ROTHAMSTED RESEARCH

Yields of the Field Experiments 1977

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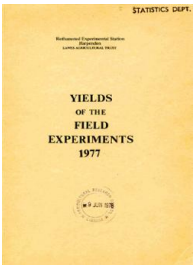

Barley

Rothamsted Research

Rothamsted Research (1978) *Barley ;* Yields Of The Field Experiments 1977, pp 337 - 369 **- DOI: https://doi.org/10.23637/ERADOC-1-29**

77/W/B/1

SPRING BARLEY

IRRIGATION, P, K AND ROOT GROWTH

Object: To study the effects of sowing date, irrigation, phosphate and potash on root growth and yield - Butt Close II.

Sponsor: P.J. Welbank.

Design: 3 randomised blocks of 2 plots split into halves and eighths.

Whole plot dimensions: 15.2 x 30.5.

Treatments: All combinations of:-

Whole plots

1. SOW DATE — Dates of sowing:

   15 MARCH
   26 MAY

Half plots

2. IRRIGTN — Irrigation:

   NONE — None
   FULL — Full to maintain soil moisture deficit below 25 mm

Eighth plots

3. P205 — Phosphate (kg P205) as superphosphate:

   0
   100

4. K20 — Potash (kg K20) as muriate of potash:

   0
   120

NOTE: The second sowing was initially made on 25 April. These plots were severely damaged by birds and rabbits and were resown on 26 May.

Irrigation treatments (mm water):

First sowing		Second sowing	
2 June	19.0	29 June	25.0
30 June	25.0	11 July	12.5
11 July	12.5	27 July	12.5
		29 July	12.5
		10-12 Aug	50.0
Total	56.5		112.5

https://doi.org/10.23637/ERADOC-1-29

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Standard applications: Manures: 100 kg N as 'Nitro-Chalk'. Weedkiller: First sowing only: Dicamba with mecoprop and MCPA ('Tetralex Plus' at 5.6 kg in 340 l). Second sowing only: Paraquat at 0.84 kg ion in 280 l.

Seed: Julia, dressed with ethirimol, sown at 160 kg.

Cultivations, etc.:- Ploughed: 10 Nov, 1976. Spring-tine cultivated: 10 Mar, 1977. P and K treatments applied: 11 Mar. N applied for first sowing, all plots spring-tine cultivated, seed sown: 15 Mar. N applied for late sowing, these plots only spring-tine cultivated with crumbler attached: 25 Apr. Seed sown: 26 Apr. Dicamba with mecoprop and MCPA applied to first sowing only: 18 May. Paraquat applied to second sowing only: 25 May. Second sowing plots rotary cultivated and resown: 26 May. First sowing harvested by hand: 31 Aug. Second sowing harvested by hand: 22 Sept. Previous cropping: Fallow 1975, 1976.

NOTES: (1) Plant counts were made on the first sowing date on 13 April and on the second sowing date on 29 June.

(2) Top and root samples were taken at weekly intervals for estimates of leaf area, shoot numbers, root lengths, crop and root dry weights and NPK content.

(3) Estimates of soil moisture content were made weekly.

(4) Because of an error in weighing, the yields from two plots with the following treatment combinations were lost:

SOW DATE	26 MAY	26 MAY
IRRIGTN	NONE	FULL
P205	0	100
K20	120	120

Estimated values were used in the analysis.

(5) On one block of the second sowing date yields were not taken because the crop had been severely grazed by rabbits.

https://doi.org/10.23637/ERADOC-1-29

77/W/B/1

GRAIN TONNES/HECTARE

SOW DATE 15 MARCH

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

P205	0	100	MEAN
IRRIGTN			
NONE	4.02	4.91	4.47
FULL	6.00	5.84	5.92
MEAN	5.01	5.37	5.19

K20	0	120	MEAN
IRRIGTN			
NONE	4.42	4.51	4.47
FULL	5.55	6.28	5.92
MEAN	4.99	5.40	5.19

K20	0	120	MEAN
P205			
0	4.88	5.14	5.01
100	5.09	5.65	5.37
MEAN	4.99	5.40	5.19

P205	0		100	
K20	0	120	0	120
IRRIGTN				
NONE	3.83	4.22	5.01	4.81
FULL	5.93	6.07	5.18	6.50

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

TABLE	P205	K20	IRRIGTN* P205	IRRIGTN* K20
SED	0.210	0.210	0.297	0.297

TABLE	P205 K20	IRRIGTN* P205 K20
SED	0.297	0.420

* WITHIN SAME LEVEL OF IRRIGTN ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP.SSP	12	0.515	9.9

