ROTHAMSTED RESEARCH

Yields of the Field Experiments 1985

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Annuals - Winter Wheat

Rothamsted Research

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85/R/WW/1 and 85/W/WW/1

WINTER WHEAT

VARIETIES

Object: To study a selection of newer varieties of w. wheat and the effects of growth regulator on them on land in rotation (pathogen free) and after wheat (pathogen infected) - Rothamsted Sawyers I (pathogen free RH) and Fosters West (pathogen infected RD), Woburn Horsepool Lane Close (pathogen free WH).

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

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

Sub plot dimensions: (RH, RD) 3.0 x 12.0, (WH) 4.0 x 12.0.

Treatments: All combinations of:-

Whole plots

1. INSCTCDE — Insecticide:

NONE	None
PIRIMICA	Pirimicarb at 0.14 kg in 250 l

Sub plots

2. VARIETY — Varieties:

AVALON	Avalon (on RH and WH only, duplicated on RH)
AVALON A	Avalon (grown after Avalon, RD only)
AVALON N	Avalon (grown after Norman, RD only)
BOXER	Boxer
BRIMSTON	Brimstone
BROCK	Brock
GALAHAD	Galahad
GAWAIN	Gawain
LONGBOW	Longbow
MOULIN	Moulin
NORMAN	Norman (on RH and WH only, duplicated on RH)
NORMAN A	Norman (grown after Avalon, RD only)
NORMAN N	Norman (grown after Norman, RD only)
RAPIER	Rapier
RENARD	Renard

Basal applications:
Sawyers I (RH): Manures: N at 190 kg as 'Nitro-Chalk' (27.5% N)). Weedkillers: Mecoprop at 1.6 kg with bromoxynil at 0.20 kg and ioxynil at 0.20 kg and isoproturon at 2.0 kg in 200 l. Fungicides: Captafol at 0.96 kg with fenpropimorph at 0.75 kg and carbendazim at 0.15 kg in 200 l. Insecticide: Pirimicarb at 0.14 kg in 500 l.

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Fosters West (RD): Manures: K at 250 kg as muriate of potash. N at 190 kg as 'Nitro-Chalk' (27.5% N). Weedkillers: Isoproturon at 2.0 kg. Clopyralid at 0.07 kg with bromoxynil at 0.34 kg and mecoprop at 2.5 kg applied with the prochloraz and carbendazim in 200 l. Fungicides: Prochloraz at 0.40 kg with carbendazim at 0.15 kg. Propiconazole on two occasions, on the first occasion at 0.25 kg in 200 l on the second occasion at 0.12 kg with carbendazim and maneb (as 'Septal' at 2.5 kg) in 200 l. Insecticide: Pirimicarb at 0.14 kg in 500 l.

Horsepool Lane Close (WH): Manures: N on two occasions at 40 kg and 90 kg as 'Nitro-Chalk' (27.5% N). Weedkillers: Mecoprop at 2.0 kg with bromoxynil at 0.25 kg and ioxynil at 0.25 kg in 250 l. Fungicides: Propiconazole on two occasions, on the first occasion at 0.25 kg with tridemorph at 0.19 kg in 250 l, on the second occasion at 0.12 kg with tridemorph at 0.19 kg and with carbendazim and maneb (as 'Septal' at 2.5 kg) in 250 l. Insecticide: Pirimicarb at 0.14 kg in 250 l.

Seed: Sawyers I (RH), Fosters West (RD): Varieties sown at 180 kg. Horsepool Lane Close (WH): Varieties sown at 190 kg.

Cultivations, etc.:-

Sawyers I (RH): Ploughed: 3 Oct, 1984. Spring-tine cultivated, rotary harrowed, seed sown: 16 Oct. Weedkillers applied: 10 Apr, 1985. N applied: 12 Apr. Fungicides applied: 28 June. Insecticide applied: 8 July. Combine harvested: 2 Sept. Previous crops: S. barley 1983, s. beans 1984.

Fosters West (RD): K applied: 24 Sept, 1984. Ploughed: 25 Sept. Spring-tine cultivated, rotary harrowed, seed sown: 16 Oct. Weedkillers with prochloraz and carbendazim applied: 10 Apr, 1985. N applied: 12 Apr. Propiconazole applied: 3 June. Propiconazole with 'Septal' applied: 2 July. Insecticide applied: 8 July. Combine harvested: 31 Aug. Previous crops: W. beans 1983, w. wheat 1984.

