

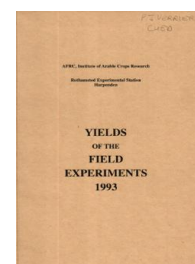
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# Yields of the Field Experiments 1993

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## Lupins

### Rothamsted Research

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93/R/LP/1

## WINTER LUPINS

### LUPIN VARIETIES

**Object:** To assess crop structure, yield and maturity date of a number of lines of winter lupins - Long Hoos IV South.

**Sponsors:** G.F.J. Milford, H.J. Stevenson, J.E. Leach, J.M. Day, T. Scott.

**Design:** 3 blocks of 15 plots.

**Whole plot dimensions:** 2.0 x 3.0.

#### Treatments:

| GENOTYPE | Genotypes: |
|----------|------------|
| L1       | CH304/70   |
| L2       | CH304/71   |
| L3       | CH304/73   |
| L4       | XA 100     |
| L5       | RES 1      |
| L6       | LUS 5      |
| L7       | LUS 21     |
| L8       | LUS 24     |
| L9       | LUS 26     |
| L10      | LUS 54     |
| L11      | LUS 60     |
| L12      | LUS 64     |
| L13      | LUS 118    |
| L14      | LUS 131    |
| L15      | LUS 139    |

#### Experimental Diary:

06-Oct-92 : B : Ploughed.  
09-Oct-92 : B : Rotary harrowed.  
          : T : **GENOTYPE:** All genotypes, inoculated with rhizobium, hand sown at 42 seeds per square metre.  
          : B : Yaltox at 35 kg, by hand.  
13-Oct-92 : B : Opogard 500 FW at 2.8 l in 200 l.  
22-Jun-93 : B : Power Dimethoate at 1.7 kg in 200 l.  
02-Jul-93 : B : Mistral at 1.0 l in 200 l.  
          : B : Sportak 45 at 1.1 l in 200 l.  
01-Sep-92 : T : **GENOTYPE** L2, L3: Hand harvested.  
07-Sep-92 : T : **GENOTYPE** L5, L8, L12 excluding one replicate of L12:  
          Hand harvested.  
29-Sep-92 : T : **GENOTYPE** L1, L6, L11, L13, L14: Hand harvested.  
07-Oct-92 : T : **GENOTYPE** L15 plus one replicate of L10 and L12:  
          Hand harvested.  
26-Oct-92 : T : **GENOTYPE** L4, L7, L9, L10 excluding one replicate of L10:  
          Hand harvested.

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Previous crops: S. barley 1991, fallow 1992.

- NOTES:** (1) Hand harvesting period was extended because of wet weather.  
 (2) Plant counts were made throughout the season and measurements of plant height, structure, time of flowering, flower colour and floret numbers taken. Pod, seed and branch numbers and seed dry weights were measured at harvest.  
 (3) Because of rodent damage the yield of one plot was lost with treatment **GENOTYPE** L15. An estimated value was used in the analysis.

# **GRAIN TONNES/HECTARE**

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

| GENOTYPE |      |
|----------|------|
| L1       | 6.28 |
| L2       | 0.66 |
| L3       | 1.71 |
| L4       | 2.44 |
| L5       | 0.45 |
| L6       | 3.61 |
| L7       | 2.88 |
| L8       | 1.38 |
| L9       | 2.89 |
| L10      | 0.52 |
| L11      | 2.33 |
| L12      | 2.25 |
| L13      | 2.48 |
| L14      | 2.51 |
| L15      | 0.73 |
| Mean     | 2.21 |

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

**GENOTYPE**  
0.623

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

| Stratum             | d.f.    | s.e.  | cv%  |
|---------------------|---------|-------|------|
| BLOCK.WP            | 27      | 0.763 | 34.5 |
| MEAN DM%            | *       |       |      |
| PLOT AREA HARVESTED | 0.00049 |       |      |

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## WINTER LUPINS

### SOWING DATE, POPULATION AND DISEASE

**Object:** To establish the effect of sowing date and plant density on plant structure, yield and harvest date and to investigate the occurrence and significance of root-infecting pathogens - Long Hoos III 2, 4, 5 and 6.