GRAIN MEAN DM% 88.7

https://doi.org/10.23637/ERADOC-1-29

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GRAIN TONNES/HECTARE

SOW DATE 26 MAY

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

P205	0	100	MEAN
IRRIGTN			
NONE	1.50	1.59	1.54
FULL	1.54	1.66	1.60
MEAN	1.52	1.63	1.57

K20	0	120	MEAN
IRRIGTN			
NONE	1.63	1.46	1.54
FULL	1.58	1.62	1.60
MEAN	1.61	1.54	1.57

K20	0	120	MEAN
P205			
0	1.65	1.39	1.52
100	1.57	1.69	1.63
MEAN	1.61	1.54	1.57

P205	0		100	
K20	0	120	0	120
IRRIGTN				
NONE	1.77	1.23	1.49	1.69
FULL	1.52	1.55	1.65	1.68

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

TABLE	P205	K20	IRRIGTN* P205	IRRIGTN* K20
SED	0.160	0.160	0.226	0.226

TABLE	P205 K20	IRRIGTN* P205 K20
SED	0.226	0.319

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP.SSP	4	0.319	20.3

GRAIN MEAN DM% 87.8

https://doi.org/10.23637/ERADOC-1-29

77/W/B/1

STRAW TONNES/HECTARE

SOW DATE 26 MAY

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

P2O5	0	100	MEAN
IRRIGTN			
NONE	2.41	2.48	2.45
FULL	2.92	3.29	3.11
MEAN	2.67	2.89	2.78

K2O	0	120	MEAN
IRRIGTN			
NONE	2.58	2.32	2.45
FULL	2.96	3.25	3.11
MEAN	2.77	2.78	2.78

K2O	0	120	MEAN
P2O5			
0	2.75	2.59	2.67
100	2.79	2.98	2.89
MEAN	2.77	2.78	2.78

P2O5	0		100	
K2O	0	120	0	120
IRRIGTN				
NONE	2.77	2.06	2.39	2.58
FULL	2.73	3.11	3.19	3.38

STRAW MEAN DM% 83.7

EIGHTH PLOT AREA HARVESTED 0.00012

https://doi.org/10.23637/ERADOC-1-29

77/W/B/1

STRAW TONNES/HECTARE

SOW DATE 15 MARCH

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

P205	0	100	MEAN
IRRIGTN			
NONE	4.74	5.22	4.98
FULL	6.68	6.61	6.64
MEAN	5.71	5.92	5.81

K20	0	120	MEAN
IRRIGTN			
NONE	4.89	5.08	4.98
FULL	5.91	7.37	6.64
MEAN	5.40	6.22	5.81

K20	0	120	MEAN
P205			
0	5.36	6.06	5.71
100	5.45	6.38	5.92
MEAN	5.40	6.22	5.81

P205	0		100	
K20	0	120	0	120
IRRIGTN				
NONE	4.46	5.03	5.33	5.12
FULL	6.26	7.10	5.57	7.65

STRAW MEAN DM% 89.3

https://doi.org/10.23637/ERADOC-1-29

77/R/B/2 and 77/W/B/2

SPRING BARLEY

VARIETIES AND N

Object: To study the yields of some of the newer varieties of barley. Three nitrogen rates are included and on one variety the effects of mildew control are also studied - Rothamsted (R) Gt. Harpenden II and Woburn (W) Gt. Hill Bottom I.

Sponsor: R. Moffitt.

Design: Gt. Harpenden II (R): 4 randomised blocks of 12 plots split into 3.
Gt. Hill Bottom I (W): 3 randomised blocks of 12 plots split into 3.

Whole plot dimensions: Gt. Harpenden II (R): 4.27 x 24.7.
Gt. Hill Bottom I (W): 4.27 x 20.1.

Treatments: All combinations of:-

Whole plots

1. VARIETY — Varieties and mildew control:

JULIA O	Julia, no fungicide
JULIA E	Julia, seed dressed ethirimol (two plots/block Gt. Hill Bottom I (W) only)
JULIA TD	Julia, crop sprayed tridemorph (two plots/block)
JULIA TF	Julia, seed dressed triforine (Gt. Harpenden II (R) only)
ARAMIR	Aramir)
ARKROYAL	Ark Royal)
GEORGIE	Georgie)
LOFAABED	Lofa Abed) Crop sprayed tridemorph
MAZURKA	Mazurka)
PORTHOS	Porthos)
SUNDANCE	Sundance)

Sub plots

2. N — Nitrogen fertiliser (kg N):

38
75
113

NOTES: (1) Gt. Harpenden II (R): Tridemorph applied at 0.53 kg in 340 l: 22 June.
(2) Gt. Hill Bottom I (W): Tridemorph applied at 0.53 kg in 420 l: 23 June.

Basal applications:
Gt. Harpenden II (R): Manures: (0:20:20) at 310 kg, combine drilled. Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 4.9 l in 220 l).
Gt. Hill Bottom I (W): Manures: (0:20:20) at 310 kg, combine drilled. Weedkillers: Ioxynil at 0.53 kg and mecoprop at 1.6 kg in 220 l.

Seed: Gt. Harpenden II (R): Varieties sown at 160 kg.
Gt. Hill Bottom I (W): Varieties sown at 160 kg.

Cultivations, etc.:-
Gt. Harpenden II (R): Deep-tine cultivated: 22 Sept, 1976. Heavy spring-tine cultivated: 28 Sept. Ploughed: 18 Nov. Spring-tine cultivated: 10 Mar, 1977. Rotary harrowed, seed sown: 31 Mar. Test N applied: 19 May. Weedkillers applied: 26 May. Combine harvested: 5 Sept. Previous crops: Potatoes 1975, barley 1976.

https://doi.org/10.23637/ERADOC-1-29

77/R/B/2 and 77/W/B/2

Gt. Hill Bottom I (W): Ploughed: 23 Sept, 1976. Heavy spring-tine cultivated: 8 Mar, 1977. Power harrowed: 9 Mar. Spring-tine cultivated with crumbler attached, seed sown: 4 Apr. Weedkiller applied: 19 May. Combine harvested: 5 Sept. Previous crops: Potatoes 1975, winter wheat 1976.

77/R/B/2 GT HARPENDEN II (R)

GRAIN TONNES/HECTARE

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

N	38	75	113	MEAN
VARIETY				
JULIA O	4.12	4.51	4.46	4.36
JULIA E	4.46	4.85	4.52	4.61
JULIA TD	5.06	5.38	5.36	5.27
JULIA TF	4.45	4.70	4.43	4.53
ARAMIR	4.61	5.24	5.27	5.04
ARKROYAL	5.26	5.19	4.94	5.13
GEORGIE	5.22	5.44	5.44	5.36
LOFAABED	5.66	5.84	5.89	5.79
MAZURKA	4.70	5.01	5.08	4.93
PORTHOS	4.59	5.08	5.26	4.98
SUNDANCE	5.08	5.61	5.44	5.38
MEAN	4.86	5.19	5.12	5.05

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

TABLE	VARIETY	N	VARIETY N	
SED	0.156		0.202	MIN REP
	0.135	0.045	0.175	MAX-MIN
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
VARIETY			0.157	MIN REP
			0.111	MAX REP

	VARIETY
MAX REP	JULIA TD
MAX-MIN	JULIA TD V ANY OF REMAINDER
MIN REP	ANY OF REMAINDER

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

STRATUM	DF	SE	CV%
BLOCK.WP	34	0.221	4.4
BLOCK.WP.SP	74	0.221	4.4

GRAIN MEAN DM% 79.0

SUB PLOT AREA HARVESTED 0.00163

https://doi.org/10.23637/ERADOC-1-29

77/W/B/2 GT HILL BOTTOM I (W)

GRAIN TONNES/HECTARE

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

N	38	75	113	MEAN
VARIETY				
JULIA O	3.38	4.59	4.89	4.29
JULIA E	3.32	4.34	4.50	4.05
JULIA TD	3.86	4.69	4.84	4.46
ARAMIR	3.43	4.48	4.84	4.25
ARKROYAL	3.99	4.89	5.15	4.68
GEORGIE	4.23	5.07	5.64	4.98
LOFAABED	4.41	4.91	5.59	4.97
MAZURKA	4.06	4.48	5.07	4.54
PORTHOS	3.36	4.66	4.72	4.25
SUNDANCE	4.52	5.58	5.84	5.31
MEAN	3.81	4.73	5.03	4.52

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

TABLE	VARIETY	N	VARIETY N	
SED	0.183		0.303	MIN REP
	0.158	0.086	0.263	MAX-MIN
	0.129		0.215	MAX REP
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
VARIETY			0.297	MIN REP
			0.210	MAX REP

	VARIETY
MAX REP	JULIA E AND JULIA TD
MAX-MIN	JULIA E AND JULIA TD V ANY OF REMAINDER
MIN REP	ANY OF REMAINDER

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

STRATUM	DF	SE	CV%
BLOCK.WP	24	0.224	4.9
BLOCK.WP.SP	52	0.364	8.0

GRAIN MEAN DM% 82.6

SUB PLOT AREA HARVESTED 0.00173

https://doi.org/10.23637/ERADOC-1-29

77/R/B/3

SPRING BARLEY

N AND FOLIAR DISEASES

Object: To study the effects of mildew and brown rust on response to a range of nitrogen rates applied at different times - Long Hoos I/II.

