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1976

## 1976 Research results

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### Recommended Citation

Moore, J, and Allen, J. (1976), *1976 Research results*. Department of Agriculture and Food, Western Australia, Perth. Report.

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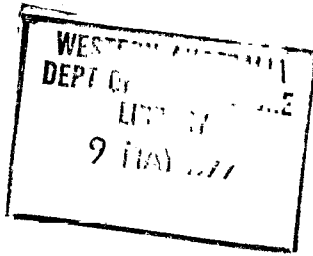
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DEPARTMENT OF AGRICULTURE

Western Australia

RESEARCH RESULTS 1976

J. MOORE

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WEED AGRONOMY SECTION

By

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Weed Agronomy Section

JOHN MOORE

Dock Control

To reduce the density of old dock plants in a pasture to less than one per square metre three to four years spraying with dicamba is necessary. Even then the density of seedling docks may be of the order of 10 seedling/M<sup>2</sup>. A programme of annual spraying with dicamba eliminates clover from the sward. Results indicate that at least 2-3 years will elapse before the density of dock reaches its original level after being reduced to less than one old dock plant per square metre.

The sensitivity of dock to competition is shown in 73AR9 and again in 73BU6 (1976 treatments).

Mixing of paraquat with dicamba reduced the effect of dicamba on dock.

Introducing a cereal cropping phase into rotation with pasture would allow the use of dicamba to reduce the dock population carried into the pasture phase. A mixture of 2, 4-D with dicamba increases the spectrum of weeks controlled in the crop and at one site gave better yields than a higher rate of dicamba alone.

Buckshot gave results comparable to the dicamba/2,4-D mix but was considerably more expensive.

DOCK CONTROL - DICAMBA IN PASTURES73 Ar 9

LOCALITY: Mead estate Baldivis.

LAND USE Pasture

TREATMENTS: Spray = 1.5 l/ha Dicamba 20%  
                   on 28.5.76  
                   10.4.75  
                   15.5.74  
                   6.7.73

Cult. = rotary hoed to 10 cms.

Clover = sown to 6 kg/ha  
           Woogenellup and  
                           6 kg/ha Yarloop  
           one week after spraying.

Rye = sown to 20 kg/ha  
       Wimmera Rye grass  
       one week after spraying.

RESULTS:

Old and seedling dock plant counts were taken on 22.9.76.

10 x 0.1m<sup>2</sup> samples taken from each of two replicates.

TREATMENT				Plant Counts/m <sup>2</sup>	
1976	1975	1974	1973	Old Docks	Seedling Docks
1	-		Spray	2.5	13.5
2	-		Spray/Clover/Rye	1.5	2.7
3	-	Cult./Spray	Spray/Rye	0	2.7
4	Spray	Cult./Spray	Spray/Rye	0	1.0
5	-	-	-	2	6.0
6	-	-	Spray/Clover/Rye	2	3.5
7	-	Cult./Spray	Spray/Rye	1	4.4
8	Spray	Cult/Spray	Spray/Rye	0	0.4

COMMENTS:

This trial was not grazed in 1976 and the pasture was about 50 cm deep when counted and apparently overran the dock.

DOCK CONTROL - DICAMBA IN PASTURES73 Bu 9LOCALITY: E. WRIGHT, WitchcliffeLAND USE: Dairy pasture.TREATMENTS: Spray = 1.5 l/ha Dicamba on 25.5.76  
10.4.75  
15.5.74  
6.7.73

Cult = rotary hoed to 10 cms in March 1975

Clover = sown to 6 kg/ha Woogenellup and  
6 kg/ha Yarloop  
one week after spraying.Rye = sown to 20 kg/ha Wimmera Rye Grass  
one week after spraying.RESULTS:Old and seedling dock plant counts taken  
6.9.76. 10 x 0.1m<sup>2</sup> samples taken from  
each of three replicates.

