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# Yields of the Field Experiments 1987

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Printed: 2016/06/06  
Rothamsted 2016

## Lupins

### Rothamsted Research

Rothamsted Research (1988) *Lupins* ; Yields Of The Field Experiments 1987, pp 196 - 201 - DOI:  
<https://doi.org/10.23637/ERADOC-1-37>

87/R/LP/2 and 87/W/LP/2

LUPINS

VARIETIES, SOWING DATES AND PLANT HEALTH

Object: To study the effects of sowing dates and pest and pathogen control on the growth and yield of two varieties of lupin (*Lupinus albus*) - Rothamsted (R) Sawyers I East and Woburn (W) Butt Close IV.

Sponsors: J. McEwen, D.P. Yeoman, A.W. Ferguson, J.F. Jenkyn.

Design: 3 randomised blocks of 16 plots.

Whole plot dimensions: 2.4 x 6.0 (R), 3.0 x 6.0 (W).

Treatments: All combinations of:-

1. SOW DATE

Dates of sowing:

R	W	R	W
4 FEB	4 FEB	4 February, 1987	4 February
24 FEB	23 FEB	24 February	23 February
18 MAR	16 MAR	18 March	16 March
14 APR	6 APR	14 April	6 April

2. VARIETY

Varieties:

KALINA  
VLADIMIR

3. PATHCON

Pest and pathogen control:

NONE  
FULL

None

- (R) Insecticides: Cypermethrin at 0.025 kg in 220 l: 8 May, 1987, 12 June. Pirimicarb at 0.14 kg with a wetting agent ('Citowett' at 0.14 l) in 220 l: 10 July. Fungicide: Benomyl at 0.55 kg in 220 l: 30 July. Seed dressing: Bendiocarb, thiabendazole and thiram.
- (W) Insecticides: Deltamethrin at 0.038 kg in 250 l: 8 May, 29 May. Pirimicarb at 0.077 kg with a wetting agent ('Enhance' at 0.015 l) in 200 l: 13 July. Fungicide: Benomyl at 0.50 kg applied with the pirimicarb.

NOTES: (1) At Rothamsted plots were netted from sowing to mid-June.  
(2) At Woburn netting was available only from April to May and as a result yields were obtained only from SOW DATE 6 APR.

Basal applications:

Sawyers I East (R): Manures: Chalk at 5.0 t. Weedkillers: Monolinuron at 0.46 kg with paraquat at 0.33 kg ion in 220 l. Metamitron at 2.8 kg in 220 l. Desiccant: Diquat at 0.60 kg ion in 220 l.

Butt Close IV (W). Weedkillers: Terbutryne at 0.56 kg with terbuthylazine at 0.24 kg in 240 l.

Seed: Sown at 210 kg (R), 250 kg (W).

87/R/LP/2 and 87/W/LP/2

Cultivations, etc.:-

Sawyers I East (R): Chalk applied: 24 Sept, 1986. Ploughed: 22 Oct.  
 Monolinuron and paraquat applied after each sowing: 4 Feb, 1987,  
 24 Feb, 18 Mar, 14 Apr. Metamitron applied: 18 June. Diquat  
 applied: 15 Sept, 25 Sept, 3 Nov. Combine harvested: 25 Sept,  
 22 Oct, 4, 18 Nov. Previous crops: W. wheat 1985 and 1986.  
 Butt Close IV (W): Ploughed: 10 Nov, 1986. Terbutryne and  
 terbuthylazine applied after each sowing: 11 Feb, 1987, 23 Feb,  
 16 Mar, 9 Apr. Combine harvested: 18 Nov. Previous crops:  
 Potatoes 1985, w. wheat 1986.

NOTE: Establishment counts were made at the four-leaf stage. Pests  
 and diseases were observed and dates of flowering and maturity  
 recorded.

87/R/LP/2 SAWYERS I E (R)

GRAIN TONNES/HECTARE

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

VARIETY	KALINA	VLADIMIR	Mean		
SOW DATE					
4 FEB	0.24	0.29	0.27		
24 FEB	0.34	0.27	0.31		
18 MAR	2.66	2.20	2.43		
14 APR	2.90	3.44	3.17		
Mean	1.54	1.55	1.55		
PATHCON	NONE	FULL	Mean		
SOW DATE					
4 FEB	0.43	0.11	0.27		
24 FEB	0.42	0.20	0.31		
18 MAR	2.73	2.13	2.43		
14 APR	3.19	3.16	3.17		
Mean	1.69	1.40	1.55		
PATHCON	NONE	FULL	Mean		
VARIETY					
KALINA	1.73	1.35	1.54		
VLADIMIR	1.66	1.45	1.55		
Mean	1.69	1.40	1.55		
SOW DATE	VARIETY	KALINA	VLADIMIR		
	PATHCON	NONE	FULL	NONE	FULL
4 FEB		0.40	0.08	0.45	0.14
24 FEB		0.50	0.18	0.33	0.22
18 MAR		3.02	2.30	2.45	1.96
14 APR		2.98	2.82	3.40	3.49

87/R/LP/2 SAWYERS I E (R)

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

Table	SOW DATE	VARIETY	PATHCON	SOW DATE VARIETY
s.e.d.	0.108	0.077	0.077	0.153

Table	SOW DATE PATHCON	VARIETY PATHCON	SOW DATE VARIETY PATHCON
s.e.d.	0.153	0.108	0.216

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	30	0.265	17.2

GRAIN MEAN DM% 58.6

PLOT AREA HARVESTED 0.00086

87/W/LP/2 BUTT CLOSE IV (W)

GRAIN TONNES/HECTARE

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

PATHCON VARIETY	NONE	FULL	Mean
KALINA	0.71	0.73	0.72
VLADIMIR	0.47	0.64	0.56
Mean	0.59	0.69	0.64

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

Table	VARIETY	PATHCON	VARIETY PATHCON
s.e.d.	0.193	0.193	0.273

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	6	0.335	52.4

GRAIN MEAN DM% 58.7

PLOT AREA HARVESTED 0.00133



87/R/LP/4

LUPINS

DESICCANTS AND FUNGICIDES

Object: To study the effects of times of applying desiccants and fungicides on senescence, grain quality and yield of lupins (*Lupinus albus*) - Long Hoos III 1.

