ROTHAMSTED RESEARCH

Yields of the Field Experiments 1987

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Annuals - Winter Wheat

Rothamsted Research

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87/R/WW/1

WINTER WHEAT

VARIETIES

Object: To study a selection of newer varieties of w. wheat on land in rotation (pathogen free) and after wheat (pathogen infected) - Great Knott I (pathogen free RH) and Highfield VI (pathogen infected RD).

Sponsors: R. Moffitt, R.J. Gutteridge.

Design: Two randomised blocks of 2 whole plots split into (RH) 11, (RD) 13.

Sub plot dimensions: 3.0 x 12.0.

Treatments: All combinations of:-

Whole plots

1.	INSCTCDE	Insecticide:
	NONE	None
	PIRIMICA	Pirimicarb at 0.14 kg in 200 l on 23 June, 1987

Sub plots

2.	VARIETY	Varieties:
	AVALON	Avalon (on RH only)
	AVALON A	Avalon (grown after Avalon, RD only)
	AVALON N	Avalon (grown after Norman, RD only)
	BRIMSTON	Brimstone
	FORTRESS	Fortress
	GALAHAD	Galahad
	HORNET	Hornet
	MERCIA	Mercia
	MISSION	Mission
	NORMAN	Norman (on RH only)
	NORMAN A	Norman (grown after Avalon, RD only)
	NORMAN N	Norman (grown after Norman, RD only)
	PARADE	Parade
	RAPIER	Rapier
	RENDEZVO	Rendezvous

NOTES: (1) A planned test of urea was not applied.
(2) A further experiment on a pathogen free site at Woburn was not sown because of unsuitable conditions.

Basal applications:
Great Knott I (RH): Manures: 'Nitram' at 380 kg. Weedkillers: Clopyralid at 0.07 kg and bromoxynil at 0.34 kg with mecoprop at 2.5 kg in 200 l. Fungicides: Propiconazole at 0.25 kg with tridemorph at 0.19 kg in 200 l.
Highfield VI (RD): Manures: 'Nitram' at 590 kg. Weedkillers: Isoproturon at 2.5 kg with clopyralid at 0.07 kg, bromoxynil at 0.34 kg and mecoprop at 2.5 kg in 200 l. Fungicides: Prochloraz at 0.40 kg and carbendazim at 0.15 kg in 200 l. Propiconazole at 0.12 kg with carbendazim at 0.25 kg and maneb at 1.5 kg in 200 l.

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Seed: Varieties sown at 190 kg on both sites.

Cultivations, etc.:-
Great Knott I (RH): Heavy spring-tine cultivated: 17 Oct, 1986. Rotary harrowed, seed sown: 30 Oct. N applied: 16 Apr, 1987. Weedkillers applied: 6 May. Fungicides applied: 29 June. Combine harvested: 31 Aug. Previous crops: S. beans 1985, potatoes 1986.
Highfield VI (RD): Ploughed: 1 Oct, 1986. Disced twice: 14 Oct. Rotary harrowed, seed sown: 17 Oct. N applied, weedkillers applied: 15 Apr, 1987. Prochloraz and carbendazim applied: 5 May. Propiconazole, carbendazim and maneb applied: 29 June. Combine harvested: 1 Sept. Previous crops: Potatoes 1985, w. wheat 1986.

NOTES: (1) Foot and roots rots were assessed in June on Highfield VI (RD).
(2) One plot with treatment combination BRIMSTON NONE on the Highfield site was treated as missing because of severe lodging. An estimated value was used in the analysis.

87/R/WW/1 GREAT KNOTT I (RH)

GRAIN TONNES/HECTARE

***** Tables of means *****

INSCTCDE VARIETY	NONE	PIRIMICA	Mean
AVALON	8.35	7.75	8.05
BRIMSTON	9.44	9.51	9.47
FORTRESS	8.89	9.25	9.07
GALAHAD	9.06	9.29	9.17
HORNET	9.41	9.62	9.52
MERCIA	8.75	9.04	8.89
MISSION	8.20	8.15	8.17
NORMAN	8.27	8.61	8.44
PARADE	8.95	8.98	8.97
RAPIER	9.37	9.64	9.51
RONDEZVO	9.07	9.43	9.25
Mean	8.89	9.02	8.96

*** Standard errors of differences of means ***

Table	VARIETY	INSCTCDE* VARIETY
s.e.d.	0.148	0.209

* Within the same level of INSCTCDE only

***** Stratum standard errors and coefficients of variation *****

Stratum	d.f.	s.e.	cv%
BLOCK.WP	20	0.209	2.3

GRAIN MEAN DM% 81.8

PLOT AREA HARVESTED 0.00245

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87/R/WW/1 HIGHFIELD (RD)