Horsepool Lane Close (WH): Rotary cultivated with tine attachment: 1 Nov, 1984. Power harrowed, seed sown: 2 Nov. N applied: 12 Mar 1985, 18 Apr. Weedkillers applied: 18 Apr. Propiconazole and tridemorph applied: 15 June. Propiconazole with tridemorph and 'Septal' applied: 2 July. Insecticide applied: 10 July. Combine harvested: 9 Sept. Previous crops: W. oats 1983, potatoes 1984.

NOTE: Take-all was assessed on Fosters West (RD).

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85/R/WW/1

SAWYERS I HEALTHY SITE

GRAIN TONNES/HECTARE

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

INSCTCDE	NONE	PIRIMICA	MEAN
VARIETY			
AVALON	9.00	9.26	9.13
BOXER	9.99	9.97	9.98
BRIMSTON	8.55	9.07	8.81
BROCK	9.92	10.39	10.16
GALAHAD	10.10	10.34	10.22
GAWAIN	9.65	10.06	9.85
LONGBOW	8.41	8.90	8.65
MOULIN	7.94	8.14	8.04
NORMAN	8.53	8.74	8.64
RAPIER	9.49	9.89	9.69
RENARD	9.64	10.17	9.91
MEAN	9.20	9.54	9.37

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

TABLE	VARIETY	INSCTCDE* VARIETY	
SED	0.218	0.309	MIN REP
	0.189	0.268	MAX-MIN
	0.154	0.218	MAX REP

* WITHIN THE SAME LEVEL OF INSCTCDE ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP	28	0.309	3.3

GRAIN MEAN DM% 83.6

PLOT AREA HARVESTED 0.00245

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85/R/WW/1

FOSTERS WEST DISEASED SITE

GRAIN TONNES/HECTARE

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

INSCTCDE	NONE	PIRIMICA	MEAN
VARIETY			
AVALON A	8.92	8.81	8.86
AVALON N	9.04	9.22	9.13
BOXER	9.22	8.51	8.87
BRIMSTON	8.99	10.02	9.51
BROCK	9.13	9.05	9.09
GALAHAD	9.40	10.44	9.92
GAWAIN	9.86	10.55	10.21
LONGBOW	9.94	10.30	10.12
MOULIN	7.51	7.57	7.54
NORMAN A	9.65	10.08	9.87
NORMAN N	10.18	10.16	10.17
RAPIER	9.61	9.88	9.75
RENARD	9.36	8.59	8.97
MEAN	9.29	9.47	9.38

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

TABLE	VARIETY	INSCTCDE* VARIETY
SED	0.342	0.483

* WITHIN THE SAME LEVEL OF INSCTCDE ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP	24	0.483	5.1

GRAIN MEAN DM% 83.0

PLOT AREA HARVESTED 0.00245

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85/W/WW/1

HORSEPOOL LANE CLOSE (W)

GRAIN TONNES/HECTARE

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

INSCTCDE	NONE	PIRIMICA	MEAN
VARIETY			
AVALON	9.55	9.12	9.34
BOXER	9.78	9.31	9.55
BRIMSTON	8.66	8.48	8.57
BROCK	9.99	10.10	10.04
GALAHAD	9.78	9.69	9.74
GAWAIN	8.75	8.93	8.84
LONGBOW	10.07	9.69	9.88
MOULIN	7.28	6.88	7.08
NORMAN	10.40	10.31	10.36
RAPIER	8.95	9.01	8.98
RENARD	10.24	10.09	10.17
MEAN	9.41	9.24	9.32

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

TABLE	VARIETY	INSCTCDE* VARIETY
SED	0.233	0.330

* WITHIN THE SAME LEVEL OF INSCTCDE ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP	20	0.330	3.5

GRAIN MEAN DM% 81.8

PLOT AREA HARVESTED 0.00330

https://doi.org/10.23637/ERADOC-1-19

85/R/WW/3

WINTER WHEAT

FACTORS AFFECTING TAKE-ALL

Object: To study the effects of a seed treatment on the incidence of take-all and on the yield of wheat sown at different times - Delafield.

Sponsor: G.L. Bateman.

Design: 6 randomised blocks of 6 plots, with PREVCROP on blocks.

Whole plot dimensions: 3.0 x 12.0.

