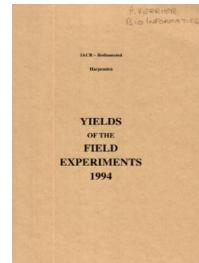


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Yields of the Field Experiments 1994

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Winter Lupins

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94/R/LP/2

WINTER LUPINS

SOWING DATES AND POPULATION

Object: To study the effects of sowing date and plant density on plant structure, yield, components of yield and harvest date - Great Harpenden I.

Sponsors: G.F.J. Milford, I. Shield, J.E. Leach, J.M. Day.

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

Whole plot dimensions: 14.52 x 6.0.

Treatments:

Whole plots

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

| | |
|----|-------------------|
| S1 | 2 September, 1993 |
| S2 | 22 September |
| S3 | 17 October |
| S4 | 28 October |

Sub-plots

2. **POPULATN** Number of seeds sown per m²:

| | |
|----|----|
| P1 | 28 |
| P2 | 42 |
| P3 | 56 |
| P4 | 70 |

Experimental diary:

31-Aug-93 : B : Ploughed and furrow pressed.
01-Sep-93 : B : Rolled, rotary harrowed.
02-Sep-93 : T : **SOW DATE** S1: Rotary harrowed, CH304/70, dressed iprodione and carbendazim, drilled.
06-Sep-93 : T : **SOW DATE** S1: Opogard 500 FW at 2.8 l in 220 l.
20-Sep-93 : T : **SOW DATE** S2: Rotary harrowed.
22-Sep-93 : T : **SOW DATE** S2: Rotary harrowed, CH304/70, dressed iprodione and carbendazim, drilled. Opogard 500 FW at 2.8 l in 220 l.
15-Oct-93 : T : **SOW DATE** S3, S4: Spring-tine cultivated.
16-Oct-93 : T : **SOW DATE** S3: Rotary harrowed.
17-Oct-93 : T : **SOW DATE** S3: CH304/70, dressed iprodione and carbendazim, drilled.
28-Oct-93 : T : **SOW DATE** S4: CH304/70, dressed iprodione and carbendazim, drilled.
01-Nov-93 : T : **SOW DATE** S3, S4: Opogard 500 FW at 2.8 l in 220 l.
23-Dec-93 : B : Sportak 45 at 1.1 l in 220 l.
16-Feb-94 : B : Atlas Simazine at 1.0 l in 200 l.

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Experimental diary:

30-Mar-94 : T : SOW DATE S4: Heavy spring-tine cultivated.
20-Apr-94 : T : SOW DATE S4: Rotary harrowed, Minori drilled.
21-Apr-94 : T : SOW DATE S1: Laser at 1.25 l in 186 l.
29-Apr-94 : T : SOW DATE S4: Opogard 500 SC at 2.8 l in 220 l.
08-Jul-94 : B : Atlas Dimethoate 40 at 850 ml in 200 l.
06-Sep-94 : T : SOW DATE S1, S2: Combine harvested.
19-Oct-94 : T : SOW DATE S4: Combine harvested.

Previous crops: W. wheat 1992, w. barley 1993.

NOTES: (1) All seed was inoculated with rhizobium.
(2) Lupins on the S3 and S4 plots failed. S4 plots were resown with a spring variety.

GRAIN TONNES/HECTARE

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

| POPULATN SOW DATE | P1 | P2 | P3 | P4 | Mean |
|----------------------|------|------|------|------|------|
| S1 | 1.94 | 1.92 | 2.20 | 2.55 | 2.15 |
| S2 | 0.33 | 0.37 | 0.56 | 1.07 | 0.58 |
| S4 | 0.10 | 0.04 | 0.07 | 0.20 | 0.10 |
| Mean | 0.79 | 0.78 | 0.94 | 1.27 | 0.94 |

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

| | SOW DATE | POPULATN | SOW DATE | POPULATN |
|---|----------|----------|----------|----------|
| s.e.d. | 0.152 | 0.147 | 0.267 | |
| Except when comparing means with the same level(s) of | | | | |
| SOW DATE | | | | 0.254 |