GRAIN TONNES/HECTARE

***** Tables of means *****

INSCTCDE VARIETY	NONE	PIRIMICA	Mean
AVALON A	7.82	8.00	7.91
AVALON N	7.87	8.13	8.00
BRIMSTON	5.52	8.34	6.93
FORTRESS	8.49	8.93	8.71
GALAHAD	8.95	8.93	8.94
HORNET	9.05	9.36	9.20
MERCIA	8.37	8.64	8.51
MISSION	7.05	7.07	7.06
NORMAN A	8.52	8.55	8.53
NORMAN N	8.16	8.51	8.34
PARADE	8.42	8.98	8.70
RAPIER	7.89	8.13	8.01
RONDEZVO	7.62	8.53	8.08
Mean	7.98	8.47	8.22

*** Standard errors of differences of means ***

Table	VARIETY	INSCTCDE* VARIETY
s.e.d.	0.342	0.483

* Within the same level of INSCTCDE

***** Stratum standard errors and coefficients of variation *****

Stratum	d.f.	s.e.	cv%
BLOCK.WP	23	0.483	5.9

GRAIN MEAN DM% 82.8

PLOT AREA HARVESTED 0.00244

https://doi.org/10.23637/ERADOC-1-37

87/R/WW/3

WINTER WHEAT

FACTORS AFFECTING TILLERING AND YIELD

Object: To study the effects of soil residual nitrogen and applied fertilizer nitrogen on tillering, growth and yield of winter wheat sown early or later - Fosters corner.

Sponsors: R.D. Prew, R.J. Darby, W. Day, D.W. Lawlor, G.F.J. Milford, A. Penny, G.N. Thorne, A.D. Todd.

Design: A single replicate of 2 x 2 x 2 x 2 x 2 + 32 extra plots.

Whole plot dimensions: 3.0 x 16.0.

Treatments: All combinations of the following:-

1. PREVCROP	Previous cropping:	
	RAPE	S. oilseed rape
	OATS	S. oats
2. SOWDATE	Dates of sowing:	
	18 SEPT	Sown on 18 September, 1986
	16 OCT	Sown on 16 October
3. WINTER N	Nitrogen (kg N) in winter (as urea):	
	0	None
	40	40 kg applied on 20 November, 1986
4. SPRING N	Application of 200 kg N in spring (as 'Nitro-Chalk'):	
	SINGLE	Single application at date of 3rd divided application
	DIVIDED	Applied as 4 equal dressings
5. N TIME	Timing of spring nitrogen:	
	N NORM	Normal timing on 12 Feb, 1987, 11 Mar, 6 Apr and 5 May
	N LATE	Late timing on 11 Mar, 6 Apr, 5 May and 27 May

plus all combinations of the following (all sown early, given spring N divided and at normal time):-

1. PRECROPN	Previous cropping:	
	RAPE	S. oilseed rape
	OATS	S. oats
2. WINTR NN	Nitrogen (kg N) in winter (as urea):	
	0	None
	40	40 kg applied on 19 November, 1986

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3. SPRNG NN — Nitrogen (kg N) in spring (as 'Nitro-Chalk'):

0	None
150	150
250	250

plus 3 replicates of all combinations of the following (all following oats, sown on 18 Sept and not given Winter N, Spring N given as divided applications at normal time):-

1. SPRNG NP — Nitrogen (kg N) in spring (as 'Nitro-Chalk'):

0	None
80	80
200	200

2. SUMMR NP — Nitrogen (kg N) in summer, as a foliar spray of urea:

0	None
40	40 kg applied half on 27 May half on 28 May, 1987

Basal applications: Manures: (0:18:36) at 280 kg. Weedkillers: Chlortoluron at 5.6 kg in 200 l. Diclofop-methyl at 1.1 kg in 500 l. Fungicides: Prochloraz at 0.40 kg and carbendazim at 0.15 kg applied with the growth regulator in 200 l. Propiconazole at 0.12 kg in 200 l, and on a second occasion with carbendazim at 0.25 kg and maneb at 1.5 kg in 200 l. Growth regulator: Chlormequat chloride at 1.6 kg. Molluscicide: Methiocarb at 0.22 kg.

Seed: Avalon, sown at 190 kg.

Cultivations, etc.:- PK applied: 15 Sept, 1986. Ploughed: 16 Sept. Rotary harrowed, methiocarb applied: 17 Sept. SOWDATE 18 SEPT plots rotary harrowed, seed sown: 18 Sept. SOWDATE 16 OCT plots rotary harrowed, seed sown: 16 Oct. Chlortoluron applied: 17 Oct. Diclofop-methyl applied: 5 Jan, 1987. Prochloraz with carbendazim and the growth regulator applied: 14 Apr. Propiconazole applied: 28 May. Propiconazole with carbendazim and maneb applied: 23 June. Combine harvested: 31 Aug. Previous crops: W. oats 1985, s. oats and s. rape 1986.

