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Winter Oilseed Rape

Rothamsted Research

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94/R/RAW/3

WINTER OILSEED RAPE

EFFECTS OF BEHAVIOUR MODIFYING CHEMICALS

Object: To study the effects of behaviour modifying chemicals in the field on the pests of w. oilseed rape - Appletree.

Sponsors: L.E. Smart, M.M. Blight.

Design: 5 x 5 quasi-complete Latin square.

Whole plot dimensions: 9.0 x 9.0.

Treatments:

CHEMICAL	Type of behaviour modifying chemical released:
-	None
A	A
B	B
C	C
D	D

NOTE: The behaviour modifying chemicals were mixtures of host plant volatiles in various combinations. They were released from point sources above the crop from October 1993 until mid-June 1994.

Experimental diary:

19-Jul-93 : B : Cultivated by rotary grubber.
29-Jul-93 : B : Deep tine cultivated with vibrating tines 60 cm apart, 45 cm deep.
02-Aug-93 : B : Rolled.
16-Aug-93 : B : PK as (0:18:36) at 1250 kg.
18-Aug-93 : B : Ploughed and furrow pressed, rolled.
23-Sep-93 : B : Rotary harrowed, Envol, dressed Lindex-Plus FS, drilled at 120 seeds per m².
07-Oct-93 : B : Draza at 5.5 kg.
08-Mar-94 : B : 34.5% N at 162 kg.
11-Apr-94 : B : 34.5% N at 346 kg.
08-Aug-94 : B : Combine harvested.

Previous crops: Potatoes 1992, set-aside 1993.

NOTE: Numbers of cabbage stem flea beetle larvae were assessed in plant samples taken in December and February. Numbers of pollen beetles and seed weevils were assessed weekly throughout the spring and early summer. Pod samples were taken in June to assess seed weevil damage.

94/R/RAW/3

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

CHEMICAL

-	3.12
A	3.26
B	3.22
C	3.18
D	2.98
Mean	3.15

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

CHEMICAL

0.128

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

Stratum	d.f.	s.e.	cv%
ROW.COL	12	0.203	6.4

GRAIN MEAN DM% 90.4

PLOT AREA HARVESTED 0.00207

94/W/RAW/3

WINTER OILSEED RAPE

SULPHUR AND NITROGEN

Object: To determine the effects of various rates of sulphur fertilizer on the yield and sulphur content of winter oilseed rape grown at various rates of nitrogen fertilizer - Woburn, Butt Close.

Sponsors: S.P. McGrath, F. Zhao, G.F.J. Milford.

Design: 4 randomised blocks of 3 x 4 plots.

Whole plot dimensions: 4.0 x 10.0.

Treatments: All combinations of:-

1. **NITROGEN** Fertilizer nitrogen (kg N), as Nitro-Chalk:

N1	100
N2	180
N3	230

2. **SULPHUR** Fertilizer sulphur (kg S), as gypsum (17.6% S):

S0	0
S1	10
S2	20
S4	40

Experimental diary:

- 23-Aug-93 : B : Ploughed.
- 24-Aug-93 : B : Rolled.
- 07-Sep-93 : B : Rotary harrowed, Libravo, dressed Lindex-Plus FS, drilled at 7.0 kg.
- 30-Sep-93 : B : 27% N at 50 kg.
- 10-Feb-94 : B : Carbetamex at 2.0 kg with Benazalox at 1.25 kg in 200 l.
- 04-Mar-94 : T : **NITROGEN** N1, N2, N3: 27% N at 185.2, 333.2 and 426.0 kg respectively.
- 10-Mar-94 : T : **SULPHUR** S1, S2, S4: Gypsum at 56.8, 113.8 and 227.2 kg respectively.
- 08-Apr-94 : T : **NITROGEN** N1, N2, N3: 27% N at 185.2, 333.2 and 426.0 kg respectively.
- 05-Aug-94 : B : Combine harvested.

Previous crops: W. rape, summer fallow 1992, w. wheat 1993.

NOTE: Plants were sampled throughout the season for sulphur and nitrogen content, soil was also sampled pre-sowing and post-harvest for sulphur content.

