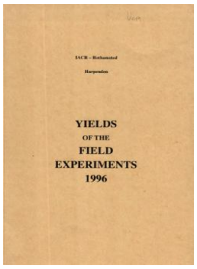
ROTHAMSTED RESEARCH

Yields of the Field Experiments 1996

Full Table of Content



Spring Oilseed Rape

Rothamsted Research

Rothamsted Research (1997) *Spring Oilseed Rape ;* Yields Of The Field Experiments 1996, pp 127 - 135 **- DOI: https://doi.org/10.23637/ERADOC-1-51**

96/R/RAS/1

SPRING OILSEED RAPE

SULPHUR AND MAGNESIUM FOR SPRING OILSEED RAPE

Object: To study the effects of rates of sulphur and magnesium fertilizers on the yield and sulphur content of spring oilseed rape - Great Harpenden II.

Sponsors: S.P. McGrath, F. Zhao.

Design: 4 randomised blocks of 12 plots.

Whole plot dimensions: 3.0 x 15.0.

Treatments:

SULMAG Sulphur and magnesium, rate (kg) and form:

	S	Mg	
-	None	None	(duplicated)
KS1	10	-	as potassium sulphate to seedbed
KS2	20	-	as potassium sulphate to seedbed
KS4	40	-	as potassium sulphate to seedbed
KS8	80	-	as potassium sulphate to seedbed
S2	20	-	as 'Thiovit' to seedbed
S4	40	-	as 'Thiovit' to seedbed
E2	20	15.4	as Epsom salts to crop
E4	40	30.8	as Epsom salts to crop
MG1	-	15.4	as magnesium chloride to crop
MG2	-	30.8	as magnesium chloride to crop

NOTES: (1) Potassium chloride as muriate of potash was applied to balance the potassium to supply 222 kg K_2O. Epsom salts and magnesium chloride dressings were split and applied one week apart and as two or four sprays on each occasion.
(2) Thiovit contains 80% elemental S.

Experimental diary:

25-Oct-95 : B : Deep tine cultivated, twice.
30-Jan-96 : B : Ploughed.
01-Apr-96 : **T** : **SULMAG:** Potassium chloride applied.
: **T** : **SULMAG:** Potassium sulphate applied.
: B : Spring-tine cultivated.
02-Apr-96 : **T** : **SULMAG:** Thiovit applied.
: B : 34.5% N at 145 kg.
: B : Treflan at 2.3 l in 300 l. Spring-tine cultivated.
03-Apr-96 : B : Rotary harrowed, Starlight, dressed thiram, drilled at 7 kg.
04-Apr-96 : B : Rolled.
27-Apr-96 : B : Decis at 0.3 l in 200 l.
08-May-96 : B : 34.5% N at 144 kg.
13-May-96 : B : Cyperkill 10 at 250 ml in 200 l.

https://doi.org/10.23637/ERADOC-1-51

96/R/RAS/1

Experimental diary:

```
   05-Jun-96 : T : SULMAG: Epsom salts and magnesium chloride applied with
                           Vassgro Spreader at 56 ml in 750 l.
             : B : Dow Shield at 0.5 l in 320 l.
   12-Jun-96 : B : Fastac at 200 ml in 320 l.
   13-Jun-96 : T : SULMAG: Epsom salts and magnesium chloride applied with
                           Vassgro Spreader at 56 ml in 750 l.
   30-Aug-96 : B : Combine harvested.
```

Previous crops: W. barley 1994, potatoes 1995.

