ROTHAMSTED RESEARCH

Yields of the Field Experiments 1995

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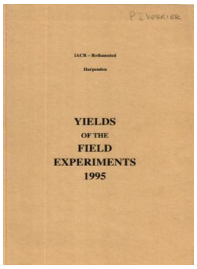

Lupins

Rothamsted Research

Rothamsted Research (1996) *Lupins ;* Yields Of The Field Experiments 1995, pp 132 - 155 **- DOI: https://doi.org/10.23637/ERADOC-1-50**

95/R/LP/1

LUPINS

LUPIN VARIETIES

Object: To assess the overwinter survival, crop structure, yield potential and maturity date of nine lines of autumn-sown determinate lupins - Highfield VI.

Sponsors: G.F.J. Milford, H.J. Stevenson.

Design: 4 randomised blocks of 10 plots.

Plot dimensions: 2.88 x 6.0.

Treatments:

LINES	Lines and growth regulator:
A	DTN 01
B	DTN 02
C	DTN 11
D	DTN 12
E	DTN 13
F	DTN 16
G	DTN 19
H	DTN 20
70	CH304/70
70R	CH304/70 with growth regulator in spring

Experimental diary:

29-Jul-94 : B : Deep tine cultivated with vibrating tines 60 cm apart and 45 cm deep. Rolled.
04-Aug-94 : B : Ploughed and furrow pressed. Rolled.
02-Sep-94 : B : Rotary harrowed twice.
: **T** : **LINES**: Lines drilled at 40 seeds per m^2.
06-Sep-94 : B : Opogard 500 SC at 2.8 l in 220 l.
12-Sep-94 : B : Draza at 5.5 kg.
30-Nov-94 : B : Falcon at 1.0 l in 200 l.
15-Dec-94 : B : Farmon PDQ at 15.0 l in 900 l, inter-row sprayed using dribble bar.
06-Feb-95 : B : Hand weeding started.
14-Feb-95 : B : Hand weeding finished.
13-Mar-95 : B : Atlas Simazine at 2.0 l in 200 l.
04-Apr-95 : **T** : **LINES** 70R: Cultar at 826 ml in 220 l.
19-Apr-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
23-May-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
20-Jun-95 : B : Corbel at 0.5 l with Tilt Turbo 475 EC at 1.0 l in 200 l.
30-Jun-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
17-Aug-95 : B : Combine harvested.

Previous crops: W. wheat 1993, set-aside 1994.

https://doi.org/10.23637/ERADOC-1-50

95/R/LP/1

NOTES: (1) The yield of one plot was lost during harvesting with treatment: **LINES** A. An estimated value was used in the analysis.
(2) Plant populations were assessed monthly September to April. Plant heights were measured in February and June. Final main stem leaf numbers, date of first floret opening and maximum floret numbers were recorded. Branch and leaf numbers were counted in July. Components of yield were assessed.

GRAIN TONNES/HECTARE

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

LINES	
A	1.70
B	2.49
C	2.04
D	1.59
E	1.87
F	2.09
G	1.91
H	2.16
70	2.00
70R	1.81
Mean	1.96

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

LINES
0.325

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	26	0.460	23.4

GRAIN MEAN DM% 89.8

PLOT AREA HARVESTED 0.00072

https://doi.org/10.23637/ERADOC-1-50

95/R/LP/2

LUPINS

LINES AND SOWING DATES

Object: To test the effects of sowing date on the plant architecture and yield of two lines of lupins sown in autumn and spring - Highfield VI.

Sponsors: G.F.J. Milford, I. Shield.

Design: 4 randomised blocks of 3 x 2 plots.

Plot dimensions: 2.88 x 6.0.

Treatments: All combinations of:-

1. **LINES**

70	CH304/70
73	CH304/73

2. **SOW DATE** Date of sowing:

E	Early September, 1994
M	Late September
L	Middle of March, 1995

Experimental diary:

