEAN	7.35	8.23	7.79

L FUNG	NONE	TR+CA+MA	MEAN
N RATE			
100	7.41	8.16	7.78
150	7.28	8.31	7.79
MEAN	7.35	8.23	7.79

L FUNG	NONE	TR+CA+MA	MEAN
N TIME			
10 MAR	7.22	8.18	7.70
12 APR	7.47	8.29	7.88
MEAN	7.35	8.23	7.79

L FUNG	NONE	TR+CA+MA	MEAN
AUT PEST			
NONE	7.31	8.07	7.69
ALDICARB	7.38	8.39	7.89
MEAN	7.35	8.23	7.79

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

83/R/B/1

GRAIN TONNES/HECTARE

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

L FUNG / E FUNG	NONE	TR+CA+MA	MEAN
NONE	7.28	8.11	7.70
TFSD	7.41	8.35	7.88
MEAN	7.35	8.23	7.79

GRTH REG / SOWDATE	NONE	MEP+ETH	MEAN
15 SEPT	7.78	7.98	7.88
26 OCT	7.41	7.98	7.70
MEAN	7.60	7.98	7.79

GRTH REG / N RATE	NONE	MEP+ETH	MEAN
100	7.71	7.86	7.78
150	7.48	8.10	7.79
MEAN	7.60	7.98	7.79

GRTH REG / N TIME	NONE	MEP+ETH	MEAN
10 MAR	7.54	7.86	7.70
12 APR	7.65	8.10	7.88
MEAN	7.60	7.98	7.79

GRTH REG / AUT PEST	NONE	MEP+ETH	MEAN
NONE	7.52	7.86	7.69
ALDICARB	7.67	8.10	7.89
MEAN	7.60	7.98	7.79

GRTH REG / E FUNG	NONE	MEP+ETH	MEAN
NONE	7.59	7.81	7.70
TFSD	7.60	8.16	7.88
MEAN	7.60	7.98	7.79

GRTH REG / L FUNG	NONE	MEP+ETH	MEAN
NONE	7.18	7.51	7.35
TR+CA+MA	8.01	8.45	8.23
MEAN	7.60	7.98	7.79

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

83/R/B/1

GRAIN TONNES/HECTARE

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

EXTRA	15 SEP 0	26 OCT 0	MEAN
	4.98	4.10	4.54

GRAND MEAN 7.60

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

(NOT INCLUDING EXTRA PLOTS)
MARGIN OF TWO FACTOR TABLES 0.072
TWO FACTOR TABLES 0.102

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

STRATUM	DF	SE	CV%
BLOCK.WP	34	0.290	3.7

GRAIN MEAN DM% 86.2

STRAW TONNES/HECTARE

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

N RATE	100	150	MEAN
SOWDATE			
15 SEPT	5.54	6.27	5.91
26 OCT	4.93	5.89	5.41
MEAN	5.24	6.08	5.66

N TIME	10 MAR	12 APR	MEAN
SOWDATE			
15 SEPT	6.20	5.62	5.91
26 OCT	5.62	5.21	5.41
MEAN	5.91	5.41	5.66

N TIME	10 MAR	12 APR	MEAN
N RATE			
100	5.49	4.99	5.24
150	6.33	5.84	6.08
MEAN	5.91	5.41	5.66

AUT PEST	NONE	ALDICARB	MEAN
SOWDATE			
15 SEPT	5.80	6.01	5.91
26 OCT	5.49	5.34	5.41
MEAN	5.64	5.68	5.66

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

83/R/B/1

STRAW TONNES/HECTARE

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

AUT PEST N RATE	NONE	ALDICARB	MEAN
100	5.17	5.31	5.24
150	6.12	6.04	6.08
MEAN	5.64	5.68	5.66

AUT PEST N TIME	NONE	ALDICARB	MEAN
10 MAR	5.93	5.89	5.91
12 APR	5.36	5.47	5.41
MEAN	5.64	5.68	5.66

E FUNG SOWDATE	NONE	TFSD	MEAN
15 SEPT	5.69	6.12	5.91
26 OCT	5.42	5.40	5.41
MEAN	5.56	5.76	5.66

E FUNG N RATE	NONE	TFSD	MEAN
100	5.12	5.35	5.24
150	5.99	6.17	6.08
MEAN	5.56	5.76	5.66

E FUNG N TIME	NONE	TFSD	MEAN
10 MAR	5.82	6.00	5.91
12 APR	5.30	5.53	5.41
MEAN	5.56	5.76	5.66

E FUNG AUT PEST	NONE	TFSD	MEAN
NONE	5.56	5.73	5.64
ALDICARB	5.56	5.79	5.68
MEAN	5.56	5.76	5.66

