ROTHAMSTED RESEARCH

Yields of the Field Experiments 1985

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Winter Oilseed Rape

Rothamsted Research

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85/R/RA/1

WINTER OILSEED RAPE

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. oilseed rape - Black Horse II.

Sponsors: C.J. Rawlinson, R.J. Darby, P.G.N. Digby, K. Evans, J.E. Leach, I.H. Williams, D.P. Yeoman.

Associate sponsors: P.B. Barraclough, D.S. Jenkinson, J. Lacey, D.S. Powlson, G.A. Rodgers, J.H. Stevenson, A.J. Thomasson, G.N. Thorne, A.H. Weir.

Design: A half replicate of 2 x 2 x 2 x 2 x 2 x 2 x 2 + 2 x 4 + 2 separate half replicates of 2 x 2 x 2 x 2 + 8 extra plots.

Whole plot dimensions: 3.0 x 17.0.

Treatments: Combinations of:-

1. SOW DATE	Dates of sowing:	
	16 AUG	16 August, 1984
	6 SEP	6 September
2. N RATE	Amounts of N fertilizer (kg N), as 'Nitro-Chalk', (27.5% N) in addition to a basal application of 50 kg N to the seedbed:	
	175	
	275	
3. N DIVIS	Division of N fertilizer application:	
	SINGLE	All on 25 February, 1985
	DIVIDED	One third on 25 February, two thirds on 25 March
4. GROWREG	Growth regulator:	
	NONE	None
	2-CHLORO	2-Chloroethylphosphonic acid applied at 1.0 l in 220 l on 23 May to early-sown plots and 29 May to late-sown plots with a wetter ('Agral' at 0.1 l)
5. INSCTCDE	Insecticides:	
	NONE	None
	DE+TR	Deltamethrin at 7.5 g in 220 l on 4 October, 1984 and 28 November, triazophos at 0.4 l in 220 l on 17 June, 1985

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6. AUT FUNG		Autumn fungicide, in addition to gamma HCH + thiram seed dressing:
	NONE	None
	PROCHLOR	Fenpropimorph seed dressing plus prochloraz at 0.5 kg in 220 l on 26 Nov
7. S FUNG		Spring and summer fungicides:
	NONE	None
	PRO+IPR	Prochloraz at 0.4 kg in 220 l on 4 April, 1985, iprodione at 1.0 kg in 220 l on 17 June

plus combinations of the following (all given growth regulator, insecticides and fungicides as above):

1. SOWDAT N		Dates of sowing:
	16 AUG	16 August, 1984
	6 SEP	6 September
2. N RATE N		Amounts of N fertilizer (kg N), as 'Nitro-Chalk', (27.5% N) in addition to a basal application of 50 kg N to the seedbed. Applied as a single dressing on 25 February, 1985:
	0	
	125	
	225	
	325	

plus combinations of the following (all given insecticides and fungicides as above, combinations chosen are those not provided by the main factorial):

1. SOWDAT P		Dates of sowing:
	16 AUG	16 August, 1984
	6 SEP	6 September
2. N RATE P		Amounts of N fertilizer (kg N), as 'Nitro-Chalk', (27.5% N) in addition to a basal application of 50 kg N to the seedbed:
	175	
	275	
3. N DIV P		Division of N fertilizer application:
	SINGLE	All on 25 February, 1985
	DIVIDED	One third on 25 February, two thirds on 25 March
4. GROREG P		Growth regulator:
	NONE	None
	2-CHLORO	2-Chloroethylphosphonic acid applied at 1.0 l in 220 l on 23 May to early sown plots and 29 May to late-sown plots with a wetter ('Agral' at 0.1 l)

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plus combinations of the following (all given fungicides as above and oxamyl at 5 kg to the seedbed):