29-Jul-94 : B : Deep tine cultivated with vibrating tines 60 cm apart and 45 cm deep. Rolled.
04-Aug-94 : B : Ploughed and furrow pressed, rolled.
05-Sep-94 : **T** : **SOW DATE** E: Rotary harrowed, lines drilled at 40 seeds per m^2.
06-Sep-94 : **T** : **SOW DATE** E: Opogard 500 SC at 2.8 l in 220 l.
12-Sep-94 : B : Draza at 5.5 kg.
22-Sep-94 : **T** : **SOW DATE** M: Rotary harrowed, lines drilled at 40 seeds per m^2.
26-Sep-94 : **T** : **SOW DATE** M: Opogard 500 SC at 2.8 l in 200 l.
30-Nov-94 : B : Falcon at 1.0 l in 200 l.
16-Dec-94 : **T** : **SOW DATE** E, M: Farmon PDQ at 15.0 l in 900 l, inter-row sprayed using dribble bar.
03-Feb-95 : **T** : **SOW DATE** E, M: Hand weeded.
09-Mar-95 : **T** : **SOW DATE** L: Sting CT at 4.0 l in 220 l.
13-Mar-95 : **T** : **SOW DATE** E, M: Atlas Simazine at 2.0 l in 220 l.
14-Mar-95 : **T** : **SOW DATE** L: Heavy spring-tine cultivated, rotary harrowed, lines drilled at 40 seeds per m^2.
14-Mar-95 : **T** : **SOW DATE** L: Opogard 500 SC at 2.8 l in 220 l.
11-Apr-95 : **T** : **SOW DATE** E, M: Cultar at 0.75 l in 220 l.
19-Apr-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
23-May-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
16-Jun-95 : **T** : **SOW DATE** L: Fusilade 5 at 2.0 l in 220 l.
20-Jun-95 : B : Corbel at 0.5 l with Tilt Turbo 475 EC at 1.0 l in 200 l.
30-Jun-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
17-Aug-95 : **T** : **SOW DATE** E, M: Combine harvested.

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95/R/LP/2

NOTES: (1) **SOW DATE** L did not produce harvestable grain.
(2) Plant numbers were assessed in autumn, winter, spring and at harvest. Plant components were assessed at flowering. Components of yield were measured after harvest.

Previous crops: W. wheat 1993, set-aside 1994.

GRAIN TONNES/HECTARE

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

SOW DATE / **LINES**	E	M	Mean
70	1.73	2.21	1.97
73	2.74	2.99	2.87
Mean	2.23	2.60	2.42

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

LINES	**SOW DATE**	**LINES** **SOW DATE**
0.142	0.142	0.201

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	9	0.284	11.7

GRAIN MEAN DM% 90.3

PLOT AREA HARVESTED 0.00072

https://doi.org/10.23637/ERADOC-1-50

95/W/LP/2

LUPINS

ESTABLISHMENT STUDY ON HEAVY SOIL

Object: To identify seedbed conditions for the establishment and survival of autumn-sown lupins - Woburn, Long Mead.

Sponsor: I. Shield.

Design: 3 blocks of 8 plots.

Whole plot dimensions: 6.0 x 9.0.

Treatments:

ESTABL	Seedbed type, cultivations and method of sowing:
1	Medium-coarse seedbed, unconsolidated, precision drilled 5 cm deep
2	Medium-coarse seedbed, unconsolidated, tine-drilled 5 cm deep
3	As 2, then rolled
4	Fine seedbed, consolidated, tine-drilled 5 cm deep, rolled
5	Medium-coarse seedbed, unconsolidated, tine-drilled 7.5 cm deep
6	Direct drilled 5 cm deep, seed mixed with slug pellets
7	Minimal cultivations, seed broadcast with slug pellets, cultivated to 5 cm
8	Seed broadcast, ploughed to 10 cm, levelled

Experimental diary:

08-Sep-94 : **T** : **ESTABL** 1, 2, 3, 4, 5, 7 and 8: Sub-soiled.
12-Sep-94 : **T** : **ESTABL** 1, 2, 3, 4, 5: Ploughed.
: **T** : **ESTABL** 1: Precision drilled 5 cm deep.
: **T** : **ESTABL** 2, 3: Tine drilled 5 cm deep.
: **T** : **ESTABL** 4: Flat rolled, rotary harrowed, tine-drilled 5 cm deep.
: **T** : **ESTABL** 3, 4: Cambridge rolled.
: **T** : **ESTABL** 5: Precision drilled 7.5 cm deep.
: **T** : **ESTABL** 6: Direct drilled 5 cm deep with Draza at 5.5 kg.
: **T** : **ESTABL** 7: Seed broadcast with Draza at 5.5 kg. Rotary harrowed to 5 cm.
: **T** : **ESTABL** 8: Seed broadcast, ploughed 10 cm deep, rotary harrowed to level.
18-Sep-94 : B : Opogard 500 SC at 2.3 l with Gramoxone 100 at 3.0 l in 200 l.
02-Nov-94 : B : Laser at 1.0 l with adjuvant oil at 2.4 l in 300 l.
19-Apr-95 : B : Cultar at 0.75 l in 300 l.
28-Apr-95 : B : Atlas Simazine at 2.0 l in 300 l.
03-May-95 : B : Danadim Dimethoate 40 at 0.85 l with Vassgro Spreader at 0.3 l in 300 l.
30-Jun-95 : B : Danadim Dimethoate 40 at 850 ml in 300 l.
24-Aug-95 : B : Combine harvested.