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

| Stratum | d.f. | s.e. | cv% |
|-------------|------|-------|------|
| BLOCK.WP | 6 | 0.214 | 22.7 |
| BLOCK.WP.SP | 27 | 0.360 | 38.1 |

GRAIN MEAN DM% 79.1

SUB PLOT AREA HARVESTED 0.00058 (SOW DATE S1, S2)
0.00090 (SOW DATE S4)

94/R/LP/3

WINTER LUPINS

SOWING DATES, PESTS AND DISEASES

Object: To measure overwinter losses in early and late sown lupins and to identify any pests or diseases causing such losses - Great Harpenden I.

Sponsors: A.W. Ferguson, G. L. Bateman, G.F.J. Milford, I. Shield, J.M. Day.

Design: 3 blocks of a half-replicate of 2 x 2 x 2 x 2 x 2 plots.

Whole plot dimensions: 2.88 x 15.0.

Treatments:

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

| | |
|---|--------------------|
| E | 23 September, 1993 |
| L | 20 October |

2. **SEED TRT** Seed treatment:

| | |
|----|--------|
| 1- | None |
| 1T | Thiram |

3. **SOIL INS** Soil-applied insecticide:

| | |
|----|--------------|
| 2- | None |
| 2C | Chlorpyrifos |

4. **AUT SPRY** Autumn fungicide:

| | |
|----|------------|
| A- | None |
| AP | Prochloraz |

5. **SUM FUNG** Summer fungicide:

| | |
|----|----------------------------------|
| F- | None |
| FF | Iprodione and thiophanate-methyl |

6. **SUM INS** Summer insecticide:

| | |
|----|------------|
| I- | None |
| IA | Pirimicarb |
| ID | Dimethoate |

NOTE: **SEED TRT 1T:** Thiram, as Agrichem Flowable Thiram, was applied at 900 g active ingredient per t of seed.

94/R/LP/3

Experimental diary:

31-Aug-93 : B : Ploughed and furrow pressed.
23-Sep-93 : B : Rotary harrowed.
 : T : **SOW DATE** E: CH 304/70 drilled at 40 seeds per m².
 : T : **SOW DATE** E, **SOIL INS** 2C: Dursban 48E at 1.5 l in 220 l.
24-Sep-93 : T : **SOW DATE** E: Opogard 500 FW at 2.8 l in 200 l.
20-Oct-93 : T : **SOW DATE** L: Rotary harrowed, CH304/70 drilled at 40
 seeds per m².
26-Oct-93 : T : **SOW DATE** L, **SOIL INS** 2C: Dursban 48E at 1.5 l in 220 l.
01-Nov-93 : T : **SOW DATE** L: Opogard 500 FW at 2.8 l in 220 l.
14-Dec-93 : T : **AUT SPRY** AP: Sportak 45 at 1.1 l in 220 l.
16-Feb-94 : B : Atlas Simazine at 1.0 l in 200 l.
13-Jun-94 : T : **SUM FUNG** FF: Compass at 3.0 l in 220 l.
12-Jul-94 : T : **SUM INS** IA: Pirimicarb 50 DG at 0.28 kg with Vassgro
 Spreader at 125 ml in 220 l.
 : T : **SUM INS** ID: Atlas Dimethoate 40 at 0.85 l in 220 l.
06-Sep-94 : B : Combine harvested.

Previous crops: W. wheat 1992. w. barley 1993.

NOTE: Plant establishment was assessed in autumn, spring and summer. Aphid populations were assessed before and after insecticide treatments were applied. Diseases were assessed in summer.

