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1975 Weed control in lupin investigations

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1975

SUMMARY OF 1975 WEED CONTROL
IN LUPIN INVESTIGATIONS

J.M. Allen

February 1976.

1. The results with pre emergence herbicides confirm previous recommendations of simazine 1.25 kg/ha on heavy soil and diuron 1.25 kg/ha on light soils with the following modification.
 - a) Simazine rates need to be increased to 3 kg/ha on very early (April) sown crops in southern areas.
 - b) Simazine has not damaged lupins in southern areas and where ryegrass is a major problem on sandy soils (i.e. Esperance) it is likely to give better responses than diuron.
2. As suspected in previous years simazine can by way of effective weed control produce a marked lupin vegetative response without any increase in grain yield.
3. Post emergence herbicides are required for northern areas, particularly for radish control. Basagran and diuron have been shown to be too damaging while simazine and sencor show some promise although they caused damage on sandy soils.
4. With the early April rain the time of seeding x herbicide aspect was not adequately resolved with these experiments. The data should however be of value for comparison with results from other seasons.

LUPINS - HERBICIDES X TIME OF SEEDING

75MT5

Locality Mt Barker Research Station

Variety 66A01-2

Seeding Date 1. 8.4.75
2. 17.4.75

Herbicide Application Simazine, immediately post seeding sencor

1. 22.4.75
2. 9.5.75

(4 true leaf stage of lupins).

Harvest 1. Hand harvest 18.12.75
10 x 0.165m² per plot.
2. Hega header 5.1.75
Treatment 7 only 60m x 1.8m

RESULTS

SEED YIELD KG/HA

TREATMENT		LUPIN	OATS (A. SATIVA)
Sown 8.4	Nil	1060	1655
	Simazine 1kg	751	1450
	Simazine 3kg	1780	1505
	Sencor 150g	544	1759
Sown 17.4	Nil	991	2085
	Simazine 1kg	2219	1866
	Simazine 3kg	4674*	216
	Sencor 150g	1351	1969

* Machine harvest seed yield 2,324 kg/ha.

Comment

1. There was a very dense infestation of self sown oats on the site.
2. Although simazine at 3 kg/ha on the early sown plots thinned the oats it did not cause a significant reduction in the level of out grain.
3. Simazine at 3 kg/ha on the later sown plots was the only treatment to give good visible control of oats. There was a very large lupin yield increase.
4. Because the plots (lupins and oats) had fallen over it was not possible to machine harvest except on the plots where the oats were controlled. Then as shown the machine yield was only 50% of the total lupin grain yield.

LUPINS - HERBICIDES X TIME OF SEEDING

75KA6

Locality D. Anderson, Katanning

Variety Unicrop

Seeding Date 1. 16.4.75 (Rain 1.4.75)
2. 28.4.75 (Rain 14.4.75)

All treatments "spray seed" + drilled in.
Spray seed 1. 9.4.75
2. 23.4.75

Herbicide Simazine 1. 17.4.75

Application 2. 1.5.75

Sencor 1. 1.5.75
2. 28.5.75
(4 true leaf stage)

Assessment Weed and crop count 10 x 0.2m² per plot
23.6.75
Harvested 60m x 1.78m 12.12.75

Results

TREATMENT	CROP REDUCTION %	RYEGRASS CONTROL %	YIELD KG/HA
Early sown Nil	NR	NR	992
" " Simazine 1kg/ha	NR	NR	1245
" " Simazine 3kg/ha	NR	NR	1435
" " Sencor 150g/ha	NR	NR	858
Late sown Nil	-	-	764
" " Simazine 1kg/ha	0	84	889
" " Simazine 3kg/ha	0	98	1264
" " Sencor 150g/ha	0	69	702

NR - Not recorded.

Ryegrass in untreated plots Late sown - 69m⁻²

LUPINS - HERBICIDES X TIME OF SEEDING

75E5

Locality Esperance Downs Research Station
Variety Unicrop
Seeding Date 1. 9.4.75 (1st Rain 1.4.75)
2. 28.4.75 (2nd Rain 15.4.75)
Herbicide Simazine, immediately post seeding.
Application Sencor 1. 28.4.75
2. 19.5.75
(4 true leaf stage of lupin)
Rainfall 28 Days post seeding 1. 96mm
2. 55mm
Harvest 15.12.75
Results

TREATMENT	YIELD KG/HA
Sown 9/4 Nil	765
" Simazine 1kg	1311
" Simazine 3kg	1529
" Sencor 150g	811
Sown 28/4 Nil	1779
" Simazine 1kg	1935
" Simazine 3kg	1982
" Sencor 150g	1950

Comment

1. Overall yields are higher with late April rather than early April seeding.
2. The recommended rate of 1.25 kg of simazine would appear to be adequate.
3. The response to simazine at the 2nd time of seeding is lower than in previous years, however the nil yield is surprisingly high and because of ryegrass, yields have not normally be as high at Esperance on untreated areas.

LUPINS - HERBICIDES X TIME OF SEEDING

75BA5

Locality Badgingarra Research Station

Variety Uniharvest

Seeding Date 1. 3.4.75 (1st Rain 1.4.75)
2. 28.4.75 (2nd Rain 17.4.75)

Herbicide Simazine immediately post seeding

Application Sencor 1. 29.4.75
2. 23.5.75
(4 true leaf stage of lupins)

Rainfall 28 days post seeding 1. 92mm
2. 43mm

Assessments 1. Weed and crop counts 10 x 0.2m² per plot.
23.5.75.
2. Harvest 2.11.75.
3. Dry matter assessment 2 x 1m² per plot
at 1 end of experiment. 1.11.75
Later sown plots only.