Sponsors: J.F. Jenkyn, M.E. Finney.

Design: Single replicate of 6 x 3 x 2 x 2.

Whole plot dimensions: 4.27 x 9.14.

Treatments: All combinations of:-

1. N RATE Amounts of nitrogen fertiliser (kg N):

   25
   50
   70
   90
   110
   135

2. N TIME Times of applying N:

SB	Seedbed (12 Apr, 1976)
TD	Top dressed (26 May)
SB/TD	Half to seedbed, half top dressed

3. MILDEW F Mildew fungicide:

NONE	None
TRIDEMOR	Tridemorph on 20 June and 13 July

4. RUST F Rust fungicide:

NONE	None
BENODANI	Benodanil on 11 July

NOTES: (1) Fungicides were applied in 340 l:-
(a) Tridemorph at 0.53 kg
(b) Benodanil at 1.12 kg with 175 ml 'Citowett'
(2) Sides of plots were separated by a strip of Mazurka barley 2.13 m wide.

Basal applications: Manures: (0:20:20) at 310 kg, combine drilled. Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 4.9 l in 220 l).

Seed: Zephyr, sown at 160 kg.

Cultivations, etc.:- Ploughed: 30 Sept, 1976. Spring-tine cultivated, seed sown: 31 Mar, 1977. Weedkillers applied: 26 May. Combine harvested: 27 Aug. Previous crops: Potatoes 1975, wheat 1976.

NOTES: (1) Seedling emergence counts were made.
(2) Mildew and brown rust were assessed throughout the season.
(3) Samples were taken for N analysis.
(4) Ear counts were made before harvest.

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77/R/B/3

GRAIN TONNES/HECTARE

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

N TIME N RATE	SB	TD	SB/TD	MEAN
25	4.99	5.00	5.00	4.99
50	5.18	5.54	5.60	5.44
70	5.48	5.49	5.71	5.56
90	5.54	5.66	6.09	5.76
110	5.73	5.48	6.05	5.75
135	5.77	5.75	6.08	5.86
MEAN	5.45	5.49	5.75	5.56

MILDEW F N RATE	NONE	TRIDEMOR	MEAN
25	4.90	5.09	4.99
50	5.34	5.55	5.44
70	5.33	5.79	5.56
90	5.49	6.03	5.76
110	5.49	6.01	5.75
135	5.59	6.14	5.86
MEAN	5.36	5.77	5.56

MILDEW F N TIME	NONE	TRIDEMOR	MEAN
SB	5.30	5.59	5.45
TD	5.23	5.75	5.49
SB/TD	5.54	5.96	5.75
MEAN	5.36	5.77	5.56

RUST F N RATE	NONE	BENODANI	MEAN
25	5.07	4.92	4.99
50	5.56	5.33	5.44
70	5.64	5.48	5.56
90	5.73	5.79	5.76
110	5.71	5.79	5.75
135	5.76	5.96	5.86
MEAN	5.58	5.55	5.56

RUST F N TIME	NONE	BENODANI	MEAN
SB	5.41	5.49	5.45
TD	5.50	5.48	5.49
SB/TD	5.83	5.68	5.75
MEAN	5.58	5.55	5.56

https://doi.org/10.23637/ERADOC-1-29

77/R/B/3

GRAIN TONNES/HECTARE

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

RUST F / MILDEW F	NONE	BENODANI	MEAN
NONE	5.39	5.33	5.36
TRIDEMOR	5.77	5.77	5.77
MEAN	5.58	5.55	5.56

N TIME	SB		TD		SB/TD	
MILDEW F	NONE	TRIDEMOR	NONE	TRIDEMOR	NONE	TRIDEMOR
N RATE						
25	4.72	5.26	4.98	5.01	5.00	5.00
50	5.22	5.15	5.25	5.84	5.54	5.67
70	5.34	5.62	5.14	5.84	5.52	5.90
90	5.41	5.66	5.44	5.89	5.63	6.55
110	5.52	5.94	5.06	5.89	5.90	6.19
135	5.61	5.92	5.48	6.01	5.69	6.47

N TIME	SB		TD		SB/TD	
RUST F	NONE	BENODANI	NONE	BENODANI	NONE	BENODANI
N RATE						
25	5.16	4.82	5.21	4.79	4.85	5.15
50	5.17	5.20	5.69	5.40	5.82	5.39
70	5.55	5.41	5.57	5.41	5.79	5.63
90	5.35	5.72	5.56	5.76	6.28	5.90
110	5.67	5.78	5.33	5.63	6.12	5.97
135	5.54	5.99	5.62	5.87	6.13	6.03

MILDEW F	NONE		TRIDEMOR	
RUST F	NONE	BENODANI	NONE	BENODANI
N RATE				
25	4.97	4.82	5.16	5.02
50	5.48	5.19	5.64	5.47
70	5.33	5.34	5.95	5.63
90	5.56	5.43	5.91	6.16
110	5.45	5.54	5.97	6.05
135	5.54	5.65	5.99	6.28

MILDEW F	NONE		TRIDEMOR	
RUST F	NONE	BENODANI	NONE	BENODANI
N TIME				
SB	5.30	5.31	5.52	5.66
TD	5.23	5.23	5.77	5.73
SB/TD	5.64	5.45	6.02	5.91

https://doi.org/10.23637/ERADOC-1-29

77/R/B/3

GRAIN TONNES/HECTARE

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

TABLE	N RATE	N TIME	MILDEW F	RUST F
SED	0.093	0.066	0.054	0.054

TABLE	N RATE N TIME	N RATE MILDEW F	N TIME MILDEW F	N RATE RUST F
SED	0.161	0.131	0.093	0.131

TABLE	N TIME RUST F	MILDEW F RUST F	N RATE N TIME MILDEW F	N RATE N TIME RUST F
SED	0.093	0.076	0.228	0.228

TABLE	N RATE MILDEW F RUST F	N TIME MILDEW F RUST F
SED	0.186	0.131

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

STRATUM	DF	SE	CV%
WP	10	0.228	4.1

GRAIN MEAN DM% 77.0

PLOT AREA HARVESTED 0.00195

https://doi.org/10.23637/ERADOC-1-29

77/R/B/4

SPRING BARLEY

NITRIFICATION INHIBITORS AND FOLIAR DISEASES

Object: To study the effects of adding a nitrification inhibitor to a liquid nitrogen fertiliser on the incidence and control of foliar diseases, N uptake and yield - Long Hoos I/II.

