ROTHAMSTED RESEARCH

Yields of the Field Experiments 1991

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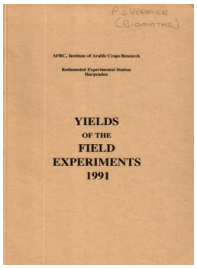

Lupins

Rothamsted Research

Rothamsted Research (1992) *Lupins ;* Yields Of The Field Experiments 1991, pp 153 - 158 **- DOI: https://doi.org/10.23637/ERADOC-1-46**

91/R/LP/1

WINTER LUPINS

SEED RATES AND GROWTH REGULATOR

Object: To compare the effects of different times of applying triapenthanol to three different seed rates on the growth and yield of w. lupins - Long Hoos V 2.

Sponsor: D.P. Yeoman.

Design: 3 randomised blocks of 14 plots.

Whole plot dimensions: 1.8 x 8.0.

Treatments: All combinations of:-

1. **G R TIME** — Times of applying triapenthanol at 0.64 kg in 220 l:

NEVER	Never
PRE FLR	Pre-flowering, on 21 May, 1991
TERM POD	First pods on terminal inflorescence, on 20 June
SEC POD	First pods on secondary inflorescence, on 17 July

2. **SEEDRATE** — Seed rates (kg):

100
200
300

plus two extra treatments: sown at 200 kg, triapenthanol applied at 0.32 kg in 220 l on each of two occasions:

EXTRA

MAY+JUNE	21 May and 20 June
MAY+JULY	21 May and 17 July

Basal applications: Weedkillers: Terbuthylazine at 0.42 kg and terbutryn at 0.98 kg in 200 l. Fungicide: Prochloraz at 0.45 kg applied with the insecticide in 200 l. Insecticide: Pirimicarb at 0.14 kg. Desiccant: Diquat at 0.60 kg ion applied with a wetting agent, 'Vassgro', in 400 l. Previous crops: Fallow 1989, s. barley 1990.

Seed: Lugel (C8) inoculated with Rhizobium, sown at 60 seeds per square metre.

Cultivations, etc.:- Ploughed and rolled: 11 Sept, 1990. Cultivated with rotary grubber, rotary harrowed, seed sown, harrowed: 26 Sept. Weedkillers applied, rolled: 27 Sept. Fungicide and insecticide applied: 22 July, 1991. Desiccant applied: 12 Sept. Combine harvested: 22 Oct.

NOTE: The crop was netted against birds and mammals from after sowing until spring.

https://doi.org/10.23637/ERADOC-1-46

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GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

SEEDRATE / G R TIME	100	200	300	Mean
NEVER	0.55	0.74	0.87	0.72
PRE FLR	0.55	0.56	0.79	0.63
TERM POD	0.58	0.80	0.95	0.78
SEC POD	0.52	0.55	0.96	0.68
Mean	0.55	0.66	0.89	0.70

EXTRA	MAY+JUNE	MAY+JULY	Mean
	0.66	0.71	0.69

GRAND MEAN 0.70

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

G R TIME	SEEDRATE	G R TIME SEEDRATE & EXTRA
0.095	0.082	0.164

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

Stratum	d.f.	s.e.	cv%
BLOCK	26	0.201	28.7

GRAIN MEAN DM% 69.4

PLOT AREA HARVESTED 0.00144

https://doi.org/10.23637/ERADOC-1-46

91/R/LP/2

WINTER LUPINS

PRUNING STUDY

Object: To study the effects of different amounts of manual pruning on the maturity date and yield of indeterminate varieties for comparison with a genetically determinate variety - Long Hoos V 4.

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

Design: 4 randomised blocks of 8 plots.

Whole plot dimensions: 1.8 x 9.0.

Treatments:

VAR PRUN	Varieties and pruning:
SDL 1 U	SDL 1, unpruned
LUGEL U	Lugel, unpruned
LG SI E	Lugel, secondary branches and inflorescences removed early on 20 May, 1991
LG SI L	Lugel, secondary branches and inflorescences removed late on 3 June
LG T	Lugel, tertiary branches removed on 5 June
LUNOBL U	Lunoble, unpruned
LN SI E	Lunoble, secondary branches and inflorescences removed early on 20 May
LN T	Lunoble, tertiary branches removed on 5 June

Basal applications: Manures: (0:16:36) at 1.1 t. Weedkillers: Terbuthylazine at 0.42 kg and terbutryn at 0.98 kg in 200 l. Fluazifop-P-butyl at 0.19 kg applied with a wetting agent, 'Vassgro' at 0.22 l, in 220 l. Fungicides: Chlorothalonil at 1.5 kg with benomyl at 0.55 kg in 200 l. Prochloraz at 0.45 kg in 200 l. Insecticide: Pirimicarb at 0.14 kg in 200 l.

