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Yields of the Field Experiments 1975

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75/ R/LP/1 - Inoculation, N & Pathogen Control - Lupins

Rothamsted Research

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75/R/LP/1

LUPINS

INOCULATION, N AND PATHOGEN CONTROL

Object: To study the effects of Rhizobium inoculation, nitrogen fertiliser and a range of pesticides on growth, yield and control of pathogens of two varieties of grain lupins - Long Hoos V 2.

Sponsors: P.J. Dart, A.J. Cockbain, J.C. Wilson.

Design: Single replicate of 4 plots split into 16.

Whole plot dimensions: 8.99 x 24.7.

Treatments: All combinations of:-

Whole plots: 1. Varieties:

Lupinus angustifolius sown at 70 kg	VARIETY
Lupinus albus, var.Kievsky sown at 160 kg	ANGUSTIF ALBUS K

2. Rhizobium inoculation:

None	RHIZOB
Inoculated	NONE INOC

Sub plots: 3. Nitrogen fertiliser to seedbed (kg N):

Nitrogen	N
150 on 28 Apr	0 150

4. Nematicide to seedbed:

None	NEMACIDE
Aldicarb at 10 kg on 29 May	NONE ALDICARB

5. Insecticide, foliar spray:

None	INSECTICIDE
Menazon at 0.28 kg in 340 l on 30 June	NONE MENAZON

6. Fungicide, foliar spray:

None	FUNGICIDE
Benomyl at 1.12 kg in 340 l on 17 July	NONE BENOMYL

75/R/LP/1

Basal applications: Manures: (0:14:28) at 820 kg. Weedkiller: Trifluralin ('Treflan' at 2.3 l in 340 l).

Cultivations, etc.: - Ploughed: 5 Feb, 1975. Spring-tine cultivated: 16 Apr. PK applied: 28 Apr. Power harrowed and seed sown: 29 Apr. Weedkiller applied: 30 Apr. Combine harvested: 18 Sept. Previous crops: Potatoes 1973, barley 1974.

- NOTES: (1) Assessments of weevil damage were made on 12 June, of virus infection on 2 July and of aphid infestations at 10-16 day intervals from 12 June to 26 Aug.
- (2) Plant emergence counts were made on 25 June.

75/R/LP/1

LUPINS

*** TABLES OF MEANS ***

INSC TCDE	NONE	DEMETON	MEAN	
N				
0	1.28	1.29	1.28	
150	1.36	1.42	1.39	
MEAN	1.32	1.36	1.34	
INSC TCDE	NONE	DEMETON	MEAN	
NEMACIDE				
NONE	1.25	1.25	1.25	
ALDICARB	1.38	1.46	1.42	
MEAN	1.32	1.36	1.34	
FUNGCIDE	NONE	BENOMYL	MEAN	
VARIETY				
ANGUSTIF	0.80	0.99	0.90	
ALBUSK	1.79	1.76	1.77	
MEAN	1.29	1.38	1.34	
FUNGCIDE	NONE	BENOMYL	MEAN	
RHIZOB				
NONE	1.24	1.25	1.24	
INOC	1.35	1.50	1.43	
MEAN	1.29	1.38	1.34	
FUNGCIDE	NONE	BENOMYL	MEAN	
N				
0	1.21	1.36	1.28	
150	1.38	1.39	1.39	
MEAN	1.29	1.38	1.34	
FUNGCIDE	NONE	BENOMYL	MEAN	
NEMACIDE				
NONE	1.24	1.26	1.25	
ALDICARB	1.35	1.50	1.42	
MEAN	1.29	1.38	1.34	
FUNGCIDE	NONE	BENOMYL	MEAN	
INSC TCDE				
NONE	1.27	1.37	1.32	
DEMETON	1.32	1.39	1.36	
MEAN	1.29	1.38	1.34	
RHIZOB	NONE		INOC	
N	0	150	0	150
VARIETY				
ANGUSTIF	0.77	0.96	0.95	0.91
ALBUSK	1.47	1.78	1.95	1.90