Sponsors: J.F. Jenkyn, M.E. Finney, F.V. Widdowson, A. Penny, J. Ashworth.

Design: 2 randomised blocks of 6 plots split into 4.

Whole plot dimensions: 4.27 x 39.3.

Treatments: All combinations of:-

Whole plots

1. N RATE	Amounts of nitrogen fertiliser (kg N):	
	70	
	110	
2. N FORM	Form of nitrogen fertiliser and nitrification inhibitor:	
	LIQUID 0	Liquid fertiliser (urea/ammonium nitrate, 26% N), injected before sowing, no nitrification inhibitor
	LIQUID I	Liquid fertiliser (urea/ammonium nitrate, 26% N), injected before sowing, with sodium trithiocarbonate added as a nitrification inhibitor
	SOLID 0	Solid fertiliser ('Nitro-Chalk', 25% N) applied to seedbed, no nitrification inhibitor

Sub plots

3. MILDEW F	Mildew fungicide:	
	NONE	None
	TRIDEMOR	Tridemorph on 20 June, 1977 and 13 July
4. RUST F	Rust fungicide:	
	NONE	None
	BENODANI	Benodanil on 11 July

NOTES: (1) Fungicides were applied in 340 l:-
(a) Tridemorph at 0.53 kg
(b) Benodanil at 1.12 kg with 175 ml 'Citowett' as a wetter.
(2) Sides of plots were separated by a 2 m strip of Mazurka.
(3) Liquid nitrogen was applied by injectors with tines 30 cm apart 10 cm deep.
(4) Sodium trithiocarbonate was applied at 28 kg.
(5) Nitrogen fertiliser was applied on 4 Apr.

Basal applications: Manures: (0:20:20) at 310 kg, combine drilled. Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 4.9 l in 220 l).

Seed: Zephyr, sown at 160 kg.

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77/R/B/4

Cultivations, etc.:- Ploughed: 30 Sept, 1976. Spring-tine cultivated: 31 Mar, 1977. Power harrowed, seed sown: 5 Apr. Weedkillers applied: 26 May. Combine harvested: 27 Aug. Previous crops: Potatoes 1975, wheat 1976.

NOTE: Plant emergence counts were made. Mildew and brown rust were assessed during the season. Counts of ears and numbers of grains per ear were made. The crop was sampled for nitrogen determinations.

GRAIN TONNES/HECTARE

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

N FORM / N RATE	LIQUID 0	LIQUID I	SOLID 0	MEAN
70	5.49	5.53	5.27	5.43
110	5.53	5.52	5.49	5.51
MEAN	5.51	5.52	5.38	5.47

MILDEW F / N RATE	NONE	TRIDEMOR	MEAN
70	5.33	5.53	5.43
110	5.34	5.68	5.51
MEAN	5.34	5.61	5.47

MILDEW F / N FORM	NONE	TRIDEMOR	MEAN
LIQUID 0	5.36	5.65	5.51
LIQUID I	5.33	5.72	5.52
SOLID 0	5.32	5.45	5.38
MEAN	5.34	5.61	5.47

RUST F / N RATE	NONE	BENODANI	MEAN
70	5.38	5.48	5.43
110	5.52	5.51	5.51
MEAN	5.45	5.50	5.47

RUST F / N FORM	NONE	BENODANI	MEAN
LIQUID 0	5.50	5.52	5.51
LIQUID I	5.49	5.55	5.52
SOLID 0	5.35	5.42	5.38
MEAN	5.45	5.50	5.47

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GRAIN TONNES/HECTARE

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

RUST F	NONE	BENODANI	MEAN
MILDEW F			
NONE	5.34	5.33	5.34
TRIDEMOR	5.55	5.66	5.61
MEAN	5.45	5.50	5.47

N FORM	LIQUID 0		LIQUID I		SOLID 0	
MILDEW F	NONE	TRIDEMOR	NONE	TRIDEMOR	NONE	TRIDEMOR
N RATE						
70	5.43	5.55	5.32	5.74	5.23	5.31
110	5.29	5.76	5.34	5.69	5.40	5.59

N FORM	LIQUID 0		LIQUID I		SOLID 0	
RUST F	NONE	BENODANI	NONE	BENODANI	NONE	BENODANI
N RATE						
70	5.46	5.51	5.47	5.58	5.19	5.36
110	5.53	5.52	5.51	5.52	5.50	5.48

MILDEW F	NONE		TRIDEMOR	
RUST F	NONE	BENODANI	NONE	BENODANI
N RATE				
70	5.30	5.35	5.45	5.62
110	5.38	5.31	5.66	5.71

MILDEW F	NONE		TRIDEMOR	
RUST F	NONE	BENODANI	NONE	BENODANI
N FORM				
LIQUID 0	5.43	5.30	5.57	5.74
LIQUID I	5.32	5.33	5.66	5.77
SOLID 0	5.27	5.37	5.42	5.48

	MILDEW F	NONE		TRIDEMOR	
	RUST F	NONE	BENODANI	NONE	BENODANI
N RATE	N FORM				
70	LIQUID 0	5.48	5.37	5.45	5.64
	LIQUID I	5.29	5.35	5.66	5.81
	SOLID 0	5.14	5.32	5.23	5.39
110	LIQUID 0	5.37	5.22	5.70	5.83
	LIQUID I	5.36	5.31	5.66	5.73
	SOLID 0	5.39	5.41	5.61	5.56

https://doi.org/10.23637/ERADOC-1-29

77/R/B/4

GRAIN TONNES/HECTARE

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

TABLE	N RATE	N FORM	MILDEW F	RUST F
SED	0.031	0.038	0.038	0.038

TABLE	N RATE N FORM	N RATE MILDEW F	N FORM MILDEW F	N RATE RUST F
SED	0.053	0.049	0.060	0.049
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
N RATE		0.054		0.054
N FORM			0.066	