L FUNG SOWDATE	NONE	TR+CA+MA	MEAN
15 SEPT	5.74	6.07	5.91
26 OCT	5.19	5.64	5.41
MEAN	5.46	5.85	5.66

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

83/R/B/1

STRAW TONNES/HECTARE

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

L FUNG N RATE	NONE	TR+CA+MA	MEAN
100	4.98	5.49	5.24
150	5.95	6.22	6.08
MEAN	5.46	5.85	5.66

L FUNG N TIME	NONE	TR+CA+MA	MEAN
10 MAR	5.73	6.08	5.91
12 APR	5.20	5.63	5.41
MEAN	5.46	5.85	5.66

L FUNG AUT PEST	NONE	TR+CA+MA	MEAN
NONE	5.50	5.79	5.64
ALDICARB	5.43	5.92	5.68
MEAN	5.46	5.85	5.66

L FUNG E FUNG	NONE	TR+CA+MA	MEAN
NONE	5.32	5.80	5.56
TFSD	5.61	5.91	5.76
MEAN	5.46	5.85	5.66

GRTH REG SOWDATE	NONE	MEP+ETH	MEAN
15 SEPT	6.12	5.70	5.91
26 OCT	5.75	5.08	5.41
MEAN	5.93	5.39	5.66

GRTH REG N RATE	NONE	MEP+ETH	MEAN
100	5.46	5.01	5.24
150	6.41	5.76	6.08
MEAN	5.93	5.39	5.66

GRTH REG N TIME	NONE	MEP+ETH	MEAN
10 MAR	6.18	5.63	5.91
12 APR	5.68	5.14	5.41
MEAN	5.93	5.39	5.66

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

83/R/B/1

STRAW TONNES/HECTARE

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

GRTH REG AUT PEST	NONE	MEP+ETH	MEAN
NONE	5.89	5.39	5.64
ALDICARB	5.97	5.38	5.68
MEAN	5.93	5.39	5.66

GRTH REG E FUNG	NONE	MEP+ETH	MEAN
NONE	5.90	5.21	5.56
TFSD	5.96	5.56	5.76
MEAN	5.93	5.39	5.66

GRTH REG L FUNG	NONE	MEP+ETH	MEAN
NONE	5.73	5.20	5.46
TR+CA+MA	6.14	5.57	5.85
MEAN	5.93	5.39	5.66

EXTRA	15 SEP 0	26 OCT 0	MEAN
	3.15	2.05	2.60

GRAND MEAN 5.48

STRAW MEAN DM% 86.1

PLOT AREA HARVESTED 0.00341

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

83/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, Horsepool.

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:

All combinations of:-

Whole plots

1. FS WB		Foliar sprays to w. barley applied 15 Apr, 1983:
	NONE	None
	FENPROP	Fenpropimorph at 0.75 kg in 280 l
	PROPICON	Propiconazole at 0.12 kg in 280 l
2. SD SB		Seed dressings to one adjacent plot of s. barley, other adjacent plot given no fungicides:
	NONE	None
	TRI+FUB	Triadimenol + fuberidazole
3. VAR SB		Variety of adjacent s. barley testing seed dressing, other adjacent s. barley plot sown to Golden Promise given no fungicides:
	G PROMIS	Golden Promise
	KEG	Keg

Sub plots

4. POSITION		Position of w. barley plots in relation to s. barley plots testing seed dressing:
	S EAST	South east
	N WEST	North west

Treatments to S. BARLEY: All combinations of:-

1. SD SB		Seed dressings to s. barley:
	NONE	None
	TRI+FUB	Triadimenol + fuberidazole

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

83/W/B/1

2. VAR SB — Variety of s. barley:

G PROMIS	Golden Promise
KEG	Keg

3. FS WB — Foliar sprays to both adjacent plots of w. barley, none to s. barley:

NONE	None
FENPROP	Fenpropimorph as above
PROPICON	Propiconazole as above

NOTE: Tridemorph at 0.52 kg in 280 l was applied to the internal and external headlands on 10 June, 1983.