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95/W/LP/2

NOTES: (1) Seed was CH304/70, dressed Germipro UFB, sown at 40 seeds per m^2.
(2) The crop on treatment 8 failed and has been omitted from the analysis.

Previous crops: Set-aside 1993, w. wheat 1994.

NOTE: Plants were counted monthly from sowing to April. Dry matter was measured in December. Leaf and branch numbers were counted post-flowering. Components of yield were measured, oil and protein content of grain was assessed on **ESTABL** 1 only.

GRAIN TONNES/HECTARE

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

ESTABL	
1	1.02
2	1.20
3	1.41
4	1.35
5	0.98
6	0.64
7	1.07
Mean	1.10

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

ESTABL
0.214

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	12	0.263	24.0

GRAIN MEAN DM% 88.9

PLOT AREA HARVESTED 0.00135

https://doi.org/10.23637/ERADOC-1-50

95/R/LP/3

LUPINS

SOWING DATES, PESTS AND DISEASES

Object: To study overwinter losses of autumn-sown lupins - Highfield VI.

Sponsors: G.L. Bateman, A.W. Ferguson, G.F.J. Milford, I. Shield, S. Nabb.

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

Whole plot dimensions: 2.88 x 10.0.

Treatments: All combinations of:-

1. **SOW DATE** Date of sowing:

   E Early (late August)
   L Late (middle of September)

2. **INS SEED** Insecticide seed treatment:

   D- None
   DI Insecticide (furothiocarb)

3. **FNG SEED** Fungicide seed treatment:

   DO None
   DF Fungicide (iprodione and carbendazim)

4. **AUT FUNG** Autumn fungicide:

   F- None
   FP Prochloraz
   FD Difenoconazol

Experimental diary:

29-Jul-94 : B : Deep tine cultivated with vibrating tines 60 cm apart and 45 cm deep, rolled.
04-Aug-94 : B : Ploughed and furrow pressed, rolled.
30-Aug-94 : **T** : **SOW DATE** E: Rotary harrowed, CH304/70 drilled at 40 seeds per m^2.
31-Aug-94 : **T** : **SOW DATE** E: Opogard 500 SC at 2.8 l in 220 l.
12-Sep-94 : B : Draza at 5.5 kg.
22-Sep-94 : **T** : **SOW DATE** L: Rotary harrowed, CH 304/70 drilled at 40 seeds per m^2.
26-Sep-94 : **T** : **SOW DATE** L: Opogard 500 SC at 2.8 l in 200 l.

