1979

Declared plant control & Total vegetation control

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Western Australia

SUMMARY OF EXPERIMENTAL RESULTS

FIELD TRIALS 1979

(a) Declared Plant Control

1. Arum Lily (Zantedeschia aethiopica)
2. Blackberry (Rubus spp)
3. Pennyroyal (Mentha pulegium)

(b) Total Vegetation Control

1. Chemical firebreaks - National Parks Authority
2. Roadside grass control - National Parks Authority

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TRIAL : Chemical control of Arum Lily (Zantedeschia aethiopica)

PROPERTIES : Prevelly Park, Margaret River (A)
Wonnerup (B)

SITES : (A) dense Arum Lily under shade from trees in Park reserve
(B) scattered Lily in clover pasture grazed by dairy cattle

PLOT SIZE : Individual clumps of Lily per plot

VOLUMES : Variable - treatments applied as spot spray

WETTING AGENT : Added at 1:400

DATES : Treatments applied (A) 7/9/1978
(B) 6/9/1978

Assessments 24/7/1979

No. Herbicide	Rate	Mean Control Rating*	
		Site A	Site B
1. 2,4-D amine	1:100	6.5	5.7
2.	1:50	9.8	5.8
3. 2,4,5-T amine	1:150	2.5	3.1
4.	1:100	1.9	3.5
5.	1:50	4.1	8.6
6. dicamba	1:150	0	0.1
7. (Banvel 200)	1:100	0	0.1
8.	1:50	0.1	0
9. dicamba granules	2.5 g/plant	0	0.2
10.	5 g/plant	0.3	0
11. (Banvel G)	10 g/plant	6.9	0
12. glyphosate	1:150	8.2	8.4
13. (Roundup)	1:100	9.1	6.1
14.	1:50	5.9	9.8
15. amitrole-T	1:150	0.3	0
16. (Weedazol TL plus)	1:100	0.3	0
17.	1:50	0.3	0
18. glyphosate (25) + amitrole (75)	1:100	0.3	3.3
19. glyphosate (50) + amitrole (50)	1:100	3.9	6.9
20. glyphosate (75) + amitrole (25)	1:100	9.2	10.0
21. Nil (Control)	-	0	0

* Mean of 3 independent observers, and 3 replications
Rating 0 : No effect of treatment
10 : Complete kill

COMMENTS

1. 2,4-D amine at 1:100 is the recommended treatment.

2. Control by glyphosate is promising at both sites and could be a useful non-hormone alternative recommendation.

3. Treatments 15 - 17 show that amitrole-T has no effect on Arum Lily. Therefore, treatments 18, 19, 20 are, in effect, glyphosate only, at 1:400, 1:200 and 1:133 respectively. Comparison of the mean ratings for these three treatments with those for glyphosate (Tr 12 - 14) shows an increasing level of control with increasing rate of glyphosate up to 1:133, after which the degree of control levels off.

79AI60 : Evaluation of Roundup for blackberry control

PROPERTY : R. Wolfe, Bornholm

SITE : South-facing slope, permanently pastured with scattered blackberry clumps up to 1.5 m high.

PLOT SIZE : One bush per plot : 1 replication only

VOLUME : Treatments applied on dilution basis, sprayed to run-off. High volume "sprayrite" pistol used.

DATES : Treatments applied 22/1/79
Visual assessment 8/1/80

RATINGS : Mean of two independent assessments of percent control.

No	Roundup dilution rate	Ammonium Sulphate dilution rate	Wetting agent dilution rate	Percent control
1	1:100	1:250	1:600	95
2	1:100	1:250	-	99
3	1:100	-	1:600	95
4	1:100	-	-	90
5	1:200	1:250	1:600	30
6	1:200	1:250	-	95
7	1:200	-	1:600	99
8	1:200	-	-	99

COMMENTS

1. All treatments appear to have effectively controlled the blackberry plots with the exception of plot 5. This plot was inadvertently sprayed with water just prior to the application of the treatment.

2. There appears to be no response to the additives used.

3. Roundup at 1:200 is as effective as Roundup at 1:100.

TRIAL : Herbicides for blackberry control

PROPERTY : G. Wright, Kent River

SITE : Permanent pasture infested with large (2m high x 5 m across) clumps of blackberry. Adjoins site of trial 77AI18.

PLOT SIZE : One large clump per treatment. Two most effective herbicides from 77AI18 tested at two rates each under large-scale commercial conditions. Only one replication.

VOLUMES : Each bush sprayed to run off with high volume hand lead equipment.