Treatments: All combinations of:-

Blocks

1. PREVCROP	Previous cropping:	
	BARLEY	Beans 1982, w. wheat 1983, s. barley 1984
	OATS	Beans 1982, w. wheat 1983, s. oats 1984

Whole plots

2. SEED DR	Seed dressing:	
	NONE	None
	TRIADIME	Triadimenol at 0.5 g per kg of seed plus fuberidazole at 0.06 g per kg of seed
3. SOWDATE	Dates of sowing:	
	11 SEPT	11 September, 1984
	26 SEPT	26 September
	15 OCT	15 October

Basal applications: Manures: 'Nitro-Chalk' (27.5% N) at 140 kg and on a second occasion at 570 kg. Weedkillers: Isoproturon at 2.0 kg with mecoprop at 2.0 kg, ioxynil at 0.25 kg and bromoxynil at 0.25 kg in 200 l. Fungicides: Propiconazole at 0.25 kg with carbendazim at 0.25 kg and maneb at 1.6 kg in 200 l.

Seed: Longbow, sown at 170 kg.

Cultivations, etc.:- Ploughed, disced: 10 Sept, 1984. Spring-tine cultivated, SOWDATE 11 SEPT plots rotary harrowed and seed sown: 11 Sept. SOWDATE 26 SEPT plots rotary harrowed and seed sown: 26 Sept. SOWDATE 15 OCT plots rotary harrowed and seed sown: 15 Oct. First N applied: 28 Feb, 1985. Weedkillers applied: 12 Mar. Second N applied: 15 Apr. Fungicides applied: 28 June. Combine harvested: 27 Aug.

NOTE: Plant samples were taken in October and November 1984, and April and July 1985 for assessments of take-all and eyespot. Additional samples were taken in November 1984 for assessment of Septoria tritici.

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85/R/WW/3

GRAIN TONNES/HECTARE

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

SEED DR	NONE	TRIADIME	MEAN
PREVCROP			
BARLEY	8.83	9.20	9.02
OATS	10.20	10.30	10.25
MEAN	9.52	9.75	9.63

SOWDATE	11 SEPT	26 SEPT	15 OCT	MEAN
PREVCROP				
BARLEY	8.33	9.35	9.37	9.02
OATS	10.63	10.13	9.99	10.25
MEAN	9.48	9.74	9.68	9.63

SOWDATE	11 SEPT	26 SEPT	15 OCT	MEAN
SEED DR				
NONE	9.35	9.66	9.55	9.52
TRIADIME	9.61	9.83	9.81	9.75
MEAN	9.48	9.74	9.68	9.63

	SOWDATE	11 SEPT	26 SEPT	15 OCT
PREVCROP	SEED DR			
BARLEY	NONE	8.06	9.17	9.27
	TRIADIME	8.60	9.54	9.47
OATS	NONE	10.64	10.14	9.82
	TRIADIME	10.61	10.12	10.15

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

TABLE	PREVCROP	SEED DR	SOWDATE	PREVCROP SEED DR
SED	0.230	0.143	0.176	0.271
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
PREVCROP				0.203

TABLE	PREVCROP SOWDATE	SEED DR SOWDATE	PREVCROP SEED DR SOWDATE
SED	0.307	0.249	0.395
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
PREVCROP	0.249		0.351

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

STRATUM	DF	SE	CV%
BLOCK.WP	20	0.430	4.5

GRAIN MEAN DM% 81.5

PLOT AREA HARVESTED 0.00274

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85/R/WW/4

WINTER WHEAT

CHLORIDE AND TAKE-ALL

Object: To study the effects of different spring nitrogen top dressings, that include chloride and ammonium ions, on the incidence of take-all and on the yield of winter wheat - Delafield.

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

Design: 4 randomised blocks of 5 plots.

Whole plot dimensions: 3.0 x 12.0.

Treatments:

SPRING N	Spring nitrogen, 40 kg N on 6 March, 1985; 160 kg N on 9 April:
AMM CHL	Ammonium chloride
AMM NIT	Ammonium nitrate as 'Nitro-Chalk' (27.5% N)
AMM SUL	Ammonium sulphate
UREA	Urea
AN+PC	Ammonium nitrate + potassium chloride

Basal applications: Weedkillers: Isoproturon at 2.0 kg with mecoprop at 2.0 kg, ioxynil at 0.25 kg and bromoxynil at 0.25 kg in 200 l. Fungicides: Propiconazole at 0.25 kg with carbendazim at 0.25 kg and maneb at 1.6 kg in 200 l.