	TREATMENT				Plant Counts/m <sup>2</sup>	
	1976	1975	1974	1973	Old dock	Seedling Dock
1	-	-		Spray	74 a	44.3 ab
2	-	-	Spray/Clover/Rye	Spray	11.3 b	25.0 bc
3	-	Cult./Spray	Spray/Rye	Spray	13.0 b	13.3 bc
4	Spray	Cult./Spray	Spray/Rye	Spray	0.6 c	8.1 c
5	-	-	-	-	70.4 a	72.4 a
6	-	-	Spray/Clover/Rye	-	28.8 b	14.9 bc
7	-	Cult./Spray	Spray/Rye	-	13.0 b	11.0 c
8	Spray	Cult./Spray	Spray/Rye	-	0.3 c	5.8 c

DOCK CONTROL - DICAMBA IN PASTURES73 Bu 9

(Cont'd)

COMMENTS:

The effects of a Dicamba 20% spray in 1974 were still observable in spring 1976. The 1973 spray had lost all effect by spring, 1976.

Dicamba 20% at 1.51/ha gave good control of old dock in the year of spraying.

There is still a problem of dock seed germinating after spraying.

DOCK CONTROL - DICAMBA IN PASTURE

73 AL 38  
 LOCALITY: D.A. STONEY Mt. Manypeaks.  
 LAND USE: Sheep/cattle pasture.  
 TREATMENTS: Spray = 1.51/ha Dicamba 20% 24. 5.76  
 10. 4.75  
 15. 5.74  
 6. 7.73

Cult. = rotary hoed to 10 cms March, 1975  
 Clover = sown to Woogenellup 6 kg/ha and  
 Yarloop 6 kg/ha  
 one week after spraying.

Rye = sown to Wimmera Ryegrass one  
 week after spraying at 20 kg/ha

RESULTS:

Dock and clover plant counts taken on 20.8.76  
 10 x 0.5m<sup>2</sup> quadrats taken from each of two  
 replication.

Grass plant counts taken on 20.8.76.  
 1 x 0.5m<sup>2</sup> sample taken from each replicate.

	TREATMENT				Plant Counts/m <sup>2</sup>		
	1976	1975	1974	1973	Dock	Clover	Grass*
1.	-	-	-	Spray	57.2d	101.2a	360a
2.	-	-	Spray/Clover/Rye	Spray	10.1b	140.5a	320a
3.	-	Cult./Spray	Spray/Rye	Spray	0.4a	33.6a	400a
4.	Spray	Cult./Spray	Spray/Rye	Spray	0.0a	0.0 b	450a
5.	-	-	-	-	92.9e	71.6a	420a
6.	-	-	Spray/Clover/Rye	-	26.8c	131.7a	360a
7.	-	Cult./Spray	Spray/Rye	-	3.0ab	110.6a	420a
8.	Spray	Cult./Spray	Spray/Rye	-	0.3a	0.0:b	350a



DOCK CONTROL - DICAMBA IN PASTURE73 A1 38

(Cont'd)

COMMENTS:

Very few seedling dock were observed in this trial. The effects of spraying with Dicamba 20% in 1973 were still visible in 1976.

Even after two years' spraying with Dicamba 20% the clover readily returned to the pasture the following year.

Four years' spraying gave no better dock control than three years.

DOCK CONTROL IN PASTURE(EFFECTS OF TREATMENTS 1973-1975)73 BU 6LOCALITY: Nelson, Alexander Bridge.LAND USE: Dairy pasture.TIME OF SPRAYING: May/June.TIME OF CULTIVATION: Autumn before season breaks.TREATMENTS:

C = cultivated by rotary hoe.

B = Dicamba 20% ("Banex") spray.

A = Asulam 40% spray.

M = MCPA 26.8% spray.

Number following letter is the rate of chemical in litres/ha.

RESULTS:

Old dock plant counts taken 7.9.76.