NOTE: Soil samples were taken to measure nitrate and ammonia contents in September, 1986, November and February, 1987. Photosynthesis, dry weight, leaf area, shoot numbers, N content of the above-ground crop and stem nitrate contents were measured on several occasions. Foliar diseases were assessed.

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GRAIN TONNES/HECTARE

***** Tables of means *****

SOWDATE	18 SEPT	16 OCT	Mean
PREVCROP			
RAPE	8.58	8.46	8.52
OATS	8.50	8.23	8.36
Mean	8.54	8.34	8.44

WINTER N	0	40	Mean
PREVCROP			
RAPE	8.57	8.47	8.52
OATS	8.15	8.58	8.36
Mean	8.36	8.52	8.44

WINTER N	0	40	Mean
SOWDATE			
18 SEPT	8.51	8.57	8.54
16 OCT	8.21	8.47	8.34
Mean	8.36	8.52	8.44

SPRING N	SINGLE	DIVIDED	Mean
PREVCROP			
RAPE	8.48	8.56	8.52
OATS	8.15	8.57	8.36
Mean	8.32	8.57	8.44

SPRING N	SINGLE	DIVIDED	Mean
SOWDATE			
18 SEPT	8.39	8.69	8.54
16 OCT	8.24	8.45	8.34
Mean	8.32	8.57	8.44

SPRING N	SINGLE	DIVIDED	Mean
WINTER N			
0	8.16	8.57	8.36
40	8.48	8.57	8.52
Mean	8.32	8.57	8.44

N TIME	N NORM	N LATE	Mean
PREVCROP			
RAPE	8.50	8.54	8.52
OATS	8.48	8.25	8.36
Mean	8.49	8.39	8.44

N TIME	N NORM	N LATE	Mean
SOWDATE			
18 SEPT	8.64	8.44	8.54
16 OCT	8.34	8.34	8.34
Mean	8.49	8.39	8.44

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GRAIN TONNES/HECTARE

***** Tables of means *****

N TIME WINTER N	N NORM	N LATE	Mean
0	8.44	8.29	8.36
40	8.55	8.50	8.52
Mean	8.49	8.39	8.44

N TIME SPRING N	N NORM	N LATE	Mean
SINGLE	8.49	8.14	8.32
DIVIDED	8.49	8.64	8.57
Mean	8.49	8.39	8.44

PREVCROP	WINTER N SOWDATE	0	40
RAPE	18 SEPT	8.72	8.45
	16 OCT	8.43	8.49
OATS	18 SEPT	8.30	8.70
	16 OCT	8.00	8.46

PREVCROP	SPRING N SOWDATE	SINGLE	DIVIDED
RAPE	18 SEPT	8.55	8.61
	16 OCT	8.41	8.51
OATS	18 SEPT	8.24	8.76
	16 OCT	8.07	8.38

PREVCROP	SPRING N WINTER N	SINGLE	DIVIDED
RAPE	0	8.44	8.70
	40	8.52	8.42
OATS	0	7.87	8.43
	40	8.44	8.71

SOWDATE	SPRING N WINTER N	SINGLE	DIVIDED
18 SEPT	0	8.30	8.72
	40	8.49	8.66
16 OCT	0	8.01	8.41
	40	8.47	8.48

PREVCROP	N TIME SOWDATE	N NORM	N LATE
RAPE	18 SEPT	8.55	8.62
	16 OCT	8.46	8.46
OATS	18 SEPT	8.73	8.27
	16 OCT	8.23	8.23

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GRAIN TONNES/HECTARE

***** Tables of means *****

	N TIME	N NORM	N LATE
PREVCROP	WINTER N		
RAPE	0	8.59	8.55
	40	8.42	8.52
OATS	0	8.28	8.02
	40	8.68	8.48

	N TIME	N NORM	N LATE
SOWDATE	WINTER N		
18 SEPT	0	8.65	8.37
	40	8.63	8.51
16 OCT	0	8.23	8.20
	40	8.46	8.49

	N TIME	N NORM	N LATE
PREVCROP	SPRING N		
RAPE	SINGLE	8.58	8.38
	DIVIDED	8.43	8.69
OATS	SINGLE	8.41	7.90
	DIVIDED	8.55	8.60

	N TIME	N NORM	N LATE
SOWDATE	SPRING N		
18 SEPT	SINGLE	8.67	8.12
	DIVIDED	8.61	8.77
16 OCT	SINGLE	8.32	8.17
	DIVIDED	8.37	8.52

	N TIME	N NORM	N LATE
WINTER N	SPRING N		
0	SINGLE	8.41	7.90
	DIVIDED	8.46	8.67
40	SINGLE	8.58	8.38
	DIVIDED	8.51	8.62

WINTR NN	0	40	Mean
PRECROPN			
RAPE	7.66	7.90	7.78
OATS	7.07	7.46	7.26
Mean	7.36	7.68	7.52

SPRNG NN	0	150	250	Mean
PRECROPN				
RAPE	5.91	8.60	8.83	7.78
OATS	4.49	8.34	8.96	7.26
Mean	5.20	8.47	8.89	7.52

SPRNG NN	0	150	250	Mean
WINTR NN				
0	4.76	8.43	8.89	7.36
40	5.64	8.51	8.89	7.68
Mean	5.20	8.47	8.89	7.52