GRAIN TONNES/HECTARE

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

| SEED TRT | 1- | 1T | Mean |
|-----------------|------|------|------|
| SOW DATE | | | |
| E | 1.18 | 0.98 | 1.08 |
| L | 0.09 | 0.11 | 0.10 |
| Mean | 0.63 | 0.54 | 0.59 |
| SOIL INS | 2- | 2C | Mean |
| SOW DATE | | | |
| E | 1.25 | 0.91 | 1.08 |
| L | 0.10 | 0.09 | 0.10 |
| Mean | 0.68 | 0.50 | 0.59 |
| SOIL INS | 2- | 2C | Mean |
| SEED TRT | | | |
| 1- | 0.75 | 0.52 | 0.63 |
| 1T | 0.61 | 0.48 | 0.54 |
| Mean | 0.68 | 0.50 | 0.59 |

94/R/LP/3

GRAIN TONNES/HECTARE

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

| AUT SPRY SOW DATE | A- | AP | Mean |
|----------------------|------|------|------|
| E | 1.01 | 1.15 | 1.08 |
| L | 0.11 | 0.09 | 0.10 |
| Mean | 0.56 | 0.62 | 0.59 |
| AUT SPRY SEED TRT | A- | AP | Mean |
| 1- | 0.63 | 0.63 | 0.63 |
| 1T | 0.49 | 0.60 | 0.54 |
| Mean | 0.56 | 0.62 | 0.59 |
| AUT SPRY SOIL INS | A- | AP | Mean |
| 2- | 0.67 | 0.68 | 0.68 |
| 2C | 0.45 | 0.56 | 0.50 |
| Mean | 0.56 | 0.62 | 0.59 |
| SUM FUNG SOW DATE | F- | FF | Mean |
| E | 1.15 | 1.01 | 1.08 |
| L | 0.10 | 0.10 | 0.10 |
| Mean | 0.62 | 0.55 | 0.59 |
| SUM FUNG SEED TRT | F- | FF | Mean |
| 1- | 0.65 | 0.62 | 0.63 |
| 1T | 0.60 | 0.49 | 0.54 |
| Mean | 0.62 | 0.55 | 0.59 |
| SUM FUNG SOIL INS | F- | FF | Mean |
| 2- | 0.67 | 0.68 | 0.68 |
| 2C | 0.58 | 0.42 | 0.50 |
| Mean | 0.62 | 0.55 | 0.59 |
| SUM FUNG AUT SPRY | F- | FF | Mean |
| A- | 0.55 | 0.57 | 0.56 |
| AP | 0.70 | 0.54 | 0.62 |
| Mean | 0.62 | 0.55 | 0.59 |

94/R/LP/3

GRAIN TONNES/HECTARE

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

| SUM INS SOW DATE | I- | IA | ID | Mean |
|---------------------|------|------|------|------|
| E | 1.20 | 1.25 | 0.80 | 1.08 |
| L | 0.10 | 0.09 | 0.10 | 0.10 |
| Mean | 0.65 | 0.67 | 0.45 | 0.59 |
| SUM INS SEED TRT | I- | IA | ID | Mean |
| 1- | 0.68 | 0.70 | 0.53 | 0.63 |
| 1T | 0.62 | 0.65 | 0.37 | 0.54 |
| Mean | 0.65 | 0.67 | 0.45 | 0.59 |
| SUM INS SOIL INS | I- | IA | ID | Mean |
| 2- | 0.80 | 0.77 | 0.46 | 0.68 |
| 2C | 0.49 | 0.58 | 0.43 | 0.50 |
| Mean | 0.65 | 0.67 | 0.45 | 0.59 |
| SUM INS AUT SPRY | I- | IA | ID | Mean |
| A- | 0.59 | 0.64 | 0.46 | 0.56 |
| AP | 0.71 | 0.71 | 0.44 | 0.62 |
| Mean | 0.65 | 0.67 | 0.45 | 0.59 |
| SUM INS SUM FUNG | I- | IA | ID | Mean |
| F- | 0.65 | 0.76 | 0.47 | 0.62 |
| FF | 0.65 | 0.59 | 0.42 | 0.55 |
| Mean | 0.65 | 0.67 | 0.45 | 0.59 |