1973 code	1974 code	1975 code	Old dock m <sup>2</sup>	Significance
B1.4		B1.5 + 1.5*	27.0	a b
C, B1.4	C, B1.5	C, B1.5 + 1.5*	28.5	a b
	B3.0		30.0	1 rep
	B1.5	B1.5 + 1.5*	38.5	a b
	C, B1.5	C, B1.5 + 1.5*	39.0	a b c
C, B2.8	C, B3.0		40.0	a b c d
A2.8	A3.0		51.0	1 rep
	C, B3.0		53.5	a b c d e
B2.8	B3.0		54.0	1 rep
	C, A2.0		74.5	b c d e f
C, A2.8	C, A3.0		82.5	c d e f
C, M2.8	C, A2.0		83.0	d e f
M2.8	A2.0		84.5	e f g
	A3.0		85.0	1 rep
	A2.0		87.0	e f g
C	C	C	98.15	e f g
	C	C	103.75	e f g

DOCK CONTROL IN PASTURE  
(EFFECTS OF TREATMENT 1973-1975)

73 BU 6

(Cont'd)

1973 code	1974 code	1975 code	Old dock m <sup>2</sup>	Significance
	C, A3.0		104.0	f g
Control			115.75	f g

Treatments with the same letter not significantly different.

\* Second spraying in spring.

COMMENTS:

Banex was the most effective herbicide at reducing the population of dock but even after three years' spraying there was still approximately 30 plants/m<sup>2</sup>.

Cultivation did not significantly improve dock control.

DOCK CONTROL IN PASTURE (1976 TREATMENTS)73 BU6

Locality Nelson. Alexander Bridge  
Land Use Dairy Pasture  
Time of Spraying 26/5/1976  
Herbicides "Banex" 1.5 l/ha. - Dicamba 20%)  
 "Gramoxone" 1.5 l/ha - (Paraquat 20%)  
Treatments A - Dicamba + Paraquat and sown with  
 clover 96 kg/ha) on 31/5/1976.  
 B - Dicamba + Paraquat  
 C - control

Results Old dock and seedling dock plant counts  
 and clover rating taken 7/9/1976.

<u>Treatment</u>	<u>Old docks/M<sup>2</sup></u>	<u>Seedling Docks/M<sup>2</sup></u>	<u>Clover Rating</u>
A	115.0 a	202.5 a	3.05 a
B	127.5 a	200.0 a	0.5 b
C	135.0 a	87.5 b	0.75 b

Comments

Mixing Paraquat with Dicamba reduces the effectiveness of Dicamba on old dock plants possibly by stressing the plants and reducing absorption of Dicamba.

The increase in seedling dock numbers after spraying Paraquat/Dicamba is due to thinning of the pasture and reducing competition allowing seedlings to germinate and survive.

Clover can be readily established after spraying.

DOCK CONTROL IN CEREALS

76 A1 30

Locality M. WILLISS, Woogenellup  
Land use Clipper barley  
Herbicides Dicamba 20% (ICI "Banex")  
 Dicamba 20% (ICI "Banair")  
 2,4-D Amine 50%  
 2,4-D Ester 80%  
 Dicamba 8% MCPA 34% (Lanes "Buckshot")  
Application Boom sprayed 27/8/76 in 145 l of spray solution/ha.

Results

Plant counts taken on 13/10/76. 10 x 0.1 m<sup>2</sup> samples taken from each of three replicates 106.7m<sup>2</sup> harvested per plot on 15/12/76.

Treatment

Chemical	Rate ml/ha	Chemical	Rate ml/ha	Dock plants per m <sup>2</sup>	Yield kg oats/ha	Cost of Chemical per ha
1 nil				25.5 a	1943.4	
2 Banex	700			10.9 c	1915.2	\$3.19
3 Banex	700	2,4-D Amine	700	3.4 de	1905.9	\$5.40
4 Banex	1000			2.5 de	1765.3	\$4.56
5 Banex	1000	2,4-D Amine	700	1.9 de	1915.3	\$6.77
6 Banex	1400			0.85 e	1905.9	\$6.38
7 Banex	1400	2,4-D Amine	700	1.1 e	1918.4	\$8.49
8 Banair	700			21.5 b	1915.3	\$3.59
9 Banair	700	2,4-D Ester	350	3.3 de	1930.9	\$5.24
10 Banair	1000			5.0 d	1759.1	\$5.13
11 Banair	1400			2.3 de	1834.0	\$7.18
12 Buckshot	1900			3.0 de	1905.9	\$7.98

Comments

The addition of 2,4-D to dicamba to control dock in all except the highest rate of Banex reduced the population of dock in the crop. Only at the 700 ml/ha rates of Banex or Banair were the docks significantly fewer with the addition of 2,4-D.