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96/R/LP/3

Experimental diary:

```
   21-Nov-94 : T : AUT FUNG FP: Sportak 45 at 1.1 l in 220 l.
             : T : AUT FUNG FD: Plover at 0.3 l in 220 l.
   30-Nov-94 : B : Falcon at 1.0 l in 200 l.
   16-Dec-94 : B : Farmon PDQ at 15.0 l in 900 l, inter-row sprayed using
                   dribble bar.
   16-Jan-95 : B : Hand weeding started.
   17-Feb-95 : B : Hand weeding finished.
   13-Mar-95 : B : Atlas Simazine at 2.0 l in 200 l.
   12-Apr-95 : B : Cultar at 0.75 l in 200 l.
   19-Apr-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
   23-May-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
   20-Jun-95 : B : Corbel at 0.5 l with Tilt Turbo 475 EC at 1.0 l in
                   200 l.
   30-Jun-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
   16-Aug-95 : B : Combine harvested.
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Previous crops: W. wheat 1993, set-aside 1994.

NOTE: Samples were taken in September and October 1994 to assess pest and disease damage. Plant counts and visual assessments of damage were made at intervals.

GRAIN TONNES/HECTARE

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

INS SEED / **SOW DATE**	D-	DI	Mean
E	1.62	1.87	1.75
L	2.15	2.28	2.22
Mean	1.89	2.07	1.98

FNG SEED / **SOW DATE**	DO	DF	Mean
E	1.75	1.75	1.75
L	2.25	2.18	2.22
Mean	2.00	1.96	1.98

FNG SEED / **INS SEED**	DO	DF	Mean
D-	1.93	1.84	1.89
DI	2.06	2.09	2.07
Mean	2.00	1.96	1.98

AUT FUNG / **SOW DATE**	F-	FP	FD	Mean
E	1.69	1.98	1.57	1.75
L	2.28	2.38	1.99	2.22
Mean	1.98	2.18	1.78	1.98

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96/R/LP/3

GRAIN TONNES/HECTARE

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

AUT FUNG INS SEED	F-	FP	FD	Mean
D-	1.91	1.99	1.76	1.89
DI	2.05	2.37	1.79	2.07
Mean	1.98	2.18	1.78	1.98

AUT FUNG FNG SEED	F-	FP	FD	Mean
DO	1.99	2.20	1.80	2.00
DF	1.98	2.16	1.76	1.96
Mean	1.98	2.18	1.78	1.98

FNG SEED		DO	DF
SOW DATE	INS SEED		
E	D-	1.64	1.61
	DI	1.85	1.89
L	D-	2.23	2.07
	DI	2.26	2.29

AUT FUNG		F-	FP	FD
SOW DATE	INS SEED			
E	D-	1.54	1.75	1.58
	DI	1.85	2.21	1.55
L	D-	2.29	2.22	1.94
	DI	2.26	2.53	2.04

AUT FUNG		F-	FP	FD
SOW DATE	FNG SEED			
E	DO	1.71	1.99	1.53
	DF	1.67	1.98	1.60
L	DO	2.26	2.42	2.06
	DF	2.29	2.34	1.92

AUT FUNG		F-	FP	FD
INS SEED	FNG SEED			
D-	DO	1.86	2.09	1.85
	DF	1.96	1.89	1.67
DI	DO	2.12	2.32	1.74
	DF	1.99	2.43	1.85

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96/R/LP/3

GRAIN TONNES/HECTARE

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

SOW DATE	INS SEED	AUT FUNG FNG SEED	F-	FP	FD
E	D-	DO	1.44	1.77	1.70
		DF	1.64	1.73	1.46
	DI	DO	1.99	2.20	1.36
		DF	1.70	2.23	1.74
L	D-	DO	2.29	2.41	2.00
		DF	2.29	2.04	1.89
	DI	DO	2.24	2.44	2.11
		DF	2.29	2.63	1.96

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

SOW DATE	INS SEED	FNG SEED	AUT FUNG
0.107	0.107	0.107	0.130

SOW DATE INS SEED	SOW DATE FNG SEED	INS SEED FNG SEED	SOW DATE AUT FUNG
0.151	0.151	0.151	0.184

INS SEED AUT FUNG	FNG SEED AUT FUNG	SOW DATE INS SEED FNG SEED	SOW DATE INS SEED AUT FUNG
0.184	0.184	0.213	0.261

SOW DATE FNG SEED AUT FUNG	INS SEED FNG SEED AUT FUNG	SOW DATE INS SEED FNG SEED AUT FUNG
0.261	0.261	0.369

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	23	0.369	18.6

GRAIN MEAN DM% 90.4

PLOT AREA HARVESTED 0.00144

https://doi.org/10.23637/ERADOC-1-50

95/R/LP/5

LUPINS

AUTUMN HERBICIDES

Object: To test autumn-applied herbicides at various rates on the survival of weeds and autumn-sown lupins - Highfield VI.

Sponsor: I. Shield.

Design: 3 randomised blocks of 4 x 4 plots.

Plot dimensions: 3.0 x 9.0.

Treatments: All combinations of:-

1. **HERBCIDE** Herbicide and time of application:

ST	Pendimethalin pre-emergence
OK	Terbuthylazine with terbutryn pre-emergence, propyzamide post-emergence
SI	Simazine pre-emergence
O	Terbuthylazine with terbutryn pre-emergence

2. **RATE** Rate of herbicide application:

½N	Half normal
N	Normal
2N	Twice normal
4N	Four times normal