1. SODATE OX	Dates of sowing:
16 AUG	16 August, 1984
6 SEP	6 September
2. NRATE OX	Amounts of N fertilizer (kg N), as 'Nitro-Chalk', (27.5% N) in addition to a basal application of 50 kg N to the seedbed. Applied as a single dressing on 25 February, 1985:
175	
225	
3. GRORG OX	Growth regulator:
NONE	None
2-CHLORO	2-Chloroethylphosphonic acid applied at 1.0 l in 220 l on 23 May to early-sown plots and 29 May to late-sown plots with a wetter ('Agral' at 0.1 l)
4. INSCT OX	Insecticides:
NONE	None
DE+TR	Deltamethrin at 7.5 g in 220 l on 4 October, 1984 and 28 November, triazophos at 0.4 l in 220 l on 17 June, 1985

plus three extra treatments:

EXTRA	
SE275D T	Sown 16 August, 1984 given 275 kg N, divided as above, given triapenthenol at 0.7 kg in 220 l on 17 Apr, 1985 but none of the other chemical treatments above
SE NONE	Sown 16 August, given none of the chemical treatments above
SL NONE	Sown 6 September, given none of the chemical treatments above

Three additional plots were used for 15N studies, and two for root studies, yields not taken.

Basal applications: Manures: (0:24:24) at 200 kg. 'Nitro-Chalk' (26% N) at 190 kg. Weedkillers: Paraquat at 0.60 kg ion in 200 l. Propyzamide with clopyralid (as 'Matrikerb' at 1.6 kg) in 500 l. Desiccant: Diquat at 0.60 kg ion with a wetting agent, ('Agral' at 0.5 l) in 500 l.

Seed: Bienvenu sown at 8.0 kg.

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Cultivations, etc.:- Disced twice: 31 July, 1984. PK applied: 8 Aug. N applied: 10 Aug. Paraquat applied: 15 Aug. Nematicide applied to early-sown plots, rotary harrowed in, seed sown on these plots: 16 Aug. Heavy spring-tine cultivated late-sown plots: 5 Sept. Nematicide applied to late-sown plots, rotary harrowed in, seed sown on these plots: 6 Sept. 'Matrikerb' applied: 30 Oct. Desiccant applied: 25 July, 1985. Combine harvested: 12 Aug. Previous crops: W. barley 1983 and 1984.

NOTE: Detailed observations were made during the season on diseases, pests, N in plants and soil, dry matter accumulation, leaf areas, soil water, light interception, lodging and seed shedding. Percentage of oil in grain was measured.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

NRATE	175	275	MEAN
SOWDATE			
16 AUG	3.69	3.57	3.63
6 SEP	4.18	4.38	4.28
MEAN	3.94	3.97	3.95

N DIVIS	SINGLE	DIVIDED	MEAN
SOWDATE			
16 AUG	3.72	3.54	3.63
6 SEP	4.23	4.34	4.28
MEAN	3.97	3.94	3.95

N DIVIS	SINGLE	DIVIDED	MEAN
N RATE			
175	3.86	4.01	3.94
275	4.08	3.87	3.97
MEAN	3.97	3.94	3.95

GROWREG	NONE	2-CHLORO	MEAN
SOWDATE			
16 AUG	3.87	3.38	3.63
6 SEP	4.19	4.37	4.28
MEAN	4.03	3.88	3.95

GROWREG	NONE	2-CHLORO	MEAN
N RATE			
175	4.10	3.78	3.94
275	3.96	3.98	3.97
MEAN	4.03	3.88	3.95

GROWREG	NONE	2-CHLORO	MEAN
N DIVIS			
SINGLE	4.11	3.83	3.97
DIVIDED	3.95	3.93	3.94
MEAN	4.03	3.88	3.95

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GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