Very few seedling dock were present at the time of counting.

The addition of 2,4-D to improve weed control was less deleterious to the crop than increasing the rate of dicamba.

DOCK CONTROL IN CEREALS

76 A1 30

Locality A. SANDILANDS, Kendenup

Land Use Oats

Herbicides Dicamba 20% (ICI "Banair")  
 Dicamba 20% (ICI "Banex")  
 2,4-D Amine 50% (ICI "Amoxone")  
 2,4-D Ester 80% (ICI "Estone 80")

Application Boom sprayed on 20/7/76 at approximately  
 100 l of spray mixture/ha.

Results

Plant counts of dock taken on 1/9/76. 10 x 0.1 m<sup>2</sup>  
 samples taken from each of three replicates. Plot  
 yields taken on 10/1/77 106.7 m<sup>2</sup> harvested per plot.

Treatments

	Chemical	Rate ml/ha	Chemical	Rate ml/ha	Dock plants per m <sup>2</sup>	Yield kg oats/ha	Cost of Chemical per ha
1	nil				105.3 a	1093.6	
2	Banex	700			82.6 b	984.2	\$3.19
3	Banex	700	2,4-D Amine	700	29.6 eh	968.6	\$5.40
4	Banex	1000			43.6 d	953.0	\$4.56
5	Banex	1000	2,4-D Amine	700	20.6 fg	968.6	\$6.77
6	Banex	1400			25.3 egh	968.6	\$6.38
7	Banex	1400	2,4-D Amine	700	16.0 f	937.4	\$8.49
8	Banair	700			59.0 c	984.2	\$3.59
9	Banair	700	2,4-D Ester	350	22.0 fgh	906.1	\$5.24
10	Banair	1000			39.6 d	953.0	\$5.13
11	Banair	1400			30.0 e	953.0	\$7.18

Comments

The addition of 2,4-D to dicamba significantly improved dock control.

Control was better than indicated by the plant count figures because there was a greater germination of dock seed after the time of spraying in the sprayed versus nil treatments.

Weed Control in Lupins

Simazine, simazine plus metribuzin, IPC and HOE 23408 were tested as post emergent herbicides for lupins.

There were no significant differences in yield or weed control between the flowable and wettable powder formulations of simazine.

At Esperance and Badingarra simazine pre-emergence was better than post emergence application, whilst at Pingelly and Cranbrook there was no difference between application times.

Addition of metribuzin to simazine reduced yields. This is probably a phytotoxic effect of the metribuzin rather than the mix.

HOE 23408 gave excellent control of ryegrass and caused no observable phytotoxicity.

Weed control with IPC was mediocre and the yield indicates that it doesn't damage lupins.

Methabenzthiazuron didn't reduce lupin plant numbers early in the season indicating it may be potentially used as a post emergence treatment.

POST EMERGENCE HERBICIDES IN LUPINS76 NA 13LOCALITY: G. HILL Pingelly.VARIETY: Unicrop lupins.HERBICIDE  
APPLICATION:

Treatment 2 (standard control)  
 Simazine 2 1/ha applied immediately  
 post seeding.  
 Treatments 3-9 applied when lupins in  
 the four true leaf stage. Metribuzin  
 70% = "Sencor 70"

RESULTS: Harvests taken on 14.12.76.

No.	TREATMENTS		Yield kg/ha	cost of Chemical/ha
	Chemical/s	Rate/s per ha		
1.	Control		2049 cd	0
2.	Simazine (pre em)	21	1849 bc	\$9.60
3.	Simazine	21	2215 cd	\$9.60
4.	Simazine	31	2189 cd	\$14.40
5.	Simazine	41	1884 b	\$19.20
6.	Simazine plus Metribuzin 70%	11+ 62.5	1352 a	\$7.67
7.	Simazine plus Metribuzin 70%	21+ 125g	1561 ab	\$15.34
8.	HOE 23408	21	2337 d	unknown
9.	HOE 23408	31	2224 cd	unknown

COMMENTS:

Weeds were patchy in this trial.  
 HOE 23408 were the only treatments that  
 effectively controlled Wimmera ryegrass.