Experimental diary:

29-Jul-94 : B : Deep tine cultivated with vibrating tines 60 cm apart 45 cm deep, rolled.
04-Aug-94 : B : Ploughed and furrow pressed, rolled.
05-Sep-94 : B : Rotary harrowed, CH304/70 dressed Germipro UFB, drilled at 40 seeds per m^2.
07-Sep-94 : **T** : **HERBCIDE** OK, O **RATE** ½N, N, 2N, 4N: Opogard 500 SC at 1.4, 2.8, 5.6, 11.2 l in 220 l respectively.
: **T** : **HERBCIDE** SI **RATE** ½N, N, 2N, 4N: Atlas Simazine at 0.5, 1.0, 2.0, 4.0 l in 220 l respectively.
: **T** : **HERBCIDE** ST **RATE** ½N, N, 2N, 4N: Stomp 400 at 2.5, 5.0, 10.0, 20.0 l in 220 l respectively.
12-Sep-94 : B : Draza at 5.5 kg.
21-Nov-94 : **T** : **HERBCIDE** OK **RATE** ½N, N, 2N, 4N: Kerb Flo at 2.1 l in 220 l.
30-Nov-94 : B : Falcon at 1.0 l in 200 l.
14-Mar-95 : B : Logran 20 WG at 37.5 g in 200 l.
12-Apr-95 : B : Cultar at 0.75 l in 200 l.
19-Apr-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
23-May-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
20-Jun-95 : B : Corbel at 0.5 l with Tilt Turbo 475 EC at 1.0 l in 200 l.
30-Jun-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
17-Aug-95 : B : Combine harvested.

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95/R/LP/5

Previous crops: W. wheat 1993, set-aside 1994.

NOTE: Plant density was assessed in autumn, winter and spring. Dry matter was measured in winter and spring, weed cover was assessed in January.

GRAIN TONNES/HECTARE

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

RATE / HERBCIDE	½N	N	2N	4N	Mean
ST	1.90	1.81	1.93	1.39	1.76
OK	2.04	1.84	1.83	1.63	1.83
SI	1.54	1.89	1.90	1.91	1.81
O	1.50	1.58	1.75	1.91	1.69
Mean	1.74	1.78	1.85	1.71	1.77

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

HERBCIDE	RATE	HERBCIDE RATE
0.097	0.097	0.194

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	30	0.238	13.4

GRAIN MEAN DM% 91.1

PLOT AREA HARVESTED 0.00205

https://doi.org/10.23637/ERADOC-1-50

95/R/LP/6

LUPINS

SPRING HERBICIDES

Object: To test herbicides applied in the spring at various rates on the survival of weeds and autumn-sown lupins - Highfield VI.

Sponsor: I. Shield.

Design: 3 randomised blocks of (5 X 4) + 2 plots.

Plot dimensions: 3.0 x 9.0.

Treatments: All combinations of:-

1. **HERBCIDE** Herbicide type:

AZ	Aziprotryne
DI	RPEXP 30930A
PE	Pendimethalin
SI	Simazine
TR	Triasulfuron

NOTE: RPEXP 30930A is an experimental product containing diflufenican, exact composition is not disclosed.

2. **HERBRATE** Herbicide rate:

½N	Half normal
N	Normal
2N	Twice normal
4N	Four times normal

plus 2 extra plots

3. **EXTRA** Herbicide at normal rate:

AM	Amidosulfuron
PY	Pyridate

Experimental diary:

29-Jul-94 : B : Deep tine cultivated with vibrating tines 60 cm apart and 45 cm deep. Rolled.
04-Aug-94 : B : Ploughed and furrow pressed. Rolled.
05-Sep-94 : B : Rotary harrowed. CH304/70 drilled at 40 seeds per m^2.
06-Sep-94 : B : Opogard 500 SC at 2.8 l in 200 l.
12-Sep-94 : B : Draza at 5.5 kg.
30-Nov-94 : B : Falcon at 1.0 l in 200 l.
13-Mar-95 : **T** : **HERBCIDE** SI, **HERBRATE** ½N, N, 4N: Atlas Simazine at 1.15, 2.3, 4.6, 9.2 l in 220 l respectively.
: **T** : **HERBCIDE** PE, **HERBRATE** ½N, N, 2N, 4N: Stomp 400 at 2.5, 5.0, 10.0, 20.0 l in 220 l respectively.
04-Apr-95 : **T** : **EXTRA** AM: Eagle at 40 g in 220 l.
: **T** : **EXTRA** PY: Lentagran WP at 2.0 kg in 220 l.

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95/R/LP/6

Experimental diary:

04-Apr-95 : **T** : **HERBCIDE** AZ, **HERBRATE** ½N, N, 2N, 4N: Brasoran 50 WP at 2.0, 4.0, 8.0, 16.0 kg in 220 l respectively.
04-Apr-95 : **T** : **HERBCIDE** DI, **HERBRATE** ½N, N, 2N, 4N: RPEXP 30930A at 0.5, 1.0, 2.0, 4.0 l in 220 l respectively.
: **T** : **HERBCIDE** TR, **HERBRATE** ½N, N, 2N, 4N: Lo-gran 20 WG at 18.75, 37.5, 75.0, 150 g in 220 l respectively.
12-Apr-95 : B : Cultar at 0.75 l in 200 l.
19-Apr-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
23-May-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