94/W/RAW/3

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

	S0	S1	S2	S4	Mean
SULPHUR					
NITROGEN					
N1	1.06	1.22	1.37	1.05	1.18
N2	1.25	1.86	2.09	2.14	1.84
N3	0.79	2.00	2.08	2.11	1.75
Mean	1.03	1.69	1.85	1.77	1.59

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

NITROGEN	SULPHUR	NITROGEN
0.169	0.195	SULPHUR
		0.338

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	33	0.478	30.1

GRAIN MEAN DM% 87.0

PLOT AREA HARVESTED 0.00176

94/R/RAW/5

WINTER OILSEED RAPE

DISEASE FORECASTING AND YIELD LOSS

Object: To investigate the relationship between the timing and intensity of various diseases, crop development and yield loss - Summerdells I.

Sponsors: H.A. McCartney, B.D.L. Fitt, M.E. Lacey, G. Murray.

Design: 3 randomised blocks of 25 plots.

Whole plot dimensions: 3.0 x 20.0.

Treatments:

FUNGFREQ Prochloraz, iprodione and thiophanate-methyl applied on the following dates:

TREATMENT NUMBER	23 NOV	17 DEC	19 JAN	17 FEB	30 MAR	19 APR	09 MAY	13 JUN	04 JUL
1	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-
4	✓	-	-	-	-	-	-	-	-
5	✓	✓	-	-	-	-	-	-	-
6	✓	✓	✓	-	-	-	-	-	-
7	✓	✓	✓	✓	-	-	-	-	-
8	✓	✓	✓	✓	✓	-	-	-	-
9	✓	✓	✓	✓	✓	✓	-	-	-
10	✓	✓	✓	✓	✓	✓	✓	-	-
11	✓	✓	✓	✓	✓	✓	✓	✓	-
12	✓	✓	✓	✓	✓	✓	✓	✓	✓
13	-	-	-	-	-	-	-	-	✓
14	-	-	-	-	-	-	-	✓	✓
15	-	-	-	-	-	-	✓	✓	✓
16	-	-	-	-	-	✓	✓	✓	✓
17	-	-	-	-	✓	✓	✓	✓	✓
18	-	-	-	✓	✓	✓	✓	✓	✓
19	-	-	✓	✓	✓	✓	✓	✓	✓
20	-	✓	✓	✓	✓	✓	✓	✓	✓
21	✓	✓	✓	✓	✓	✓	✓	✓	✓
22	✓	✓	✓	✓	✓	✓	✓	✓	✓
23	✓	✓	✓	-	-	-	✓	✓	✓
24	✓	✓	✓	✓	✓	✓	-	-	-
25	✓	✓	✓	-	-	-	-	-	-

NOTE: (1) Due to adverse weather, some planned treatments were omitted or re-scheduled. Treatments 1, 2 and 3 were identical and treatments 12, 21 and 22 also were identical. The means of the three are presented under treatments 1 and 12.

(2) All plots were inoculated on 1 December, 1993 by applying rape straw from the 1993 harvest. Treatment numbers 23 and 25 were inoculated again on 16 March, 1994 and treatment number 24 on 28 June.

94/R/RAW/5

Experimental Diary:

01-Jul-93 : B : Discd, rolled.
13-Aug-93 : B : Sting CT at 2.0 l in 200 l.
19-Aug-93 : B : Ploughed and furrow pressed.
20-Aug-93 : B : Rolled.
25-Aug-93 : B : Discd.
27-Aug-93 : B : Rolled.
31-Aug-93 : B : Rotary harrowed.
01-Sep-93 : B : Rolled.
18-Sep-93 : B : Rotary harrowed, Envol, dressed Lindex-Plus FS, drilled
at 120 seeds per m².
30-Sep-93 : B : Draza at 5.5 kg.
23-Nov-93 : T : FUNGFREQ Treatment numbers as schedule: Sportak 45 at
0.55 l with Compass at 1.5 l in 200 l.
17-Dec-93 : T : FUNGFREQ Treatment numbers as schedule: Sportak 45 at
0.55 l with Compass at 1.5 l in 200 l.
18-Jan-94 : B : Draza at 5.5 kg.
19-Jan-94 : T : FUNGFREQ Treatment numbers as schedule: Sportak 45 at
0.55 l with Compass at 1.5 l in 200 l.
17-Feb-94 : T : FUNGFREQ Treatment numbers as schedule: Sportak 45 at
0.55 l with Compass at 1.5 l in 200 l.
28-Feb-94 : B : Benazalox at 1.0 kg with Carbetamex at 3.0 kg in 200 l.
07-Mar-94 : B : 34.5% N at 162 kg.
30-Mar-94 : T : FUNGFREQ Treatment numbers as schedule: Sportak 45 at
0.55 l with Compass at 1.5 l in 200 l.
11-Apr-94 : B : 34.5% N at 346 kg.
19-Apr-94 : T : FUNGFREQ Treatment numbers as schedule: Sportak 45 at
0.55 l with Compass at 1.5 l in 200 l.
09-May-94 : T : FUNGFREQ Treatment numbers as schedule: Sportak 45 at
0.55 l with Compass at 1.5 l in 200 l.
13-Jun-94 : T : FUNGFREQ Treatment numbers as schedule: Sportak 45 at
0.55 l with Compass at 1.5 l in 200 l.
04-Jul-94 : T : FUNGFREQ Treatment numbers as schedule: Sportak 45 at
0.55 l with Compass at 1.5 l in 200 l.
01-Aug-94 : B : Combine harvested.