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GRAIN TONNES/HECTARE

***** Tables of means *****

PRECROPN	SPRNG NN / WINTR NN	0	150	250
RAPE	0	5.56	8.61	8.80
	40	6.26	8.59	8.85
OATS	0	3.96	8.26	8.99
	40	5.01	8.42	8.94

*** Standard errors of differences of means ***

Table	PREVCROP	SOWDATE	WINTER N	SPRING N
s.e.d.	0.102	0.102	0.102	0.102

Table	N TIME	PREVCROP SOWDATE	PREVCROP WINTER N	SOWDATE WINTER N
s.e.d.	0.102	0.145	0.145	0.145

Table	PREVCROP SPRING N	SOWDATE SPRING N	WINTER N SPRING N	PREVCROP N TIME
s.e.d.	0.145	0.145	0.145	0.145

Table	SOWDATE N TIME	WINTER N N TIME	SPRING N N TIME	PREVCROP SOWDATE WINTER N
s.e.d.	0.145	0.145	0.145	0.205

Table	PREVCROP SOWDATE SPRING N	PREVCROP WINTER N SPRING N	SOWDATE WINTER N SPRING N	PREVCROP SOWDATE N TIME
s.e.d.	0.205	0.205	0.205	0.205

Table	PREVCROP WINTER N N TIME	SOWDATE WINTER N N TIME	PREVCROP SPRING N N TIME	SOWDATE SPRING N N TIME
s.e.d.	0.205	0.205	0.205	0.205

Table	WINTER N SPRING N N TIME
s.e.d.	0.205

***** Stratum standard errors and coefficients of variation *****

Stratum	d.f.	s.e.	cv%
WP	6	0.290	3.4

GRAIN MEAN DM% 82.6

PLOT AREA HARVESTED 0.00207

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GRAIN TONNES/HECTARE

***** Tables of means *****

SUMMR NP / SPRNG NP	0	40	Mean
0	3.51	4.21	3.86
80	6.57	6.94	6.76
200	8.23	8.46	8.34
Mean	6.11	6.54	6.32

*** Standard errors of differences of means ***

Table	SPRNG NP	SUMMR NP	SPRNG NP SUMMR NP
s.e.d.	0.223	0.182	0.315

***** Stratum standard errors and coefficients of variation *****

Stratum	d.f.	s.e.	cv%
WP	10	0.386	6.1

GRAIN MEAN DM% 80.6

STRAW TONNES/HECTARE

***** Tables of means *****

SUMMR NP / SPRNG NP	0	40	Mean
0	3.65	3.86	3.76
80	6.39	6.53	6.46
200	7.83	8.33	8.08
Mean	5.95	6.24	6.10

STRAW MEAN DM% 60.7

PLOT AREA HARVESTED 0.00047

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87/R/WW/4

WINTER WHEAT

FACTORS AFFECTING TAKE-ALL

Object: To study the effects of a range of factors on the incidence of take-all and on the yield of w. wheat - Summerdells I.

Sponsors: D. Hornby, G.L. Bateman, R.J. Gutteridge.

Design: A single replicate of 2 x 2 x 2 x 2 x 2 x 2.

Whole plot dimensions: 3.0 x 10.0.

Treatments: All combinations of:-

1. SOWDATE		Dates of sowing:
	25 SEPT	25 September, 1986
	31 OCT	31 October
2. SOILFUNG		Application of fungicide to the seedbed:
	NONE	None
	NUARIMOL	Nuarimol at 1.3 kg in 375 l
3. SEEDRESS		Seed dressings:
	ORGANO M	Organo mercury
	TRIADIME	Triadimenol plus fuberidazole
4. AUTUMN N		N application to the seedbed:
	0	None
	60	60 kg N as 'Nitro-Chalk' on 25 Sept, 1986 or 31 Oct for successive SOWDATES
5. N TIME		Spring application of 200 kg N:
	SINGLE	Single application on 16 Apr, 1987
	DIVIDED	40 kg early, on 13 Feb, 160 kg later, on 16 Apr
6. N FORM		Forms of spring nitrogen:
	SUL AMM	Sulphate of ammonia
	AMM NITR	Ammonium nitrate as 'Nitro-Chalk'

NOTE: Nuarimol was applied at 1.3 kg in error for the intended rate of 1.0 kg.