Treatments containing metribuzin and the  
 higher rates of simazine visually affected  
 the crop but did not reduce the number of  
 lupin plants per square metre.



POST EMERGENT HERBICIDES IN LUPINS76 C5

LOCALITY: Chapman Research Station  
VARIETY: Ultra lupins  
HERBICIDE APPLICATION: 2.7.76 when lupins in the four to six true leaf stage.  
SEEDING DATE: 1/6/76  
RESULTS: Plant counts taken 20.8.76

TREATMENTS		Plant Counts/m <sup>2</sup>			Cost of Chemical per ha	
No.	Chemical	Rate/ha	Lupins	Capeweed	Doublegee	
1	Control		18.6 a	304.5 a	4.0 a	
2	Flowable Simazine	2 l	20.8 a	42.2 b	2.5 a	\$9.60
3	Flowable Simazine	3 l	21.1 a	41.4 b	1.1 a	\$14.40
4	Metribuzin 70%	125g	19.8 a	41.4 b	3.2 a	5.74
5	Metribuzin 70%	187.5g	19.0 a	29.8 c	2.6 a	8.60
6	Methabenzthiazuron	400g	20.3 a	37.2 b c	1.6 a	2.79
7	Methabenzthiazuron	800g	20.3 a	22.7 d	0.7 a	5.58
8	Metribuzin 70% plus Methabenzthiazuron	62.5g + 200g	19.5 a	36.4 bc	2.9 a	4.26

COMMENTS:

Metribuzin 70% = "Sencor 70"  
Methabenzthiazuron = "Tribunil"

Drought killed the lupins, hence no yields were taken.

POST EMERGENCE HERBICIDES CB49

76 BA29

LOCALITY: Badgingarra Research StationVARIETY: CB49 lupins.HERBICIDE APPLICATION: Flowable Simazine and "HOE 23408" was applied on 9.7.76SEEDING DATE: 25/5/76RESULTS: Plant counts taken on 28.9.76.  
Harvests taken 14.12.76.

TREATMENTS			Plant counts/m <sup>2</sup>			Cost of Chemical per ha
No.	Chemical	Rate/ha	Lupins	Ryegrass	Yield kg/ha	
1	Control	2	8.4 a	37.5 a	2397a	
2	Flowable Simazine	2 l	9.2 a	29.7 a	2135a	\$9.60
3	Flowable Simazine	3 l	11.5 ab	32.3 a	2144a	\$14.40
4	Flowable Simazine	4 l	10.0 ab	23.9 a	2594ab	\$19.20
5	HOE 23408	2 l	15.5 b	11.5 b	2987bc	unknown
6	HOE 23408	3 l	15.3 b	8.1 b	3258 c	unknown
7	HOE 23408	4 l	16.9 b	5.3 b	3361 c	unknown

COMMENTS:

A slight yellowing of the lupins in the HOE 23408 treated plots was observed when plant counts were taken. (28.9.76)

This trial was sprayed pre emergence with flowable simazine 2 l/ha on 26/5/76.

HOE 23408 on lupins at AvondaleLocality

Avondale Research Station

Variety

Unicrop

Herbicide Application

HOE 23408 applied in approximately 100 l of water/ha when the ryegrass had 4 to 10 tillers and the lupin 20-25 cms high on 10/7/1976.

Results

Plant counts taken eight weeks after spraying.

Harvests taken early December.

<u>Rate l/ha</u>	<u>Lupin density plants/m<sup>2</sup></u>	<u>Ryegrass<sub>2</sub> density plants/m<sup>2</sup></u>	<u>Lupin yield t/ha</u>
0	33.3 a	73.3 a	1.142
0.5	46.67 bc	20.0 b	1.698
1.0	53.3 c	6.67 c	1.775
2.0	40.0 b	0 d	1.749

Comments

Plots sprayed with HOE 23408 remained green later in the season than controls.