75/R/LP/1

LUPINS

*** TABLES OF MEANS ***

RHIZ OB	NONE	INOC	MEAN
VARIETY			
ANGUSTIF	0.86	0.93	0.90
ALBUSK	1.62	1.92	1.77
MEAN	1.24	1.43	1.34
N	0	150	MEAN
VARIETY			
ANGUSTIF	0.86	0.93	0.90
ALBUSK	1.71	1.84	1.77
MEAN	1.28	1.39	1.34
N	0	150	MEAN
RHIZ OB			
NONE	1.12	1.37	1.24
INOC	1.45	1.40	1.43
MEAN	1.28	1.39	1.34
NEMACIDE	NONE	ALDICARB	MEAN
VARIETY			
ANGUSTIF	0.83	0.96	0.90
ALBUSK	1.66	1.88	1.77
MEAN	1.25	1.42	1.34
NEMACIDE	NONE	ALDICARB	MEAN
RHIZ OB			
NONE	1.17	1.32	1.24
INOC	1.32	1.53	1.43
MEAN	1.25	1.42	1.34
NEMACIDE	NONE	ALDICARB	MEAN
N			
0	1.19	1.37	1.28
150	1.30	1.47	1.39
MEAN	1.25	1.42	1.34
INSCTCDE	NONE	DEMETON	MEAN
VARIETY			
ANGUSTIF	0.87	0.92	0.90
ALBUSK	1.76	1.79	1.77
MEAN	1.32	1.36	1.34
INSCTCDE	NONE	DEMETON	MEAN
RHIZ OB			
NONE	1.28	1.21	1.24
INOC	1.36	1.50	1.43
MEAN	1.32	1.36	1.34

75/R/LP/1

LUPINS

*** TABLES OF MEANS ***

RHIZ OB	NONE		INOC	
NEMACIDE	NONE	ALDICARB	NONE	ALDICARB
VARIETY				
ANGUSTIF	0.82	0.91	0.85	1.01
ALBUSK	1.53	1.72	1.80	2.05
N	0		150	
NEMACIDE	NONE	ALDICARB	NONE	ALDICARB
VARIETY				
ANGUSTIF	0.78	0.94	0.88	0.98
ALBUSK	1.61	1.81	1.72	1.96
N	0		150	
NEMACIDE	NONE	ALDICARB	NONE	ALDICARB
RHIZ OB				
NONE	1.05	1.19	1.30	1.44
INCC	1.34	1.56	1.31	1.50
RHIZ OB	NONE		INOC	
INSCTCDE	NONE	DEMETON	NONE	DEMETON
VARIETY				
ANGUSTIF	0.87	0.86	0.88	0.98
ALBUSK	1.68	1.57	1.84	2.01
N	0		150	
INSCTCDE	NONE	DEMETON	NONE	DEMETON
VARIETY				
ANGUSTIF	0.83	0.89	0.91	0.95
ALBUSK	1.72	1.70	1.80	1.88
N	0		150	
INSCTCDE	NONE	DEMETON	NONE	DEMETON
RHIZ OB				
NONE	1.16	1.08	1.39	1.34
INCC	1.40	1.50	1.32	1.49
NEMACIDE	NONE		ALDICARB	
INSCTCDE	NONE	DEMETON	NONE	DEMETON
VARIETY				
ANGUSTIF	0.82	0.85	0.92	1.00
ALBUSK	1.68	1.65	1.84	1.93
NEMACIDE	NONE		ALDICARB	
INSCTCDE	NONE	DEMETON	NONE	DEMETON
RHIZ OB				
NONE	1.21	1.14	1.34	1.29
INOC	1.29	1.36	1.42	1.63
NEMACIDE	NONE		ALDICARB	
INSCTCDE	NONE	DEMETON	NONE	DEMETON
N				
0	1.21	1.18	1.34	1.41
150	1.28	1.32	1.43	1.52