Standard applications: Manures: N at 30 kg as 'Nitro-Chalk' to w. barley, N at 160 kg to s. and w. barley. Weedkillers: Methabenzthiazuron at 1.6 kg in 250 l, mecoprop with bromoxynil and ioxynil (as 'Brittox' at 3.0 l) in 250 l.

Seed: W. barley: Maris Otter, sown at 180 kg.
S. barley: Golden Promise, sown at 160 kg.
Keg, sown at 160 kg.

Cultivations, etc.:- Disced: 1 Sept, 1982. Ploughed: 30 Sept. N applied for w. barley: 6 Oct. Spring-tine cultivated with crumbler attached for w. barley, w. barley seed sown: 7 Oct. Methabenzthiazuron applied to w. barley and for s. barley: 11 Oct. Deep-tine cultivated for s. barley: 12 Jan, 1983. Heavy spring-tine cultivated for s. barley: 7 Mar. Spring-tine cultivated with crumbler attached, s. barley seed sown: 12 Mar. N applied, 'Brittox' applied to w. and s. barley: 5 May. W. barley combine harvested: 28 July. S. barley combine harvested: 5 Aug. Previous crops: Potatoes 1981, w. wheat 1982.

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

https://doi.org/10.23637/ERADOC-1-44 *pp 12*

83/W/B/1 WINTER BARLEY

GRAIN TONNES/HECTARE

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

SD SB	NONE	TRI+FUB	MEAN
FS WB			
NONE	4.92	5.35	5.14
FENPROP	5.86	6.02	5.94
PROPICON	5.26	5.20	5.23
MEAN	5.34	5.52	5.43

VAR SB	G PROMIS	KEG	MEAN
FS WB			
NONE	5.04	5.24	5.14
FENPROP	5.61	6.27	5.94
PROPICON	5.18	5.28	5.23
MEAN	5.27	5.59	5.43

VAR SB	G PROMIS	KEG	MEAN
SD SB			
NONE	5.15	5.54	5.34
TRI+FUB	5.40	5.65	5.52
MEAN	5.27	5.59	5.43

POSITION	S EAST	N WEST	MEAN
FS WB			
NONE	4.91	5.36	5.14
FENPROP	5.57	6.31	5.94
PROPICON	4.83	5.63	5.23
MEAN	5.10	5.77	5.43

POSITION	S EAST	N WEST	MEAN
SD SB			
NONE	4.99	5.70	5.34
TRI+FUB	5.22	5.83	5.52
MEAN	5.10	5.77	5.43

POSITION	S EAST	N WEST	MEAN
VAR SB			
G PROMIS	4.94	5.61	5.27
KEG	5.26	5.92	5.59
MEAN	5.10	5.77	5.43

SD SB	NONE		TRI+FUB	
VAR SB	G PROMIS	KEG	G PROMIS	KEG
FS WB				
NONE	4.87	4.96	5.20	5.51
FENPROP	5.45	6.27	5.77	6.27
PROPICON	5.14	5.38	5.22	5.18

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

83/W/B/1 WINTER BARLEY

GRAIN TONNES/HECTARE

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

SD SB	NONE		TRI+FUB	
POSITION	S EAST	N WEST	S EAST	N WEST
FS WB				
NONE	4.69	5.14	5.13	5.58
FENPROP	5.51	6.21	5.62	6.41
PROPICON	4.76	5.76	4.90	5.50

VAR SB G	PROMIS		KEG	
POSITION	S EAST	N WEST	S EAST	N WEST
FS WB				
NONE	4.84	5.23	4.98	5.49
FENPROP	5.05	6.17	6.08	6.46
PROPICON	4.92	5.44	4.73	5.82

VAR SB G	PROMIS		KEG	
POSITION	S EAST	N WEST	S EAST	N WEST
SD SB				
NONE	4.84	5.46	5.13	5.94
TRI+FUB	5.03	5.76	5.40	5.90

VAR SB G	PROMIS		KEG	
POSITION	S EAST	N WEST	S EAST	N WEST
FS WB SD SB				
NONE NONE	4.64	5.10	4.74	5.18
TRI+FUB	5.04	5.36	5.22	5.80
FENPROP NONE	5.13	5.77	5.89	6.66
TRI+FUB	4.97	6.57	6.28	6.26
PROPICON NONE	4.76	5.52	4.75	6.00
TRI+FUB	5.09	5.36	4.71	5.64

