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Winter Oilseed Rape

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98/R/RAW/1

WINTER OILSEED RAPE

GROWTH OF WEEDS AND RAPE

Object: To investigate factors influencing the vigour of winter rape grown in competition with chickweed and barley - Summerdells II.

Sponsors: P.J.W. Lutman.

Design: 48 plots single replicate.

Whole plot dimensions: 3.0 x 16.0.

Treatments: All singly and certain combinations of:

1. **BARL DEN** Barley (cultivar Gleam), target plants per m²:

B0	0
B1	20
B2	40
B3	60
B4	80
B5	100
B6	120
B7	150
B8	180
B9	220
B10	260
B11	300
B12	400

2. **CHCK DEN** Chickweed (*stellaria media*), target plants per m²:

C0	0
C1	30
C2	60
C3	90
C4	120
C5	150
C6	180
C7	220
C8	280
C9	340
C10	400
C11	600
C12	800

NOTE: B0.C0 combination was quadruplicated.

Experimental diary:

11-Aug-97 : B : Discd.

15-Aug-97 : B : Ploughed and furrow pressed.

01-Sep-97 : B : Rotary harrowed.

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Experimental diary:

01-Sep-97 : T : Barley and chickweed seed broadcast as treatment.
 : B : Apex, dressed Vitavax RS, drilled at 120 seeds per m².
24-Sep-97 : B : Cyperkill 10 at 250 ml in 200 l.
29-Oct-97 : T : **CHCK DEN** C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11,
 C12 **BARL DEN** B0 **CHCK DEN** C0: Laser at 1.0 l with Atlas
 Adjuvant Oil at 1.8 l in 220 l.
 : T : : **BARL DEN** B0 **CHCK DEN** C0: Clayton Metazachlor at 1.5 l
 in 220 l.
07-Nov-97 : B : Punch C at 0.4 l in 200 l. Cyperkill 10 at 250 ml in
 200 l.
04-Feb-98 : B : 34.5% N at 290 kg.
17-Feb-98 : B : Folicur at 0.5 l in 200 l.
02-Mar-98 : B : 34.5% N at 350 kg.
27-Apr-98 : B : Ronilan FL at 1.0 l in 200 l.
08-May-98 : B : Fastac at 200 ml in 260 l.
15-Jul-98 : B : Reglone at 3.0 l with Headland Enhance LF at 400 ml in
 400 l.
24-Jul-98 : B : Combine harvested.

Previous crops: W. wheat 1996, w. barley 1997.

- NOTES:**
- (1) Plant populations were assessed in autumn. Plant samples were taken in November, March, May and July to measure relative amounts of biomass. Number of rape flower heads were estimated in April and before harvest an assessment of lodging was made.
 - (2) The grain yields from all plots contained weed seeds. A sample weighing over 2 kg was taken from each plot. This sample was weighed before and after the removal of weed seeds. These figures were used to estimate the cleaned grain yield.
 - (3) Two plots were removed from the analysis; B8.C3 because of animal damage; B8.C10 because of severe early lodging.

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GRAIN TONNES/HECTARE

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

CHCK DEN	C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
BARL DEN													
B0	4.91	4.49	4.40	4.29	4.37	5.04	4.78	4.54	4.23	4.72	4.61	4.58	4.22
B1	4.47			4.53		4.03		4.58			4.49		
B2	4.79			4.47		4.41		3.91			3.48		
B3	5.11												
B4	4.92			5.16		4.52		4.62			3.93		
B5	4.76												
B6	4.41			3.27		3.87		3.87			3.76		
B7	4.51												
B8	5.25					3.60		4.11					
B9	4.37												
B10	5.56												
B11	4.60												
B12	5.00												

GRAIN MEAN DM% 88.7

CLEAN GRAIN TONNES/HECTARE, AFTER REMOVING WEED SEEDS

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

CHCK DEN	C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
BARL DEN													
B0	4.81	4.31	4.21	4.18	4.29	4.96	4.73	4.40	4.18	4.66	4.55	4.42	4.14
B1	3.73			4.40		3.87		4.25			4.37		
B2	3.94			4.17		4.29		3.61			3.26		
B3	3.48												
B4	4.69			4.73		4.29		4.29			2.62		
B5	4.09												
B6	4.12			2.96		2.90		2.92			2.45		
B7	4.07												
B8	4.19					2.60		2.60					
B9	3.85												
B10	5.11												
B11	3.96												
B12	3.91												

PLOT AREA HARVESTED 0.00301

98/R/RAW/3

WINTER OILSEED RAPE

VARIETIES, FUNGICIDE AND DISEASE

Object: To study the development of light leaf spot (*Pyrenopeziza brassicae*) and stem canker (*Leptosphaeria maculans*) and to measure yield loss under various fungicide regimes - Summerdells II.