TABLE	N FORM RUST F	MILDEW F RUST F	N RATE N FORM MILDEW F	N RATE N FORM RUST F
SED	0.060	0.054	0.085	0.085
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
N FORM	0.066			
N RATE.N FORM			0.094	0.094

TABLE	N RATE MILDEW F RUST F	N FORM MILDEW F RUST F	N RATE N FORM MILDEW F RUST F
SED	0.073	0.090	0.127
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
N RATE	0.077		
N FORM		0.094	
N RATE.N FORM			0.133

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

STRATUM	DF	SE	CV%
BLOCK.WP	5	0.053	1.0
BLOCK.WP.SP	18	0.133	2.4

GRAIN MEAN DM% 75.4

PLOT AREA HARVESTED 0.00195

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77/R/B/5

SPRING BARLEY

MIXED VARIETIES AND MILDEW

Object: To study mildew development and yield of variety mixtures sown at different seed rates, with and without a fungicidal seed dressing - Delafield.

Sponsor: J.F. Jenkyn.

Design: 3 randomised blocks of 12 plots.

Whole plot dimensions: 6.40 x 9.14.

Treatments: All combinations of:-

1. VAR SR — Varieties and seed rates:

HASSAN 2	Hassan, sown at 160 kg
MIDAS 2	Midas, sown at 160 kg
WING 2	Wing, sown at 160 kg
MIXED 1	Equal parts of the three varieties mixed and sown at 80 kg
MIXED 2	Equal parts of the three varieties mixed and sown at 160 kg
MIXED 3	Equal parts of the three varieties mixed and sown at 240 kg

2. FUNGCIDE — Systemic fungicidal seed dressing:

NONE	None
ETHIRIMO	Ethirimol at 15 g per 100 kg seed

NOTE: All plots were separated and surrounded by 12 m of variety Proctor, seed dressed ethirimol at 45 g per 100 kg seed, sprayed tridemorph at 0.53 kg in 340 l on 12 July, 1977. Yields were taken from this crop, adjacent to plots, and used for covariance analysis.

Basal applications: Manures: (20:14:14) at 380 kg, combine drilled. Weedkillers: Mecoprop with bromoxynil and ioxynil ('MAC CMPP' at 2.8 l with 'Oxytril CM' at 1.1 l in 220 l).

Cultivations, etc.:- Ploughed: 27 Oct, 1976. Spring-tine cultivated: 10 Mar, 1977. Sown: 12 Mar. Weedkillers applied: 24 May. Combine harvested: 5 Sept. Previous crops: Beans 1975, wheat 1976.

NOTE: Seedling emergence counts were made. Mildew was assessed on three occasions. Ear counts were made in August.

https://doi.org/10.23637/ERADOC-1-29

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GRAIN TONNES/HECTARE

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

VAR SR FUNGCIDE	HASSAN 2	MIDAS 2	WING 2	MIXED 1	MIXED 2	MIXED 3	MEAN
NONE	4.09	4.70	4.38	4.45	4.52	4.57	4.45
ETHIRIMO	3.92	5.03	4.44	4.40	4.42	4.78	4.50
MEAN	4.00	4.86	4.41	4.43	4.47	4.68	4.47

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

TABLE	FUNGCIDE	VAR SR	FUNGCIDE VAR SR
SED	0.046	0.081	0.114

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

STRATUM	DF	SE	CV%
BLOCK.WP	21	0.137	3.1

GRAIN MEAN DM% 83.6

PLOT AREA HARVESTED 0.00260

https://doi.org/10.23637/ERADOC-1-29

77/R/B/6

SPRING BARLEY

SOWING DATES AND PATHOGEN CONTROL

Object: To study the effects of aphid, virus and fungus control on pathogens and yield of barley sown on two dates - Summerdells II.

Sponsors: R.T. Plumb, J.F. Jenkyn.

Design: 3 blocks of 2 x 2 x 2 x 2, randomisation restricted.

Whole plot dimensions: 6.40 x 18.3.

Treatments: All combinations of:-

1. SOW DATE Dates of sowing:

   8 MAR 8 March, 1977
   25 APR 25 April

2. FUNGCIDE Fungicide:

   NONE None
   E+T Ethirimol seed dressing; tridemorph spray

3. APHICIDE(1) Aphicide to seedbed:

   NONE None
   PHORATE Phorate at 5 kg as granules

4. APHICIDE(2) Aphicide on 29 June:

   NONE None
   MENAZON Menazon ('Saphi-col' at 0.7 in 340 l)

NOTE: Tridemorph applied at 0.53 kg in 340 l on 22 June.

Basal applications: Manures: (20:14:14) at 440 kg, combine drilled to SOW DATE 8 MAR. (20:14:14) at 188 kg, combine drilled plus (20:14:14) at 235 kg broadcast after sowing to SOW DATE 25 APR. Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 4.9 l in 220 l).

Seed: Julia, sown at 160 kg.

Cultivations, etc.:- Ploughed: 15 Oct, 1976. Spring-tine cultivated: 7 Mar, 1977. Power harrowed for early sowing: 8 Mar. Power harrowed for late sowing: 25 Apr. Weedkillers applied: 26 May. Combine harvested: 27 Aug. Previous crops: Winter oats 1975 and 1976.

NOTE: Emergence counts were made for both sowings. Mildew was assessed on two occasions. Aphid counts were made on seven occasions and virus scores twice. Tiller counts were made once and grains per ear counted at harvest.

