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Linseed

Rothamsted Research

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95/R/LN/1

LINSEED

WEED TYPES IN LINSEED

Object: To study the effects of three weed species on the growth and yield of linseed - Hoosfield Old 4-course.

Sponsor: P.J.W. Lutman.

Design: 3 blocks of 15 plots.

Plot dimensions: 3.0 x 10.0.

Treatments:

SPECDEN	Weed species and density (average number of established plants per m ²):
0	None (triplicated)
C1	Cultivated oats (<i>Avena sativa</i> cv. Dula), 10.7
C2	Cultivated oats, 30.7
C3	Cultivated oats, 86.1
C4	Cultivated oats, 174.0
K1	Knotgrass (<i>Polygonum aviculare</i>), 20.3
K2	Knotgrass, 47.2
K3	Knotgrass, 74.4
K4	Knotgrass, 145.0
F1	Fat hen (<i>Chenopodium album</i>), 0
F2	Fat hen, 0
F3	Fat hen, 0
F4	Fat hen, 23.3

- NOTES:** (1) Target weed sowing rates and densities were as follows:
Cultivated oats (seeds per m²): C1 20, C2 60, C3 180 and C4 360.
Knotgrass (plants per m²): K1 20, K2 80, K3 180 and K4 320.
Fat hen (plants per m²): F1 40, F2 80, F3 160 and F4 320.
- (2) Weeds on plots with treatments F1, F2, F3 failed to establish. These plots have been omitted from the analysis.

Experimental diary:

06-Sep-94 : B : PK as (0:20:32) at 1317 kg.
07-Sep-94 : B : Dolomite at 5.0 t.
16-Dec-94 : B : Ploughed.
19-Apr-95 : B : Heavy spring-tine cultivated. Rotary harrowed.
20-Apr-95 : T : **SPECDEN** C1, C2, C3, C4: Dula, dressed Rappor, drilled.
 : T : **SPECDEN** K1, K2, K3, K4: Knotgrass broadcast.
 : T : **SPECDEN** F1, F2, F3, F4: Fat hen broadcast.
 : B : Rotary harrowed, Antares, dressed Prelude 20 LF, drilled
 at 700 seeds per m².

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Experimental diary:

21-Apr-95 : B : Rolled.
 04-May-95 : B : Part irrigated, 25 mm.
 05-May-95 : B : Part irrigated, 25 mm.
 10-May-95 : B : Decis at 200 ml in 300 l.
 11-May-95 : B : 34.5% N at 232 kg.
 15-Aug-95 : B : Standon Diquat at 3.0 l with Vassgro Spreader at 400 ml
 in 400 l.
 22-Aug-95 : B : Hand harvested.

Previous crops: W. oats 1993, w. wheat 1994.

NOTE: Crop and weed densities were assessed in May. Crop and weeds were sampled in June and August to measure dry matter.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

SPECDEN

0	1.11
C1	0.91
C2	0.59
C3	0.29
C4	0.18
K1	0.89
K2	0.77
K3	0.61
K4	0.58
F4	0.98

Mean	0.76
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*** Standard errors of differences of means ***

SPECDEN

0.125	min.rep
0.102	max-min

SPECDEN

max-min	0 v any of the remainder
min.rep	Any of the remainder

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	24	0.154	20.1

GRAIN MEAN DM% not measured

PLOT AREA HARVESTED 0.00020

95/R/LN/2

LINSEED

WEED COMPETITION IN LINSEED

Object: To study the effects of two weed species on each other and on the growth and yield of linseed - New Zealand.

Sponsors: R.C. Van Acker, P.J.W. Lutman.

Design: 2 randomised blocks of (5 x 5) + 5 plots.

Plot dimensions: 3.0 x 10.

Treatments: All combinations of:-

1. **BARLEY** Average number of barley plants established per m²:

B0	0
B1	16
B2	33
B3	61
B4	181

2. **CHK WEED** Average number of chickweed plants established per m²:

C0	0
C1	52
C2	103
C3	241
C4	395

plus 5 extra treatments

3. **EXTRA** Average number of barley or chickweed plants established per m²:

	Barley	Chickweed
-	0	0
EB1	97	0
EB2	200	0
EC1	0	358
EC2	0	528

NOTE: Weed sowing rates and target densities were as follows:

Seeds per m ²		Plants per m ²	
B1	25	C1	100
B2	50	C2	200
B3	100	C3	400
B4	300	C4	800
EB1	200	EC1	600
EB2	400	EC2	1200