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

TABLE	FS WB	SD SB	VAR SB	POSITION
SED	0.271	0.221	0.221	0.181

TABLE	FS WB SD SB	FS WB VAR SB	SD SB VAR SB	FS WB POSITION
SED	0.383	0.383	0.313	0.350

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:

FS WB	0.313

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

83/W/B/1 WINTER BARLEY

GRAIN TONNES/HECTARE

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

TABLE	SD SB POSITION	VAR SB POSITION	FS WB SD SB VAR SB	FS WB SD SB POSITION
SED	0.286	0.286	0.542	0.495
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
SD SB	0.256			
VAR SB		0.256		
FS WB.SD SB				0.443

TABLE	FS WB VAR SB POSITION	SD SB VAR SB POSITION	FS WB SD SB VAR SB POSITION
SED	0.495	0.404	0.700
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
FS WB.VAR SB	0.443		
SD SB.VAR SB		0.362	
FS WB.SD SB.VAR SB			0.627

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

STRATUM	DF	SE	CV%
BLOCK.WP	11	0.542	10.0
BLOCK.WP.SP	12	0.627	11.5

GRAIN MEAN DM% 86.9

SUB PLOT AREA HARVESTED 0.00220

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

83/W/B/1 SPRING BARLEY

GRAIN TONNES/HECTARE

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

VAR SB SD SB	G PROMIS	KEG	MEAN
NONE	3.47	5.04	4.25
TRI+FUB	3.73	5.25	4.49
MEAN	3.60	5.14	4.37

FS WB SD SB	NONE	FENPROP	PROPICON	MEAN
NONE	4.30	4.30	4.16	4.25
TRI+FUB	4.83	4.38	4.26	4.49
MEAN	4.57	4.34	4.21	4.37

FS WB VAR SB	NONE	FENPROP	PROPICON	MEAN
G PROMIS	3.97	3.42	3.40	3.60
KEG	5.16	5.26	5.02	5.14
MEAN	4.57	4.34	4.21	4.37

VAR SB	G PROMIS			KEG		
FS WB	NONE	FENPROP	PROPICON	NONE	FENPROP	PROPICON
SD SB						
NONE	3.92	3.15	3.33	4.69	5.44	4.99
TRI+FUB	4.03	3.69	3.46	5.63	5.08	5.05

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

TABLE	SD SB	VAR SB	FS WB	SD SB VAR SB
SED	0.190	0.190	0.233	0.269

TABLE	SD SB FS WB	VAR SB FS WB	SD SB VAR SB FS WB
SED	0.330	0.330	0.466

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

STRATUM	DF	SE	CV%
BLOCK.WP	11	0.466	10.7

GRAIN MEAN DM% 87.2

PLOT AREA HARVESTED 0.00220

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

83/R/B/4 and 83/W/B/4

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), Highfield IV and Woburn (W), Bull Field.

Sponsor: R. Moffitt.

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

Whole plot dimensions: 3.0 x 10.0.

Treatments: All combinations of:-

Whole plots

1. N — Nitrogen fertilizer (kg N) as 'Nitro-Chalk', in addition to basals:

   75
   113
   150

Sub plots

2. VARIETY — Varieties:

   ATEM
   CARNIVAL
   KYM
   PATTY
   TASMAN
   TRIUMPH

NOTE: At Woburn 75 kg N of the nitrogen treatments was applied to the seedbed as (20:10:10), the remainder and all at Rothamsted was applied as 'Nitro-Chalk'.

Basal applications:
Highfield IV (R): Manures: (0:18:36) at 690 kg, N at 65 kg as 'Nitro-Chalk'. Weedkillers: Dicamba with mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 250 l. Fungicide: Prochloraz at 0.4 l in 250 l.
Bull Field (W): Manures: Magnesian limestone at 7.5 t, (20:10:10) at 377 kg. Weedkillers: Dicamba, with mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 250 l. Fungicide: Tridemorph at 0.52 kg in 250 l.

Seed: Highfield IV (R) and Bull Field (W): Sown at 160 kg.