Some dead lupin plants were observed in the control and 2 l/ha plots.

POST EMERGENCE HERBICIDES IN LUPINS

76 A1 9

LOCALITY: T. MARSHALL, CRANBROOKVARIETY: Unicrop lupins.HERBICIDE APPLICATION: Treatment 2 (standard control) was sprayed with Simazine 2 l/ha at seeding 17.5.76  
Treatments 3-10 applied POST EMERGENCE 5.7.76.  
Metribuzin 70% = "Sencor 70"SEEDING DATE: 17.5.76.RESULTS: Weed and lupin counts taken on 15.11.76.

Harvest taken on 14.12.76.

TREATMENTS			plant count/m <sup>2</sup>			Yield kg/ha	Cost of Chemical per ha
No.	Chemical/s	Rate/ha	Lupins	Broad- leafed weeds	Ryegrass		
1	Control		109	50	243	451b	
2	Simazine (Pre em)	2 l	111	10	180	524bc	\$9.60
3	Simazine	2 l	113	28	267	480bc	\$9.60
4	Simazine	3 l	104	13	215	538bc	\$14.40
5	Simazine	4 l	110	19	275	567 c	\$19.20
6	Simazine plus Metribuzin 70%	1 l 62.5 g	92	9	244	291a	\$7.67
7	Simazine plus Metribuzin 70%	2 l 125 g	108	0	237	218a	\$15.34
8	HOE 23408	2 l	109	89	31	945e	unknown
9	HOE 23408	3 l	125	86	16	829d	unknown
10	IPC	4.5 kg	138	43	201	611bc	

COMMENTS:

As in other trials Metribuzin showed some phytotoxicity to lupins when applied post emergence.

POST EMERGENCE HERBICIDES IN LUPINS76 E 7LOCALITY: Esperance Downs Research StationVARIETY: Marri LupinsSEEDING DATE: 2.7.76HERBICIDE APPLICATION

Treatment 2, standard, Simazine 2 l/ha applied pre emergence on 5.7.76.  
Treatments 3 - 9 applied post emergence on 2.8.76 when the lupins were in the four true leaf stage.

Metribuzin 70% = "Sencor 70"

No.	TREATMENTS		Weed Counts 15.9.76 plants/m <sup>2</sup>	Yields Cost of	
	Chemical/s	Rate/s per ha		kg/ha	chemical/ ha
1	Control		503 a	462ab	
2	Simazine (pre em)	2 l	80 e	1047g	\$9.60
3	Simazine	2 l	412 a b	406 a	\$9.60
4	Simazine	3 l	269 cd	712 ef	\$14.40
5	Simazine	4 l	274 cd	809 f	\$19.20
6	Simazine plus Metribuzin 70%	1 l+ 62.5g	403 a b c	544a	\$7.67
7	Simazine plus Metribuzin 70%	2 l+ 125g	261 d	566 bc	\$15.34
8	HOE 23408	2 l	88 e	697	de unknown
9	HOE 23408	3 l	73 e	581	cd unknown

COMMENTS:

Weeds in treatments 3 - 7 mainly ryegrass.

Weeds in treatments 8 &amp; 9 mainly bromegrass.

COMPARISON OF SIMAZINE FORMULATIONS IN LUPINS76 BASLOCALITY: Badgingarra Research StationVARIETY: UnicropSEEDING DATE: 19.5.76SPRAYING DATES: Treatments 2 - 5 20.5.76  
Treatments 6 - 9 21.6.76RESULTS: Weed counts taken on 9.9.76  
Harvested on 3.12.76