NOTE: Leaves were sampled for nitrogen and sulphur content at flowering. Soil was sampled to measure sulphur content before drilling.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

SULMAG	
-	2.87
KS1	2.62
KS2	2.84
KS4	2.88
KS8	2.72
S2	2.80
S4	2.81
E2	2.99
E4	2.72
MG1	2.92
MG2	2.90
Mean	2.83

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

SULMAG	
0.104	min.rep
0.090	max-min

SULMAG
min.rep Any of the remainder
max-min - v any of the remainder

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	34	0.147	5.2

GRAIN MEAN DM% 83.5

PLOT AREA HARVESTED 0.00299 (32 Plots) or 0.00253 (16 Plots)

https://doi.org/10.23637/ERADOC-1-51

96/W/RAS/1

SPRING OILSEED RAPE

SULPHUR FOR SPRING OILSEED RAPE

Object: To study the effects of rates of sulphur fertilizer on the yield and sulphur content of spring oilseed rape - Woburn, Lansome II.

Sponsors: S.P. McGrath, F. Zhao.

Design: 4 randomised blocks of 6 plots.

Whole plot dimensions: 3.0 x 15.0.

Treatments:

SULPHUR	Sulphur as potassium sulphate (kg S):
S0	0 (duplicated)
S1	10
S2	20
S4	40
S8	80

NOTE: Potassium chloride was applied to balance the potassium to supply 222 kg K_2O.

Experimental diary:

14-Feb-96 : B : Ploughed.
28-Feb-96 : B : Heavy spring-tine cultivated.
02-Apr-96 : B : Portman Trifluralin at 2.0 l in 300 l, rotary harrowed.
03-Apr-96 : **T** : **SULPHUR** S0, S1, S2, S4: Muriate of potash to balance potassium applied.
: **T** : **SULPHUR** S1, S2, S4, S8: Potassium sulphate applied.
: B : 34.5% N at 145 kg. Starlight, dressed Lindex-Plus FS, drilled at 140 seeds per m^2.
04-Apr-96 : B : Rolled.
13-May-96 : B : 34.5% N at 290 kg.
13-Jun-96 : B : Fastac at 200 ml in 200 l.
31-Aug-96 : B : Combine harvested.

Previous crops: S. barley 1994, s. rape 1995.

NOTE: Leaves were sampled for nitrogen and sulphur content at flowering. Soil was sampled to measure sulphur content before drilling

https://doi.org/10.23637/ERADOC-1-51

96/W/RAS/1

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

SULPHUR	
S0	1.91
S1	2.27
S2	2.24
S4	1.89
S8	2.10
Mean	2.05

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

SULPHUR	
0.193	min.rep
0.167	max-min

	SULPHUR
min.rep	Any of the remainder
max-min	S0 v any of the remainder

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	16	0.272	13.3

GRAIN MEAN DM% 86.5

PLOT AREA HARVESTED 0.00286

https://doi.org/10.23637/ERADOC-1-51

96/R/RAS/3

SPRING OILSEED RAPE

INDUSTRIAL CULTIVARS AND DISEASE A

Object: To determine the effects of disease on the yield and quality of industrial rape cultivars - Bones Close.

Sponsors: K.J. Doughty, H.A. McCartney.

Design: 4 randomised blocks of 2 plots.

Whole plot dimensions: 3.0 x 17.0.

Treatments:

INOCFUNG	Inoculation or fungicide applied:
I	Inoculated with infected rape straw
F	Iprodione, thiophanate-methyl and vinclozolin

Experimental diary:

18-Aug-95 : B : Wheat straw removed.
19-Jan-96 : B : Ploughed.
01-Apr-96 : B : Heavy spring-tine cultivated. Rotary harrowed, Industry, dressed Lindex-Plus FS, drilled at 180 seeds per m^2.
03-Apr-96 : B : Butisan S at 1.5 l in 200 l.
25-Apr-96 : B : Decis at 0.3 l in 200 l.
08-May-96 : B : 34.5% N at 290 kg.
13-May-96 : B : Cyperkill 10 at 250 ml in 200 l.
10-Jun-96 : B : Fastac at 200 ml in 320 l.
14-Jun-96 : T : **INOCFUNG** I: Inoculated with one bale of rape straw per plot.
05-Jul-96 : T : **INOCFUNG** F: Compass at 3.0 l in 200 l.
18-Jul-96 : T : **INOCFUNG** F: Ronilan FL at 1.5 l in 260 l.
28-Aug-96 : B : Combine harvested.

