1985

Capeweed, Radish, Wild oats, Sarsaparilla, Four O'clock, Saffron thistle, Onion weed, Carnation weed

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EXPERIMENTAL SUMMARIES
1985

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TRIAL TITLE: Cape Weed Control in Cereals

Experiment No: 85WH59

Officers: Messrs Peirce, Rayner, Research Station Staff

Location: Wongan Hills R.S. Paddock 2WA

Crop: Wheat: Eradu

Growth Stage When Sprayed: Time 1 Zadoks 12.5-13 Time 2 Z23

Soil Moisture Status: Time 1 & 2

Surface	Dry
Depth	Damp

Temperature °C	Time 1	Time 2
Dry bulb	20	20
Wet bulb	13	16
Relative Humidity:	45%	66%

Wind Speed: (km/hr) T_1 10-13 km from N.E. (Gusting)
T_2 6-8 km from N.E.

Date Sprayed:	9.7.85	31.7.85
Time Sprayed:	2-2.40 pm	12.50-1.50 pm
Equipment	Dual cab Toyota	
Nozzle Type	Hardi 14, Angled 45° back	
Spraying Pressure: (kPa)	T_1 200	T_2 210
Spraying Speed: (km/hr)	12	12
Volume of Application: (L/ha)	T_1 61	T_2 63

CHEMICAL CONTROL OF CAPEWEED IN CEREALS

85WH59

Treatments		Zadoks	% Reduction of dry weight of Capeweed A	B	C	Yield kg/plot	Returns /ha
1. Igran	300	12-13	44	33	94	10.4	143
2. Igran	550		56	81	100	10.9	148
3. Igran	850		84	95	100	12.6	169
4. Igran	300		57	42	98	8.8	121
5. Igran	550		73	68	100	11.2	152
6. Igran	850	23	79	84	100	11.6	155
7. Igran	300 + Oil		52	65	99	8.7	119
8. Igran	550 + Oil		71	76	100	10.6	144
9. Igran	850 + Oil		75	77	100	11.0	147
10. Bromoxynil + MCPA	1000	12-13	-	-	-	12.5	167
11. Diuron + MCPA	350 + 400		81	73	97	11.8	162
12. Bromoxynil + MCPA	1000	23	69	76	100	9.9	130
13. Diuron + MCPA	350 + 400		51	33	98	10.5	144
14. Nil					LSD Yield 1.2	6.5	91

At first time of Spraying	At second time of Spraying
A. Capeweed > 15 cm branches	> 40 cm
B. Capeweed 5-10 cm branches	20 cm
C. Capeweed 2-4 leaves	2-4 leaves

All spraying treatments were superior to untreated. Low rate of Igran when applied at the mid tillering stage was inferior to other Igran treatments.

At the recommended rates the Diuron MCPA mixture and Igran treatments were not as sensitive to the timing of application as Bromoxynil + MCPA. Yield losses of 8% and 12% were recorded for delayed application of Igran and the Diuron while yield declined by some 21% with the application of Bromoxynil + MCPA.

The addition of oil gave a marginal improvement in controlling larger capeweed at the lower rates of Igran, however this was not reflected in any yield benefits, in fact yields were inferior to the treatments without oil additions. This may indicate some phytotoxic combination of oil plus herbicide.

TRIAL TITLE: Effect of oil additions to broadleaved herbicides used for Capeweed control in cereals

Experiment No: Demonstration

Officers: Messrs Schoonens, Peirce

Location: B. Haywood

Crop: Wheat - Gamenya

Growth Stage When Sprayed: Z14.5/22-24

Soil Moisture Status:

Surface	Dry
Depth	Damp

Temperature °C

Dry bulb	16.3
Wet bulb	11.7

Relative Humidity: 58%

Wind Speed: (km/hr)

Rainfall:

Date Sprayed: 7.8.85

Time Sprayed: 2.00 pm - 5.30pm

Equipment: Toyota L/C

Nozzle Type: Spraying Systems 11002

Spraying Pressure: (kPa) 205

Spraying Speed: (km/hr) 12

Volume of Application: (L/ha) 62

THE EFFECT OF OIL ADDITIONS TO BROADLEAVED HERBICIDES USED FOR CAPEWEED CONTROL IN CEREALS

Treatments	Rate/ha	Capeweed/ m^2 6/9/85	% Visual Control	Yield kg/ha	Net Returns $/ha
1. Diuron + MCPA	400+500 ml	20	73	1856	256
2. " " + Oil	400+500 ml+5%	23	73	1692	232
3. Diuron + MCPB	400+500 ml	41	47	1532	209
4. Igran + MCPA	550+600 ml	13	88	1760	240
5. " + Oil	550+600 ml+5%	8	80	1654	224
6. Igran + MCPB	550+600 ml	29	40	1494	200
7. Brominil M	1.4 L	9	85	1914	255
8. Brominil M + Oil	1.4 L + 5%	11	88	1968	262
9. Barrel	1.0 L	25	70	1827	247
10. " + Oil	1.0 L + 5%	38	77	1843	248
11. Tordon 242	700 ml	42	63	1727	235
12. " + Oil	700 ml + 5%	42	70	1772	240
13. MCPB	1.25 L	57	33	1359	180
14. " + Oil	1.25 L + 5%	55	30	1307	172
15. MCPA	1.25 L	49	63	1744	240
16. " + Oil	1.25 L + 5%	48	67	1708	234
17. Nil		88	0	1244	174
	LSD 5%	21	12	190	

Oil additions to Diuron and Igran treatments gave visual crop damage at time plant counts were conducted. This was later reflected in decreased grain yields. Tordon 242 caused the crop to lay over temporarily. Some chemicals while not completely killing the Capeweed severely stunted growth. For this reason assessment of the chemicals effectiveness should be made by looking at the plant counts and visual control ratings. The use of oil appeared to have no deleterious effect on Brominal M or Barrel (both chemicals having Bromoxynil in the mixture).

TRIAL TITLE: Effect of changing Nozzle angles on the performance of Diuron and MCPA applied different volumes for control of wild radish in cereals

Experiment No: 85NO80

Officers: Messrs Peirce, Sweeney, Rayner

Location: D. French - Goomalling

Crop: Wheat

Growth Stage When Sprayed: Z14-22

Soil Moisture Status:

Surface
Depth

Temperature

Dry bulb	14
Wet bulb	13

Relative Humidity: 90%

Wind Speed: (km/hr) -

Rainfall: Recorded in last 24 hours -

Date Sprayed: 30.7.85

Time Sprayed: 5.50-7.30 pm

Equipment Toyota Dual Cab

Nozzle Type Spraying System 11001

Spraying Pressure: (kPa) 200

Spraying Speed: (km/hr) 4 (100 L) 8(50 L) 16 (25 L)

Volume of Application: (L/ha)

* Dew Present

EFFECT OF CHANGING NOZZLE ANGLES ON THE PERFORMANCE OF DIURON + MCPA APPLIED AT DIFFERENT VOLUMES FOR CONTROL OF WILD RADISH IN CEREALS

85NO80

Treatments Nozzle Angles	Volume Application	Radish Plants /m^2	Grain Yield kg/plot	Net Returns $/ha
1. 45° Forward		18.3	4.4	167.7
2. Direct Down	25L	40.0	4.2	160.4
3. 45° Back		39.0	4.2	160.4
4. 45° Forward		20.7	4.1	166.8
5. Direct Down	50L	33	4.4	167.7
6. 45° Back		19.3	4.1	166.8
7. 45° Forward		13.0	4.4	167.7
8. Direct Down	100 L	24.7	4.2	160.4
9. 45° Back		21.0	4.1	166.8
10. Nil		47.7	4.3	167.10

Plant Counts

All chemical treatments were superior to untreated. Treatments applied at 45° Forward and 45° Back tended to show lower plant counts than direct down applications although statistically this was not significant. Weed control improved as volumes increased from 25-50-100 L/ha.

Grain yields

Changing volumes or direction of spray trajectory had no influence on the cereal yield.

TRIAL TITLE: Effect of Changing Nozzle angles on the performance of Diuron + MCPA applied at different rates for control of wild radish in cereals

Experiment No: 85NO81

Officers: Messrs Peirce, Sweeney, Rayner

Location: D. French - Goomalling

Crop: Wheat

Growth Stage When Sprayed: Z14-22

Soil Moisture Status:

Surface
Depth

Temperature

Dry bulb	17
Wet bulb	13

Relative Humidity: 64%

Wind Speed: (km/hr)