https://doi.org/10.23637/ERADOC-1-29

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GRAIN TONNES/HECTARE

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

FUNGCIDE SOW DATE	NONE	E+T	MEAN
8 MAR	5.84	5.87	5.86
25 APR	5.79	6.59	6.19
MEAN	5.81	6.23	6.02

APHICIDE(1) SOW DATE	NONE	PHORATE	MEAN
8 MAR	5.76	5.95	5.86
25 APR	5.88	6.49	6.19
MEAN	5.82	6.22	6.02

APHICIDE(1) FUNGCIDE	NONE	PHORATE	MEAN
NONE	5.60	6.02	5.81
E+T	6.04	6.42	6.23
MEAN	5.82	6.22	6.02

APHICIDE(2) SOW DATE	NONE	MENAZON	MEAN
8 MAR	5.80	5.91	5.86
25 APR	6.21	6.16	6.19
MEAN	6.01	6.03	6.02

APHICIDE(2) FUNGCIDE	NONE	MENAZON	MEAN
NONE	5.80	5.83	5.81
E+T	6.22	6.24	6.23
MEAN	6.01	6.03	6.02

APHICIDE(2) APHICIDE(1)	NONE	MENAZON	MEAN
NONE	5.83	5.81	5.82
PHORATE	6.18	6.26	6.22
MEAN	6.01	6.03	6.02

FUNGCIDE	NONE		E+T	
APHICIDE(1) SOW DATE	NONE	PHORATE	NONE	PHORATE
8 MAR	5.73	5.94	5.79	5.95
25 APR	5.47	6.10	6.28	6.89

FUNGCIDE	NONE		E+T	
APHICIDE(2) SOW DATE	NONE	MENAZON	NONE	MENAZON
8 MAR	5.80	5.88	5.81	5.94
25 APR	5.80	5.77	6.62	6.55

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GRAIN TONNES/HECTARE

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

APHICIDE(1)	NONE		PHORATE	
APHICIDE(2)	NONE	MENAZON	NONE	MENAZON
SOW DATE				
8 MAR	5.79	5.74	5.82	6.08
25 APR	5.87	5.89	6.55	6.44

APHICIDE(1)	NONE		PHORATE	
APHICIDE(2)	NONE	MENAZON	NONE	MENAZON
FUNGCIDE				
NONE	5.59	5.62	6.01	6.03
E+T	6.07	6.00	6.36	6.48

APHICIDE(1)		NONE		PHORATE	
APHICIDE(2)		NONE	MENAZON	NONE	MENAZON
SOW DATE	FUNGCIDE				
8 MAR	NONE	5.76	5.70	5.83	6.06
	E+T	5.81	5.77	5.81	6.10
25 APR	NONE	5.41	5.54	6.19	6.01
	E+T	6.33	6.23	6.91	6.87

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

TABLE	SOW DATE	FUNGCIDE	APHICIDE(1)	APHICIDE(2)
SED	0.086	0.086	0.086	0.086

TABLE	SOW DATE FUNGCIDE	SOW DATE APHICIDE(1)	FUNGCIDE APHICIDE(1)	SOW DATE APHICIDE(2)
SED	0.122	0.122	0.122	0.122

TABLE	FUNGCIDE APHICIDE(2)	APHICIDE(1) APHICIDE(2)	SOW DATE FUNGCIDE APHICIDE(1)	SOW DATE FUNGCIDE APHICIDE(2)
SED	0.122	0.122	0.173	0.173

TABLE	SOW DATE APHICIDE(1) APHICIDE(2)	FUNGCIDE APHICIDE(1) APHICIDE(2)	SOW DATE FUNGCIDE APHICIDE(1) APHICIDE(2)
SED	0.173	0.173	0.244

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

STRATUM	DF	SE	CV%
BLOCK.WP	30	0.299	5.0

GRAIN MEAN DM% 79.3

PLOT AREA HARVESTED 0.00260

https://doi.org/10.23637/ERADOC-1-29

77/R/B/7

SPRING BARLEY

MILDEW CONTROL IN A SERIALLY BALANCED DESIGN

Object: To study the effects of fungicide sprays applied at different times and the effects of interference between plots on the incidence of mildew and on yield - Gt. Harpenden II.

Sponsors: J.F. Jenkyn, A. Bainbridge, G.V. Dyke.

Design: 9 'blocks' of 4 plots (+ 2 flanking plots).

Whole plot dimensions: 4.27 x 9.14

Treatments:

FUNGTIME	Times of applying a single spray of tridemorph fungicide:
1	On 31 May
2	On 9 June
3	On 20 June
4	On 5 July

NOTES: (1) Treatments were applied to 38 plots in one line on the field in an order such that each of the 36 possible sets of 3 adjacent treatments occurred exactly once (but omitting sets with the same treatment on 2 successive plots). The effects of treatments to neighbouring plots (lefthand neighbour - LHN, righthand neighbour - RHN) are estimated in the analysis.
In this experiment 'left' was west, 'right' was east.
The analysis presented assumes a Fourier curve with 4 terms, 2 sine and 2 cosine to represent positional variation.
(2) Tridemorph was applied at 0.53 kg in 340 l.

Basal applications: Manures: (20:14:14) at 440 kg, combine drilled. Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 4.9 l in 220 l).

Seed: Julia, sown at 160 kg.

Cultivations, etc.:- Deep-tine cultivated: 22 Sept, 1976. Heavy spring-tine cultivated: 28 Sept. Ploughed: 18 Nov. Spring-tine cultivated and seed sown: 10 Mar, 1977. Weedkillers applied: 18 May. Combine harvested: 30 Aug. Previous crops: Potatoes 1975, barley 1976.

NOTE: Seedling emergence counts were made. Mildew was assessed on two occasions.

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GRAIN TONNES/HECTARE

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

GRAND MEAN 6.03

FUNGTIME	1	2	3	4
	6.19	6.07	5.91	5.95

LHN / FUNGTIME	1	2	3	4
1		6.02	6.28	6.26
2	6.08		6.00	6.14
3	5.93	5.92		5.87
4	5.86	5.87	6.11	

RHN / FUNGTIME	1	2	3	4
1		6.13	6.28	6.15
2	6.02		6.11	6.08
3	5.91	5.81		6.00
4	5.94	5.92	5.98	

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

TABLE	FUNGTIME	FUNGTIME LHN	FUNGTIME RHN
SED	0.076	0.224	0.225

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

STRATUM	DF	SE	CV%
WP	12	0.160	2.7

GRAIN MEAN DM% 82.3

PLOT AREA HARVESTED 0.00195

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77/R/B/8

SPRING BARLEY

EFFECTS OF MILDEW SOURCES ON DISEASE CONTROL

Object: To study the effects of nearby sources of mildew on control by fungicides applied at a range of times - Black Horse I.

Sponsors: J.F. Jenkyn, A. Bainbridge.

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

Whole plot dimensions: 22.9 x 29.9.

Treatments: All combinations of:-

Whole plots

1. MILDSRCE Mildew source:

NONE	None (seed treated ethirimol, crop sprayed tridemorph, on 9 June, 1977, 4 July)
EARLY	Early (tridemorph only on 9 June, 4 July)
FULL	Full (no mildew control)

Sub plots

2. MILDCONT Times of applying mildew control:

ED	Ethirimol seed dressing
	Tridemorph spray on:
T S 1	31 May
T S 2	9 June
T S 3	20 June
T S 4	24 June
T S 5	29 June

NOTES: (1) The whole plot treatments were applied to a strip of crop 6.4 m wide at the ends of all sub plots. There were no discards between sub plots (0.6 m fallow paths only). Whole plots and the sides of sets of six sub plots were separated by strips of crop 17 m wide, seed treated ethirimol, crop sprayed tridemorph at 0.53 kg in 340 l on 4 July.