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

83/R/B/4 and 83/W/B/4

Cultivations, etc.:-
Highfield IV (R): PK applied: 18 Oct, 1982. Ploughed: 17 Dec. Spring-tine cultivated: 15 Mar, 1983. N treatments applied, spring-tine cultivated, seed sown: 17 Mar. Weedkillers applied: 24 May. Basal N applied: 27 May. Fungicide applied: 1 July. Combine harvested: 8 Aug. Previous crops: S. beans 1981, w. wheat 1982.
Bull Field (W): Magnesian limestone applied: 15 Sept, 1982. Ploughed: 15 Nov. Heavy spring-tine cultivated: 7 Mar, 1983. NPK applied: 10 Mar. Spring-tine cultivated with crumbler attached, seed sown: 11 Mar. Weedkillers applied: 26 May. Remaining N treatments applied: 3 June. Fungicide applied: 16 June. Combine harvested: 6 Aug. Previous crops: S. barley 1981 and 1982.

83/R/B/4 HIGHFIELD IV (R)

GRAIN TONNES/HECTARE

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

N	75	113	150	MEAN
VARIETY				
ATEM	6.81	6.11	7.10	6.67
CARNIVAL	6.63	5.53	7.06	6.41
KYM	7.37	6.45	7.37	7.06
PATTY	6.71	6.07	7.12	6.63
TASMAN	5.48	5.52	6.64	5.88
TRIUMPH	5.97	5.92	6.79	6.23
MEAN	6.49	5.94	7.01	6.48

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

TABLE	VARIETY	N* VARIETY
SED	0.284	0.493

* FOR WITHIN SAME LEVEL OF N ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	15	0.493	7.6

GRAIN MEAN DM% 85.4

SUB PLOT AREA HARVESTED 0.00204

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

83/W/B/4 BULL FIELD (W)

GRAIN TONNES/HECTARE

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

N	75	113	150	MEAN
VARIETY				
ATEM	5.87	4.79	4.86	5.17
CARNIVAL	4.66	4.50	5.33	4.83
KYM	4.74	4.62	4.81	4.72
PATTY	4.63	4.38	3.61	4.21
TASMAN	3.62	4.09	3.33	3.68
TRIUMPH	4.49	4.28	4.26	4.34
MEAN	4.67	4.44	4.37	4.49

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

TABLE	VARIETY	N* VARIETY
SED	0.330	0.572

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	15	0.572	12.7

GRAIN MEAN DM% 86.1

SUB PLOT AREA HARVESTED 0.00275

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

83/R/B/5

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 - Sawyers 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 8 Mar, 1983, no insecticides
SE OME R	Sown 8 Mar, omethoate applied on 27 May, 13 June, 28 June, 12 July
SL NONE	Sown 14 Apr, no insecticides
SL OME 1	Sown 14 Apr, omethoate applied on 27 May
SL OME 2	Sown 14 Apr, omethoate applied on 13 June
SL OME 3	Sown 14 Apr, omethoate applied on 28 June
SL OME 4	Sown 14 Apr, omethoate applied on 12 July
SL OME R	Sown 14 Apr, omethoate applied 27 May, 13 June, 28 June, 12 July

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

Basal applications: Manures: 'Nitro-Chalk' at 500 kg followed by 250 kg. Weedkillers: Dicamba, mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 250 l. Fungicide: Tridemorph at 0.52 kg in 250 l.

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

Cultivations, etc.:- Ploughed: 10 Nov, 1982. Spring-tine cultivated: 7 Mar, 1983. Spring-tine cultivated, early-sown plots rotary harrowed and sown: 8 Mar. Late-sown plots rotary harrowed and sown: 14 Apr. First N applied: 15 Apr. Weedkillers applied: 24 May. Second N applied: 26 May. Fungicide applied: 21 June. Combine harvested: 9 Aug. Previous crops: Potatoes 1981, s. barley 1982.

NOTES: (1) Aphids, thrips and stem borers were counted from the end of April to the middle of July.
(2) Components of yield were measured.

https://doi.org/10.23637/ERADOC-1-44 *pp 20*

83/R/B/5

GRAIN TONNES/HECTARE

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

SDTE INS	
SE NONE	6.27
SE OME R	6.83
SL NONE	5.24
SL OME 1	4.89
SL OME 2	5.44
SL OME 3	5.85
SL OME 4	5.59
SL OME R	5.43
MEAN	5.64

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

TABLE	SDTE INS	
SED	0.424	MIN REP
	0.367	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	0.600	10.6

GRAIN MEAN DM% 87.1

PLOT AREA HARVESTED 0.00204

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

83/W/B/5

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. Hill Bottom I.