Sponsors: B.D.L. Fitt, J. Steed.

Design: 3 blocks of 10 plots split into 2.

Whole plot dimensions: 3.0 x 20.0.

Treatments:

Whole plots

1. **FUNGICIDE** Fungicide rate (kg) and timing:
- | | |
|----|---|
| - | None |
| R | Tebuconazole at 0.125 kg monthly October to April |
| O | Tebuconazole at 0.25 kg in October |
| N | Tebuconazole at 0.25 kg in November |
| D | Tebuconazole at 0.25 kg in December |
| OS | Tebuconazole at 0.125 kg in October and spring |
| NS | Tebuconazole at 0.125 kg in November and spring |
| DS | Tebuconazole at 0.125 kg in December and spring |
| SF | Tebuconazole at 0.25 kg in spring |
| FF | Tebuconazole at 0.25 kg during flowering |

Sub plots

2. **CULTIVAR** Variety:
- | | |
|---|---------|
| B | Bristol |
| C | Capitol |

Experimental diary:

- 11-Aug-97 : B : Disced.
15-Aug-97 : B : Ploughed and furrow pressed.
29-Aug-97 : T : **CULTIVAR** B: Rotary harrowed, Bristol, dressed Lindex-
Plus FS Seed Treatment, drilled at 120 seeds per m².
29-Aug-97 : T : **CULTIVAR** C: Rotary harrowed, Capitol, dressed Lindex-
Plus FS Seed Treatment, drilled at 120 seeds per m².
24-Sep-97 : B : Cyperkill 10 at 250 ml in 200 l.
03-Oct-97 : B : Butisan S at 1.5 l in 200 l.
23-Oct-97 : T : **FUNGICIDE** R, OS: Folicur at 0.5 l in 260 l.
: T : **FUNGICIDE** O: Folicur at 1.0 l in 260 l.
07-Nov-97 : B : Cyperkill 10 at 250 ml in 200 l.
21-Nov-97 : T : **FUNGICIDE** R, NS: Folicur at 0.5 l in 200 l.
: T : **FUNGICIDE** N: Folicur at 1.0 l in 200 l.
14-Dec-97 : T : **FUNGICIDE** R, DS: Folicur at 0.5 l in 200 l.

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Experimental diary:

14-Dec-97 : T : **FUNGCIDE** D: Folicur at 1.0 l in 200 l.
23-Jan-98 : T : **FUNGCIDE** R: Folicur at 1.0 l in 220 l.
04-Feb-98 : B : 34.5% N at 290 kg.
19-Feb-98 : B : Laser at 0.75 l with Chiltern Cropoil at 1.0 l in 100 l.
25-Feb-98 : T : **FUNGCIDE** R: Folicur at 1.0 l in 220 l.
02-Mar-98 : B : 34.5% N at 350 kg.
20-Mar-98 : T : **FUNGCIDE** SF: Folicur at 1.0 l in 200 l.
20-Mar-98 : T : **FUNGCIDE** R: Folicur at 0.5 l in 200 l.
22-Apr-98 : T : **FUNGCIDE** FF: Folicur at 1.0 l in 200 l.
08-May-98 : B : Fastac at 200 ml in 260 l.
15-Jul-98 : B : Reglone at 3.0 l with Headland Enhance LF at 400 ml in
400 l.
22-Jul-98 : B : Combine harvested.

Previous crops: W. wheat 1996, w. barley 1997.

NOTE: Plant samples were taken monthly from October to July for disease assessments. Oil content and grain specific weight were measured at harvest.

98/R/RAW/3

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

CULTIVAR FUNGIDE	B	C	Mean
-	2.47	3.09	2.78
R	4.34	4.37	4.35
O	2.77	3.57	3.17
N	2.88	3.35	3.11
D	2.80	3.44	3.12
OS	3.29	3.98	3.63
NS	3.41	3.76	3.58
DS	3.37	3.93	3.65
SF	3.66	3.88	3.77
FF	3.47	3.70	3.59
Mean	3.25	3.71	3.48

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

FUNGIDE	CULTIVAR	FUNGIDE CULTIVAR
0.102	0.070	0.187
Except when comparing means with the same level(s) of		
FUNGIDE		0.222

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP.SP	20	0.272	7.8
GRAIN MEAN DM%	88.2		
SUB-PLOT AREA HARVESTED	0.00391		

98/R/RAW/5

WINTER OILSEED RAPE

STEM CANKER STUDY

Object: To test fungicidal spray programmes on two varieties of oilseed rape - Highfield V.