WETTING AGENT : Added at 1:600

DATES : Treatments applied 1st year 26/1/78
2nd year 17/1/79 (re treatment)

Assessments 1st year : 16/1/79
2nd year : 8/1/80

VISUAL RATINGS : Percent control by three independent observers at each time

No	Herbicide	Rate	% Control (1 year)	% Control (2 year)
1	2,4,5-T	1:150	5	7.5
2	amine	1:75	20	87.5
3	Triclopyr	1:200	80	100:0
4		1:100	90	100:0
5	Tordon 5-20	1:200	60	99.0
6		1:100	90	100.0
7	Control	Nil	Nil	Nil

COMMENTS

1. Both Triclopyr and Tordon 5-20 have given complete control of blackberry after two years.

2. Tordon 5-20 contains picloram which persists in the soil and may affect trees and pasture species.

3. Triclopyr is a new, unregistered herbicide which combines the wide range of susceptible woody species of picloram with the soil persistence approaching 2,4,5-T. The amine form of Triclopyr (used here) could be a useful recommendation for blackberry control.

4. 2,4,5-T amine, as expected performed poorly.

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79AL62 : Evaluations of "Krenite" for blackberry control

PROPERTY : R.G. Ebbott, Bow Bridge

SITE : Permanent pasture heavily infested with blackberry, Bracken fern and Jarrah/Karri regrowth.

PLOT SIZE : One blackberry bush per plot : two replications.

VOLUMES : Treatments applied on a volume basis, sprayed to run-off.

DATES : Treatments applied : 6/4/79
Visual assessment : 8/1/80

RATINGS : Mean of two independent assessments of percent control and two replications.

No	Herbicide	Rate	Method	Mean % Control
1	Krenite	1:75	"Sprayrite"	74.9
2	Krenite	1:50	brushgun	90.6
3	2,4,5-T amine	1:130		53.3
4	Krenite	1:10	Mister	46.6
5	Krenite	1:50		6.6
6	2,4,5-T amine	1:20		1.6
7	Control	Nil	-	0

COMMENTS

1. Blackberry control by Krenite was satisfactory when applied as a high volume spray, but poor when applied with low volume through a mister.

2. It appears that there is a response to rate of application, 1:50 being superior when used as a high volume spray.

3. Krenite is a non-hormone, slow acting herbicide for use on woody plants. It is not yet registered in this State.

79AP64 : Herbicide screening on Pennyroyal (Mentha pulegium)

PROPERTY : D. Wells, Denmark

SITE : Sandy soil, permanent pasture being re-invaded with wattle and eucalypt sucker regrowth.

SPECIES PRESENT : Pennyroyal and Lotus spp (abundant) : various annual and perennial grasses (minor component)

PLOT SIZE : 3 m x 3 m with three replicates

VOLUMES : 1000 l/ha with experimental hand lead equipment

WETTING AGENT : Added to all treatments except 4,5,6 (Roundup)

DATES : Treatments applied : 15/1/79

Assessments : 8/1/80

VISUAL RATINGS :

(A) = density of pennyroyal (percent)
(B) = percentage of pennyroyal in flower
(C) = density of Lotus pasture (percent)

Means of four independent observers

No	Herbicides	Rates l/ha	(A)	(B)	(C)
1	2,4,5-T amine	6	10.9	23.4	88.0
2		9	25.0	19.6	82.1
3		12	12.5	32.5	79.2
4	Roundup	3	5.1	6.7	80.4
5	(glyphosate)	6	3.1	0	83.3
6		9	2.5	0	70.0
7	Asulox	5	38.8	50.4	70.0
8	(asulam)	10	16.7	43.0	82.5
9		15	29.5	28.4	75.9
10	Banvel 200	3	42.9	51.0	75.8
11	(dicamba)	6	20.0	36.3	80.0
12		9	19.6	35.0	83.8
13	Tordon 5-20	5	10.9	15.0	30.5
14	(picloram +	10	8.5	6.3	26.7
15	2,4,5-T)	15	2.5	1.7	6.3
16	Triclopyr	5	9.6	30.0	79.2
17		10	6.3	21.7	72.9
18		15	4.6	13.7	65.0
19	Control	Nil	50.0	48.3	68.8

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COMMENTS

1. Roundup, Tordon 5-20 and Triclopyr have reduced the density of Pennyroyal. (Column (A)).

2. Of these treatments, only Roundup and to a lesser extent Tordon 5-20, have given good control of perennial flowering shoots (B), resulting in a high proportion of seedlings on the plots.

3. Roundup and Triclopyr have shown no detrimental effect on Lotus spp in the pasture (C).

4. 2,4,5-T amine at 6 l/ha is the recommended treatment at present, and has shown to be only moderately effective in the trial. However, although Roundup is more expensive than 2,4,5-T it is a promising non-hormone alternative.