INSCTCDE SOWDATE	NONE	DE+TR	MEAN
16 AUG	3.64	3.62	3.63
6 SEP	4.23	4.33	4.28
MEAN	3.93	3.97	3.95

INSCTCDE N RATE	NONE	DE+TR	MEAN
175	3.85	4.03	3.94
275	4.02	3.92	3.97
MEAN	3.93	3.97	3.95

INSCTCDE N DIVIS	NONE	DE+TR	MEAN
SINGLE	3.92	4.02	3.97
DIVIDED	3.94	3.93	3.94
MEAN	3.93	3.97	3.95

INSCTCDE GROWREG	NONE	DE+TR	MEAN
NONE	3.90	4.16	4.03
2-CHLORO	3.97	3.79	3.88
MEAN	3.93	3.97	3.95

AUT FUNG SOWDATE	NONE	PROCHLOR	MEAN
16 AUG	3.66	3.60	3.63
6 SEP	4.26	4.30	4.28
MEAN	3.96	3.95	3.95

AUT FUNG N RATE	NONE	PROCHLOR	MEAN
175	3.92	3.95	3.94
275	4.00	3.95	3.97
MEAN	3.96	3.95	3.95

AUT FUNG N DIVIS	NONE	PROCHLOR	MEAN
SINGLE	3.98	3.97	3.97
DIVIDED	3.94	3.93	3.94
MEAN	3.96	3.95	3.95

AUT FUNG GROWREG	NONE	PROCHLOR	MEAN
NONE	4.01	4.05	4.03
2-CHLORO	3.91	3.85	3.88
MEAN	3.96	3.95	3.95

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GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

AUT FUNG INSCTCDE	NONE	PROCHLOR	MEAN
NONE	3.85	4.02	3.93
DE+TR	4.07	3.88	3.97
MEAN	3.96	3.95	3.95

S FUNG SOWDATE	NONE	PRO+IPR	MEAN
16 AUG	3.64	3.62	3.63
6 SEP	4.27	4.29	4.28
MEAN	3.95	3.96	3.95

S FUNG N RATE	NONE	PRO+IPR	MEAN
175	4.02	3.85	3.94
275	3.89	4.06	3.97
MEAN	3.95	3.95	3.95

S FUNG N DIVIS	NONE	PRO+IPR	MEAN
SINGLE	4.12	3.82	3.97
DIVIDED	3.79	4.09	3.94
MEAN	3.95	3.95	3.95

S FUNG GROWREG	NONE	PRO+IPR	MEAN
NONE	4.05	4.01	4.03
2-CHLORO	3.86	3.90	3.88
MEAN	3.95	3.95	3.95

S FUNG INSCTCDE	NONE	PRO+IPR	MEAN
NONE	3.98	3.89	3.93
DE+TR	3.92	4.02	3.97
MEAN	3.95	3.95	3.95

S FUNG AUT FUNG	NONE	PRO+IPR	MEAN
NONE	3.95	3.97	3.96
PROCHLOR	3.96	3.94	3.95
MEAN	3.95	3.95	3.95

N RATE N SOWDAT N	0	125	225	325	MEAN
16 AUG	3.18	3.01	3.76	3.32	3.32
6 SEP	2.68	2.98	4.50	4.17	3.58
MEAN	2.93	3.00	4.13	3.74	3.45

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GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

N RATE P	175	275	MEAN
SOWDAT P			
16 AUG	3.61	3.35	3.48
6 SEP	4.26	4.42	4.34
MEAN	3.93	3.89	3.91

N DIV P	SINGLE	DIVIDED	MEAN
SOWDAT P			
16 AUG	3.41	3.55	3.48
6 SEP	3.94	4.74	4.34
MEAN	3.67	4.14	3.91

N DIV P	SINGLE	DIVIDED	MEAN
N RATE P			
175	3.51	4.36	3.93
275	3.84	3.93	3.89
MEAN	3.67	4.14	3.91

GROREG P	NONE	2-CHLORO	MEAN
SOWDAT P			
16 AUG	3.79	3.17	3.48
6 SEP	4.50	4.18	4.34
MEAN	4.14	3.68	3.91

GROREG P	NONE	2-CHLORO	MEAN
N RATE P			
175	4.19	3.67	3.93
275	4.09	3.68	3.89
MEAN	4.14	3.68	3.91

GROREG P	NONE	2-CHLORO	MEAN
N DIV P			
SINGLE	3.92	3.43	3.67
DIVIDED	4.36	3.92	4.14
MEAN	4.14	3.68	3.91

NRATE OX	175	275	MEAN
SODATE OX			
16 AUG	3.59	3.51	3.55
6 SEP	3.89	3.98	3.93
MEAN	3.74	3.74	3.74

GRORG OX	NONE	2-CHLORO	MEAN
SODATE OX			
16 AUG	3.88	3.22	3.55
6 SEP	3.98	3.89	3.93
MEAN	3.93	3.56	3.74

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GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