No.	TREATMENT			Weed Counts per m <sup>2</sup>	Yield kg/ha	Cost of Chemical per ha
	Chemical	Application	Rate/ha			
1	Control			222.1	1105	
2	Simazine (WP)	Surface applied	1.25kg	65.9	1901	\$8.73
3	Simazine (flowable)	Surface applied	2 l	64.1	1935	\$9.60
4	Simazine (WP)	Surface incorporated	1.25kg	84.1	2013	\$8.73
5	Simazine (flowable)	Surface incorporated	2 l	83.0	2113	\$9.60
6	Simazine (WP)	Post emergence	1.25kg	181.5	1386	\$8.73
7	Simazine (flowable)	Post emergence	2 l	180.4	1376	\$9.60
8	Simazine (WP)	Post emergence	1.875kg	152.6	1495	\$13.10
9	Simazine (flowable)	Post emertence	3 l	136.4	1448	\$14.40

COMMENTS:

No significant difference between the wettable powder (WP) or flowable formulations of semazine.

Incorporation significantly increased the yield over surface application, but weed control was not significantly improved.

Pre-emergence spraying significantly improved yield and weed control over post emergence spraying.

Yield and weed counts not significantly different in the high versus low rate post emergence.

All treatments significantly better than the control.

### Weed Control in Vineyards

Alachlor, atrazine and simazine gave excellent control of weeds and minimal effect on vines in the year of transplanting. Atrazine 2.5 kg/ha was the cheapest. Chlorthal, a commonly used herbicide in nurseries caused a marked reduction in growth.

In second year vines herbicide application after leaf fall caused less growth reduction than application before leaf fall. Vorox AA gave reasonable control of weeds with little effect on the vines for a reasonable cost. (\$18.32 for chemical per hectare).

Control of couch in vines with glyphosate was good at 10 l/ha and marginal at 5 l/ha. Severe vine damage occurred if the spray was allowed to contact the vine. Damage was more severe if sprayed in autumn rather than spring.

THE TOLERANCE OF YOUNG VINES TO HERBICIDES

Locality Upper Swan Research Station  
Variety Shiraz planted Mid October 1975.  
Herbicide Application Treatments 1 - 12 sprayed  
 25/10/75. Treatment 13, 14  
 granules sprinkled onto plot.

Results

Fresh weights of roots and shoots and percentage weed control taken 12/8/76.

Rating of growth of vines taken 18/11/76 (0 = no growth 5 = good growth)

	CHEMICAL	RATE PER HA	ROOT WT. GMS	SHOOT WT. GMS	GROWTH RATING	% WEED CONTROL	COST OF CHEMICAL
1	Chlorthal 75%	10 kg	63	79	1.5	95-100	\$ 69.20
2		20 kg	144	154	1.67	95-100	\$138.40
3	Simazine 80%	2.5	488	358	3.33	95-100	\$ 17.45
4		5.0	245	236	3.5	100	\$ 34.90
5	Atrazine 80%	2.5	543	343	3.16	95-100	\$ 13.72
6		5.0	127	100	1.16	95-100	\$ 27.44
7	Diuron 80%	2.5	235	93	1.83	95-100	\$ 13.65
8		5.0	249	137	1.83	100	\$ 27.30
9	Alachlor 50%	5.0 1	395	423	3.33	100	\$ 22.00
10		10.0 1	259	142	2.16	100	\$ 44.00
						variable	
11	Chloroxuron 50%	10.0kg	539	298	3.0	50-95	\$142.00
12		20.0kg	463	202	3.66	95	\$284.00
13	Dichlobenil 2%	125 kg	549	349	2.0	95-100	\$138.50
14		250 kg	459	286	1.83	95-100	\$277.00
15	Control		637	481	3.16		
16	"		556	376	3.5		

Comments

Alachlor 5.0 1, Atrazine 2.5 kg and Simazine were the best treatments.

Chlorthal, which is commonly used in nurseries, caused a marked reduction in growth.



TOLERANCE OF 2nd YEAR VINES TO HERBICIDES

Locality Upper Swan Research Station  
Variety Shiraz planted Mid October 1975  
Herbicide Application

Sprayed before leaf fall on 23/4/76  
 or sprayed after leaf fall on 6/7/76.

Treatment 9-31 spray seed applied  
 at 23/4/76 and 6/7/76.