Previous crops: Potatoes 1992, set-aside 1993.

- NOTE:** (1) Plants were sampled monthly, prior to spray treatment application, to monitor disease progress. Numbers of air-borne spores were counted and growth stage measurements made throughout the season. Seed and plant dry weights, seed oil analysis and stubble counts were made at harvest.
- (2) The analysis presented assumes a linear trend, to represent the weed population.

94/R/RAW/5

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

FUNGFREQ

1	3.09
4	3.03
5	3.45
6	3.72
7	3.73
8	3.58
9	3.56
10	3.47
11	3.73
12	3.44
13	3.05
14	3.06
15	3.24
16	3.32
17	3.34
18	3.52
19	3.59
20	3.54
23	3.61
24	3.11
25	3.46

Mean 3.39

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

FUNGFREQ

0.220	min.rep
0.179	max-min
0.127	max.rep

FUNGFREQ

max-min	1 or 12 v any of the remainder
max.rep	1 or 12
min.rep	Any of the remainder

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	52	0.365	10.8
GRAIN MEAN DM%	80.2		
PLOT AREA HARVESTED	0.00460		

94/R/RAW/6

WINTER OILSEED RAPE

WINTER OILSEED RAPE AND WEED SPECIES

Object: To establish the relative competitive abilities of a range of common broad-leaved weeds in w. rape - Appletree.

Sponsors: P.J.W. Lutman.

Design: 3 blocks of (7 x 2) + 2 plots.

Whole plot dimensions: 3.0 x 14.0.

Treatments: All combinations of:-

1. **SPECIES** Weed species sown:

SM	<i>Stellaria media</i> (chickweed)
GA	<i>Galium aparine</i> (cleavers)
MP	<i>Matricaria perforata</i> (mayweed)
VA	<i>Viola arvensis</i> (pansy)
SA	<i>Sinapis arvensis</i> (charlock)
LP	<i>Lamium purpureum</i> (red dead-nettle)
PR	<i>Papaver rhoeas</i> (poppy)

2. **DENSITY**

D1	Moderate
D2	High

plus 2 extra plots

3. **EXTRA** No weeds sown, herbicide application:

OS	Applied
OU	Not applied

Experimental diary:

19-Jul-93 : B : Cultivated by rotary grubber.
29-Jul-93 : B : Deep tine cultivated with vibrating tines, 60 cm apart, 45 cm deep.
02-Aug-93 : B : Rolled.
16-Aug-93 : B : PK as (0:18:36) at 1250 kg.
18-Aug-93 : B : Ploughed and furrow pressed, rolled.
07-Sep-93 : B : Rotary harrowed.
 : T : **SPECIES** SM, GA, VA, SA, LP, PR: Weed seeds broadcast by hand.
 : B : Rotary harrowed twice, Falcon, dressed Lindex-Plus FS, drilled at 120 seeds per m².
 : T : **SPECIES** MP: Weed seeds broadcast by hand.
07-Oct-93 : B : Draza at 5.5 kg.
17-Dec-93 : T : **SPECIES** GA, MP, VA, SA, LP, PR and **EXTRA** OS: Kerb Flo at 1.75 l in 220 l.
08-Mar-94 : B : 34.5% N at 162 kg.