GRORG OX	NONE	2-CHLORO	MEAN
NRATE OX			
175	3.95	3.52	3.74
275	3.90	3.59	3.74
MEAN	3.93	3.56	3.74

INSCT OX	NONE	DE+TR	MEAN
SODATE OX			
16 AUG	3.72	3.38	3.55
6 SEP	3.93	3.93	3.93
MEAN	3.82	3.66	3.74

INSCT OX	NONE	DE+TR	MEAN
NRATE OX			
175	3.82	3.66	3.74
275	3.83	3.66	3.74
MEAN	3.82	3.66	3.74

INSCT OX	NONE	DE+TR	MEAN
GRORG OX			
NONE	3.99	3.86	3.93
2-CHLORO	3.65	3.46	3.56
MEAN	3.82	3.66	3.74

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

(NOT INCLUDING EXTRA PLOTS)

MARGIN OF TWO FACTOR TABLES	0.086
TWO FACTOR TABLES	0.122

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

STRATUM	DF	SE	CV%
WP	35	0.344	8.7

GRAIN MEAN DM% 85.9

PLOT AREA HARVESTED 0.00227

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85/R/RA/2

WINTER OILSEED RAPE

UREA AND INHIBITORS

Object: To study the effects of adding nitrification inhibitors to prilled urea, applied to the seedbed and in spring on the yield and nitrogen uptake of w. oilseed rape - Black Horse II.

Sponsors: G.A. Rodgers, A. Penny, M.V. Hewitt.

Design: 2 randomised blocks of 18 plots.

Whole plot dimensions: 4.0 x 20.0.

Treatments: All combinations of:-

1. N INHIB		Forms of nitrogen and nitrification inhibitor used for seedbed and spring nitrogen applications:
	AN 0	Ammonium nitrate (as 'Nitro-Chalk' (26% N)), no inhibitor
	PU 0	Prilled urea, no inhibitor
	PU DIC	Prilled urea and dicyandiamide
	PU HYD	Prilled urea and hydroquinone
2. SEEDBD N		Nitrogen rates (kg N) to seedbed (on 3 September, 1984):
	0	
	50	
3. SPRING N		Nitrogen rates (kg N) and times in spring:
	75E+75L	75 on 6 Feb, 1985 and 75 on 21 Mar.
	150M	150 on 8 Mar.

plus two extra treatments:

EXTRA	
SBD ONLY	50 kg N to seedbed only as 'Nitro-Chalk' (26% N), no inhibitor, no N in spring
NONE	No nitrogen fertilizer or inhibitor

NOTE: Dicyandiamide and hydroquinone were applied at 12.5 kg and 10 kg respectively in combination with SEEDBD N 0 and at 18 kg and 13 kg with SEEDBD N 50.

Basal applications: Manures: (0:24:24) at 200 kg. Weedkillers: Propyzamide with clopyralid (as 'Matrikerb' at 1.6 kg) in 500 l; benazolin ethyl ester at 0.30 kg with clopyralid at 0.05 kg in 200 l. Desiccant: Diquat at 0.60 kg ion with a wetting agent ('Agral' at 0.5 l) in 500 l.

Seed: Jet Neuf, seed dressed gamma HCH, thiram and fenpropimorph sown at 8 kg.

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85/R/RA/2

Cultivations, etc.:- Disced twice: 31 July, 1984. PK applied: 8 Aug. Heavy spring-tine cultivated: 5 Sept. Seed sown: 6 Sept. 'Matrikerb' applied: 30 Oct. Benazolin ethyl ester with clopyralid applied: 6 Mar, 1985. Desiccant applied: 25 July. Combine harvested: 12 Aug. Previous crops: W. barley 1983 and 1984.