Previous crops: Potatoes 1994, w. wheat 1995.

NOTE: Plant samples were taken at harvest for assessment of diseases. Grain samples were analysed for oil content and fatty acids.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

FUNGCIDE	
I	1.18
F	1.13
Mean	1.16

GRAIN MEAN DM% 86.3 PLOT AREA HARVESTED 0.00391

https://doi.org/10.23637/ERADOC-1-51

96/R/RAS/5

SPRING OILSEED RAPE

INDUSTRIAL CULTIVARS AND DISEASE C

Object: To determine the effects of disease on the yield and quality of industrial rape cultivars - Sawyers I E.

Sponsors: K.J. Doughty, H.A. McCartney.

Design: 4 randomised blocks of 2 plots.

Whole plot dimensions: 3.0 x 17.0.

Treatments:

INOCFUNG	Inoculation or fungicide applied:
I	Inoculated with infected rape straw.
F	Iprodione, thiophanate-methyl and vinclozolin

Experimental diary:

23-Jan-96 : B : Ploughed.
01-Apr-96 : B : Heavy spring-tine cultivated. Rotary harrowed, Starlight, dressed Lindex-Plus FS, drilled at 180 seeds per m^2.
03-Apr-96 : B : Butisan S at 1.5 l in 200 l.
27-Apr-96 : B : Decis at 0.3 l in 200 l.
07-May-96 : B : 34.5% N at 290 kg.
13-May-96 : B : Cyperkill 10 at 250 ml in 200 l.
04-Jun-96 : B : Laser at 2.25 l with Atlas Adjuvant Oil at 1.8 l in 200 l.
10-Jun-96 : B : Fastac at 200 ml in 320 l.
14-Jun-96 : T : **INOCFUNG** I: Inoculated with one bale of rape straw per plot.
05-Jul-96 : T : **INOCFUNG** F: Compass at 3.0 l in 200 l.
18-Jul-96 : T : **INOCFUNG** F: Ronilan FL at 1.5 l in 260 l.
28-Aug-96 : B : Combine harvested.

Previous crops: W. wheat 1994, lupins 1995.

NOTE: Plant samples were taken at harvest for assessment of diseases. Grain samples were analysed for oil content and fatty acids.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

INOCFUNG	
I	1.12
F	1.22
Mean	1.17

GRAIN MEAN DM% 79.2 PLOT AREA HARVESTED 0.00391

https://doi.org/10.23637/ERADOC-1-51

96/R/RAS/6

SPRING OILSEED RAPE

INDUSTRIAL CULTIVARS AND DISEASE D

Object: To determine the effects of disease on the yield and quality of industrial rape cultivars - Long Hoos III 3.

Sponsors: K.J. Doughty, H.A. McCartney.

Design: 4 randomised blocks of 2 plots.

Whole plot dimensions: 3.0 x 17.0.

Treatments:

INOCFUNG	Inoculation or fungicide applied:
I	Inoculated with infected rape straw
F	Iprodione with thiophanate-methyl and vinclozolin

Experimental diary:

08-Dec-95	: B	:	Ploughed.
01-Apr-96	: B	:	Heavy spring-tine cultivated twice.
	: B	:	Rotary harrowed, A110L, dressed Rovral Liquid FS and Hydraguard, drilled at 180 seeds per m^2.
03-Apr-96	: B	:	Butisan S at 1.5 l in 200 l.
25-Apr-96	: B	:	Decis at 300 ml in 200 l.
08-May-96	: B	:	34.5% N at 290 kg.
13-May-96	: B	:	Cyperkill 10 at 250 ml in 200 l.
10-Jun-96	: B	:	Fastac at 200 ml in 320 l.
14-Jun-96	: **T**	:	**INOCFUNG** I: Inoculated with one bale of rape straw per plot.
05-Jul-96	: **T**	:	**INOCFUNG** F: Compass at 3.0 l in 200 l.
18-Jul-96	: **T**	:	**INOCFUNG** F: Ronilan FL at 1.5 l in 260 l.
28-Aug-96	: B	:	Combine harvested.