Basal applications: Manures: Chalk at 5.0 t. Weedkillers: Paraquat at 0.60 kg ion in 200 l. Isoproturon at 2.5 kg with clopyralid at 0.07 kg, bromoxynil at 0.34 kg and mecoprop at 2.5 kg in 200 l. Fungicides: Carbendazim at 0.15 kg and prochloraz at 0.40 kg in 200 l. Propiconazole at 0.12 kg with carbendazim at 0.25 kg and maneb at 1.6 kg in 200 l.

Seed: Avalon, sown at 170 kg.

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Cultivations, etc.:- Heavy spring-tine cultivated, disced: 19 Aug, 1986. Chalk applied: 4 Sept. Paraquat applied: 11 Sept. Spring-tine cultivated: 24 Sept. SOWDATE 25 SEPT plots rotary harrowed, seed sown: 25 Sept. SOWDATE 31 OCT plots rotary harrowed, seed sown: 31 Oct. Remaining weedkillers applied: 16 Apr, 1987. Carbendazim and prochloraz applied: 7 May. Propiconazole, carbendazim and maneb applied: 1 July. Combine harvested: 4 Sept. Previous crops: W. wheat 1985, w. barley 1986.

NOTE: Plant samples were taken in mid-March, end of April and the beginning of July to assess take-all. Eyespot and sharp eyespot were assessed in July. Components of yield were measured and quality assessments were made on the grain.

GRAIN TONNES/HECTARE

***** Tables of means *****

SOILFUNG	NONE	NUARIMOL	Mean
SOWDATE			
25 SEPT	5.97	6.23	6.10
31 OCT	5.67	6.09	5.88
Mean	5.82	6.16	5.99

SEEDRESS	ORGANO M	TRIADIME	Mean
SOWDATE			
25 SEPT	6.13	6.06	6.10
31 OCT	5.88	5.88	5.88
Mean	6.01	5.97	5.99

SEEDRESS	ORGANO M	TRIADIME	Mean
SOILFUNG			
NONE	5.74	5.90	5.82
NUARIMOL	6.28	6.04	6.16
Mean	6.01	5.97	5.99

AUTUMN N	0	60	Mean
SOWDATE			
25 SEPT	5.85	6.34	6.10
31 OCT	5.71	6.05	5.88
Mean	5.78	6.20	5.99

AUTUMN N	0	60	Mean
SOILFUNG			
NONE	5.65	5.99	5.82
NUARIMOL	5.91	6.40	6.16
Mean	5.78	6.20	5.99

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GRAIN TONNES/HECTARE

***** Tables of means *****

AUTUMN N	0	60	Mean
SEEDRESS			
ORGANO M	5.79	6.23	6.01
TRIADIME	5.77	6.17	5.97
Mean	5.78	6.20	5.99

N TIME	SINGLE	DIVIDED	Mean
SOWDATE			
25 SEPT	6.03	6.16	6.10
31 OCT	5.87	5.88	5.88
Mean	5.95	6.02	5.99

N TIME	SINGLE	DIVIDED	Mean
SOILFUNG			
NONE	5.80	5.83	5.82
NUARIMOL	6.11	6.21	6.16
Mean	5.95	6.02	5.99

N TIME	SINGLE	DIVIDED	Mean
SEEDRESS			
ORGANO M	6.05	5.96	6.01
TRIADIME	5.85	6.08	5.97
Mean	5.95	6.02	5.99

N TIME	SINGLE	DIVIDED	Mean
AUTUMN N			
0	5.70	5.85	5.78
60	6.20	6.19	6.20
Mean	5.95	6.02	5.99

N FORM	SUL AMM	AMM NITR	Mean
SOWDATE			
25 SEPT	5.90	6.30	6.10
31 OCT	5.90	5.86	5.88
Mean	5.90	6.08	5.99

N FORM	SUL AMM	AMM NITR	Mean
SOILFUNG			
NONE	5.68	5.95	5.82
NUARIMOL	6.11	6.20	6.16
Mean	5.90	6.08	5.99

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GRAIN TONNES/HECTARE

***** Tables of means *****

N FORM	SUL AMM	AMM NITR	Mean
SEEDRESS			
ORGANO M	5.90	6.11	6.01
TRIADIME	5.89	6.05	5.97
Mean	5.90	6.08	5.99

N FORM	SUL AMM	AMM NITR	Mean
AUTUMN N			
0	5.63	5.93	5.78
60	6.16	6.23	6.20
Mean	5.90	6.08	5.99

N FORM	SUL AMM	AMM NITR	Mean
N TIME			
SINGLE	5.83	6.07	5.95
DIVIDED	5.96	6.08	6.02
Mean	5.90	6.08	5.99

	SOILFUNG	NONE		NUARIMOL	
SOWDATE	SEEDRESS	ORGANO M	TRIADIME	ORGANO M	TRIADIME
25 SEPT		5.95	5.99	6.32	6.13
31 OCT		5.53	5.80	6.23	5.95