Sponsors: B.D.L. Fitt, J.E. Biddulph, J.S. West, R.H. Williams.

Design: 4 blocks of 5 plots split into 2 sub-plots.

Whole plot dimensions: 3.0 x 15.0.

Treatments:

1. **FUNGICIDE** Difenoconazole and carbendazim (as Plover 250 EC at 0.5 l and Campbell's Carbendazim 50% Flowable at 0.5 l):

-	None
S-F	Applied on five occasions
O-F	Applied on four occasions
N-F	Applied on three occasions
A	Applied on three occasions

2. **CULTIVAR**

C	Capitol
L	Lipton

Experimental diary:

25-Jul-97 : B : Discd.
14-Aug-97 : B : Ploughed and furrow pressed.
26-Aug-97 : T : Rotary harrowed, cultivars, undressed, drilled at 120 seeds per m². Rolled
17-Sep-97 : B : Butisan S at 1.5 l with Cyperkill 10 at 250 ml in 200 l.
24-Sep-97 : T : **FUNGICIDE** S-F: Fungicides applied in 200 l.
23-Oct-97 : T : **FUNGICIDE** S-F, O-F, A: Fungicides applied in 260 l.
07-Nov-97 : B : Cyperkill 10 at 250 ml in 200 l.
13-Nov-97 : T : **FUNGICIDE** A: Fungicides applied in 200 l.
26-Nov-97 : T : **FUNGICIDE** S-F, O-F, N-F: Fungicides applied in 200 l.
16-Jan-98 : T : **FUNGICIDE** S-F, O-F, N-F: Fungicides applied in 200 l.
04-Feb-98 : B : 34.5% N at 290 kg.
19-Feb-98 : B : Laser at 0.75 l with Chiltern Cropoil at 1.0 l in 100 l.
24-Feb-98 : T : **FUNGICIDE** S-F, O-F, N-F, A: Fungicides applied in 200 l.
02-Mar-98 : B : 34.5% N at 350 kg.
05-May-98 : B : Fastac at 200 ml in 200 l.
10-Jul-98 : B : Reglone at 3.0 l with Headland Enhance LF at 400 ml in 400 l.
19-Jul-98 : B : Combine harvested.

Previous crops W. wheat and barley 1996, w. barley 1997.

98/R/RAW/5

NOTE: Plant samples were taken regularly through the growing season for disease assessments. Harvested grain was analysed for oil content.

GRAIN TONNES/HECTARE

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

CULTIVAR FUNGCIDE	C	L	Mean
-	1.78	2.30	2.04
S-F	2.53	2.92	2.72
O-F	2.55	2.77	2.66
N-F	2.53	3.14	2.84
A	2.86	2.44	2.65
Mean	2.45	2.71	2.58

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

FUNGCIDE	CULTIVAR	FUNGCIDE CULTIVAR
0.189	0.107	0.254

Except when comparing means with the same level(s) of
FUNGCIDE 0.239

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	12	0.268	10.4
BLOCK.WP.SP	15	0.338	13.1

GRAIN MEAN DM% 83.1

SUB-PLOT AREA HARVESTED 0.00156

98/R/RAW/6

WINTER OILSEED RAPE

WEEDS IN WINTER RAPE

Object: To study the competitive abilities of six broad leaved weeds in winter oilseed rape - Summerdells II.

Sponsors: P.J.W. Lutman.

Design: 3 blocks of (6 x 3) + 2 plots.

Whole plot dimensions: 3.0 x 16.0.

Treatments: All combinations of:-

1. **WEEDS**

VP	<i>Veronica persicae</i>
GA	<i>Galium aparine</i>
SM	<i>Stellaria media</i>
VA	<i>Viola arvensis</i>
PR	<i>Papaver rhoeas</i>
CB	<i>Capsella bursa-patoris</i>

2. **DENSITY**

L	Low
M	Medium
H	High

Plus extra

EXTRA

- None (duplicated)

Experimental diary:

11-Aug-97 : B : Disced.
15-Aug-97 : B : Ploughed and furrow pressed.
02-Sep-97 : B : Rotary harrowed. Weed seeds broadcast as treatment.
Rotary harrowed, Apex, dressed Vitavax RS, drilled at 120 seeds per m².
24-Sep-97 : B : Cyperkill 10 at 250 ml in 200 l.
29-Oct-97 : T : **EXTRA** -: Clayton Metazachlor at 1.5 l in 220 l.
30-Oct-97 : B : Laser at 1.0 l with Sprayprover at 1.8 l in 200 l.
07-Nov-97 : B : Punch C at 0.4 l in 200 l. Cyperkill 10 at 250 ml in 200 l.
04-Feb-98 : B : 34.5% N at 290 kg.
17-Feb-98 : B : Folicur at 0.5 l in 200 l.
02-Mar-98 : B : 34.5% N at 350 kg.
27-Apr-98 : B : Ronilan FL at 1.0 l in 200 l.
08-May-98 : B : Fastac at 200 ml in 260 l.