94/R/RAW/6

Experimental diary:

11-Apr-94 : B : 34.5% N at 346 kg.
 21-Jul-94 : B : Landgold Diquat at 3.0 l with Vassgro Spreader at 300 ml
 in 300 l.
 29-Jul-94 : B : Combine harvested.

Previous crops: Potatoes 1992, set-aside 1993.

NOTES: (1) Crop and weed densities were assessed in autumn. Crop and weed dry weights were measured in December and April.
 (2) Yields, cleaned of weed seeds, are presented.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

DENSITY SPECIES	D1	D2	Mean
SM	3.19	3.45	3.32
GA	3.72	2.42	3.07
MP	3.94	4.08	4.01
VA	4.02	3.89	3.96
SA	2.25	0.83	1.54
LP	3.99	3.42	3.71
PR	4.07	4.05	4.06
Mean	3.60	3.16	3.38
EXTRA			
OS	3.91		
OU	3.25		
Mean	3.58		

GRAND MEAN 3.41

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

SPECIES	DENSITY	SPECIES DENSITY & EXTRA
0.169	0.090	0.239

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	30	0.293	8.6
GRAIN MEAN DM%	84.6		
PLOT AREA HARVESTED	0.00253		

94/R/RAW/7

WINTER OILSEED RAPE

WINTER OILSEED RAPE DENSITY AND CHICKWEED

Object: To study the effects of crop density and autumn nitrogen on the competitive effects of chickweed (*Stellaria media*) - Appletree.

Sponsor: P.J.W. Lutman.

Design: 2 randomised blocks of 4 x 3 x 2 plots.

Whole plot dimensions: 3.0 x 14.0.

Treatments:

1. **CROP DEN** W. rape density, plants per m²:

C1	26
C2	55
C3	118
C4	202

2. **WEED DEN** Chickweed density, plants per m²:

W0	0
W1	119
W2	584

3. **AUT N** Fertilizer nitrogen in autumn, kg N:

N0	0
N1	50

NOTE: Target chickweed densities were: W0 0, W1 100 and W2 500 plants per m².

Experimental diary:

19-Jul-93 : B : Cultivated with rotary grubber.
29-Jul-93 : B : Deep tine cultivated with vibrating tines, 60 cm apart and 45 cm deep.
02-Aug-93 : B : Rolled.
16-Aug-93 : B : PK as (0:18:36) at 1250 kg.
18-Aug-93 : B : Ploughed and furrow pressed, rolled.
20-Sep-93 : T : **AUT N** N1: 34.5% N at 145 kg.
22-Sep-93 : B : Rotary harrowed.
 : T : **CROP DEN** C1: Rotary harrowed, Falcon, dressed Lindex-Plus FS, drilled at 57 seeds (50% dead) per m².
 : T : **CROP DEN** C2, C3, C4: Rotary harrowed, Falcon, dressed Lindex-Plus FS, drilled at 57, 115 and 230 seeds per m² respectively.
 : T : **WEED DEN** W1, W2: Chickweed seed broadcast by hand.
07-Oct-93 : B : Draza at 5.5 kg.

94/R/RAW/7

Experimental diary:

31-Jan-94 : B : Carbetamex at 3.0 kg in 200 l.
 08-Mar-94 : B : 34.5% N at 162 kg.
 11-Apr-94 : B : 34.5% N at 346 kg.
 21-Jul-94 : B : Landgold Diquat at 3.0 l with Vassgro Spreader at 300 ml
 in 300 l.
 27-Jul-94 : B : Combine harvested.

Previous crops: Potatoes 1992, set-aside 1993.

NOTE: Crop and weed densities were assessed and samples were taken to measure plant growth in winter, spring and summer.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

WEED DEN	W0	W1	W2	Mean
CROP DEN				
C1	3.74	3.23	2.74	3.24
C2	4.12	3.82	3.48	3.81
C3	3.76	3.31	3.73	3.60
C4	3.77	3.69	3.63	3.70
Mean	3.85	3.51	3.39	3.59
AUT N	N0	N1	Mean	
CROP DEN				
C1	3.00	3.48	3.24	
C2	3.81	3.80	3.81	
C3	3.55	3.65	3.60	
C4	3.78	3.62	3.70	
Mean	3.53	3.64	3.59	
AUT N	N0	N1	Mean	
WEED DEN				
W0	3.83	3.87	3.85	
W1	3.50	3.53	3.51	
W2	3.28	3.51	3.39	
Mean	3.53	3.64	3.59	
WEED DEN	W0	W1	W2	
CROP DEN	AUT N	N0	N1	
C1		3.45	4.03	3.25
C2		4.16	4.08	3.71
C3		3.80	3.71	3.22
C4		3.91	3.64	3.81
				3.21
				3.92
				3.40
				3.58
				2.29
				3.57
				3.62
				3.62
				3.19
				3.39
				3.84
				3.64