	SOILFUNG	NONE		NUARIMOL	
SOWDATE	AUTUMN N	0	60	0	60
25 SEPT		5.70	6.23	6.00	6.45
31 OCT		5.59	5.74	5.82	6.36

	SEEDRESS	ORGANO M		TRIADIME	
SOWDATE	AUTUMN N	0	60	0	60
25 SEPT		5.86	6.40	5.84	6.28
31 OCT		5.71	6.05	5.70	6.05

	SEEDRESS	ORGANO M		TRIADIME	
SOILFUNG	AUTUMN N	0	60	0	60
NONE		5.58	5.90	5.71	6.08
NUARIMOL		6.00	6.56	5.83	6.25

	SOILFUNG	NONE		NUARIMOL	
SOWDATE	N TIME	SINGLE	DIVIDED	SINGLE	DIVIDED
25 SEPT		5.92	6.01	6.15	6.31
31 OCT		5.68	5.65	6.07	6.11

	SEEDRESS	ORGANO M		TRIADIME	
SOWDATE	N TIME	SINGLE	DIVIDED	SINGLE	DIVIDED
25 SEPT		6.20	6.07	5.87	6.26
31 OCT		5.90	5.86	5.84	5.91

https://doi.org/10.23637/ERADOC-1-37

87/R/WW/4

GRAIN TONNES/HECTARE

***** Tables of means *****

	SEEDRESS	ORGANO M		TRIADIME	
SOILFUNG	N TIME	SINGLE	DIVIDED	SINGLE	DIVIDED
NONE		5.75	5.73	5.85	5.94
NUARIMOL		6.35	6.20	5.86	6.22

	AUTUMN N	0		60	
SOWDATE	N TIME	SINGLE	DIVIDED	SINGLE	DIVIDED
25 SEPT		5.69	6.02	6.38	6.31
31 OCT		5.72	5.69	6.02	6.07

	AUTUMN N	0		60	
SOILFUNG	N TIME	SINGLE	DIVIDED	SINGLE	DIVIDED
NONE		5.52	5.78	6.08	5.89
NUARIMOL		5.89	5.93	6.32	6.49

	AUTUMN N	0		60	
SEEDRESS	N TIME	SINGLE	DIVIDED	SINGLE	DIVIDED
ORGANO M		5.68	5.90	6.42	6.03
TRIADIME		5.73	5.81	5.98	6.35

	SOILFUNG	NONE		NUARIMOL	
SOWDATE	N FORM	SUL AMM	AMM NITR	SUL AMM	AMM NITR
25 SEPT		5.70	6.23	6.09	6.36
31 OCT		5.66	5.67	6.13	6.05

	SEEDRESS	ORGANO M		TRIADIME	
SOWDATE	N FORM	SUL AMM	AMM NITR	SUL AMM	AMM NITR
25 SEPT		5.84	6.43	5.96	6.16
31 OCT		5.97	5.79	5.82	5.93

	SEEDRESS	ORGANO M		TRIADIME	
SOILFUNG	N FORM	SUL AMM	AMM NITR	SUL AMM	AMM NITR
NONE		5.56	5.92	5.80	5.99
NUARIMOL		6.25	6.30	5.97	6.11

	AUTUMN N	0		60	
SOWDATE	N FORM	SUL AMM	AMM NITR	SUL AMM	AMM NITR
25 SEPT		5.49	6.21	6.30	6.39
31 OCT		5.77	5.64	6.02	6.08

	AUTUMN N	0		60	
SOILFUNG	N FORM	SUL AMM	AMM NITR	SUL AMM	AMM NITR
NONE		5.40	5.90	5.96	6.01
NUARIMOL		5.87	5.96	6.36	6.45

	AUTUMN N	0		60	
SEEDRESS	N FORM	SUL AMM	AMM NITR	SUL AMM	AMM NITR
ORGANO M		5.56	6.02	6.25	6.20
TRIADIME		5.71	5.83	6.07	6.26

	N TIME	SINGLE		DIVIDED	
SOWDATE	N FORM	SUL AMM	AMM NITR	SUL AMM	AMM NITR
25 SEPT		5.75	6.31	6.04	6.28
31 OCT		5.91	5.83	5.88	5.89

https://doi.org/10.23637/ERADOC-1-37

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GRAIN TONNES/HECTARE

***** Tables of means *****

	N TIME	SINGLE		DIVIDED	
SOILFUNG	N FORM	SUL AMM	AMM NITR	SUL AMM	AMM NITR
NONE		5.53	6.07	5.83	5.84
NUARIMOL		6.13	6.08	6.09	6.33

	N TIME	SINGLE		DIVIDED	
SEEDRESS	N FORM	SUL AMM	AMM NITR	SUL AMM	AMM NITR
ORGANO M		5.95	6.15	5.86	6.07
TRIADIME		5.71	6.00	6.06	6.10

	N TIME	SINGLE		DIVIDED	
AUTUMN N	N FORM	SUL AMM	AMM NITR	SUL AMM	AMM NITR
0		5.44	5.97	5.82	5.89
60		6.22	6.18	6.10	6.28

*** Standard errors of differences of means ***

Margins of two factor tables	0.173
Two factor tables	0.245
Three factor tables	0.347

***** Stratum standard errors and coefficients of variation *****

Stratum	d.f.	s.e.	cv%
BLOCK.WP	19	0.693	11.6

GRAIN MEAN DM% 72.5

PLOT AREA HARVESTED 0.00272

https://doi.org/10.23637/ERADOC-1-37

87/R/WW/5

WINTER WHEAT

APHICIDE, N AND FUNGICIDE

Object: To determine the economic thresholds for cereal aphids with different levels of inputs - Delafield.