Sponsors: H.L. Jones, J. Lacey.

Design: 2 randomised blocks of 30 plots.

Whole plot dimensions: 2.4 x 5.0.

Treatments: All combinations of:-

- |              |  |
|--------------|--|
| 1. DESICCANT | Desiccants:  |
| DIQUAT       | Diquat at 0.15 kg ion                                |
| MET+FEN      | Metoxuron at 2.0 kg plus fentin hydroxide at 0.20 kg |
| GLYPHOS      | Glyphosate at 1.08 kg                                |
| NACL         | Sodium chloride at 6.25 kg                           |
| 2. FUNGICIDE | Fungicide:   |
| NONE         | None   |
| PROPICON     | Propiconazole at 0.125 kg                            |
| 3. APP TIME  | Times of applying desiccants and fungicide:          |
| EARLY        | Fungicide on 25 Sept 1987, desiccants 12 Oct         |
| MIDDLE       | Fungicide on 25 Sept, desiccants 19 Oct              |
| LATE         | Fungicide on 25 Sept, desiccants 28 Oct              |

plus five extra treatments not given desiccants:

- |          |   |
|----------|---|
| FUNGIC X | Fungicides applied on 12 Oct:                     |
| NONE     | None (duplicated)                                 |
| IPRODION | Iprodione at 1.0 kg                               |
| PROPICON | Propiconazole at 0.125 kg                         |
| PROP+DIQ | Propiconazole at 0.125 kg + diquat at 0.60 kg ion |
| VINCLOZ  | Vinclozalin at 0.375 kg                           |

- NOTES: (1) APP TIME for desiccants was chosen for the three stages EARLY-all leaves below pods fallen, MIDDLE-pods fully developed, LATE-no leaves remaining on plant.  
(2) All spray treatments were applied in 220 l.  
(3) The crop was netted from early Apr to early June.

Basal applications: Weedkillers: Glyphosate at 1.44 kg in 220 l. Monolinuron at 0.46 kg with paraquat at 0.33 kg ion in 220 l. Metamitron at 2.8 kg in 220 l. Insecticides: Cypermethrin at 0.025 kg in 220 l. Pirimicarb at 0.14 kg in 220 l applied with the fungicide. Fungicide: Benomyl at 0.55 kg.

Seed: Vladimir, dressed with thiram, inoculated with Rhizobium, sown at 240 kg.

87/R/LP/4

Cultivations, etc.:- Glyphosate applied: 1 Oct, 1986. Ploughed: 17-29 Oct. Seed sown, harrowed, rolled: 31 Mar, 1987. Monolinuron and paraquat applied: 2 Apr. Cypermethrin applied: 8 May. Metamitron applied: 18 June. Benomyl and pirimicarb applied: 13 July. Combine harvested: 17 Nov. Previous crops: S. beans 1985, fallow 1986.

NOTE: Plant populations were measured and disease assessments made during the season. After desiccation, changes in dry matter were measured and fungal development on the pods assessed. Components of yield were measured. Seed microflora, germinability and discolouration of the seed coat were also assessed.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

FUNGCIDE	NONE	PROPICON	Mean			
DESICCNT						
DIQUAT	1.63	1.89	1.76			
MET+FEN	1.79	1.46	1.62			
GLYPHOS	1.59	1.71	1.65			
NACL	1.81	1.80	1.80			
Mean	1.71	1.71	1.71			
APP TIME	EARLY	MIDDLE	LATE	Mean		
DESICCNT						
DIQUAT	1.59	1.92	1.77	1.76		
MET+FEN	1.34	1.81	1.73	1.62		
GLYPHOS	1.93	1.68	1.35	1.65		
NACL	1.86	2.01	1.55	1.80		
Mean	1.68	1.85	1.60	1.71		
APP TIME	EARLY	MIDDLE	LATE	Mean		
FUNGCIDE						
NONE	1.73	1.90	1.49	1.71		
PROPICON	1.63	1.80	1.71	1.71		
Mean	1.68	1.85	1.60	1.71		
DESICCNT	APP TIME	EARLY	MIDDLE	LATE		
DIQUAT	FUNGCIDE					
NONE		1.60	1.78	1.52		
PROPICON		1.57	2.07	2.03		
MET+FEN	NONE	1.61	2.08	1.69		
PROPICON		1.07	1.53	1.76		
GLYPHOS	NONE	1.91	1.59	1.28		
PROPICON		1.94	1.77	1.43		
NACL	NONE	1.79	2.17	1.47		
PROPICON		1.93	1.84	1.62		
FUNGIC X	NONE	IPRODION	PROPICON	PROP+DIQ	VINCLOZ	Mean
	1.78	1.54	1.71	1.41	1.84	1.68
Grand mean	1.70					

87/R/LP/4

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

Table	DESICCNT	FUNGCIDE	APP TIME	DESICCNT FUNGCIDE
s.e.d.	0.162	0.114	0.140	0.228

Table	DESICCNT APP TIME	FUNGCIDE APP TIME	DESICCNT FUNGCIDE APP TIME	FUNGC X
s.e.d.	0.280	0.198	0.396	0.396

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	30	0.396	23.2

GRAIN MEAN DM% 63.3

PLOT AREA HARVESTED 0.00072