Weed control estimates taken on 19/8/76.

Results

Ratings of vine growth taken on 18/11/76 (0 = no growth  
 5 = good growth)

	CHEMICAL	RATE PER HA	APPLICATION	GROWTH RATING	% WEED CONTROL	COST OF CHEMICAL
1	Simazine	2 kg	Before leaf fall	2.45	15abcd	\$ 13.98
2	"	4	"	2.48	67efg	\$ 27.96
3	"	8	"	2.58	83fgh	\$ 55.92
4	Diuron	2	"	2.78	33bcdef	\$ 10.92
5	"	4	"	2.76	42efgh	\$ 21.84
6	"	8	"	2.62	100h	\$ 43.68
7	Vorox AA	2	"	2.96	16abcd	\$ 18.32
8	"	8	"	2.5	100h	\$ 73.28
9	Spray Seed	3 l + 3 l	"	1.57	66efg	\$ 33.00
10	"	3 l	"	1.73	33bcdef	\$ 16.50
11	Control		"	3.01	0abc	
12	Simazine )	2 kg + 3 l	After leaf fall	3.29	25abcde	\$ 38.10
13	plus )	4 kg + 3 l	"	2.73	16abcd	\$ 52.08
14	Paraquat )	8 kg + 3 l	"	2.66	58 defg	\$ 80.04
15	Diuron )	2 kg + 3 l	"	2.64	66 efg	\$ 35.04
16	plus )	4 kg + 3 l	"	3.28	83fgh	\$ 45.96
17	Paraquat )	8 kg + 3 l	"	2.94	83fgh	\$ 67.80
18	Vorox AA	2 kg	"	3.23	83fgh	\$ 18.32
19	"	8 kg	"	3.5	92gh	\$ 73.28
20	Spray Seed	3 l	"	2.3	50cdefg	\$ 16.50
21	"	3 l	"	3.44	66efg	\$ 16.50
22	Control			2.82	0abc	

Comments

Vorox applied after leaf fall tended to leave capeweed and radish on the plot.

Diuron applied after leaf fall tends to leave capeweed.

Vines performed significantly ( $p < 0.05$ ) better when the herbicides were applied after leaf fall. Weed control was slightly but not significantly better after leaf fall.

THE TOLERANCE OF VINES TO GLYPHOSATE

Locality Upper Swan Research Station

Variety Muscat Gordo

Herbicide Glyphosate ("Round Up" Monsanto)

Application Herbicide solution applied on 26/11/75 (Site 1) or 27/4/76 (Site 2) to a 2 m circle around the vine with a hand held wand.

Results Fresh weight of grapes taken 4.3.76. Dray weight of prunings taken 12.10.76.

1. Fresh wt. of Grapes (kg/vine) (Site 1)

Glyphosate concentration ppm	Glyphosate applied to		
	ground only	whole vine	ground + 1 cane
0.0	9.49a	9.49a	9.49a
200	10.41a	9.30a	9.55a
1000	7.45a	7.13a	10.38a
5000	9.66a	0.79b	7.26a
10000	8.47a	0.0 b	7.43a

Dry wt. of Prunings (gms/vine)

Glyphosate concentration ppm	Glyphosate applied to			Glyphosate applied to		
	ground	whole vine	ground + cane*	ground	whole vine	ground + 1 cane*
0.0	334.3	334.3		237	248	
200	497.7	265.3	25.0	208.6	250.0	23.3
1000	306.7	462.3	17.3	305.0	322.0	13.0
5000	357.0	168.7	9.0	110.6	224.6	17.0
10000	309.3	120.3	19.5	237.6	268.6	20.6

\* weight of sprayed cane only  
1000 ppm is equivalent to spraying 11/ha

Comments 5000 ppm Glyphosate checked couch grass but some regrowth was apparent in December 1976.

10000 ppm gave complete control. Results given and field observation indicates the spring spraying is safer than autumn spraying if the spray is liable to drift onto the vine. Where one cane was sprayed distortion was more severe and shoots more distant from the cane were effected with the autumn spraying.