94/R/RAW/7

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

CROP DEN	WEED DEN	AUT N	CROP DEN WEED DEN
0.115	0.099	0.081	0.198

CROP DEN	WEED DEN	CROP DEN
AUT N	AUT N	WEED DEN
		AUT N
0.162	0.140	0.280

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	23	0.280	7.8

GRAIN MEAN DM% 85.9

PLOT AREA HARVESTED 0.00253

94/R/RAW/8

WINTER OILSEED RAPE

WEED COMPETITION - RAPE DRILLING DATE AND CHICKWEED

Object: To study the effect of chickweed (*Stellaria media*) on the growth and yield of w. rape sown on three different dates - Appletree.

Sponsor: P.J.W. Lutman.

Design: 3 randomised blocks of 3 plots split into 6 sub-plots.

Whole plot dimensions: 3.0 x 14.0.

Treatments:

Whole plots

1. **SOW DATE** Target sowing date of w. rape:

SE	Early, 20-25 Aug
SM	Middle, 5-10 Sept
SL	Late, 15-20 Sept

Sub-plots

2. **WEED DEN** Weed density, plants per m²:

	SE	SM	SL
D0	0	0	0
D1	35	54	39
D2	130	156	112
D3	304	414	342
D4	790	887	659
OS	0	0	0

NOTES: (1) No herbicide applied to D0 plots, herbicide applied to OS plots. OS plots (SE and SM only) were also hand weeded in spring.

(2) Target weed densities were D0 and OS 0, D1 50, D2 150, D3 450 and D4 900 plants per m².

Experimental diary:

19-Jul-93 : B : Cultivated with rotary grubber.
29-Jul-93 : B : Deep tine cultivated with vibrating tines 60 cm apart and 45 cm deep.
02-Aug-93 : B : Rolled.
16-Aug-93 : B : PK as (0:18:36) at 1250 kg.
18-Aug-93 : B : Ploughed and furrow pressed, rolled.
25-Aug-93 : T : **SOW DATE** SE: Rotary harrowed, chickweed broadcast by hand. Rotary harrowed, Falcon, dressed Lindex-Plus FS, drilled at 120 seeds per m².
07-Sep-93 : T : **SOW DATE** SM: Rotary harrowed, chickweed broadcast by hand. Rotary harrowed, Falcon, dressed Lindex-Plus FS, drilled at 120 seeds per m².

94/R/RAW/8

Experimental diary:

23-Sep-93 : T : SOW DATE SL: Rotary harrowed, chickweed broadcast by hand. Rotary harrowed, Falcon, dressed Lindex-Plus FS, drilled at 120 seeds per m².
07-Oct-93 : B : Draza at 5.5 kg.
17-Dec-93 : T : WEED DEN OS: Kerb Flo at 1.75 l in 220 l.
: T : SOW DATE SE, SM, WEED DEN D1-D4: Synchemicals Dalapon at 3.4 kg in 220 l.
31-Jan-94 : T : SOW DATE SL, WEED DEN D1-D4: Synchemicals Dalapon at 3.4 kg in 220 l.
08-Mar-94 : B : 34.5% N at 162 kg.
11-Apr-94 : B : 34.5% N at 346 kg.
19-May-94 : T : SOW DATE SL: Fastac at 200 ml in 200 l.
21-Jul-94 : B : Landgold Diquat at 3.0 l with Vassgro Spreader at 300 ml in 300 l.
27-Jul-94 : B : Combine harvested.

Previous crops: Potatoes 1992, set-aside 1993.

NOTE: (1) Crop and weed densities were assessed and samples were taken to measure plant growth in December and March.
(2) The yields on two plots were treated as missing because of severe lodging, with treatment combinations:
SOW DATE SM SM
WEED DEN D2 OS
Estimated values were used in the analysis.