20-Jun-95 : B : Corbel at 0.5 l with Tilt Turbo 475 EC at 1.0 l in 200 l.
30-Jun-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
17-Aug-95 : B : Combine harvested.

Previous crops: W. wheat 1993, set-aside 1994.

NOTES: (1) Yields failed on all **EXTRA** AM plots because the herbicide killed the crop. This treatment was omitted from the analysis.
(2) Plant counts were made in March and June, dry weight, fresh weight was recorded in May. Oil content and thousand grain weights were measured after harvest.

https://doi.org/10.23637/ERADOC-1-50

95/R/LP/6

GRAIN TONNES/HECTARE

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

HERBRATE / HERBCIDE	½N	N	2N	4N	Mean
AZ	1.50	1.25	1.52	1.34	1.40
DI	1.44	1.27	1.37	1.41	1.37
PE	1.71	1.55	1.58	1.83	1.67
SI	1.43	1.54	1.57	1.60	1.53
TR	1.42	1.38	1.10	1.07	1.24
Mean	1.50	1.40	1.43	1.45	1.44

EXTRA	PY
	1.41

Grand mean 1.44

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

HERBCIDE	HERBRATE	HERBCIDE HERBRATE & EXTRA
0.105	0.094	0.209

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	40	0.257	17.8

GRAIN MEAN DM% 91.1

PLOT AREA HARVESTED 0.00205

https://doi.org/10.23637/ERADOC-1-50

95/R/LP/7

LUPINS

GROWTH REGULATOR STUDY

Object: To assess the effectiveness of growth regulators in shortening and strengthening autumn-sown lupins at risk of lodging - Highfield VI.

Sponsors: I. Shield, G.F.J. Milford, J. Leach.

Design: 3 randomised blocks of 5 plots.

Plot dimensions: 3.0 x 9.0.

Treatments:

GROW REG	Growth regulator:
-	None
TR	Triapenthanol
PA	Paclobutrazol
AD	Chlormequat
FO	Tebuconazole

Experimental diary:

29-Jul-94 : B : Deep tine cultivated with vibrating tines 60 cm apart and 45 cm deep. Rolled.
04-Aug-94 : B : Ploughed and furrow pressed. Rolled.
05-Sep-94 : B : Rotary harrowed. CH304/70, dressed Germipro UFB, drilled at 40 seeds per m^2.
06-Sep-94 : B : Opogard 500 SC at 2.8 l in 200 l.
12-Sep-94 : B : Draza at 5.5 kg.
30-Nov-94 : B : Falcon at 1.0 l in 200 l.
20-Dec-94 : B : Farmon PDQ at 15.0 l in 900 l, inter-row sprayed using dribble bar.
03-Feb-95 : B : Hand weeded.
13-Mar-95 : B : Atlas Simazine at 2.0 l in 200 l.
04-Apr-95 : **T** : **GROW REG** PA: Cultar at 826 g in 220 l.
: **T** : **GROW REG** TR: Triapenthanol at 700 g in 220 l.
: **T** : **GROW REG** AD: Adjust at 3.0 l in 220 l.
: **T** : **GROW REG** FO: Folicur at 1.0 l in 220 l.
19-Apr-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
23-May-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
20-Jun-95 : B : Corbel at 0.5 l with Tilt Turbo 475 EC at 1.0 l in 200 l.
30-Jun-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
18-Aug-95 : B : Combine harvested.

Previous crops: W. wheat 1993, set-aside 1994.

NOTE: Plant numbers were assessed in April, May and at harvest. Plant height was measured fortnightly during stem extension. Dry matter of plant components and leaf area index were measured in July. Components of yield were measured at harvest.

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95/R/LP/7

GRAIN TONNES/HECTARE

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

GROW	REG
-	1.77
TR	1.35
PA	1.39
AD	1.10
FO	1.27
Mean	1.38

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

GROW	REG
	0.212

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	8	0.260	18.9

GRAIN MEAN DM% 91.1

PLOT AREA HARVESTED 0.00101

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95/R/LP/8

LUPINS

CONTROL OF INSECT PESTS

Object: To assess the effect of insect controls on the growth and yield of autumn-sown lupins - Highfield VI.

Sponsors: A.W. Ferguson, I. Shield.

Design: 3 randomised blocks of 8 plots.

Plot dimensions: 3.0 x 9.0.

Treatments:

INSCTCDE	Insecticide applied as seed treatment or spray:
–	None
S	Seed treatment (furathiocarb)
SD	Seed treatment (furathiocarb), deltamethrin in winter and spring
SA	Seed treatment (furathiocarb), pirimicarb as required
SAA	Seed treatment (furathiocarb), pirimicarb with wetting agent, as required