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Experimental diary:

09-Dec-94 : B : Farmyard manure at 25 t.
21-Dec-94 : B : Ploughed.
14-Mar-95 : B : Gramoxone 100 at 4.0 l in 200 l.
20-Apr-95 : B : Spring-tine cultivated.
21-Apr-95 : **T** : **BARLEY** B1, B2, B3, B4, **EXTRA** EB1, EB2: Alexis, dressed
Cerevax Extra, broadcast by machine.
: **T** : **CHKWEED** C1, C2, C3, C4, **EXTRA** EC1, EC2: Chickweed seeds
broadcast by hand.
: B : Rotary harrowed, Antares, dressed Prelude 20LF, drilled
at 700 seeds per m².
03-May-95 : B : Irrigated 25 mm.
05-May-95 : B : Decis at 300 ml in 300 l.
16-May-95 : B : Irrigated 5 mm.
24-May-95 : B : 34.5% N at 232 kg.
15-Aug-95 : B : Standon Diquat at 3.0 l with Vassgro Spreader at 400 ml
in 400 l.
16-Aug-95 : B : Hand harvested.

NOTE: Leaf area indices of barley, chickweed and linseed were measured on two occasions during the growing season. Percentage ground cover was assessed by visual and photographic methods on two occasions early in the growing season. Weed seed yield, and crop components of yield, were measured before harvest.

95/R/LN/2

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

CHK WEED	C0	C1	C2	C3	C4	Mean
BARLEY						
B0	1.31	1.22	1.19	0.93	0.45	1.02
B1	1.05	0.90	0.75	0.57	0.39	0.73
B2	0.73	0.68	0.81	0.54	0.47	0.65
B3	0.54	0.59	0.49	0.39	0.28	0.46
B4	0.23	0.23	0.13	0.14	0.17	0.18
Mean	0.77	0.72	0.67	0.51	0.35	0.61
EXTRA	-	EB1	EB2	EC1	EC2	Mean
	1.41	0.15	0.16	0.45	0.42	0.52

Grand mean 0.59

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

BARLEY	CHK WEED	BARLEY CHK WEED & EXTRA
0.048	0.048	0.107

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	29	0.107	18.1

GRAIN MEAN DM% not measured

PLOT AREA HARVESTED 0.00010

95/R/LN/3

LINSEED

LEAF BROWNING SYMPTOMS

Object: To distinguish pathogens responsible for leaf browning in linseed, and to measure their response to fungicide - New Zealand.

Sponsors: B.D.L. Fitt, S. Mitchell.

Design: 5 randomised blocks of 3 plots.

Plot dimensions: 3.0 x 15.0.

Treatments:

FUNGICIDE	Fungicide:
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-	None
A	Iprodione
B	Benomyl

Experimental diary:

09-Dec-94 : B : Farmyard manure at 25 t.
21-Dec-94 : B : Ploughed.
14-Mar-95 : B : Gramoxone 100 at 4.0 l in 200 l.
20-Apr-95 : B : Spring-tine cultivated, rotary harrowed, Antares,
dressed Prelude 20 LF, drilled at 700 seeds per m².
05-May-95 : B : Decis at 300 ml in 300 l.
10-May-95 : B : Irrigated 12.5 mm.
11-May-95 : B : Irrigated 12.5 mm.
24-May-95 : B : 34.5% N at 232 kg.
15-Jun-95 : B : Lorate 20 DF at 30 g in 300 l.
05-Jul-95 : **T** : **FUNGICIDE** A: Rovral Flo at 2.0 l in 220 l.
 : **T** : **FUNGICIDE** B: Benlate Fungicide at 1.1 kg in 220 l.
24-Jul-95 : **T** : **FUNGICIDE** A: Rovral Flo at 2.0 l in 220 l.
 : **T** : **FUNGICIDE** B: Benlate Fungicide at 1.1 kg in 220 l.
15-Aug-95 : B : Standon Diquat at 3.0 l with Vassgro Spreader at 400 ml
 in 400 l.
04-Sep-95 : B : Combine harvested.

Previous crops: S. wheat 1993, linseed 1994.

NOTE: Regular samples were taken to assess the incidence of disease. Concentrations of airborne spores were recorded with a Burkard spore sampler.

95/R/LN/3

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

FUNGCIDE

-	1.63
A	1.68
B	1.78
Mean	1.69

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

FUNGCIDE

0.052

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	8	0.082	4.8
GRAIN MEAN DM%	90.5		
PLOT AREA HARVESTED	0.00294		