75/R/IP /1

LUPINS

*** TABLES OF MEANS ***

RHIZOB	NONE		INOC	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
VARIETY				
ANGUSTIF	0.75	0.93	0.85	1.01
ALBUSK	1.73	1.52	1.85	2.00
N	0		150	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
VARIETY				
ANGUSTIF	0.76	0.97	0.85	1.02
ALBUSK	1.66	1.76	1.92	1.76
N	0		150	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
RHIZOB				
NONE	1.06	1.19	1.42	1.32
INCC	1.35	1.54	1.35	1.46
NEMACIDE	NONE		ALDICARB	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
VARIETY				
ANGUSTIF	0.73	0.94	0.87	1.05
ALBUSK	1.75	1.57	1.82	1.95
NEMACIDE	NONE		ALDICARB	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
RHIZOB				
NONE	1.19	1.15	1.28	1.35
INCC	1.29	1.36	1.41	1.64
NEMACIDE	NONE		ALDICARB	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
N				
0	1.16	1.23	1.26	1.49
150	1.32	1.28	1.44	1.50
INSCTCDE	NONE		DEMETON	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
VARIETY				
ANGUSTIF	0.73	1.01	0.87	0.97
ALBUSK	1.80	1.72	1.73	1.80
INSCTCDE	NONE		DEMETON	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
RHIZOB				
NONE	1.26	1.29	1.21	1.22
INCC	1.27	1.45	1.43	1.56
INSCTCDE	NONE		DEMETON	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
N				
0	1.20	1.35	1.21	1.37
150	1.33	1.38	1.44	1.40
INSCTCDE	NONE		DEMETON	
FUNGCIDE	NONE	BENOMYL	NONE	BENOMYL
NEMACIDE				
NONE	1.24	1.26	1.24	1.26
ALDICARB	1.29	1.48	1.41	1.52

75/R/LP/1

LUPINS

*** TABLES OF MEANS ***

TABLE	N	NEMACIDE	INSCTCDE	FUNGCIDE	VARIETY* N

SED	0.040	0.040	0.040	0.040	0.056
TABLE	RHIZOB* N	VARIETY* NEMACIDE	RHIZOB* NEMACIDE	N NEMACIDE	VARIETY* INSCTCDE

SED	0.056	0.056	0.056	0.056	0.056
TABLE	RHIZOB* INSCTCDE	N INSCTCDE	NEMACIDE INSCTCDE	VARIETY* FUNGCIDE	RHIZOB* FUNGCIDE

SED	0.056	0.056	0.056	0.056	0.056
TABLE	N FUNGCIDE	NEMACIDE FUNGCIDE	INSCTCDE FUNGCIDE	VARIETY* RHIZOB N	VARIETY* RHIZOB NEMACIDE

SED	0.056	0.056	0.056	0.079	0.079
TABLE	VARIETY* N NEMACIDE	RHIZOB* N NEMACIDE	VARIETY* RHIZOB INSCTCDE	VARIETY* N INSCTCDE	RHIZOB* N INSCTCDE

SED	0.079	0.079	0.079	0.079	0.079
TABLE	VARIETY* NEMACIDE INSCTCDE	RHIZOB* NEMACIDE INSCTCDE	N NEMACIDE INSCTCDE	VARIETY* RHIZOB FUNGCIDE	VARIETY* N FUNGCIDE

SED	0.079	0.079	0.079	0.079	0.079
TABLE	RHIZOB* N FUNGCIDE	VARIETY* NEMACIDE FUNGCIDE	RHIZOB* NEMACIDE FUNGCIDE	N NEMACIDE FUNGCIDE	VARIETY* INSCTCDE FUNGCIDE

SED	0.079	0.079	0.079	0.079	0.079
TABLE	RHIZOB* INSCTCDE FUNGCIDE	N INSCTCDE FUNGCIDE	NEMACIDE INSCTCDE FUNGCIDE		

SED	0.079	0.079	0.079		

* WITHIN SAME LEVEL OF VARIETY OR RHIZOB OR VARIETY.RHIZOB (WHICHEVER IS APPLICABLE) ONLY

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

STRATUM	DF	SE	CV%
WP.SP	22	0.158	11.8

GRAIN MEAN DM% 83.3

SUB PLOT AREA HARVESTED 0.00052

385