Rainfall: Recorded in last 24 hours

Date Sprayed: 31/7/85

Time Sprayed: 4.30-5.30 pm

Equipment Toyota Dual Cab

Nozzle Type Hardi - 14

Spraying Pressure: (kPa) 200

Spraying Speed: (km/hr) 12

Volume of Application: (L/ha) 63

EFFECT OF CHANGING NOZZLE ANGLES ON THE PERFORMANCE OF DIURON + MCPA APPLIED AT DIFFERENT RATES FOR CONTROL OF WILD RADISH IN CEREALS

85NO81

Treatments Nozzle Angles	Rate of Application		Radish Plants /m^2	Grain Yield kg/plot	Net Returns $/ha
1. 45° Forward	Diuron + MCPA		35	4.3	166
2. Direct Down	200	200	37.3	4.4	170
3. 45° Back			30.0	4.0	154
4. 45° Forward			22.2	4.4	169
5. Direct Down	300	200	30.3	4.2	161
6. 45° Back			26.0	4.3	165
7. 45° Forward			20.3	4.5	172
8. Direct Down	400	400	28.7	3.9	149
9. 45° Back			26.7	3.7	141
10. Nil			60.7	4.2	163

There was no significant improvement in plant kill by altering the spray angle or by increasing the rate of Diuron + MCPA. Yield data did not show any response to the chemical. Although plant density of the radish appears quite high, the contamination within the seed samples would suggest that there was not the vigorous growth normally associated with the wild radish, i.e. the nil sprayed had only a 1.5% by weight of radish in the samples.

TRIAL TITLE: Effect of changing nozzle angles on the performance of Hoegrass applied at different volumes for wild oat control

Experiment No: 85NO82

Officers: Messrs Peirce, Sweeney, Rayner

Location: D. Antonio, Northam (Southern Brook)

Crop: Wheat

Growth Stage When Sprayed: Z14-21

Soil Moisture Status:

Surface
Depth

Temperature

Dry bulb 19
Wet bulb 15

Relative Humidity: 65%

Wind Speed: (km/hr) 2-4 from east (Gusting)

Rainfall:

Date Sprayed: 8/8/85

Time Sprayed: 10.50-11.50 am

Equipment Toyota Dual Cab

Nozzle Type Spraying Systems 11001

Spraying Pressure: (kPa) 200

Spraying Speed: (km/hr) 4 (100 L) 8 (50 L) 16 (25 L)

Volume of Application: (L/ha)

* Frost within the last 24 hours

EFFECT OF CHANGING NOZZLE ANGLES ON PERFORMANCE OF HOEGRASS APPLIED AT DIFFERENT VOLUMES

85NO82

Treatments Nozzle Angles	Volume of Water L/ha	Wild oat panicles /m^{-2}	Grain Yield kg/plot	Net Returns $/ha
1. 45° Forward		40	6.4	163
2. Direct Down	25	49	6.6	169
3. 45° Back		48	6.1	155
4. 45° Forward		31	6.5	166
5. Direct Down	50	60	6.6	169
6. 45° Back		39	6.6	169
7. 45° Forward		37	6.1	155
8. Direct Down	100	44	6.5	166
9. 45° Back		38	6.5	166
10. Untreated		149	5.0	141

Comments

Wild oat control - Although not significant there was a trend to obtain better wild oat control where the nozzles were angled.

Grain Yield - There was no significant yield difference between the three volumes used. It could be expected that increasing the speed of spraying to reduce the volume of application may be a practical technique, as opposed to using finer nozzles which tend to block and also produce a higher proportion of droplets prone to drift.

TRIAL TITLE: Effect of changing nozzle angles on performance of Hoegrass applied at different rates for Wild oat control

Experiment No: 85NO83

Officers: Messrs Peirce, Sweeney and Rayner

Location: D. Antonio, Southern Brook

Crop: Wheat

Growth Stage When Sprayed: Z13.5

Soil Moisture Status:

Surface
Depth

Temperature

Dry bulb	16
Wet bulb	11

Relative Humidity: 54%

Wind Speed: (km/hr) 7-9 from N.E. (Gusting)

Rainfall: Recorded in 24 hours before spraying

Date Sprayed: 30/7/85

Time Sprayed: 4.10-4.55 pm

Equipment: Toyota Dual Cab

Nozzle Type: Hardi - 14

Spraying Pressure: (kPa) 210

Spraying Speed: (km/hr) 12

Volume of Application: (L/ha) 63

EFFECT OF CHANGING NOZZLE ANGLE ON PERFORMANCE OF HOEGRASS APPLIED AT DIFFERENT RATES

85NO83

Treatments Nozzle Angles	Rate Hoegrass	Wild oat panicles /m^{-2}	Grain Yield kg/plot	Net Returns $/ha
1. 45° Forward		12.2	5.4	143
2. Direct Down	500	17.8	5.6	149
3. 45° Back		13.3	5.3	141
4. 45° Forward		6.7	5.4	135
5. Direct Down	1000	12.2	5.9	149
6. 45° Back		3.3	5.8	146
7. 45° Forward		4.4	5.7	135
8. Direct Down	1500	8.9	6.0	143
9. 45° Back		7.8	6.1	146
10. Untreated		251.1	2.9	82

