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# Yields of the Field Experiments 1986

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## 86/R/LP/5 Growth Regulators - Lupins

### Rothamsted Research

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86/R/LP/5

LUPINS

GROWTH REGULATORS

Object: To study the effects of rates and times of applying two growth regulators on the growth and yield of lupins (*Lupinus albus*) - Long Hoos V 6.

Sponsors: J. McEwen, D.P. Yeoman.

Design: 4 randomised blocks of 15 plots.

Whole plot dimensions: 2.4 x 5.0.

Treatments: All combinations of:-

- |                      |                                                                      |                   |
|----------------------|----------------------------------------------------------------------|-------------------|
| 1. GROW REG          | Growth regulators:                                                   |                   |
| 2-CHLORO<br>MEP+2-CH | 2-chloroethylphosphonic acid (2CPA)<br>Mepiquat chloride plus 2CPA   |                   |
| 2. GR RATE           | Rates of application of growth regulators (g):                       |                   |
|                      | 2CPA                                                                 | Mepiquat chloride |
| 1                    | 120                                                                  | 236               |
| 2                    | 240                                                                  | 472               |
| 4                    | 480                                                                  | 944               |
| 3. GR TIME           | Times of application of growth regulators:                           |                   |
| TERMINAL             | When first pods formed on terminal inflorescences on<br>7 July, 1986 |                   |
| SECNDARY             | When first pods formed on secondary inflorescences on<br>18 July     |                   |

plus one extra treatment:

EXTRA

NONE No growth regulator (triplicated)

NOTE: Treatment sprays were applied in 220 l.

Basal applications: Weedkillers: Glyphosate at 0.72 kg in 210 l.  
Monolinuron at 0.77 kg with paraquat at 0.56 kg ion in 220 l.  
Metamitron at 2.8 kg in 220 l. Fungicide: Benomyl at 0.56 kg in  
220 l. Insecticide: Pirimicarb at 0.14 kg in 220 l. Desiccant:  
Diquat at 0.60 kg ion with a wetting agent ('Spreadite' at 0.56 l)  
in 220 l.

Seed: Vladimir, dressed with thiram and inoculated with *Rhizobium*, sown  
at 250 kg.

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Cultivations, etc.:— Glyphosate applied: 25 Sept, 1985. Harrowed: 15 Oct. Ploughed: 29 Nov. Spring-tine cultivated, seed sown: 30 Apr, 1986. Monolinuron and paraquat applied: 1 May. Metamitron applied: 13 June. Fungicide applied: 10 July. Insecticide applied: 18 July. Desiccant with wetter applied: 20 Nov. Combine harvested: 28 Nov. Previous crops: S. beans 1984, s. barley 1985.

NOTE: Plant counts were made at establishment. Components of yield and plant heights were measured at maturity.

# GRAIN (90% DRY MATTER) TONNES/HECTARE

## \*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

|            |          |          |          |          |
|------------|----------|----------|----------|----------|
| GR RATE    | 1        | 2        | 4        | MEAN     |
| GRO REG    |          |          |          |          |
| 2 CHLORO   | 3.31     | 3.02     | 3.05     | 3.13     |
| MEP+2-CH   | 2.94     | 3.05     | 3.06     | 3.02     |
| MEAN       | 3.13     | 3.04     | 3.06     | 3.07     |
| GR TIME    | TERMINAL | SECNDARY | MEAN     |          |
| GRO REG    |          |          |          |          |
| 2 CHLORO   | 3.11     | 3.15     | 3.13     |          |
| MEP+2-CH   | 2.98     | 3.05     | 3.02     |          |
| MEAN       | 3.04     | 3.10     | 3.07     |          |
| GR TIME    | TERMINAL | SECNDARY | MEAN     |          |
| GR RATE    |          |          |          |          |
| 1          | 3.16     | 3.09     | 3.13     |          |
| 2          | 2.97     | 3.10     | 3.04     |          |
| 4          | 2.99     | 3.12     | 3.06     |          |
| MEAN       | 3.04     | 3.10     | 3.07     |          |
| GR RATE    | 1        | 2        | 4        |          |
| GR TIME    | TERMINAL | SECNDARY | TERMINAL | SECNDARY |
| GRO REG    |          |          |          |          |
| 2 CHLORO   | 3.43     | 3.20     | 2.92     | 3.13     |
| MEP+2-CH   | 2.88     | 2.99     | 3.03     | 3.07     |
|            |          |          | 2.97     | 3.14     |
|            |          |          | 3.02     | 3.10     |
| EXTRA NONE | 3.28     |          |          |          |
| GRAND MEAN | 3.11     |          |          |          |

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GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

\*\*\*\*\* STANDARD ERRORS OF DIFFERENCES OF MEANS \*\*\*\*\*

| TABLE | GRO REG | GR RATE | GR TIME | GRO REG<br>GR RATE |
|-------|---------|---------|---------|--------------------|
| SED   | 0.130   | 0.159   | 0.130   | 0.225              |

| TABLE | GRO REG<br>GR TIME | GR RATE<br>GR TIME | GRO REG<br>GR RATE<br>GR TIME |
|-------|--------------------|--------------------|-------------------------------|
| SED   | 0.184              | 0.225              | 0.318                         |

SED FOR COMPARING NONE WITH ANY ITEM IN  
GR RATE.GR TIME.GRO REG TABLE IS 0.260

\*\*\*\*\* STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION \*\*\*\*\*

| STRATUM  | DF | SE    | CV%  |
|----------|----|-------|------|
| BLOCK.WP | 44 | 0.450 | 14.4 |

GRAIN MEAN DM% 54.0

PLOT AREA HARVESTED 0.00072