SAS	Seed treatment (furathiocarb), pirimicarb with sticker, as required
SH	Seed treatment (furathiocarb), dimethoate pre-flowering and as required
F	Seed treatment (furathiocarb), deltamethrin, pirimicarb with wetting agent and dimethoate as required

Experimental diary:

29-Jul-94 : B : Deep tine cultivated with vibrating tines 60 cm apart and 45 cm deep. Rolled.
04-Aug-94 : B : Ploughed and furrow pressed. Rolled.
05-Sep-94 : B : Rotary harrowed. CH 304/70 drilled at 40 seeds per m^2.
06-Sep-94 : B : Opogard 500 SC at 2.8 l in 200 l.
12-Sep-94 : B : Draza at 5.5 kg.
21-Nov-94 : **T** : **INSCTCDE** SD, F: Decis at 300 ml in 220 l.
30-Nov-94 : B : Falcon at 1.0 l in 200 l.
13-Mar-95 : B : Atlas Simazine at 2.0 l in 200 l.
04-Apr-95 : **T** : **INSCTCDE** SD, F: Decis at 300 ml in 220 l.
12-Apr-95 : B : Cultar at 0.75 l in 200 l.
28-Apr-95 : **T** : **INSCTCDE** SA: Pirimicarb 50 DG at 280 g in 220 l.
: **T** : **INSCTCDE** SH, F: Atlas Dimethoate 40 at 850 ml in 220 l.
: **T** : **INSCTCDE** SAS: Pirimicarb 50 DG at 280 g with Intracrop BLA at 220 ml in 200 l.
: **T** : **INSCTCDE** SAA: Pirimicarb 50 DG at 280 g with Vassgro Spreader at 55 ml in 220 l.
31-May-95 : **T** : **INSCTCDE** SA: Pirimicarb 50 DG at 280 g in 220 l.
: **T** : **INSCTCDE** SAS: Pirimicarb 50 DG at 280 g with Intracrop BLA at 220 ml in 220 l.

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Experimental diary:
31-May-95 : **T** : **INSCTCDE** SAA, F: Pirimicarb 50 DG at 280 g with Vassgro Spreader at 55 ml in 220 l.
20-Jun-95 : B : Corbel at 0.5 l with Tilt Turbo 475 EC at 1.0 l in 200 l.
18-Aug-95 : B : Combine harvested.

Previous crops: W. wheat 1993, set-aside 1994.

NOTE: Plant samples were taken before and after each insecticide treatment to assess damage by bean seed fly and infestation of lupin aphid. Establishment counts were made in October 1994.

GRAIN TONNES/HECTARE

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

INSCTCDE	
_	0.85
S	0.96
SD	0.91
SA	1.54
SAA	1.68
SAS	1.57
SH	0.38
F	1.59
Mean	1.19

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

INSCTCDE
0.288

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	14	0.352	29.7

GRAIN MEAN DM% 90.7

PLOT AREA HARVESTED 0.00130

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95/R/LP/9

LUPINS

CANOPY STRUCTURE AND YIELD

Object: To assess the effects of canopy structure and leaf and pod photosynthesis on the dry matter production and yield of two lupin lines - Highfield VI.

Sponsors: J.E. Leach, T. Scott.

Design: 4 randomised blocks of 2 plots (duplicated).

Plot dimensions: 2.88 x 10.0.

Treatments:

VARIETY

70	CH304/70
73	CH304/73

Experimental diary:

29-Jul-94 : B : Deep tine cultivated with vibrating tines 60 cm apart and 45 cm deep. Rolled.
04-Aug-94 : B : Ploughed and furrow pressed. Rolled.
05-Sep-94 : **T** : **VARIETY** 70, 73: Rotary harrowed, varieties drilled at 40 seeds per m^2.
06-Sep-94 : B : Opogard 500 SC at 2.8 l in 220 l.
12-Sep-94 : B : Draza at 5.5 kg.
30-Nov-94 : B : Falcon at 1.0 l in 200 l.
16-Dec-94 : B : Farmon PDQ at 15.0 l in 900 l, inter-row sprayed using dribble bar.
19-Jan-95 : B : Hand weeded.
30-Jan-95 : B : Hand weeded.
13-Mar-95 : B : Atlas Simazine at 2.0 l in 200 l.
12-Apr-95 : B : Cultar at 0.75 l in 200 l.
23-May-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
20-Jun-95 : B : Corbel at 0.5 l with Tilt Turbo 475 EC at 1.0 l in 200 l.
30-Jun-95 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
17-Aug-95 : B : Hand harvested.

Previous crops: W. wheat 1993, set-aside 1994.

NOTE: Radiation interception was measured weekly from spring to the start of maturity. Dry matter, photosynthesis and canopy structure was measured fortnightly from spring till harvest.

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GRAIN TONNES/HECTARE

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

VARIETY	70	73	Mean
	1.58	3.21	2.39

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

VARIETY
0.455

