

Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readable, or you suspect there are some problems, please let us know and we will correct that.



ROTHAMSTED
RESEARCH

Yields of the Field Experiments 1985

[Full Table of Content](#)

Rothamsted Experimental Station
Harpenden
Herts
AL5 2JQ
UK
Tel: 0454 6181
Fax: 0454 6182
Email: eradoc@ Rothamsted.ac.uk

Winter Oilseed Rape

Rothamsted Research

Rothamsted Research (1986) *Winter Oilseed Rape* ; Yields Of The Field Experiments 1985, pp 285 - 304 - DOI: <https://doi.org/10.23637/ERADOC-1-19>

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 $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 + 2 \times 4 + 2$ separate half replicates of $2 \times 2 \times 2 \times 2 + 8$ 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

85/R/RA/1

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)

85/R/RA/1

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.

85/R/RA/1

Cultivations, etc.:- Discd 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 |

85/R/RA/1

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

| | | | |
|----------|------|----------|------|
| INSCTCDE | NONE | DE+TR | MEAN |
| SOWDATE | | | |
| 16 AUG | 3.64 | 3.62 | 3.63 |
| 6 SEP | 4.23 | 4.33 | 4.28 |
| MEAN | 3.93 | 3.97 | 3.95 |
| INSCTCDE | NONE | DE+TR | MEAN |
| N RATE | | | |
| 175 | 3.85 | 4.03 | 3.94 |
| 275 | 4.02 | 3.92 | 3.97 |
| MEAN | 3.93 | 3.97 | 3.95 |
| INSCTCDE | NONE | DE+TR | MEAN |
| N DIVIS | | | |
| SINGLE | 3.92 | 4.02 | 3.97 |
| DIVIDED | 3.94 | 3.93 | 3.94 |
| MEAN | 3.93 | 3.97 | 3.95 |
| INSCTCDE | NONE | DE+TR | MEAN |
| GROWREG | | | |
| NONE | 3.90 | 4.16 | 4.03 |
| 2-CHLORO | 3.97 | 3.79 | 3.88 |
| MEAN | 3.93 | 3.97 | 3.95 |
| AUT FUNG | NONE | PROCHLOR | MEAN |
| SOWDATE | | | |
| 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 | NONE | PROCHLOR | MEAN |
| N RATE | | | |
| 175 | 3.92 | 3.95 | 3.94 |
| 275 | 4.00 | 3.95 | 3.97 |
| MEAN | 3.96 | 3.95 | 3.95 |
| AUT FUNG | NONE | PROCHLOR | MEAN |
| N DIVIS | | | |
| SINGLE | 3.98 | 3.97 | 3.97 |
| DIVIDED | 3.94 | 3.93 | 3.94 |
| MEAN | 3.96 | 3.95 | 3.95 |
| AUT FUNG | NONE | PROCHLOR | MEAN |
| GROWREG | | | |
| NONE | 4.01 | 4.05 | 4.03 |
| 2-CHLORO | 3.91 | 3.85 | 3.88 |
| MEAN | 3.96 | 3.95 | 3.95 |

85/R/RA/1

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

| | | | | | |
|----------|------|----------|------|------|------|
| AUT FUNG | NONE | PROCHLOR | MEAN | | |
| INSCTCDE | | | | | |
| NONE | 3.85 | 4.02 | 3.93 | | |
| DE+TR | 4.07 | 3.88 | 3.97 | | |
| MEAN | 3.96 | 3.95 | 3.95 | | |
| S FUNG | NONE | PRO+IPR | MEAN | | |
| SOWDATE | | | | | |
| 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 | NONE | PRO+IPR | MEAN | | |
| N RATE | | | | | |
| 175 | 4.02 | 3.85 | 3.94 | | |
| 275 | 3.89 | 4.06 | 3.97 | | |
| MEAN | 3.95 | 3.95 | 3.95 | | |
| S FUNG | NONE | PRO+IPR | MEAN | | |
| N DIVIS | | | | | |
| SINGLE | 4.12 | 3.82 | 3.97 | | |
| DIVIDED | 3.79 | 4.09 | 3.94 | | |
| MEAN | 3.95 | 3.95 | 3.95 | | |
| S FUNG | NONE | PRO+IPR | MEAN | | |
| GROWREG | | | | | |
| NONE | 4.05 | 4.01 | 4.03 | | |
| 2-CHLORO | 3.86 | 3.90 | 3.88 | | |
| MEAN | 3.95 | 3.95 | 3.95 | | |
| S FUNG | NONE | PRO+IPR | MEAN | | |
| INSCTCDE | | | | | |
| NONE | 3.98 | 3.89 | 3.93 | | |
| DE+TR | 3.92 | 4.02 | 3.97 | | |
| MEAN | 3.95 | 3.95 | 3.95 | | |
| S FUNG | NONE | PRO+IPR | MEAN | | |
| AUT FUNG | | | | | |
| NONE | 3.95 | 3.97 | 3.96 | | |
| PROCHLOR | 3.96 | 3.94 | 3.95 | | |
| MEAN | 3.95 | 3.95 | 3.95 | | |
| N RATE N | 0 | 125 | 225 | 325 | MEAN |
| SOWDAT N | | | | | |
| 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 |