Sponsor: N. Carter.

Design: 3 randomised blocks of 12 plots.

Whole plot dimensions: 3.0 x 12.0.

Treatments: All combinations of:-

1. APHICIDE — Aphicides (applied in 200 l):

   NONE — None
   PIRIMICA — Pirimicarb applied at 0.14 kg on 23 June, 1987, 3 July and 16 July

2. N RATE — Nitrogen fertilizers (kg N) as 'Nitram' on 14 Apr, 1987:

   80
   120
   160

3. FUNGCIDE — Fungicides:

   NONE — None
   31+39+59 — Fungicide sprays at growth stage 31, 39, 59:
   G.S. 31 - Prochloraz at 0.40 kg and carbendazim at 0.15 kg in 380 l on 6 May, 1987
   G.S. 39 - Propiconazole at 0.12 kg in 200 l on 28 May
   G.S. 59 - Propiconazole at 0.12 kg with carbendazim at 0.25 kg and maneb at 1.5 kg in 200 l on 23 June

Basal applications: Weedkillers: Clopyralid at 0.07 kg and bromoxynil at 0.34 kg with mecoprop at 2.5 kg in 200 l. Glyphosate at 1.4 kg in 200 l. Growth regulator: Chlormequat at 1.6 kg in 200 l.

Seed: Avalon, sown at 200 kg.

Cultivations, etc.:- Rotary harrowed, seed sown: 6 Nov, 1986. Clopyralid, bromoxynil and mecoprop applied: 23 Apr, 1987. Growth regulator applied: 6 May. Glyphosate applied: 17 Aug. Combine harvested: 1 Sept. Previous crops: W. wheat 1985, potatoes 1986.

NOTE: Aphids were counted from early June until late July. Plant samples were taken at anthesis for dry weight measurements. Disease assessments were made in late June and late July. Components of yield were measured.

https://doi.org/10.23637/ERADOC-1-37

87/R/WW/5

GRAIN TONNES/HECTARE

***** Tables of means *****

N RATE	80	120	160	Mean
APHICIDE				
NONE	6.62	6.96	7.21	6.93
PIRIMICA	6.73	7.27	7.47	7.16
Mean	6.68	7.12	7.34	7.04

FUNGCIDE	NONE	31+39+59	Mean
APHICIDE			
NONE	6.40	7.46	6.93
PIRIMICA	6.66	7.65	7.16
Mean	6.53	7.56	7.04

FUNGCIDE	NONE	31+39+59	Mean
N RATE			
80	6.39	6.96	6.68
120	6.57	7.66	7.12
160	6.64	8.04	7.34
Mean	6.53	7.56	7.04

N RATE	80		120		160	
APHICIDE FUNGCIDE	NONE	31+39+59	NONE	31+39+59	NONE	31+39+59
NONE	6.25	7.00	6.50	7.42	6.46	7.95
PIRIMICA	6.54	6.92	6.65	7.90	6.81	8.13

*** Standard errors of differences of means ***

Table	APHICIDE	N RATE	FUNGCIDE	APHICIDE N RATE
s.e.d.	0.124	0.152	0.124	0.215

Table	APHICIDE FUNGCIDE	N RATE FUNGCIDE	APHICIDE N RATE FUNGCIDE
s.e.d.	0.176	0.215	0.304

***** Stratum standard errors and coefficients of variation *****

Stratum	d.f.	s.e.	cv%
BLOCK.WP	22	0.373	5.3

GRAIN MEAN DM% 83.9

PLOT AREA HARVESTED 0.00258

https://doi.org/10.23637/ERADOC-1-37

87/R/WW/6

WINTER WHEAT

N AND DCD

Object: To study the effects of a nitrification inhibitor in combination with different rates and timings of N on yield - Claycroft.

Sponsors: A. Penny, R.J. Darby, M.V. Hewitt.

Design: 2 randomised blocks of 30 plots.

Whole plot dimensions: 3.0 x 11.0.