Previous crops: Clover 1994, s. beans and s. wheat 1995.

NOTE: Plant samples were taken at harvest for assessment of diseases. Grain samples were analysed for oil content and fatty acids.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

INOCFUNG	
I	1.35
F	1.21
Mean	1.28

GRAIN MEAN DM% 75.7 PLOT AREA HARVESTED 0.00391

https://doi.org/10.23637/ERADOC-1-51

96/R/BES/6

SPRING BEANS

WEED COMPETITION AND SPRING BEANS

Object: To study the effects of two weed species on the growth and yield of spring beans - Great Knott I.

Sponsor: P.J.W. Lutman.

Design: 3 randomised blocks of (3 x 5) + 1 plots.

Whole plot dimensions: 3.0 x 10.0.

Treatments: All combinations of:-

1. **WEED** Weed and time of sowing:

CE	Charlock (*Sinapis arvensis*), sown early
CL	Charlock sown late
CW	Chickweed (*Stellaria media*), sown early

2. **RATE** Average number of established plants per m^2:

	CL	CW
0	-	-
1	31.8	16.3
2	61.2	31.5
3	159.2	75.0
4	219.0	138.3

Plus extra treatment

CULT OAT Cultivated oats (*Avena sativa*), sown early, approximately 170.5 plants were established per m^2

NOTES: (1) Each weed was sown on the same day as the beans and the charlock was also sown 24 days later. All the early-sown charlock (CE) failed and has been omitted from the analysis.

(2) Oats were cultivar Dula, dressed Cerevax Extra, sown at 240 seeds per m^2.

(3) Target weed densities, plants per m^2:

	Charlock	Chickweed
1	50	100
2	100	200
3	200	400
4	400	800

Experimental diary:

17-Nov-95 : B : Ploughed.
14-Mar-96 : B : Heavy spring-tine cultivated.
18-Mar-96 : B : Heavy spring-tine cultivated, rotary harrowed.
: **T** : **WEED** CE, CW **CULT OAT**: Charlock, chickweed and oats broadcast.

https://doi.org/10.23637/ERADOC-1-51

96/R/BES/6

Experimental diary:

18-Mar-96 : B : Rotary harrowed, Alfred, recleaned, drilled at 50 seeds per m^2.
11-Apr-96 : **T** : **WEED** CL: Charlock broadcast.
25-Apr-96 : B : Decis at 0.3 l in 200 l.
13-May-96 : B : Cyperkill 10 at 250 ml in 200 l.
05-Jun-96 : B : Cyperkill 10 at 250 ml in 200 l.
20-Jun-96 : B : Bravo 500 at 2.0 l in 200 l.
15-Aug-96 : B : Hand harvested.

Previous crops: S. wheat 1994, set-aside 1995.

NOTES: (1) Bean and weed populations were assessed in April and May. Crop and oat leaf area and dry matter was measured in May. Crop and weed height, dry matter and number of stems were assessed in June and July, pod numbers were also counted in July.
(2) Weeds failed to establish on two plots, with treatment combinations:-

WEED	CL	CL
RATE	3	1

Estimated values were used in the analysis.

GRAIN TONNES/HECTARE

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

RATE	0	1	2	3	4	Mean
WEED						
CL	3.84	3.29	2.77	2.79	2.26	2.99
CW	3.88	3.77	3.72	3.99	3.50	3.77
Mean	3.86	3.53	3.25	3.39	2.88	3.38

CULT OAT
0.41

Grand mean 3.11

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

WEED	**RATE**	**RATE WEED & CULT OAT**
0.147	0.233	0.330

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	18	0.404	13.0

GRAIN MEAN DM% not measured

PLOT AREA HARVESTED 0.00020

https://doi.org/10.23637/ERADOC-1-51