79TS27 : Chemical firebreaks on deep sand

PROPERTY : Alexander Morrison National Park, Coorow

SITE : Deep white sand on a firebreak adjoining a farm

PLOT SIZE : 3 m x 3 m : 3 replicates

VOLUMES : 500 l/ha : experimental hand lead equipment

WETTING AGENT : Added to all treatments at 1:400

SPECIES PRESENT : Wild oats, annual ryegrass, annual brome, silver grasses, capeweed, annual sub. clovers.

DATES : Treatment applied : 3/7/79
Assessments : 16/8/79) Mean of two
29/10/79) observers

RATINGS : 0-5 : 0 = no control of weeds present
5 = complete control of weeds present

No	Herbicide	R/ha	Control Rating 29/10/79	Cost $/ha
1	Vorox AA	5 litre	4.25	16.60
2	(amitrole +	10 "	4.5	33.20
3	atrazine)	20 "	4.75	66.40
4	Exit	4 kg	4.25	25.92
5	(amitrole + atrazine + diuron)	8 kg 16 kg	4.5 4.75	51.94 103.68
7	Sterasoil	3 kg	2.25	20.00
8	(amitrole +	6 kg	4.25	40.00
9	diuron)	12 kg	4.5	80.00
10	Hyvar x	5 kg	4.75	102.80
11	(bromacil)	10 kg	5.0	205.60
12		20 kg	5.0	411.20
13	Krovar	5 kg	5.0	62.80
14	(bromacil +	10 kg	5.0	125.60
15	diuron)	20 kg	5.0	251.20
16	Velpar	2.5 kg	5.0	108.25
17	(hexazinone)	5 kg	5.0	216.50
18		10 kg	5.0	433.00
19	Ustilan	4 kg	4.75	97.36
20	(ethiadimuron)	8 kg	5.0	194.72
21		16 kg	5.0	389.44
22	Ravage	4 kg	4.75	-
23	(buthadiazol)	8 kg	5.0	-
24		16 kg	5.0	-
25	Sprayseed	4 litre	1.12	20.16
26	Control	Nil	0.0	-

COMMENTS

1. The effect of the short term residuals (Tr 1 - 9) is surprisingly good considering the soil type, which would allow herbicides to leach very readily. However, the rainfall was low this year, and this would have reduced the leaching problem.

2. The degree of later weed germinations can be seen from Tr 25 (Sprayseed), which rated very poorly for overall control.

3. The long term residuals (Tr 10 - 24) all performed well as would be expected. The trial will be monitored for the next year or two to allow differences between treatments to show up. It is expected that Tr 1 - 9 will be much less effective in the 1980 season.

79PE6 : Control of annual roadside grasses

PROPERTY : Gooseberry Hill National Park

SITE : Annual and perennial grasses and broadleaves on the road verge of the "zig-zag" scenic road

PLOT SIZE : 4 m x 2 m = three replicates

VOLUME OF WATER : 500 litres/ha : experimental hand lead equipment

WETTING AGENT : Used on all treatments (except No. 1) at 1:400

DATES : Treatments applied - 26/7/79 } Mean of three independent observers
Assessment - 8/11/79 }

RATINGS : 0-5 : where 0 = no control of annual grasses
5 = complete control of annual grasses

No	Herbicide	Rate	Control Rating	Major spp. at time of assessment
1	Roundup	3 l/ha	4.3	F
2	Dalapon	4 kg/ha	2.7	B D E
3	Sprayseed	3 l/ha	0.5	A B E F
4	Weedazol TL +	10 l/ha	2.8	A B F
5	Vorox AA	6 l/ha	4.6	F
6	Mataven	3 l/ha	1.5	A B E F
7	Hoegrass	1.5 l/ha	1.6	A C D E F
8	Yield	4 l/ha	1.2	A B C F
9	Avenge	1.15 l/ha	1.4	A B E F
10	Nil	-	0.0	A B C D E

Species

A = Wild Oats (Avena spp)
B = Silver Grass (Vulpia spp)
C = Brome Grass (Bromus spp)
D = Flatweed (Hyochaens spp)
E = Blue Lupin (Lupinus cosentini)
F = Couch (Cynodon dactylon)

COMMENTS

1. The most effective treatments were Roundup and Vorox AA. The Vorox result was predictable, removing all annual weeds from the road shoulder. The Roundup result cannot be explained as it

has no residual action and would be expected to perform the same as Sprayseed.

2. The other "specific" treatments (6 - 9) performed poorly, as they only controlled the wild oats which were at the right stage for each treatment at the time of spraying. Other annual grass species became dominant, and allowed the plot to remain a high fire hazard.

3. As a result of this trial, Vorox AA has been recommended to the National Parks Authority for annual grass control on the road verge of the Gooseberry Hill National Park.