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PLANT RESEARCH DIVISION.

Experimental Summary, 1974 Season.

M.W. PERRY.

LUPIN AGRONOMY: Time of Planting, Seeding Rate and
Variety in a Long Season Area.

OBJECT: To evaluate lupin varieties and agronomic practices in a long season district using a factorial experimental design.

	<u>Location</u>	<u>Rainfall Zone</u>	<u>Soil association/group</u>
74A16a	Warriup 57 km E. of Albany	500 - 625mm	Northcote Xc 1, Dy 3.8 Loamy surfaced over yellow clayey sub-soil.
74A16b	Green Range, 70 km E. of Albany	500 - 625mm	Northcote, WD7, Dy 5.8 sandy surfaced over yellow clayey sub-soil.

Time of Planting (4) - Monthly from early May (Warriup) or early June (Green Range).

Seeding Rates (4) - 20, 40, 60 and 80 plants/m², equivalent to 34, 68, 102 and 136 kg/ha of Uniharvest.

Varieties (4) - L. angustifolius cv. Unicrop
cv. Uniharvest
L. luteus cv. Weiko III
L. cosentinii cv. CB 46.

Fertiliser: Basal Superphosphate No. 1 Mix 300 kg/ha
Kcl 70
MnSO₄ 30

(74A16a - New Land Site - plus 400 kg/ha plain superphosphate).

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74A16a

SEED YIELD (g/m ²)					
Seeding Rate		Date of Sowing			
pl/m ²		May 10	June 7	July 5	Aug 6
Unicrop	20	280.4	209.6	141.0	46.2
	40	242.6	227.0	159.5	109.7
	60	194.2	184.1	169.5	51.8
	80	258.4	191.7	164.2	92.7
Uniharvest	20	266.0	157.1	41.9	67.5
	40	186.1	223.1	63.7	106.1
	60	146.6	216.5	132.5	68.6
	80	223.7	172.9	169.5	65.3
Weiko III	20	165.4	137.1	106.6	77.6
	40	190.0	168.0	120.5	60.4
	60	226.6	179.0	111.4	89.5
	80	190.5	157.0	151.2	96.5
CB 46	20	210.9	197.6	168.1	147.1
	40	231.3	216.1	149.5	104.4
	60	224.5	227.5	157.0	102.4
	80	218.7	185.0	225.1	98.0
MEANS - Averaged over all seeding rates					
Unicrop		243.9	203.1	158.6	75.1
Uniharvest		205.6	192.4	101.9	76.9
Weiko III		193.1	160.3	122.4	81.0
CB 46		221.3	206.6	174.9	113.0
% PLANT SURVIVAL (Seeds planted/Plant harvested)					
Unicrop		42	66	75	67
Uniharvest		51	79	68	72
Weiko III		64	72	77	49
CB 46		54	60	58	50

.../3..

74A16b

Seed Yield (g/m ²)					
Seeding Rate		Date of Sowing			
pl/m ²		June 12	July 4	July 23	Aug 13
Unicrop	20	329.1	171.3	143.6	43.0
	40	250.3	219.5	224.0	81.0
	60	265.7	223.5	215.0	108.0
	80	229.1	237.4	178.9	119.0
Uniharvest	20	272.5	203.5	139.5	41.9
	40	254.1	221.2	135.0	86.0
	60	240.4	242.4	164.5	73.5
	80	170.5	216.5	140.3	117.0
Weiko III	20	74.4	62.3	167.0	21.8
	40	126.6	152.9	70.0	104.3
	60	184.4	151.5	98.5	102.3
	80	111.4	181.4	96.7	92.0
CB 46	20	-	256.0	77.1	40.9
	40	213.5	166.6	142.5	73.2
	60	242.7	236.1	152.5	67.2
	80	275.9	185.1	148.7	95.8
MEANS - Averaged over all seeding rates					
Unicrop		246.5	212.9	190.4	87.8
Uniharvest		234.4	220.9	144.8	79.6
Weiko III		124.1	137.0	108.0	80.1
CB 46		244.0	210.9	130.2	69.3
% PLANT SURVIVAL (Seeds planted/Plants harvested)					
Unicrop		57	59	60	56
Uniharvest		63	69	66	54
Weiko III		61	58	64	41
CB 46		50	60	50	39

.../4..

COMMENTS

1. General

Statistical analysis and the estimation of the severity of split seed are in progress. The following comments refer only to the main effects of the treatments, discussion of interactions must await full analysis.

2. Time of Planting

Delayed planting almost invariably reduced yields irrespective of variety or seeding rate. Reasonable yields, however, were obtained from sowings in early July, suggesting that strictures on late planting may not be so severe in this area. Even so, August plantings were not only lower yielding but also too short for machine harvesting.

3. Seeding Rates

In contrast to time of planting, the four fold difference in seeding rates was not a major influence on yield. For the earlier plantings, the results suggest that 80 plants/m² (136 kg/ha Uniharvest) is above optimum but that rates as low as 20 plants/m² (34 kg/ha of Uniharvest) may yield well.

4. Variety

Weiko III yielded less than the other varieties. Unicrop appeared to maintain a slight yield advantage over Uniharvest. CB 46 (*L. cosentinii*), as yet virtually untested against other lupin species, demonstrated a yield potential similar to that of Unicrop.

5. Split Seed

Plots of Unicrop and Uniharvest sown on August 6 (Warriup) and July 23 and August 13 (Green Range) were moderately to severely affected by split seed despite the addition of 30 kg/ha MnSO₄ at planting. Earlier plantings matured more rapidly and contained only traces of split seed. Early planting is clearly of major significance in reducing the incidence of split seed even where manganese sulphate is applied.

6. Plant Survival

Plant losses ranged from 21 - 58% of seeds sown, with generally higher losses at the first planting.