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	11	0.910	38.0

GRAIN MEAN DM% not measured

PLOT AREA HARVESTED 0.00011

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95/R/LP/13

LUPINS

SPRING-SOWN WINTER LUPINS

Object: To assess the growth of two winter cultivars and one spring cultivar, sown in spring at three sowing dates, and the use of a desiccant to accelerate maturity - Sawyers 1 E.

Sponsors: G.F.J. Milford, H. Stevenson, I. Shield.

Design: 3 randomised blocks of 3 x 2 x 2 + 1 (duplicated) plots.

Whole plot dimensions: 3.0 x 9.0.

Treatments: All combinations of:-

1. **VARIETY**

70	CH304/70
73	CH304/73
MIN	Minori

NOTE: 70 was sown at 240 kg, 73 at 160 kg and MIN at 220 kg, to give 80 seeds per m^2.

2. **SOW DATE** Dates of sowing:

E	13 March
M	27 March

3. **DESICANT** Desiccant:

-	None
D	Glyphosate

plus extra treatment

MIN LATE **VARIETY** MIN, sown 10 April (duplicated)

Experimental diary:

13-Jan-95 : B : Roundup at 4.0 l in 200 l.
07-Feb-95 : B : Ploughed.
13-Mar-95 : **T** : **SOW DATE** E: Rotary harrowed, varieties drilled, Stomp 400 at 5.0 l in 220 l.
27-Mar-95 : **T** : **SOW DATE** M: Rotary harrowed, varieties drilled,
30-Mar-95 : **T** : **SOW DATE** M: Stomp 400 at 5.0 l in 220 l.
10-Apr-95 : **T** : **DESI LAT** -, D: Rotary harrowed, varieties drilled, Stomp 400 at 5.0 l in 220 l.
31-May-95 : B : Fusilade 5 at 2 l with Vassgro Spreader at 200 ml in 200 l.
21-Jul-95 : B : Corbel at 1.0 l in 300 l.
09-Aug-95 : **T** : **SOW DATE** E, **VARIETY** MIN, **DESICANT** D: Roundup at 2.0 l in 220 l.
22-Aug-95 : **T** : **SOW DATE** E, **VARIETY** MIN: Hand harvested (one block).

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Experimental diary:

30-Aug-95 : **T** : **SOW DATE** M, **VARIETY** MIN, **DESICANT** D: Roundup at 2.0 l in 220 l.
04-Sep-95 : **T** : **SOW DATE** E, **VARIETY** MIN: Hand harvested (two blocks).
05-Sep-95 : **T** : **SOW DATE** E, **VARIETY** 70, 73, **DESICANT** D: Roundup at 2.0 l in 220 l.
21-Sep-95 : **T** : **SOW DATE** M, **VARIETY** MIN, **MIN LATE**: Hand harvested.
25-Sep-95 : **T** : **SOW DATE** E, **VARIETY** 70, 73: Combine harvested.
: **T** : **SOW DATE** M, **VARIETY** 70, 73, **DESICANT** D: Roundup at 2.0 l in 220 l.
11-Oct-95 : **T** : **SOW DATE** M, **VARIETY** 70, 73: Combine harvested.

Previous crops: S. wheat 1993, w. wheat 1994.

NOTES: (1) Late sowings of **VARIETY** 70, 73 were not harvested due to poor growth and are omitted from the tables.
(2) Plants were counted at establishment and harvest. Leaf production was measured pre-vernalization, leaf and branch numbers were assessed after flowering. Photosynthesis was measured during pod development. Components of yield were measured, oil and protein content of grain were assessed.

GRAIN TONNES/HECTARE

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

SOW DATE / **VARIETY**	E	M	Mean
70	1.31	0.77	1.04
73	1.08	0.70	0.89
MIN	1.71	1.17	1.44
Mean	1.37	0.88	1.12

DESICANT / **VARIETY**	-	D	Mean
70	1.09	0.98	1.04
73	0.88	0.91	0.89
MIN	1.47	1.41	1.44
Mean	1.15	1.10	1.12

DESICANT / **SOW DATE**	-	D	Mean
E	1.34	1.40	1.37
M	0.96	0.80	0.88
Mean	1.15	1.10	1.12

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GRAIN TONNES/HECTARE

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

VARIETY	DESICANT / SOW DATE	-	D
70	E	1.39	1.24
	M	0.80	0.73
73	E	1.06	1.11
	M	0.69	0.70
MIN	E	1.57	1.84
	M	1.37	0.97

MIN LATE
0.82

Grand mean 1.08

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

VARIETY	SOW DATE	DESICANT	VARIETY SOW DATE
0.082	0.067	0.067	0.116

VARIETY DESICANT	SOW DATE DESICANT	VARIETY SOW DATE DESICANT
0.116	0.094	0.164

SED for comparing **MIN LATE** with any item in **VARIETY**, **SOW DATE**, **DESICANT** table is 0.142

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	27	0.200	18.5

GRAIN MEAN DM% 84.8

PLOT AREA HARVESTED 0.00318 **VARIETY** MIN
PLOT AREA HARVESTED 0.00165 OTHER TREATMENTS

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