NOTE: Dry matter and N contents of plants were measured in February, May and June. Oil and protein contents of grain were measured. Nitrate and ammonium levels in the soil, ammonium losses from main dressings and soil pH measurements were taken during the season. Disease incidence and severity was assessed once in April.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

SEEDBD N	0	50	MEAN
N INHIB			
AN 0	2.51	2.71	2.61
PU 0	2.10	2.19	2.14
PU DIC	2.17	2.34	2.25
PU HYD	2.25	2.52	2.38
MEAN	2.26	2.44	2.35

SPRING N	75E+75L	150M	MEAN
N INHIB			
AN 0	2.66	2.56	2.61
PU 0	2.36	1.93	2.14
PU DIC	2.33	2.18	2.25
PU HYD	2.58	2.19	2.38
MEAN	2.48	2.21	2.35

SPRING N	75E+75L	150M	MEAN
SEEDBD N			
0	2.44	2.07	2.26
50	2.52	2.36	2.44
MEAN	2.48	2.21	2.35

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85/R/RA/2

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

SEEDBD N	0		50	
SPRING N	75E+75L	150M	75E+75L	150M
N INHIB				
AN 0	2.58	2.43	2.73	2.69
PU 0	2.49	1.70	2.23	2.15
PU DIC	2.25	2.08	2.40	2.28
PU HYD	2.44	2.06	2.72	2.31

EXTRA	SBD ONLY	NONE	MEAN
	1.57	1.27	1.42

GRAND MEAN 2.24

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

TABLE	EXTRA	N INHIB	SEEDBD N	SPRING N
SED	0.190	0.095	0.067	0.067

TABLE	N INHIB SEEDBD N	N INHIB SPRING N	SEEDBD N SPRING N	N INHIB SEEDBD N SPRING N
SED	0.135	0.135	0.095	0.190

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

STRATUM	DF	SE	CV%
BLOCK.WP	17	0.190	8.5

MEAN DM% 82.1

PLOT AREA HARVESTED 0.00472

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

85/R/RA/3

WINTER OILSEED RAPE

VARIETIES AND FUNGICIDES

Object: To study the effects of times of applying fungicides on the incidence of diseases and on the yield of three varieties of w. oilseed rape - Black Horse II.

Sponsor: C.J. Rawlinson.

Design: 2 randomised blocks of 8 plots split into 3.

Whole plot dimensions: 9.0 x 17.0.

Treatments: All combinations of:-

Whole plots

1. AUT FUNG		Fungicide in autumn:
	NONE	None
	PROCHLOR	Prochloraz at 0.50 kg in 200 l on 26 Nov, 1984
2. SPR FUNG		Fungicide in spring:
	NONE	None
	PROCHLOR	Prochloraz at 0.50 kg in 500 l on 4 Apr, 1985
3. SUM FUNG		Fungicide in summer:
	NONE	None
	IPRODION	Iprodione at 1.0 kg in 500 l on 14 June

Sub plots

4. VARIETY		Varieties:
	BIENVENU	
	DARMOR	
	JET NEUF	

Basal applications: Manures: (0:24:24) at 200 kg. 'Nitro-Chalk' (26% N) at 190 kg followed by 'Nitro-Chalk' (27.5% N) at 900 kg. Weedkillers: Propyzamide with clopyralid (as 'Matrikerb' at 1.6 kg) in 500 l. Benazolin ethyl ester at 0.30 kg with clopyralid at 0.05 kg in 200 l. Desiccant: Diquat at 0.60 kg ion with a wetting agent ('Agral' at 0.5 l) in 500 l.

Seed: Varieties sown at 8 kg.

Cultivations, etc.:- Disced twice: 31 July, 1984. PK applied: 8 Aug. First N applied: 10 Aug. Seed sown: 5 Sept. 'Matrikerb' applied: 30 Oct. Second N applied: 27 Feb, 1985. Benazolin ethyl ester with clopyralid applied: 6 Mar. Desiccant with wetter applied: 25 July. Combine harvested: 12 Aug. Previous crops: W. barley 1983 and 1984.

