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98/R/LP/3 Pod Development and Yield - Lupins

Rothamsted Research

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98/R/LP/3

LUPINS

POD DEVELOPMENT AND YIELD

Object: To monitor the role of nitrogen in pod abortion, development and yield. To determine the relationship between leaves and pods in supplying carbohydrate to the seed - Fosters West.

Sponsors: J.E. Leach, I.F. Shield.

Design: 2 randomised blocks of 2 plots split into 5.

Whole plot dimensions: 6.0 x 9.0.

Treatments:

Whole plots

- | | |
|--------------------|-------------|
| 1. IRRIGATN | Irrigation: |
| 0 | None |
| I | Irrigated |

Sub-plots

- | | |
|-------------|---------------------------|
| 2. T | Nitrogen or leaf removal: |
| - | None |
| SN | Spring nitrogen |
| FN | Foliar nitrogen |
| HR | Half leaves removed |
| AR | All leaves removed |

Experimental diary:

- 27-Aug-97 : B : Ploughed and furrow pressed.
12-Sep-97 : B : Rolled, rotary harrowed, DTN 20, undressed, drilled at 60 seeds per m². Rolled.
15-Sep-97 : B : Stomp 400 SC at 5.0 l in 200 l.
18-Sep-97 : B : Spannit at 1.1 l in 200 l.
05-Dec-97 : B : Gesatop 500 SC at 2.3 l in 200 l.
19-Feb-98 : B : Folicur at 0.5 l in 200 l.
24-Feb-98 : B : Rovral Flo at 1.0 l in 200 l.
16-Mar-98 : B : Skirmish at 1.0 l in 200 l.
02-Apr-98 : B : Danadim Dimethoate 40 at 850 ml in 200 l.
08-Apr-98 : T : T SN: 46% N at 217 kg.
30-Apr-98 : T : T SN: 46% N at 217 kg.
09-May-98 : B : Laser at 1.25 l with Chiltern Cropoil at 1.0 l in 200 l.
20-May-98 : B : Folicur at 0.5 l in 200 l. Aphox at 280 g in 200 l.
04-Jun-98 : T : **IRRIGATN** I: Irrigated 12 mm.
15-Jun-98 : T : **IRRIGATN** I: Irrigated 12 mm.
12-Jun-98 : B : Alto 240 EC at 0.33 l with Bravo 500 at 1.5 l in 200 l.
03-Jul-98 : T : T FN: 46% N at 32.6 kg in 220 l.
15-Jul-98 : T : T FN: 46% N at 32.6 kg in 220 l.

98/R/LP/3

Experimental diary:

22-Jul-98 : T : T HR, AR: Leaf removal started.
 23-Jul-98 : T : IRRIGATN: Irrigated 25 mm.
 24-Jul-98 : T : T FN: 46% N at 32.6 kg in 220 l.
 31-Jul-98 : T : T FN: 46% N at 32.6 kg in 220 l.
 07-Aug-98 : T : T HR, AR: Leaf removal finished.
 12-Aug-98 : T : IRRIGATN: Irrigated 20 mm.
 25-Sep-98 : B : Combine harvested.

Previous crops: W. rape 1996, w. wheat 1997.

NOTE: Plants were sampled regularly for biomass production and nitrogen content. Leaf and pod photosynthesis was measured regularly and light interception weekly. Flowering date was also noted.

GRAIN TONNES/HECTARE

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

T	-	SN	FN	Mean
IRRIGATN				
O	3.50	3.05	3.12	3.34
I	3.04	2.77	2.90	2.96
Mean	3.27	2.91	3.01	3.15

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

T	IRRIGATN*	
		T
0.216	0.305	min.rep
0.176	0.249	max-min

* within the same level of IRRIGATN only

min.rep Any of the remainder
 max-min - v any of the remainder

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP.SP	12	0.305	9.7
GRAIN MEAN DM%	69.9		
SUB-PLOT AREA HARVESTED	0.00223		