98/R/RAW/6

Experimental diary:

15-Jul-98 : B : Reglone at 3.0 l with Headland Enhance LF at 400 ml in
400 l.
22-Jul-98 : B : Combine harvested.

Previous crops: W. wheat 1996, w. barley 1997.

- NOTES:** (1) Plant populations were assessed in October, December and March. Rape height and relative plant biomass was measured in January, April and June.
(2) Because of poor establishment the yield of one plot with **WEEDS SM DENSITY H** was lost. An estimated value was used in the analysis.
(3) *Capsella bursa-patoris* failed to establish. **WEEDS CB** plots were treated as **EXTRA** plots in the analysis.

GRAIN TONNES/HECTARE

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

DENSITY	L	M	H	Mean
WEEDS				
VP	3.99	4.12	4.14	4.08
GA	4.03	4.14	4.05	4.07
SM	4.17	3.86	4.05	4.03
VA	3.69	4.02	4.17	3.96
PR	4.03	4.29	4.15	4.16
Mean	3.98	4.09	4.11	4.06

EXTRA 4.11

Grand mean 4.07

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

WEEDS	DENSITY	WEEDS DENSITY
0.108	0.084	0.187

SED for comparing **EXTRA** with any item in **WEEDS.DENSITY** table is 0.145

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	41	0.230	5.6

GRAIN MEAN DM% 91.8

PLOT AREA HARVESTED 0.00301

98/R/RAW/8

WINTER OILSEED RAPE

PEST CONTROL IN WINTER RAPE

Object: To test conventional and novel pest control agents - Great Harpenden I.

Sponsors: B.J. Pye, L.E. Smart.

Design: 4 blocks of 3 plots.

Whole plot dimensions: 3.0 x 10.0.

Treatments:

PESTCONT

-	None
I	Deltamethrin
U	<i>Metarhizium anisopliae</i>

Experimental diary:

26-Aug-97 : B : Ploughed and furrow pressed. Rolled.
27-Aug-97 : B : Rotary harrowed, Apex, undressed, drilled at 120 seeds per m².
03-Oct-97 : B : Clayton Metazachlor at 1.5 l in 200 l.
14-Oct-97 : T : **PESTCONT** U: *Metarhizium anisopliae* in 10 l.
22-Oct-97 : T : **PESTCONT** U: *Metarhizium anisopliae* in 10 l.
27-Oct-97 : T : **PESTCONT** U: *Metarhizium anisopliae* in 10 l.
29-Oct-97 : T : **PESTCONT** I: Decis at 500 g in 200 l.
07-Nov-97 : B : Punch C at 0.4 l in 200 l.
12-Nov-97 : T : **PESTCONT** U: *Metarhizium anisopliae* in 10 l.
04-Feb-98 : B : 34.5% N at 290 kg.
17-Feb-98 : B : Folicur at 0.5 l in 200 l.
19-Feb-98 : B : Laser at 0.75 l with Chiltern Cropoil at 1.0 l in 100 l.
02-Mar-98 : B : 34.5% N at 350 kg.
27-Mar-98 : T : **PESTCONT** U: *Metarhizium anisopliae* in 10 l.
02-Apr-98 : T : **PESTCONT** I: Decis at 500 g in 200 l.
08-Apr-98 : T : **PESTCONT** U: *Metarhizium anisopliae* in 10 l.
17-Apr-98 : T : **PESTCONT** U: *Metarhizium anisopliae* in 10 l.
27-Apr-98 : T : **PESTCONT** U: *Metarhizium anisopliae* in 10 l.
16-Jul-98 : B : Reglone at 3.0 l with Headland Enhance LF at 400 ml in 400 l.
24-Jul-98 : B : Combine harvested.

Previous crops: S. barley 1996, w. wheat 1997.

98/R/RAW/8

NOTE: Plant samples were taken in December and February to assess cabbage stem flea beetle and stem weevil damage. Raceme samples were taken in April to assess pollen beetle damage. Pod samples were taken in June to assess seed weevil damage.

GRAIN TONNES/HECTARE

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

PESTCONT

-	4.24
I	4.46
U	4.07
Mean	4.26

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

PESTCONT

0.162

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	6	0.230	5.4
GRAIN MEAN DM%	90.9		
PLOT AREA HARVESTED	0.00230		