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, 1983
15 APR	15 Apr
2. INSEARLY	Insecticide applied early:
NONE	None
OMETHOAT	Omethoate on 7 June
3. INS LATE	Insecticide applied late:
NONE	None
OMETHOAT	Omethoate on 5 July

NOTE: Omethoate was applied at 0.64 l in 280 l on both occasions.

Basal applications: Manures: N at 140 kg as 'Nitro-Chalk'. Weedkillers: Dicamba with mecoprop and MCPA (as 'Herrisol' at 5.0 l) 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.:- Ploughed: 3 Nov, 1982. Spring-tine cultivated: 7 Mar, 1983. Spring-tine cultivated with crumbler attached: 8 Mar. Spring-tine cultivated with crumbler attached for SOW DATE 15 APR: 15 Apr. N applied: 5 May. Weedkillers applied: 26 May. Fungicide applied: 16 June. Combine harvested SOW DATE 9 MAR: 9 Aug. Combine harvested SOW DATE 15 APR: 18 Aug. Previous crops: Potatoes 1981, w. wheat: 1982.

NOTES: (1) Aphids, thrips and stem borers were counted on several occasions between April and June.
(2) Barley yellow dwarf virus infection was assessed.

https://doi.org/10.23637/ERADOC-1-44 *pp 22*

83/W/B/5

GRAIN TONNES/HECTARE

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

INSEARLY	NONE	OMETHOAT	MEAN
SOW DATE			
9 MAR	5.58	5.34	5.46
15 APR	4.34	4.90	4.62
MEAN	4.96	5.12	5.04

INS LATE	NONE	OMETHOAT	MEAN
SOW DATE			
9 MAR	5.83	5.09	5.46
15 APR	5.05	4.19	4.62
MEAN	5.44	4.64	5.04

INS LATE	NONE	OMETHOAT	MEAN
INSEARLY			
NONE	5.51	4.41	4.96
OMETHOAT	5.37	4.88	5.12
MEAN	5.44	4.64	5.04

INSEARLY	NONE		OMETHOAT	
INS LATE	NONE	OMETHOAT	NONE	OMETHOAT
SOW DATE				
9 MAR	6.18	4.98	5.47	5.21
15 APR	4.84	3.84	5.27	4.54

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

TABLE	SOW DATE	INSEARLY	INS LATE	SOW DATE INSEARLY
SED	0.602	0.602	0.602	0.852

TABLE	SOW DATE INS LATE	INSEARLY INS LATE	SOW DATE INSEARLY INS LATE
SED	0.852	0.852	1.205

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

STRATUM	DF	SE	CV%
BLOCK.WP	21	1.703	33.8

GRAIN MEAN DM% 85.6

PLOT AREA HARVESTED 0.00275

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

83/R/B/6

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 - Fosters Corner.

Sponsor: D.W. Hollomon.

Design: 2 randomised blocks of 12 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 DMNOL	Triadimenol at 0.4 g per kg seed
3. FUNG SP	Fungicidal foliar spray:	
	NONE	None
	TR DMFON	Triadimefon at 0.12 kg in 250 l on 17 June, 1983

NOTE: The seed was sown at 160 kg.

Basal applications: Manures: (0:18:36) at 690 kg. 'Nitro-Chalk' at 450 kg followed by 250 kg. Weedkillers: Dicamba, mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 250 l.

Cultivations, etc.:- PK applied: 19 Oct, 1982. Ploughed: 25 Oct. Spring-tine cultivated: 8 Mar, 1983. First N applied: 10 Mar. Spring-tine cultivated: 11 Mar. Seed sown: 12 Mar. Weedkillers applied: 24 May. Second N applied: 26 May. Combine harvested: 8 Aug. Previous crops: S. beans 1981, w. wheat 1982.

NOTE: Mildew was assessed on six occasions during May, June and July; scald (Rhynchosporium secalis) was also recorded in May and June. Sensitivity of mildew to triadimenol was assessed by bioassay on two occasions.

https://doi.org/10.23637/ERADOC-1-44 *pp 24*

83/R/B/6

GRAIN TONNES/HECTARE

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

FUNG SD VARIETY	NONE	ETHIRIMO	TR DMNOL	MEAN
CARNIVAL	6.49	6.51	6.98	6.66
TRIUMPH	6.00	6.01	5.95	5.99
MEAN	6.25	6.26	6.47	6.33