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NOTE: Establishment counts were made in October. Dry weights and leaf areas were measured in November, March and April. Disease incidence and severity were assessed on four occasions between January and July. Seed shedding on plots was assessed from germinated grain after harvest.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

SUM FUNG / AUT FUNG	NONE	IPRODION	MEAN
NONE	3.60	3.73	3.67
PROCHLOR	3.83	3.81	3.82
MEAN	3.72	3.77	3.74

SUM FUNG / SPR FUNG	NONE	IPRODION	MEAN
NONE	3.60	3.73	3.67
PROCHLOR	3.83	3.81	3.82
MEAN	3.72	3.77	3.74

VARIETY / AUT FUNG	BIENVENU	DARMOR	JET NEUF	MEAN
NONE	4.12	3.37	3.51	3.67
PROCHLOR	4.48	3.52	3.46	3.82
MEAN	4.30	3.44	3.49	3.74

VARIETY / SPR FUNG	BIENVENU	DARMOR	JET NEUF	MEAN
NONE	4.21	3.41	3.39	3.67
PROCHLOR	4.39	3.48	3.59	3.82
MEAN	4.30	3.44	3.49	3.74

VARIETY / SUM FUNG	BIENVENU	DARMOR	JET NEUF	MEAN
NONE	4.18	3.49	3.48	3.72
IPRODION	4.42	3.39	3.50	3.77
MEAN	4.30	3.44	3.49	3.74

SUM FUNG / AUT FUNG	SPR FUNG	NONE	IPRODION
NONE	NONE	3.47	3.69
	PROCHLOR	3.73	3.78
PROCHLOR	NONE	3.74	3.78
	PROCHLOR	3.93	3.84

VARIETY / AUT FUNG	SPR FUNG	BIENVENU	DARMOR	JET NEUF
NONE	NONE	3.93	3.37	3.42
	PROCHLOR	4.30	3.36	3.60
PROCHLOR	NONE	4.48	3.44	3.35
	PROCHLOR	4.48	3.60	3.58

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GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

AUT FUNG	VARIETY SUM FUNG	BIENVENU	DARMOR	JET NEUF
NONE	NONE	3.99	3.36	3.45
	IPRODION	4.24	3.37	3.58
PROCHLOR	NONE	4.37	3.63	3.50
	IPRODION	4.59	3.42	3.43

SPR FUNG	VARIETY SUM FUNG	BIENVENU	DARMOR	JET NEUF
NONE	NONE	4.09	3.43	3.29
	IPRODION	4.33	3.39	3.48
PROCHLOR	NONE	4.27	3.56	3.66
	IPRODION	4.51	3.40	3.52

AUT FUNG	SPR FUNG	VARIETY SUM FUNG	BIENVENU	DARMOR	JET NEUF
NONE	NONE	NONE	3.73	3.33	3.34
		IPRODION	4.13	3.42	3.51
	PROCHLOR	NONE	4.25	3.39	3.56
		IPRODION	4.36	3.32	3.64
PROCHLOR	NONE	NONE	4.44	3.53	3.25
		IPRODION	4.52	3.36	3.45
	PROCHLOR	NONE	4.30	3.73	3.75
		IPRODION	4.66	3.47	3.40

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

TABLE	AUT FUNG	SPR FUNG	SUM FUNG	VARIETY
SED	0.056	0.056	0.056	0.090

TABLE	AUT FUNG SPR FUNG	AUT FUNG SUM FUNG	SPR FUNG SUM FUNG	AUT FUNG VARIETY
SED	0.079	0.079	0.079	0.118
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
AUT FUNG				0.127

TABLE	SPR FUNG VARIETY	SUM FUNG VARIETY	AUT FUNG SPR FUNG SUM FUNG	AUT FUNG SPR FUNG VARIETY
SED	0.118	0.118	0.111	0.167
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
SPR FUNG	0.127			
SUM FUNG		0.127		
AUT FUNG.SPR FUNG				0.180