**Sponsors:** J.M. Day, G.F.J. Milford, J.E. Leach, J.F. Jenkyn, G.L. Bateman, H.J. Stevenson, T. Scott, D.P. Yeoman.

**Design:** 4 blocks of 4 plots split into 5 sub plots.

**Whole plot dimensions:** 2.88 x 6.0.

#### Treatments:

##### Whole plots

|             |                 |
|-------------|-----------------|
| 1. SOW DATE | Date of sowing: |
| EAR SEP     | Early September |
| MID SEP     | Mid September   |
| EAR OCT     | Early October   |
| MID OCT     | Mid October     |

##### Sub plots

|             |                                                              |
|-------------|--------------------------------------------------------------|
| 2. POPULATN | Plant population at establishment (plants per square metre): |
| P1          | 13                                                           |
| P2          | 17                                                           |
| P3          | 21                                                           |
| P4          | 28                                                           |

**NOTES:** (1) Sowing rates used to achieve the required plant populations were 28, 42, 56 and 70 seeds per square metre respectively.

(2) **POPULATN** P2 was duplicated to allow additional sampling.

#### Experimental Diary:

07-Sep-92 : B : Ploughed.  
08-Sep-92 : B : Rolled.  
          : T : **SOW DATE** EAR SEP: Rotary harrowed twice.  
09-Sep-92 : T : **SOW DATE** EAR SEP: CH304/70, inoculated rhizobium, drilled.  
10-Sep-92 : T : **SOW DATE** EAR SEP: Opogard 500 FW at 2.8 l in 220 l.  
21-Sep-92 : T : **SOW DATE** MID SEP: Heavy spring-tine cultivated.  
06-Oct-92 : T : **SOW DATE** MID SEP: Rotary harrowed, CH304/70, inoculated rhizobium, drilled.  
08-Oct-92 : T : **SOW DATE** MID SEP: Opogard 500 FW at 2.8 l in 220 l.

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**Experimental diary:**

19-Oct-92 : T : SOW DATE EAR OCT: Rotary harrowed, CH304/70, inoculated  
rhizobium, drilled.  
: T : SOW DATE EAR OCT: Opogard 500 FW at 2.8 l in 220 l.  
04-Nov-92 : T : SOW DATE MID OCT: Heavy spring-tine cultivated.  
05-Nov-92 : T : SOW DATE MID OCT: Rotary harrowed CH304/70 inoculated  
rhizobium, drilled.  
22-Jun-93 : B : Power Dimethoate at 1.7 kg in 200 l.  
02-Jul-93 : B : Sportak at 1.1 l in 200 l.  
06-Sep-93 : B : Stefes Diquat at 3.0 l with Vassgro Spreader at 0.3 l  
in 260 l.  
13-Sep-93 : T : SOW DATE EAR SEP: Hand harvested.  
14-Sep-93 : T : SOW DATE MID SEP, EAR OCT, MID OCT: Hand harvested.

Previous crops: Long Hoos III 2 Lupins 1991, fallow 1992.  
Long Hoos III 4 Lupins 1991, s.wheat 1992.  
Long Hoos III 5 Fallow 1991, s. wheat 1992.

- NOTE:** (1) Plant counts were made throughout the season and measurements of plant height, structure, time of flowering and maximum floret numbers were recorded.
- (2) Owing to waterlogging during the winter one of the four blocks failed and was abandoned. Yields were, therefore, measured on only three blocks.
- (3) The yield of one plot was lost with treatment combination SOW DATE EAR SEP, POPULATN P2. An estimated value was used in the analysis.

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# GRAIN TONNES/HECTARE

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

| SOW DATE | EAR SEP | MID SEP | EAR OCT | MID OCT | Mean |
|----------|---------|---------|---------|---------|------|
| POPULATN |         |         |         |         |      |
| P1       | 1.26    | 0.58    | 0.28    | 0.74    | 0.71 |
| P2       | 2.59    | 0.53    | 0.18    | 0.68    | 1.00 |
| P3       | 2.15    | 0.97    | 0.42    | 0.98    | 1.13 |
| P4       | 2.63    | 0.91    | 0.91    | 1.20    | 1.41 |
| Mean     | 2.24    | 0.70    | 0.39    | 0.86    | 1.05 |

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

| Table                                                 | POPULATN | SOW DATE | POPULATN | SOW DATE |
|-------------------------------------------------------|----------|----------|----------|----------|
| s.e.d.                                                | 0.167    |          | 0.395    | min.rep  |
|                                                       | 0.145    | 0.257    | 0.358    | max-min  |
|                                                       |          |          | 0.316    | max.rep  |
| Except when comparing means with the same level(s) of |          |          |          |          |
| SOW DATE                                              |          |          | 0.335    | min.rep  |
|                                                       |          |          | 0.290    | max-min  |

POPULATN  
max.rep P2  
max-min P2 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    | 6    | 0.315 | 30.1 |
| BLOCK.WP.SP | 35   | 0.410 | 39.1 |

MEAN DM% \*

PLOT AREA HARVESTED 0.00102