Results

TREATMENT	% WEED CONTROL		% CROP REDUC-TION	YIELD KG/HA
	RYEGRASS	CAPEWEED		
Sown early	Nil	-	-	2106
	Simazine 1kg	24	32	2043
	Simazine 3kg	48	69	2074
	Sencor	4	31	2074
Sown later	Nil	-	-	1839
	Simazine 1kg	50	75	1897
	Simazine 3kg	37	0	2254
	Sencor	-	-	1596

Untreated

Plants m ⁻²	Early	148	73	40
	Late	65	2	46

DRY MATTER KG/HA

TREATMENT	LUPIN						GLASS
	STEM	LEAF	POD	SEED ^P	SEED ^L	SEED ^T	
Nil	6450	1297	1603	700	1603	2303	1550
Simazine 1kg	6327	1207	1380	623	1346	1970	1613
Simazine 3kg	8057	2163	1220	517	1507	2123	310
Sencor 150g	5533	970	1380	637	1440	2077	1923

SEED^P = seed on primary axis

SEED^L = seed on lateral branches

SEED^T = seed total

Comment

1. Only simazine 3kg/ha gave complete weed control (the counts shown were taken too early to show the full effect of this treatment).
2. There was only a slight yield response to simazine 3kg/ha and as in the 2 previous years it is unlikely to be significant.
3. The dry matter results show a response in lupin leaf and stem but not in grain yield.

LUPINS - HERBICIDES X TIME OF SEEDING

75GE8

Locality F. Strickland, Eradu

Variety Unicrop

Seeding Date 1. 12.5.75
2. 4.6.75

Rainfall 28 days post seeding.

Herbicide Simazine, immediately post seeding.

Application Sencor, 1st planting immediately post seeding.
2nd planting 4 true leaf stage of lupin
3.7.75.

Harvest 13.11.75

Results Crop phytotoxicity and weed control visual
rating 18.7.75
Yield kg/ha

TREATMENT SEEDING DATE	HERBICIDE	CAPEWEED CONTROL %	CROP DAMAGE %	YIELD KG/HA
12.5.75	Nil	0	0	1146
"	Simazine 1kg	95	10	1442
"	Simazine 3kg	100	50	448
"	Sencor 1kg	99	50	1030
4.6.75	Nil	0	0	819
"	Simazine 1kg	90	5	1200
"	Simazine 3kg	98	25	425
"	Sencor 150g	90	10	828

Comment

There was a worthwhile yield response to simazine 1 kg/ha.

Simazine 3 kg/ha and Sencor 1 kg/ha at the first time of seeding caused severe damage.

In the absence of crop phytotoxicity yields were higher at the first time of planting.

LUPINS - SIMAZINE DEMONSTRATION

75AL21

Locality J. Bailey & Son - South Stirling.

Variety Unicrop

Seeding Date 7.5.75

Herbicide 7.5.75

Application

Assessment Crop and weed count 25.6.75
20 x 0.2m² per plot.
Harvested 5.1.76
2 replications

Results

TREATMENT	% WEED CONTROL			% CROP REDUCTION	YIELD KG/HA
	CAPE- WEED	ANNUAL GRASS*	AVENA SATIVA		
Nil	-	-			1231
Simazine 1.5kg/ha	36	88	50	0	1336
Simazine 3.0kg/ha	60	95	93	0	983

Comment

1. There was no visual effect of simazine on lupins and plant numbers were not reduced.
2. The yield differences are attributed to site variation (only 2 replications) rather than phytotoxicity.
3. The common oats survived the cultivation and in that situation 3.0 kg of simazine was required to give adequate control.

LUPINS - POST EMERGENCE HERBICIDES

75C20

Locality Chapman Research Station
Variety Unicrop
Herbicide Application 18/7/75
Lupins 8 true leaf stage.
Weed Size & Density Weed diameter 10cm to 30cm
Density Capeweed $70m^{-2}$
Doublegee $4m^{-2}$
Harvest 5.12.75
40m x 1.24m

Results

<u>Treatments</u>	<u>Yields</u> <u>kg/ha</u>
Nil	904
Simazine 1kg/ha	937
Simazine 1.5kg/ha	1185
Simazine 2kg/ha	1285
Sencor 200g/ha	1285
Diuron 1kg/ha	857

Comment

1. Diuron caused severe crop damage.
2. Although the weeds were unduly large simazine and sencor gave good control.
3. Simazine 2 kg/ha caused visible crop damage.

LUPINS - POST EMERGENCE HERBICIDES

75GE34 - 1

Locality B. Fawcett, Nanson
Variety Uniharvest
Date of Application 20.6.75
4 true leaf stage of lupins
Assessment Weed and crop plant counts
18.7.75
20 x .12m² per plot
3 replications

Results

TREATMENT	LUPIN	PERCENTAGE REDUCTION	
		ESTABLISHED PLANTS	SEEDLINGS
Basagran 2 li	89	60	0
Sencor 100 g	10	78	0
Simazine 2kg	29	97	0
Untreated plants m ⁻²	56	204	24

Comment

1. Basagran killed the lupins.
2. Sencor caused a retardation of lupins and gave fair radish control.
3. Simazine caused retardation of lupins and gave excellent radish control.

LUPINS - POST EMERGENCE HERBICIDES

75GE34-2

Locality F. Strickland, Eradu

Variety Unicrop

Date of Application

Harvest 13.11.75
60m x 1.22m per plot

Results

<u>Treatment</u>	<u>Yield kg/ha</u>
Nil	1250
Basagran 1li/ha	0
Sencor 100g/ha	1066
Simazine 2kg/ha	717

Comment

1. Basagran killed the lupins.
2. Simazine caused severe lupin damage.
3. Sencor caused a slight lupin retardation.
4. The weeds were of little consequence in the untreated plots.