Seed: Longbow, sown at 170 kg.

Cultivations, etc.:- Ploughed, disced: 10 Sept, 1984. Spring-tine cultivated: 11 Sept. Rotary harrowed, seed sown: 26 Sept. Weedkillers applied: 12 Mar, 1985. Fungicides applied: 28 June. Combine harvested: 27 Aug. Previous crops: W. wheat 1983, s. barley 1984.

NOTE: Take-all assessments were made monthly from early March to early July.

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85/R/WW/4

GRAIN TONNES/HECTARE

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

SPRING N	AMM CHL	AMM NIT	AMM SUL	UREA	AN+PC	MEAN
	8.13	7.42	8.55	8.45	8.50	8.21

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

TABLE	SPRING N
SED	0.396

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

STRATUM	DF	SE	CV%
BLOCK.WP	12	0.560	6.8

GRAIN MEAN DM% 83.2

PLOT AREA HARVESTED 0.00326

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85/R/WW/5

WINTER WHEAT

PERSISTENCE OF APHICIDES

Object: To examine the persistence of aphicides applied at two growth stages and their effect on the yield of winter wheat - Geescroft.

Sponsor: N. Carter.

Design: 4 randomised blocks of 14 plots.

Whole plot dimensions: 3.0 x 13.0.

Treatments: All combinations of:-

1. APHICIDE — Aphicides:

DELTAMET	Deltamethrin at 0.012 kg
DELT EL	Deltamethrin at 0.012 kg applied by electrostatic sprayer
DEMETON	Demeton-S-methyl at 0.24 kg
PIRIM ST	Pirimicarb (standard formulation) at 0.14 kg
PIR+321	Pirimicarb (standard formulation) at 0.14 kg plus 'PP 321' at 0.0075 kg a.i.
PIRIM EN	Pirimicarb (encapsulated) at 0.14 kg

2. APH TIME — Timing of aphicides:

GS 45	Booting, growth stage 45 on 4 June, 1985
GS 65	Flowering, growth stage 65 on 19 June

Plus one extra treatment:

EXTRA NONE	No aphicide (duplicated)

NOTE: All aphicides were applied in 200 l by hydraulic sprayer except DELT EL in 10 l by electrostatic sprayer.

Basal applications: Manures: 'Nitro-Chalk' (27.5% N) at 140 kg followed by 390 kg. Weedkillers: Isoproturon at 2.4 kg and mecoprop (as 'CMPP' at 4.2 l) with the insecticide in 250 l. Mecoprop at 2.0 kg, bromoxynil at 0.25 kg and ioxynil at 0.25 kg in 200 l. Fungicides: Propiconazole in 200 l on two occasions at 0.25 kg on the first, at 0.12 kg with carbendazim and maneb (as 'Septal' at 2.5 kg on the second). Insecticide: Cypermethrin at 0.025 kg.

Seed: Avalon, sown at 170 kg.

Cultivations, etc.:- Ploughed: 18 Sept, 1984. Rotary harrowed twice, seed sown: 19 Sept. Isoproturon, mecoprop and the insecticide applied: 31 Oct. First N applied: 11 Mar, 1985. Mecoprop, bromoxynil and ioxynil and second N applied: 15 Apr. First propiconazole applied: 14 June. Propiconazole with carbendazim and maneb applied: 2 July. Combine harvested: 29 Aug. Previous crops: S. barley 1983, w. beans 1984.

NOTE: Naturally occurring aphids were counted at weekly intervals from early June to the end of July.

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85/R/WW/5

GRAIN TONNES/HECTARE

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

APH TIME APHICIDE	GS 45	GS 65	MEAN
DELTAMET	10.13	9.77	9.95
DELT EL	10.17	10.29	10.23
DEMETON	9.69	10.00	9.85
PIRIM ST	9.55	9.93	9.74
PIR+321	10.38	9.66	10.02
PIRIM EN	10.11	9.95	10.03
MEAN	10.01	9.93	9.97

NONE 9.50

GRAND MEAN 9.90

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

TABLE	APH TIME	APHICIDE	APH TIME APHICIDE
SED	0.125	0.217	0.307

SED FOR COMPARING NONE WITH ANY ITEM IN
APH TIME.APHICIDE TABLE IS 0.266

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

STRATUM	DF	SE	CV%
BLOCK.WP	40	0.434	4.4

GRAIN MEAN DM% 83.6

PLOT AREA HARVESTED 0.00359

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85/R/WW/6

WINTER WHEAT

ELECTROSTATIC SPRAYERS AND WEED CONTROL

Object: To compare the weed control obtained with electrostatic and standard hydraulic sprayers in wheat following oats and wheat following potatoes - Rothamsted Summerdells I (after oats) and Great Harpenden I (after potatoes).