85/R/RA/1

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 |

85/R/RA/1

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 |

| | | | |
|-----------|------|-------|------|
| IN SCT 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 |

| | | | |
|-----------|------|-------|------|
| IN SCT 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 |

| | | | |
|-----------|------|-------|------|
| IN SCT 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

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.

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 O | 2.51 | 2.71 | 2.61 |
| PU O | 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 O | 2.66 | 2.56 | 2.61 |
| PU O | 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 |

85/R/RA/2

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

| SEEDBD N | 0 | 150M | 50 | 150M |
|----------|---------|------|---------|------|
| SPRING N | 75E+75L | | 75E+75L | |
| 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

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.: - Discd 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.

85/R/RA/3

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 | NONE | IPRODION | MEAN | |
| AUT FUNG | | | | |
| | NONE | 3.60 | 3.73 | 3.67 |
| PROCHLOR | 3.83 | 3.81 | | 3.82 |
| MEAN | 3.72 | 3.77 | | 3.74 |
| SUM FUNG | NONE | IPRODION | MEAN | |
| SPR FUNG | | | | |
| | NONE | 3.60 | 3.73 | 3.67 |
| PROCHLOR | 3.83 | 3.81 | | 3.82 |
| MEAN | 3.72 | 3.77 | | 3.74 |
| VARIETY | BIENVENU | DARMOR | JET NEUF | MEAN |
| AUT FUNG | | | | |
| | NONE | 4.12 | 3.37 | 3.51 |
| PROCHLOR | 4.48 | 3.52 | 3.46 | 3.82 |
| MEAN | 4.30 | 3.44 | 3.49 | 3.74 |
| VARIETY | BIENVENU | DARMOR | JET NEUF | MEAN |
| SPR FUNG | | | | |
| | NONE | 4.21 | 3.41 | 3.39 |
| PROCHLOR | 4.39 | 3.48 | 3.59 | 3.82 |
| MEAN | 4.30 | 3.44 | 3.49 | 3.74 |
| VARIETY | BIENVENU | DARMOR | JET NEUF | MEAN |
| SUM FUNG | | | | |
| | NONE | 4.18 | 3.49 | 3.48 |
| IPRODION | 4.42 | 3.39 | 3.50 | 3.77 |
| MEAN | 4.30 | 3.44 | 3.49 | 3.74 |
| AUT FUNG | SUM FUNG | NONE | IPRODION | |
| | SPR FUNG | | | |
| | NONE | 3.47 | 3.69 | |
| | PROCHLOR | 3.73 | 3.78 | |
| PROCHLOR | NONE | 3.74 | 3.78 | |
| | PROCHLOR | 3.93 | 3.84 | |
| AUT FUNG | VARIETY | BIENVENU | DARMOR | JET NEUF |
| | SPR FUNG | | | |
| | 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 |

85/R/RA/3

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

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

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

| | VARIETY | BIENVENU | DARMOR | JET NEUF |
|----------|----------|----------|--------|----------|
| AUT FUNG | SPR FUNG | SUM FUNG | | |
| NONE | NONE | NONE | 3.73 | 3.33 |
| | | IPRODION | 4.13 | 3.42 |
| PROCHLOR | PROCHLOR | NONE | 4.25 | 3.39 |
| | | IPRODION | 4.36 | 3.32 |
| | NONE | NONE | 4.44 | 3.53 |
| | | IPRODION | 4.52 | 3.36 |
| | PROCHLOR | NONE | 4.30 | 3.73 |
| | | IPRODION | 4.66 | 3.47 |

***** 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 |

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

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. FUNGICIDE 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.: - Discd 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.

85/R/RA/5

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

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 | | |

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.: - Discd 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.

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