Seed: Varieties, inoculated with Rhizobium, sown at 60 seeds per square metre.

Cultivations, etc.:- P and K applied: 3 Sept, 1990. Ploughed and rolled: 11 Sept. Cultivated with rotary grubber, rotary harrowed, seed sown: 25 Sept. Rolled, terbuthylazine and terbutryn applied: 27 Sept. Fluazifop-P-butyl with wetting agent applied: 13 Dec. Insecticide applied: 2 July, 1991. Chlorothalonil and benomyl applied: 10 July. Prochloraz applied: 22 July. Hand harvested: 10 Sept (LG SI E, LG SI L, LN SI E), 19 Sept (SDL 1 U, LG T, LN T) and 14 Oct (LUGEL U, LUNOBL U).

https://doi.org/10.23637/ERADOC-1-46

91/R/LP/2

NOTES: (1) The crop was netted against birds and mammals from sowing to mid-June.
(2) Leaf numbers, flower and pod development were monitored. Dry matter was measured in May and July.
(3) Measurements of light interception by the crop were made in spring and summer.
(4) Because of the shortage of seed, the yield of one plot of SDL 1 U was lost. Estimated values were used in the analysis.

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

VAR PRUN	
SDL 1 U	4.59
LUGEL U	1.41
LG SI E	0.08
LG SI L	0.18
LG T	1.66
LUNOBL U	2.24
LN SI E	0.37
LN T	2.68
Mean	1.65

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

VAR PRUN
0.301

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	20	0.426	25.8

GRAIN MEAN DM% *

PLOT AREA HARVESTED 0.00065

https://doi.org/10.23637/ERADOC-1-46

91/R/LP/3

WINTER LUPINS

SEED RATES

Object: To study the effects of plant density on the growth, development, maturity date and yield of w. lupins - Long Hoos III 2.

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

Design: 4 randomised blocks of 6 plots.

Whole plot dimensions: 3.6 x 9.0.

Treatments:

POPULATN Plant populations per square metre in rows 36 cm apart:

7
14
21
28
35 (duplicated)

NOTE: The final populations were established in spring by hand thinning from larger sown populations - 35 and 70 seeds per square metre.

Basal applications: Manures: Muriate of potash at 520 kg. Weedkillers: Terbuthylazine at 0.42 kg and terbutryn at 0.98 kg in 200 l. Fluazifop-P-butyl at 0.19 kg applied with a wetting agent, 'Vassgro' at 0.2 l, in 220 l. Fungicide: Prochloraz at 0.45 kg applied with the insecticide in 200 l. Insecticide: Pirimicarb at 0.14 kg.

Seed: Lunoble, inoculated with Rhizobium, at two seed rates.

Cultivations, etc.:- Deep-tine cultivated with vibrating tines 60 cm apart and 45 cm deep: 13 Sept, 1990. K applied: 14 Sept. Ploughed and furrow pressed: 17 Sept. Cultivated with rotary grubber, harrowed, seed sown: 24 Sept. Rolled, terbuthylazine and terbutryn applied: 27 Sept. Fluazifop-P-butyl applied: 13 Dec. Fungicide and insecticide applied: 22 July, 1991. Combine harvested: 22 Oct.

NOTES: (1) The crop was netted against birds and mammals from sowing to mid-June.

(2) It was originally intended to have populations of 42 and 56 plants per square netre, but establishment was poor and these became **POPULATN** 35. In two blocks the target population of 35 was not achieved, and consequently 4 plots were treated as missing. Estimated values were used in the analysis.

https://doi.org/10.23637/ERADOC-1-46

91/R/LP/3

GRAIN (AT 90% DRY MATTER) TONNES/HECTARE

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

POPULATN	
7	1.42
14	1.43
21	1.45
28	1.32
35	1.55
Mean	1.45

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

POPULATN	
0.154	min.rep
0.134	max-min

	POPULATN
max-min	35 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	12	0.218	15.0

GRAIN MEAN DM% 73.1

AVERAGE PLOT AREA HARVESTED 0.00184

https://doi.org/10.23637/ERADOC-1-46