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85/R/RA/3

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

TABLE	AUT FUNG SUM FUNG VARIETY	SPR FUNG SUM FUNG VARIETY	AUT FUNG SPR FUNG SUM FUNG VARIETY
SED	0.167	0.167	0.236
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
AUT FUNG.SUM FUNG	0.180		
SPR FUNG.SUM FUNG		0.180	
AUT FUNG.SPR FUNG.SUM FUNG			0.254

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

STRATUM	DF	SE	CV%
BLOCK.WP	7	0.111	3.0
BLOCK.WP.SP	16	0.254	6.8

GRAIN MEAN DM% 88.4

SUB PLOT AREA HARVESTED 0.00389

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85/R/RA/5

WINTER OILSEED RAPE

FUNGICIDES AND SPRAY ADDITIVE

Object: To study the effects of times of applying a spray additive and two fungicides, singly and together, on the incidence of diseases and on the yield of w. oilseed rape - Black Horse II.

Sponsor: C.J. Rawlinson.

Design: 2 randomised blocks of 18 plots.

Whole plot dimensions: 3.0 x 12.0.

Treatments: All combinations of:-

1. ADDITIVE	Spray additive:	
	NONE	None
	MIN OIL	Mineral oil, 'Actipron' at 5.0 l
2. FUNGCIDE	Fungicides, applied at 0.5 kg:	
	BENOMYL	Benomyl
	PROCHLOR	Prochloraz
3. APP TIME	Times of applying fungicide:	
	AUTUMN	Autumn, on 26 Nov, 1984
	SPRING	Spring, on 4 Apr, 1985
	AUT+SPNG	Autumn and spring as above

plus four extra treatments:

EXTRA	
NONE	None (triplicated)
MINOIL A	Mineral oil as above in autumn
MINOIL S	Mineral oil as above in spring
MINOILAS	Mineral oil as above in autumn and spring

NOTE: Fungicide and mineral oil treatments were applied in 200 l of water in autumn and 500 l in spring.

Basal applications: Manures: (0:24:24) at 200 kg. 'Nitro-Chalk' (26% N) at 190 kg followed by 'Nitro-Chalk' (27.5% N) at 900 kg. Weedkillers: Propyzamide with clopyralid (as 'Matrikerb' at 1.6 kg) in 500 l. Benazolin ethyl ester at 0.30 kg with clopyralid at 0.05 kg in 200 l. Desiccant: Diquat at 0.60 kg ion with a wetting agent ('Agral' at 0.5 l) in 500 l.

Seed: Jet Neuf, seed dressed gamma HCH, thiram and fenpropimorph, sown at 8 kg.

Cultivations, etc.:- Disced twice: 31 July, 1984. PK applied: 8 Aug. First N applied: 10 Aug. Seed sown: 6 Sept. 'Matrikerb' applied: 30 Oct. Second N applied: 27 Feb, 1985. Benazolin ethyl ester with clopyralid applied: 6 Mar. Desiccant applied: 25 July. Combine harvested: 12 Aug. Previous crops: W. barley 1983 and 1984.

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NOTE: Establishment counts were made in November. Disease incidence and severity were assessed on five occasions between January and July. Seed shedding on plots was assessed from germinated grain after harvest.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

FUNGCIDE ADDITIVE	BENOMYL	PROCHLOR	MEAN
NONE	3.50	3.63	3.57
MIN OIL	3.68	3.43	3.56
MEAN	3.59	3.53	3.56

APP TIME ADDITIVE	AUTUMN	SPRING	AUT+SPNG	MEAN
NONE	3.42	3.46	3.82	3.57
MIN OIL	3.47	3.55	3.65	3.56
MEAN	3.45	3.51	3.73	3.56

APP TIME FUNGCIDE	AUTUMN	SPRING	AUT+SPNG	MEAN
BENOMYL	3.56	3.44	3.79	3.59
PROCHLOR	3.33	3.58	3.68	3.53
MEAN	3.45	3.51	3.73	3.56