(2) Treatment tridemorph sprays were applied at 0.53 kg in 340 l.

Basal applications: Manures: (20:14:14) at 470 kg, combine drilled. Weedkillers: Ioxynil at 0.53 kg with mecoprop at 1.6 kg in 220 l.

Seed: Julia, sown at 160 kg.

Cultivations, etc.:- Ploughed: 14 Oct, 1976. Spring-tine cultivated: 4 Mar, 1977. Seed sown: 7 Mar. Weedkillers applied: 15 May. Combine harvested: 26 Aug. Previous crops: Barley 1975 and 1976.

NOTE: Seedling counts were made and mildew was assessed on two occasions.

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GRAIN TONNES/HECTARE

SUBPLOTS

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

MILDCONT MILDSRCE	ED	T S 1	T S 2	T S 3	T S 4	T S 5	MEAN
NONE	5.73	5.81	5.78	5.86	5.84	5.40	5.73
EARLY	4.97	5.49	5.71	5.23	5.27	5.11	5.30
FULL	5.53	5.96	5.57	5.59	5.75	5.26	5.61
MEAN	5.41	5.75	5.69	5.56	5.62	5.26	5.55

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

TABLE	MILDSRCE	MILDCONT	MILDSRCE MILDCONT
SED	0.191	0.155	0.311
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
MILDSRCE			0.269

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

STRATUM	DF	SE	CV%
BLOCK.WP	4	0.234	4.2
BLOCK.WP.SP	30	0.329	5.9

GRAIN MEAN DM% 79.1

SUB PLOT AREA HARVESTED 0.00163

WHOLE PLOTS

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

MILDSRCE	NONE	EARLY	FULL	MEAN
	5.64	5.13	5.22	5.33

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

TABLE	MILDSRCE
SED	0.095

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

STRATUM	DF	SE	CV%
BLOCK.WP	4	0.116	2.2

GRAIN MEAN DM% 77.6

PLOT AREA HARVESTED 0.00611

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77/R/B/9

SPRING BARLEY

MILDEW TOLERANCE TO ETHIRIMOL

Object: To study the effects of a range of rates of ethirimol seed dressing on mildew tolerance and yield of barley - Garden Plot 8.

Sponsor: D.W. Hollomon.

Design: 3 randomised blocks of 4 plots.

Whole plot dimensions: 2.40 x 5.18.

Treatments:

ETHIRIMO Ethirimol seed dressing (g/kg of seed):

0
1
4
16

NOTE: Surrounds were sown to Proctor sprayed with tridemorph at 0.53 kg in 340 l on 23 June.

Basal applications: Manures: (0:14:28) at 970 kg. 'Nitro-Chalk' at 450 kg. Weedkillers: Dicamba with mecoprop and MCPA ('Tetralex Plus' at 5.6 l in 340 l).

Seed: Proctor, sown at 160 kg.

Cultivations, etc.:- PK applied: 13 Dec, 1976. Ploughed: 7 Mar, 1977. Power harrowed and seed sown: 8 Apr. N applied: 13 Apr. Weedkillers applied: 31 May. Combine harvested: 30 Aug. Previous crops: Spring wheat 1975, lupins 1976.

NOTES: (1) Plots were inoculated with six separate strains of powdery mildew, ranging in ethirimol-sensitivity from none to great.
(2) Mildew and its race composition and ethirimol tolerance were assessed during the season.

GRAIN TONNES/HECTARE

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

ETHIRIMO	0	1	4	16	MEAN
	5.38	4.32	5.03	5.18	4.98

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

TABLE	ETHIRIMO
SED	0.367

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

STRATUM	DF	SE	CV%
BLOCK.WP	6	0.450	9.0

GRAIN MEAN DM% 81.3
PLOT AREA HARVESTED 0.00050

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77/R/B/12

SPRING BARLEY

PRECISION SEEDING

Object: To study the effects of precision sowing, row spacing, seed rate, irrigation and nitrogen on yield - Gt. Knott III.

Sponsors: P.J. Welbank, F.V. Widdowson, G.N. Thorne, J.P. Dickinson.

Design: Single replicate of 60 plots.

Whole plot dimensions: 4.88 x 8.23.

Treatments: All combinations of:-

1. DRILL		Drills used for sowing:
	STANHAY	Stanhay precision drill
	NORDSTEN	Nordsten standard drill
2. ROW SPAC		Spacing between rows cm:
	10.5	
	21.0	
3. SEEDRATE		Seed rates (kg):
	57	
	114	
4. IRRIGTN		Irrigation by trickle lines:
	NONE	None
	FULL	Full (145 mm)
5. N		Amounts of nitrogen fertiliser (kg N):
	75	
	100	
	125	

plus all combinations of:-

1. H S57 IF		Hand sown at 57 kg seed rate with full irrigation:
	10 x 5	Seed sown 10.5 cm x 5.1 cm
	7 x 7	Seed sown 7.3 cm x 7.3 cm
2. N		Amounts of nitrogen fertiliser (kg N):
	75	
	100	
	125	

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plus six extra plots:-

F18 114 Sown by Farm drill (Silsoe 12-row), 18 cm (7 inches) spacing between rows, sown at 114 kg seed rate, no irrigation given, six amounts of nitrogen fertiliser (kg N):

N 0
N 75
N 100
N 125
N 150
N 175

NOTES: (1) Irrigation was applied on 7 July (117 mm) and 26 July (28 mm).
(2) The performance of the Nordsten and Farm (Silsoe) drills was unusually poor because of a difficult plot layout. Seed was shallowly sown and there was much damage by birds at the seedbed stage. The yields reported from these treatments should not be regarded as typical.

Basal applications: Manures: (0:20:20) at 310 kg. Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 4.9 l in 220 l). Fungicide: Tridemorph at 0.53 kg in 340 l.

Seed: Ark Royal.

Cultivations, etc.:- Deep-tine cultivated: 10 Dec, 1976. PK applied, rotary harrowed: 9 Mar, 1977. Heavy deep-tine cultivated: 8 Apr. Spike rotary cultivated: 20 Apr. Seed sown: 22 Apr. Test N applied: 23 May. Weedkillers applied: 8 June. Fungicide applied: 22 June. Combine harvested: 16 Sept. Previous crops: Winter oats 1975, potatoes 1976.