FUNG SP VARIETY	NONE	TR DMFON	MEAN
CARNIVAL	6.20	7.13	6.66
TRIUMPH	5.28	6.70	5.99
MEAN	5.74	6.91	6.33

FUNG SP FUNG SD	NONE	TR DMFON	MEAN
NONE	5.68	6.81	6.25
ETHIRIMO	5.72	6.80	6.26
TR DMNOL	5.81	7.13	6.47
MEAN	5.74	6.91	6.33

FUNG SD	NONE		ETHIRIMO		TR DMNOL	
FUNG SP	NONE	TR DMFON	NONE	TR DMFON	NONE	TR DMFON
VARIETY						
CARNIVAL	6.11	6.87	6.08	6.95	6.41	7.56
TRIUMPH	5.26	6.74	5.37	6.66	5.22	6.69

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

TABLE	VARIETY	FUNG SD	FUNG SP	VARIETY FUNG SD
SED	0.196	0.240	0.196	0.339

TABLE	VARIETY FUNG SP	FUNG SD FUNG SP	VARIETY FUNG SD FUNG SP
SED	0.277	0.339	0.480

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

STRATUM	DF	SE	CV%
BLOCK.WP	11	0.480	7.6

GRAIN MEAN DM% 87.2

PLOT AREA HARVESTED 0.00248

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

83/R/B/7

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 - Highfield IV.

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 12.0.
Wide plots: 10.0 x 12.0.

Treatments:

TREATMNT	Plot width (all 12m long) and fungicide treatment:
3M NONE	3m, no fungicide
3M TRID	3m, tridemorph spray at 0.52 kg in 220 l on 10 June, 1983
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 south-east, 'right' was north-west.

Basal applications: Manures: (0:18:36) at 690 kg. 'Nitro-Chalk' at 480 kg followed by 250 kg. Weedkillers: Dicamba, mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 250 l.

Seed: Georgie, sown at 160 kg.

Cultivations, etc.:- PK applied: 18 Oct, 1982. Ploughed: 17 Dec. Spring-tine cultivated, first N applied: 15 Mar, 1983. Spring-tine cultivated, seed sown: 17 Mar. 'Herrisol' applied: 24 May. Second N applied: 26 May. Combine harvested: 8 Aug. Previous crops: S. beans 1981, w. wheat 1982.

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

https://doi.org/10.23637/ERADOC-1-44 *pp 26*

83/R/B/7

GRAIN TONNES/HECTARE

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

TREATMNT	3M NONE	3M TRID	10M NONE
	4.99	5.71	4.89

LHN TREATMNT	3M NONE	3M TRID	10M NONE
3M NONE		4.94	5.03
3M TRID	6.01		5.40
10M NONE	4.71	5.06	

RHN TREATMNT	3M NONE	3M TRID	10M NONE
3M NONE		4.98	5.00
3M TRID	5.92		5.50
10M NONE	4.98	4.80	

GRAND MEAN 5.19

GRAIN MEAN DM% 86.8

PLOT AREA HARVESTED 0.00245

https://doi.org/10.23637/ERADOC-1-44 *pp 27*

83/R/B/8

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 - Highfield VI.

Sponsor: J.F. Jenkyn.

Designs: One was a serially balanced sequence of 9 'blocks' of 4 plots with flanking plots on the outsides and at a discontinuity necessitated by field layout, the other was four randomised blocks of 4 plots.

Whole plot dimensions: 2.04 x 18.3.

Treatments:

VARIETY	Varieties:
CLARET	Claret
GOLDMARK	Goldmarker
PATTY	Patty
MIXTURE	Mixture of Claret, Goldmarker and Patty

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 south-east, 'right' was north-west.

Basal applications: Manures: (0:18:36) at 690 kg. 'Nitro-Chalk' at 480 kg followed by 250 kg. Weedkillers: Mecoprop, bromoxynil and ioxynil (as 'Brittox' at 3.5 l) in 500 l.

Seed: Varieties and mixture sown at 160 kg.

Cultivations, etc.:- PK applied: 18 Oct, 1982. Ploughed: 15 Dec. Spring-tine cultivated, first N applied: 15 Mar, 1983. Spring-tine cultivated, seed sown: 16 Mar. 'Brittox' applied: 26 May. Second N applied: 27 May. Combine harvested: 8 Aug. Previous crops: W. beans 1981, w. wheat 1982.