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

Design: 4 randomised blocks of 12 plots.

Whole plot dimensions: 3.0 x 15.0.

Treatments:

TREATMNT	Sprayers, weedkillers and times of application:
NONE	None
	Electrostatic sprayer, 'Tecnoma', applying chlorsulfuron plus metsulfuron methyl:
EST E	Early on 17 Oct, 1984 (Summerdells), 31 Oct (Great Harpenden)
EST L	Late on 13 Dec (Summerdells), 21 Dec (Great Harpenden)
EST L+I	Late plus isoproturon (duplicated)
	Electrostatic sprayer, 'Jumbo', applying chlorsulfuron plus metsulfuron methyl:
ESJ E	Early on above dates
ESJ L	Late on above dates
ESJ L+I	Late plus isoproturon (duplicated)
	Conventional, hydraulic sprayer, applying chlorsulfuron plus metsulfuron methyl:
H E	Early on above dates
H L	Late on above dates
H L+I	Late plus isoproturon

NOTES: (1) On one plot on the site after potatoes which should have received ESJ L the treatment was omitted in error. An estimated value was used in the analysis
(2) Chlorsulfuron was applied at 0.015 kg and metsulfuron methyl at 0.005 kg.
(3) Isoproturon was applied at 2.5 kg.
(4) The 'Tecnoma' electrostatic sprayer has vertically mounted, inductively charged rotary atomisers and spray was applied in 12.0 l.
(5) The 'Jumbo' electrostatic sprayer has spinning cone nozzles, spray was charged at 30 kv and was applied in 9.0 l.
(6) The hydraulic sprayer applied sprays in 200 l.

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85/R/WW/6

Standard applications:
Summerdells I: Manures: 'Nitro-Chalk' (27.5% N) at 720 kg. Weedkiller: Paraquat at 0.60 kg ion in 500 l. Fungicides: Propiconazole at 0.25 kg in 200 l. Propiconazole at 0.12 kg with carbendazim and maneb (as 'Septal' at 2.5 kg) in 200 l. Insecticide: Pirimicarb at 0.14 kg in 200 l.
Great Harpenden I: Manures: 'Nitro-Chalk' (27.5% N) at 540 kg. Fungicides: Captafol at 0.96 kg with fenpropimorph at 0.75 kg and carbendazim at 0.15 kg in 200 l.

Seed: Avalon, sown at 170 kg (both fields).

Cultivations, etc.:-
Summerdells I: Disced: 14 Aug, 1984. Paraquat applied, heavy spring-tine cultivated: 19 Sept. Rotary harrowed, seed sown: 26 Sept. N applied: 15 Apr, 1985. Propiconazole alone applied: 3 June. Propiconazole with carbendazim and maneb applied: 2 July. Insecticide applied: 10 July. Combine harvested: 30 Aug. Previous crops: S. barley 1983, w. oats 1984.
Great Harpenden I: Heavy spring-tine cultivated: 12 Oct, 1984. Rotary harrowed, seed sown: 13 Oct. N applied: 15 Apr, 1985. Fungicides applied: 28 June. Combine harvested: 29 Aug. Previous crops: W. beans 1983, potatoes 1984.

NOTE: Weed counts were made throughout the season.

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85/R/WW/6 SUMMERDELLS I

WINTER WHEAT (AFTER OATS)

GRAIN TONNES/HECTARE

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

TREATMNT	
NONE	5.27
EST E	8.02
EST L	7.58
EST L+I	9.22
ESJ E	8.04
ESJ L	7.89
ESJ L+I	8.93
H E	8.98
H L	7.66
H L+I	9.83
MEAN	8.19

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

TABLE	TREATMNT	
SED	0.451	MIN REP
	0.391	MAX-MIN
	0.319	MAX REP

	TREATMNT
MAX REP	EST L+I AND ESJ L+I
MAX-MIN	EST L+I OR ESJ L+I V ANY OF REMAINDER
MIN REP	ANY OF REMAINDER

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

STRATUM	DF	SE	CV%
BLOCK.WP	35	0.638	7.8

GRAIN MEAN DM% 84.1

PLOT AREA HARVESTED 0.00306

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85/R/WW/6 GREAT HARPENDEN I

WINTER WHEAT (AFTER POTATOES)