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GRAIN TONNES/HECTARE

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

ROW SPAC	10.5	21.0	MEAN
DRILL			
STANHAY	3.54	3.32	3.43
NORDSTEN	2.75	2.76	2.75
MEAN	3.15	3.04	3.09

SEEDRATE	57	114	MEAN
DRILL			
STANHAY	3.27	3.59	3.43
NORDSTEN	2.54	2.97	2.75
MEAN	2.90	3.28	3.09

SEEDRATE	57	114	MEAN
ROW SPAC			
10.5	2.92	3.38	3.15
21.0	2.89	3.19	3.04
MEAN	2.90	3.28	3.09

IRRIGTN	NONE	FULL	MEAN
DRILL			
STANHAY	3.58	3.27	3.43
NORDSTEN	2.70	2.80	2.75
MEAN	3.14	3.04	3.09

IRRIGTN	NONE	FULL	MEAN
ROW SPAC			
10.5	3.08	3.21	3.15
21.0	3.20	2.87	3.04
MEAN	3.14	3.04	3.09

IRRIGTN	NONE	FULL	MEAN
SEEDRATE			
57	2.88	2.92	2.90
114	3.40	3.16	3.28
MEAN	3.14	3.04	3.09

N	75	100	125	MEAN
DRILL				
STANHAY	3.60	3.42	3.26	3.43
NORDSTEN	2.89	2.75	2.62	2.75
MEAN	3.25	3.09	2.94	3.09

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GRAIN TONNES/HECTARE

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

N	75	100	125	MEAN
ROW SPAC				
10.5	3.40	3.13	2.91	3.15
21.0	3.09	3.05	2.97	3.04
MEAN	3.25	3.09	2.94	3.09

N	75	100	125	MEAN
SEEDRATE				
57	3.08	2.85	2.77	2.90
114	3.41	3.33	3.10	3.28
MEAN	3.25	3.09	2.94	3.09

N	75	100	125	MEAN
IRRIGTN				
NONE	3.25	3.17	3.01	3.14
FULL	3.24	3.01	2.86	3.04
MEAN	3.25	3.09	2.94	3.09

ROW SPAC	10.5		21.0	
SEEDRATE	57	114	57	114
DRILL				
STANHAY	3.39	3.69	3.14	3.49
NORDSTEN	2.44	3.06	2.63	2.88

ROW SPAC	10.5		21.0	
IRRIGTN	NONE	FULL	NONE	FULL
DRILL				
STANHAY	3.62	3.46	3.55	3.08
NORDSTEN	2.55	2.95	2.86	2.66

SEEDRATE	57		114	
IRRIGTN	NONE	FULL	NONE	FULL
DRILL				
STANHAY	3.36	3.18	3.81	3.37
NORDSTEN	2.41	2.66	3.00	2.94

SEEDRATE	57		114	
IRRIGTN	NONE	FULL	NONE	FULL
ROW SPAC				
10.5	2.81	3.03	3.36	3.39
21.0	2.96	2.81	3.44	2.93

ROW SPAC	10.5			21.0		
N	75	100	125	75	100	125
DRILL						
STANHAY	3.69	3.61	3.32	3.51	3.24	3.20
NORDSTEN	3.10	2.65	2.50	2.67	2.86	2.74

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GRAIN TONNES/HECTARE

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

SEEDRATE	57			114		
N	75	100	125	75	100	125
DRILL						
STANHAY	3.47	3.13	3.21	3.74	3.72	3.31
NORDSTEN	2.69	2.57	2.34	3.08	2.94	2.90

SEEDRATE	57			114		
N	75	100	125	75	100	125
ROW SPAC						
10.5	3.27	2.72	2.76	3.53	3.54	3.06
21.0	2.89	2.98	2.78	3.29	3.12	3.15

IRRIGTN	NONE			FULL		
N	75	100	125	75	100	125
DRILL						
STANHAY	3.72	3.60	3.43	3.49	3.25	3.08
NORDSTEN	2.78	2.74	2.60	2.99	2.77	2.64

IRRIGTN	NONE			FULL		
N	75	100	125	75	100	125
ROW SPAC						
10.5	3.38	3.08	2.80	3.42	3.18	3.02
21.0	3.12	3.25	3.23	3.06	2.85	2.70

IRRIGTN	NONE			FULL		
N	75	100	125	75	100	125
SEEDRATE						
57	2.88	2.93	2.83	3.28	2.76	2.72
114	3.62	3.40	3.20	3.20	3.26	3.00

EXTRA PLOTS

N	75	100	125	MEAN
H S57 IF				
10 X 5	3.10	3.14	3.09	3.11
7 X 7	3.47	3.36	2.47	3.10
MEAN	3.28	3.25	2.78	3.10

F18 114	N 0	N 75	N 100	N 125	N 150	N 175	MEAN
	2.46	3.85	3.25	3.63	3.25	2.79	3.21

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GRAIN TONNES/HECTARE

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

TABLE	DRILLS	ROW SPAC	SEEDRATE	IRRIGTN
SED	0.134	0.134	0.134	0.134

TABLE	N	DRILLS ROW SPAC	DRILLS SEEDRATE	ROW SPAC SEEDRATE
SED	0.164	0.190	0.190	0.190

TABLE	DRILLS IRRIGTN	ROW SPAC IRRIGTN	SEEDRATE IRRIGTN	DRILLS N
SED	0.190	0.190	0.190	0.232

TABLE	ROW SPAC N	SEEDRATE N	IRRIGTN N	DRILLS ROW SPAC SEEDRATE
SED	0.232	0.232	0.232	0.268

TABLE	DRILLS ROW SPAC IRRIGTN	DRILLS SEEDRATE IRRIGTN	ROW SPAC SEEDRATE IRRIGTN	DRILLS ROW SPAC N
SED	0.268	0.268	0.268	0.328

TABLE	DRILLS SEEDRATE N	ROW SPAC SEEDRATE N	DRILLS IRRIGTN N	ROW SPAC IRRIGTN N
SED	0.328	0.328	0.328	0.328

TABLE	SEEDRATE IRRIGTN N
SED	0.328

EXTRA PLOTS STANDARD ERRORS ARE ESTIMATED FROM THE ERRORS OF THE MAIN FACTORIAL SECTION

TABLE	N	H S57 IF	F18 114	H S57 IF N
SED	0.464	0.379	0.657	0.657

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

STRATUM	DF	SE	CV%
WP	11	0.464	15.0

GRAIN MEAN DM% 83.4

PLOT AREA HARVESTED 0.00111

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