NOTE: Leaf diseases were assessed in mid-July.

https://doi.org/10.23637/ERADOC-1-44 *pp 28*

83/R/B/8

GRAIN TONNES HECTARE

SERIALLY BALANCED DESIGN

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

VARIETY	CLARET	GOLDMARK	PATTY	MIXTURE
	7.12	6.58	6.56	6.70

LHN VARIETY	CLARET	GOLDMARK	PATTY	MIXTURE
CLARET		7.41	7.18	6.78
GOLDMARK	6.93		6.27	6.55
PATTY	6.58	6.17		6.92
MIXTURE	6.62	6.82	6.67	

RHN VARIETY	CLARET	GOLDMARK	PATTY	MIXTURE
CLARET		7.00	7.22	7.15
GOLDMARK	6.64		6.46	6.65
PATTY	6.85	6.26		6.56
MIXTURE	6.19	6.84	7.08	

GRAND MEAN 6.74

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

TABLE	VARIETY	VARIETY LHN	VARIETY RHN
SED	0.268	0.465	0.465

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

STRATUM	DF	SE	CV%
BLOCK.WP	16	0.569	8.4

MEAN DM% 87.5

RANDOMISED BLOCK DESIGN

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

VARIETY	CLARET	GOLDMARK	PATTY	MIXTURE	MEAN
	7.45	6.40	6.45	6.91	6.80

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

TABLE	VARIETY
SED	0.313

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

STRATUM	DF	SE	CV%
BLOCK.WP	9	0.443	6.5

MEAN DM% 87.6 PLOT AREA HARVESTED 0.00373

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

83/R/B/9

SPRING BARLEY

ELECTROSTATIC SPRAYING AND MILDEW

Object: To compare the effects of electrostatic and conventional sprayers on mildew (Erysiphe graminis) control and on the yield of s. barley - Geescroft.

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

Design: 4 randomised blocks of 10 plots.

Whole plot dimensions: 3.0 x 13.0.

Treatments: All combinations of:-

1. SPRAYER — Spraying machines:

CNVNTIAL	Conventional
ELECT NA	New electrostatic A
ELECT NB	New electrostatic B
ELECT O	Older electrostatic

2. TRIADIME — Rates of applying triadimefon fungicide(g):

31
125

plus two extra treatments

EXTRA	
NONE	None
ELECT C1	New electrostatic C, given triadimefon at 31 g.

NOTES: (1) All the electrostatic sprayers had spinning cone nozzles. A and the older type were mounted vertically but differed in electric charge, 7.5 and 30 kV respectively. B and C both were mounted at an angle of 30° to the vertical and also differed in charge, 7.5 and 30 kV respectively.
(2) Fungicide was applied on 13 June, 1983, in 380 l by conventional sprayer, in 8.3 l by electrostatic sprayers.

Basal applications: Manures: 'Nitro-Chalk' at 500 kg followed by 250 kg. Weedkillers: Glyphosate at 1.4 kg in 120 l. Dicamba, mecoprop and MCPA (as 'Herrisol' at 5.0 l) in 250 l.

Seed: Koru, sown at 160 kg.

Cultivations, etc.:- Glyphosate applied: 28 Oct, 1982. Ploughed: 22 Dec. Spring-tine cultivated twice: 11 Mar, 1983. Seed sown: 15 Mar. First N applied: 15 Apr. 'Herrisol' applied: 24 May. Second N applied: 26 May. Combine harvested: 8 Aug. Previous crops: Potatoes 1981, w. wheat 1982.

NOTE: Samples for chemical analysis were taken immediately after treatment. Mildew was assessed seventeen days later.

https://doi.org/10.23637/ERADOC-1-44 *pp 30*

83/R/B/9

GRAIN TONNES/HECTARE

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

TRIADIME SPRAYER	31	125	MEAN
CNVNTIAL	6.15	6.34	6.24
ELECT NA	5.95	6.74	6.34
ELECT NB	5.92	6.67	6.29
ELECT 0	6.09	6.48	6.28
MEAN	6.03	6.56	6.29

EXTRA	NONE	ELECT C1	MEAN
	5.91	5.93	5.92

GRAND MEAN 6.22

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

TABLE	SPRAYER	TRIADIME	SPRAYER TRIADIME & EXTRA
SED	0.260	0.184	0.368

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

STRATUM	DF	SE	CV%
BLOCK.WP	27	0.521	8.4

MEAN DM% 87.4

PLOT AREA HARVESTED 0.00359

https://doi.org/10.23637/ERADOC-1-44 *pp 31*