GRAIN TONNES/HECTARE

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

TREATMNT	
NONE	6.15
EST E	7.35
EST L	8.35
EST L+I	8.29
ESJ E	7.72
ESJ L	7.94
ESJ L+I	8.38
H E	7.52
H L	8.62
H L+I	8.84
MEAN	7.96

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

TABLE	TREATMNT	
SED	0.378	MIN REP
	0.327	MAX-MIN
	0.267	MAX REP

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

STRATUM	DF	SE	CV%
BLOCK.WP	34	0.534	6.7

GRAIN MEAN DM% 81.7

PLOT AREA HARVESTED 0.00306

https://doi.org/10.23637/ERADOC-1-19

85/R/WW/11

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 - Summerdells I.

Sponsors: G.A. Rodgers, F.V. Widdowson.

Design: 2 randomised blocks of 18 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 nitrogen fertilizer:	
	1111	Quarter of N on each of 28 Feb 1985, 20 Mar, 18 Apr, 16 May
	22--	Half of N on each of 28 Feb, 20 Mar
	2-2-	Half of N on each of 28 Feb, 18 Apr
	-22-	Half of N on each of 20 Mar, 18 Apr
3. N RATE	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).

Basal applications: Weedkillers: Paraquat at 0.60 kg ion in 500 l. Isoproturon at 2.0 kg with mecoprop at 2.0 kg, ioxynil at 0.25 kg and bromoxynil at 0.25 kg in 200 l. Fungicides: Propiconazole at 0.25 kg in 200 l. Propiconazole at 0.12 kg with carbendazim and maneb (as 'Septal' at 2.5 kg) in 200 l. Insecticide: Pirimicarb at 0.14 kg in 200 l.

Seed: Avalon, sown at 170 kg.

Cultivations, etc.:- Disced: 14 Aug, 1984. Paraquat applied, heavy spring-tine cultivated: 19 Sept. Rotary harrowed, seed sown: 27 Sept. Remaining weedkillers applied: 12 Mar, 1985. Propiconazole applied: 3 June. Propiconazole with 'Septal' applied: 2 July. Insecticide applied: 10 July. Combine harvested: 29 Aug. Previous crops: S. barley 1983, w. oats 1984.

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85/R/WW/11

NOTE: Soil cores were taken in February and April for nitrate and ammonium analyses. Plant samples were taken at anthesis for measurements of dry weight, percentage N, N uptake and number of stems per square metre.

GRAIN TONNES/HECTARE

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

N TIME / N INHIB	1111	22--	2-2-	-22-	MEAN
NONE	9.01	8.41	8.69	8.19	8.58
DICYANDI	8.81	9.14	9.03	8.72	8.93
MEAN	8.91	8.77	8.86	8.45	8.75

N RATE / N INHIB	160	240	MEAN
NONE	7.90	9.25	8.58
DICYANDI	8.32	9.53	8.93
MEAN	8.11	9.39	8.75

N RATE / N TIME	160	240	MEAN
1111	8.36	9.46	8.91
22--	8.10	9.44	8.77
2-2-	8.29	9.44	8.86
-22-	7.68	9.23	8.45
MEAN	8.11	9.39	8.75

N INHIB	N RATE / N TIME	160	240
NONE	1111	8.59	9.43
	22--	7.69	9.13
	2-2-	8.04	9.35
	-22-	7.27	9.11
DICYANDI	1111	8.13	9.49
	22--	8.52	9.76
	2-2-	8.54	9.53
	-22-	8.09	9.34

NONE 2.68

GRAND MEAN 8.08

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85/R/WW/11

GRAIN TONNES/HECTARE

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

TABLE	N INHIB	N TIME	N RATE	N INHIB N TIME
SED	0.128	0.181	0.128	0.257

TABLE	N INHIB N RATE	N TIME N RATE	N INHIB N TIME N RATE
SED	0.181	0.257	0.363

SED FOR COMPARING EXTRA NONE WITH ANY ITEM IN
N INHIB.N TIME.N RATE TABLE IS 0.314

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

STRATUM	DF	SE	CV%
BLOCK.WP	18	0.363	4.5

GRAIN MEAN DM% 84.9

PLOT AREA HARVESTED 0.00254

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