94/R/LP/3

GRAIN TONNES/HECTARE

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

| SOW DATE | SEED TRT | SOIL INS | AUT SPRY |
|----------|----------|----------|----------|
| 0.081 | 0.081 | 0.081 | 0.081 |
| SUM FUNG | SUM INS | SOW DATE | SOW DATE |
| 0.081 | 0.099 | SEED TRT | SOIL INS |
| 0.115 | | 0.115 | 0.115 |
| SEED TRT | SOW DATE | SEED TRT | SOIL INS |
| SOIL INS | AUT SPRY | AUT SPRY | AUT SPRY |
| 0.115 | 0.115 | 0.115 | 0.115 |
| SOW DATE | SEED TRT | SOIL INS | AUT SPRY |
| SUM FUNG | SUM FUNG | SUM FUNG | SUM FUNG |
| 0.115 | 0.115 | 0.115 | 0.115 |
| SOW DATE | SEED TRT | SOIL INS | AUT SPRY |
| SUM INS | SUM INS | SUM INS | SUM INS |
| 0.141 | 0.141 | 0.141 | 0.141 |
| SUM FUNG | | | |
| SUM INS | | | |
| 0.141 | | | |

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

| Stratum | d.f. | s.e. | cv% |
|----------|------|-------|------|
| BLOCK.WP | 20 | 0.281 | 47.7 |

GRAIN MEAN DM% 80.5

PLOT AREA HARVESTED 0.00216

94/R/LP/9

SPRING LUPINS

SOWING DATES OF SPRING LUPINS

Object: To observe the development of a variety of lupin sown on three dates in spring. To measure the physiological development and yield, and to relate these to sowing date and period of vernalisation - Long Hoos IV 3.

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

Design: 5 randomised blocks of 3 plots.

Whole plot dimensions: 2.88 x 9.0.

Treatments:

SOW DATE Date of sowing:

| | |
|---|---------------------|
| E | Early 7 March, 1994 |
| M | Middle 14 March |
| L | Late 29 March |

Experimental diary:

01-Nov-93 : B : Sting CT at 4.0 l in 200 l.
04-Nov-93 : B : Ploughed.
07-Mar-94 : T : **SOW DATE** E: Rotary harrowed, CH304/73 drilled at 60 seeds per m².
10-Mar-94 : T : **SOW DATE** E: Opogard 500 SC at 2.8 l in 220 l.
14-Mar-94 : T : **SOW DATE** M: Rotary harrowed, CH304/73 drilled at 60 seeds per m².
18-Mar-94 : T : **SOW DATE** M: Opogard 500 SC at 2.8 l in 220 l.
29-Mar-94 : T : **SOW DATE** L: Rotary harrowed, CH304/73 drilled at 60 seeds per m².
12-Apr-94 : T : **SOW DATE** L: Opogard 500 SC at 2.8 l in 220 l.
29-Sep-94 : T : **SOW DATE** E: Hand harvested.
10-Oct-94 : T : **SOW DATE** M: Hand harvested.
01-Nov-94 : T : **SOW DATE** L: Hand harvested.

Previous crops: Fallow 1992, w. rape and shepherd's purse 1993.

NOTES: (1) Plant populations were assessed at emergence and in June, leaf primordia were counted in late spring. Leaves, branches and florets were counted in July and at harvest components of yield were assessed.
(2) The yield of one plot was lost during harvesting, with treatment E. An estimated value was used in the analysis

94/R/LP/9

GRAIN TONNES/HECTARE

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

SOW DATE

| | |
|---|------|
| E | 2.26 |
| M | 2.52 |
| L | 1.52 |

Mean 2.10

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

SOW DATE

0.154

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

| Stratum | d.f. | s.e. | cv% |
|----------|------|-------|------|
| BLOCK.WP | 7 | 0.243 | 11.6 |

GRAIN MEAN DM% 80.0

PLOT AREA HARVESTED 0.00171