Treatments: All combinations of:-

1. N INHIB	Nitrification inhibitor added to nitrogen fertilizer:
NONE	None
DICYANDI	Dicyandiamide at 16 kg, divided equally between applications
2. N TIME	Time and division of aqueous nitrogen fertilizer:
1 1 1 1	Quarter of N on each of 25 Feb, 1987, 30 Mar, 21 Apr, 19 May
2 2 - -	Half of N on each of 25 Feb, 30 Mar
2 - 2 -	Half of N on each of 25 Feb, 21 Apr
- 2 2 -	Half of N on each of 30 Mar, 21 Apr
4 - - -	All of N on 25 Feb
- - 4 -	All of N on 21 Apr
3. N RATE	Amount of nitrogen fertilizer applied (kg N):
160	160
240	240

plus extra treatments given no nitrification inhibitor all combinations of:-

1. N TIMENC	Time and division of nitrogen fertilizer as 'Nitro-Chalk':
- 2 2 -	Half of N on each of 30 Mar, 1987, 21 Apr
- - 4 -	All of N on 21 Apr
2. N RATENC	Amount of nitrogen fertilizer applied (kg N):
160	160
240	240

plus one extra treatment

EXTRA	
NONE	No nitrogen fertilizer or inhibitor (duplicated)

NOTE: Nitrogen was applied as a mixture of urea and ammonium nitrate (28% N).

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Basal applications: Weedkillers: Paraquat at 0.60 kg ion in 200 l. Isoproturon at 2.5 kg in 200 l. Clopyralid at 0.05 kg and bromoxynil at 0.24 kg with mecoprop at 1.8 kg applied with the prochloraz and carbendazim in 200 l. Fungicides: Prochloraz at 0.40 kg and carbendazim at 0.15 kg. Propiconazole at 0.12 kg with carbendazim at 0.25 kg and maneb at 1.5 kg in 200 l.

Seed: Avalon, sown at 180 kg.

Cultivations, etc.:- Heavy spring-tine cultivated: 5 Sept, 1986. Paraquat applied: 30 Sept. Disced: 2 Oct. Disced, rotary harrowed: 3 Oct. Seed sown: 4 Oct. Isoproturon applied: 31 Mar, 1987. Clopyralid, bromoxynil, mecoprop, prochloraz and carbendazim applied: 18 Apr. Propiconazole with carbendazim and maneb applied: 23 June. Combine harvested: 31 Aug. Previous crops: S. barley 1985, w. wheat 1986.

NOTE: The crop was sampled in mid-June to measure dry matter, ear numbers and N content. The N content of the grain was determined.

GRAIN TONNES/HECTARE

***** Tables of means *****

N INHIB / N TIME	NONE	DICYANDI	Mean
1 1 1 1	5.94	6.27	6.10
2 2 - -	5.96	6.03	6.00
2 - 2 -	5.88	5.96	5.92
- 2 2 -	5.91	5.94	5.92
4 - - -	5.75	6.11	5.93
- - 4 -	6.12	5.92	6.02
Mean	5.93	6.04	5.98

N RATE / N TIME	160	240	Mean
1 1 1 1	5.84	6.37	6.10
2 2 - -	5.72	6.27	6.00
2 - 2 -	5.70	6.14	5.92
- 2 2 -	5.80	6.04	5.92
4 - - -	5.75	6.11	5.93
- - 4 -	5.93	6.11	6.02
Mean	5.79	6.17	5.98

N RATE / N INHIB	160	240	Mean
NONE	5.86	5.99	5.93
DICYANDI	5.72	6.35	6.04
Mean	5.79	6.17	5.98

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GRAIN TONNES/HECTARE

***** Tables of means *****

N INHIB	NONE		DICYANDI	
N RATE	160	240	160	240
N TIME				
1 1 1 1	5.93	5.95	5.76	6.78
2 2 - -	6.02	5.90	5.42	6.63
2 - 2 -	5.80	5.97	5.60	6.32
- 2 2 -	5.67	6.15	5.94	5.94
4 - - -	5.58	5.92	5.92	6.30
- - 4 -	6.17	6.08	5.69	6.15

N RATENC	160	240	Mean
N TIMENC			
- 2 2 -	6.17	6.02	6.09
- - 4 -	5.72	5.62	5.67
Mean	5.95	5.82	5.88

NONE	2.96
Grand mean	5.77

*** Standard errors of differences of means ***

Table	N INHIB	N TIME	N RATE	N TIMEC
s.e.d.	0.136	0.236	0.136	0.334

Table	N RATENC	N INHIB N TIME	N INHIB N RATE	N TIME N RATE
s.e.d.	0.334	0.334	0.193	0.334

Table	N TIMENC N RATENC	N INHIB N TIME N RATE
s.e.d.	0.472	0.472

SED of NONE v any item in N TIMEC.N RATENC
table or N INHIB.N TIME.N RATE table is 0.409

***** Stratum standard errors and coefficients of variation *****

Stratum	d.f.	s.e.	cv%
BLOCK.WP	30	0.472	8.2

GRAIN MEAN DM% 81.5

PLOT AREA HARVESTED 0.00253

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