FUNGCIDE	BENOMYL			PROCHLOR		
APP TIME	AUTUMN	SPRING	AUT+SPNG	AUTUMN	SPRING	AUT+SPNG
ADDITIVE						
NONE	3.48	3.29	3.75	3.37	3.64	3.89
MIN OIL	3.64	3.58	3.83	3.30	3.52	3.46

EXTRA	NONE	MINOIL A	MINOIL S	MINOILAS	MEAN
	3.62	3.67	3.68	3.24	3.57

GRAND MEAN 3.57

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85/R/RA/5

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

TABLE	EXTRA	ADDITIVE	FUNGCIDE	APP TIME	
SED	0.404 0.297	0.165	0.165	0.202	MIN REP MAX-MIN

TABLE	ADDITIVE FUNGCIDE	ADDITIVE APP TIME	FUNGCIDE APP TIME	ADDITIVE FUNGCIDE APP TIME
SED	0.233	0.286	0.286	0.404

	EXTRA
MAX-MIN	NONE V ANY OF THE REMAINDER
MIN REP	ANY OF THE REMAINDER

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

STRATUM	DF	SE	CV%
BLOCK.WP	19	0.404	11.3

GRAIN MEAN DM% 86.8

PLOT AREA HARVESTED 0.00271

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85/R/RA/6

WINTER OILSEED RAPE

GROWTH REGULATORS

Object: To study the effects of a range of materials on the control of fungi and on the growth and the yield of w. oilseed rape - Black Horse II.

Sponsors: C.J. Rawlinson, D.P. Yeoman.

Design: 3 randomised blocks of 7 plots.

Whole plot dimensions: 3.0 x 10.0.

Treatments:

CHEMICAL	Chemicals:
NONE	None
BAS11100	'BAS 11100W' at 6.7 l
MEPIQUAT	Mepiquat chloride + ethephon (as 'Terpal' at 3.0 l)
MEP+PROP	Mepiquat chloride + ethephon + propiconazole
PROPICON	Propiconazole at 0.12 kg
PROCHLOR	Prochloraz at 0.40 kg
TRIAPENT	Triapenthenol (as 'UK 140' at 0.7 kg)

NOTES: (1) Treatments were applied in 220 l on 17 Apr, 1985.
(2) Mepiquat chloride + ethephon were applied with a wetting agent ('Citowett' at 0.1 l).

Basal applications: Manures: (0:24:24) at 200 kg. 'Nitro-Chalk' (26% N) at 190 kg followed by 'Nitro-Chalk' (27.5% N) at 900 kg. Weedkillers: Propyzamide with clopyralid (as 'Matrikerb' at 1.6 kg) in 500 l. Benazolin ethyl ester at 0.30 kg with clopyralid at 0.05 kg in 200 l. Desiccant: Diquat at 0.60 kg ion with a wetting agent ('Agral' at 0.5 l) in 500 l.

Seed: Jet Neuf, seed dressed gamma HCH, thiram and fenpropimorph, sown at 8 kg.

Cultivations, etc.:- Disced twice: 31 July, 1984. PK applied: 8 Aug. First N applied: 10 Aug. Seed sown: 6 Sept. 'Matrikerb' applied: 30 Oct. Second N applied: 27 Feb, 1985. Benazolin ethyl ester with clopyralid applied: 6 Mar. Desiccant with wetter applied: 25 July. Combine harvested: 12 Aug. Previous crops: W. barley 1983 and 1984.

NOTE: Disease incidence and severity was assessed on four occasions between April and July. Plant height, internode length, branch number and length, growth stage, flowering and petal size measurements were made in May and July. Lodging was assessed in July. Seed shedding on plots was assessed from germinated grain after harvest.

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85/R/RA/6

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

CHEMICAL	NONE	BAS11100	MEPIQUAT	MEP+PROP	PROPICON	PROCHLOR	TRIAPENT	ME
	3.00	2.89	2.99	3.49	3.32	3.21	3.28	3.

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

TABLE	CHEMICAL
SED	0.180

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

STRATUM	DF	SE	CV%
BLOCK.WP	12	0.220	6.9

GRAIN MEAN DM% 87.7

PLOT AREA HARVESTED 0.00231

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