94/R/RAW/8

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

WEED DEN SOW DATE	D0	D1	D2	D3	D4	OS	Mean
SE	2.98	3.81	3.74	3.72	3.55	4.12	3.65
SM	2.16	3.55	3.58	3.54	3.70	4.00	3.42
SL	4.10	3.33	3.32	3.27	3.17	4.06	3.54
Mean	3.08	3.56	3.55	3.51	3.47	4.06	3.54

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

SOW DATE	WEED DEN	SOW DATE WEED DEN
0.286	0.160	0.382

Except when comparing means with the same level(s) of
SOW DATE 0.278

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	4	0.351	9.9
BLOCK.WP.SP	28	0.340	9.6

GRAIN MEAN DM% 89.6

SUB PLOT AREA HARVESTED 0.00290

94/R/RAW/10

WINTER OILSEED RAPE

DISEASE PRESSURE AND GLUCOSINOLATES

Object: To study the effects on crop growth, yield and glucosinolate levels of winter oilseed rape grown under different disease pressures - Appletree.

Sponsors: K.J. Doughty, H.A. McCartney, D. Schmechel, M.E. Lacey.

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

Whole plot dimensions: 6.0 x 10.0.

Treatments: All combinations of:-

Whole plots

- | | |
|--------------------|--|
| 1. FUNGINOC | Fungicide spray application and level of inoculation using infected straw: |
| NOFUNG | No fungicide spray, no inoculation |
| FUNGDE | Fungicide spray applied autumn, spring and summer, no inoculation |
| INOC 1 | No fungicide spray. Inoculation level 1 |
| INOC 2 | No fungicide spray. Inoculation level 2 |

Sub-plots

2. **VARIETY**

- | | |
|----|-----------|
| CA | Capricorn |
| FA | Falcon |

NOTE: Infected straw from a previous experiment was used for the inoculation. INOC 1 received inoculation at one-quarter of the rate applied to INOC 2.

Experimental diary:

- 19-Jul-93 : B : Cultivated by rotary grubber.
29-Jul-93 : B : Deep tine cultivated with vibrating tines 60 cm apart, 45 cm deep.
02-Aug-93 : B : Rolled.
16-Aug-93 : B : PK as (0:18:36) at 1250 kg.
18-Aug-93 : B : Ploughed and furrow pressed, rolled.
25-Aug-93 : B : Disced twice, rotary harrowed twice.
 : T : **VARIETY** CA, FA: Varieties, dressed Lindex-Plus FS, drilled at 120 seeds per m².
07-Oct-93 : B : Draza at 5.5 kg.
14-Oct-93 : T : **FUNGINOC** INOC 1, INOC 2: Infected straw applied.
04-Nov-93 : B : Benazalox at 0.75 l with Butisan S at 1.5 l in 200 l.
16-Nov-93 : T : **FUNGINOC** FUNGDE: Sportak 45 at 1.1 l in 220 l.
08-Mar-94 : B : 34.5% N at 162 kg.

94/R/RAW/10

Experimental diary:

08-Apr-94 : T : FUNGINOC FUNGCDE: Sportak 45 at 1.1 l in 220 l.
 11-Apr-94 : B : 34.5% N at 346 kg.
 15-Jun-94 : T : FUNGINOC FUNGCDE: Rovral Flo at 2.0 l in 200 l.
 14-Jul-94 : B : Landgold Diquat at 3.0 l with Vassgro Spreader at 400 ml
 in 400 l.
 21-Jul-94 : B : Combine harvested.

Previous crops: Potatoes 1992, set-aside 1993.

NOTE: Assessments were made of disease progress, crop growth and canopy structure throughout the season. Samples were taken during vegetative growth and at harvest for the measurement of glucosinolate concentrations and oil content.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

VARIETY	CA	FA	Mean
FUNGINOC			
NOFUNG	2.46	3.70	3.08
FUNGCDE	3.55	3.77	3.66
INOC 1	2.70	3.53	3.11
INOC 2	2.42	3.46	2.94
Mean	2.78	3.62	3.20

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

FUNGINOC	VARIETY	FUNGINOC VARIETY
0.119	0.032	0.127

Except when comparing means with the same level(s) of
FUNGINOC 0.064

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	9	0.168	5.2
BLOCK.WP.SP	12	0.090	2.8

GRAIN MEAN DM% 88.2

SUB PLOT AREA HARVESTED 0.00230