Comments

Wild oat control - All chemical treatments gave significant reductions of Wild oats. The low rate (500 mls) gave significantly poorer wild oat control. There was a superior wild oat control when the nozzles were angled compared to directly down. There was no difference between angling the nozzles forward or back.

Grain yields - Yields from herbicide treatments were superior to untreated. There was a yield response from the 500 ml to the 1500 ml rate of Hoegrass. Changing the nozzle angle had no significant influence on grain yields. However, there was a trend, particularly with the higher rates of Hoegrass to depress the yields with the nozzles angled forward. There doesn't appear to be much economical gain at this site by using the higher rates of Hoegrass.

TRIAL TITLE: Chemical Control of Sarsaparilla

Experiment No: 85ME1

Officers: Messrs Peirce, Fosbury, Rayner

Location: B. Cornish, Nungarin

Crop: Stubble

Growth Stage When Sprayed:

Soil Moisture Status:

Surface	Dry
Depth	Dry

Temperature

Dry bulb	33
Wet bulb	21

Relative Humidity: 32%

Wind Speed: (km/hr) 8-15km Gusting from N to N.E.

Rainfall: Thunderstorms through area*

Date Sprayed: 7-2

Time Sprayed: 12.00-2.00 pm

Equipment Toyota LWB Ute

Nozzle Type Albuz Red

Spraying Pressure: (kPa) 200

Spraying Speed: (km/hr) 10

Volume of Application: (L/ha) 96

* 34mm recorded 1/2
4mm recorded 9-11/2

SARSAPARILLA CONTROL

Treatment	Rate/ha	% Visual Control Sarsaparilla	Cost/ha
1. Garlon	500 ml	5	
2. "	1000 ml	31	
3. "	2000 ml	31	
4. Grazon	500 ml	37	
5. "	1000 ml	29	
6. "	2000 ml	39	
7. Arsenal	1000 ml	70*	
8. "	2000 ml	91*	
9. "	4000 ml	90*	
10. Lontrel	1000 ml	27	
11. "	2000 ml	57	
12. "	4000 ml	54	
13. Basta	500 ml	9	
14. "	1000 ml	13	
15. "	2000 ml	22	
16. Tordon 50 D	1000 ml	33	
17. "	2000 ml	77*	$34.90
18. "	4000 ml	88*	$69.80
19. Tordon 2G (granules)	2.5 kg	12	
20. "	5.0 kg	41	
21. "	10.0 kg	38	
22. Oust	350 g	42	
23. "	700 g	41	
24. "	1400 g	55	
25. Ally	25 g	13	
26. "	5.0 g	19	
27. "	10.0 g	8	
28. Control		0	

Comments

These treatments were applied mid-summer following a thunderstorm. Only two chemicals showed any consistant control. Arsenal is not registered in Western Australia and because of residual properties would not be suitable for use on agricultural land. Tordon at 2 and 4 L/ha provides good control but at about $35 and $70 respectively could not be considered for large areas.

A further trial using Arsenal, Tordon 50 D and Ally has been sprayed in the Merredin area (85ME93) in September. Oil additions were compared with wetting agents. Ratings of control have not been made on this trial as yet.

TRIAL TITLE: Chemical control of Four O'clock (Oxalis purpurea) in pasture

Experiment No: 85NO75

Officers: Messrs Peirce, Sweeney, Rayner

Location: A. Lawler, Wongamine

Crop: Pasture (Cropped 1984)

Growth Stage When Sprayed: Four O'clock commencing to flower

Soil Moisture Status:

Surface	Dry
Depth	Damp

Temperature

Dry bulb	17
Wet bulb	13

Relative Humidity: 64%

Wind Speed: (km/hr)

Rainfall: Rainfall recorded in 24 hours prior to spraying

Date Sprayed: 8/8/85

Time Sprayed: 2.30-3.30 pm

Equipment: Toyota Dual Cab

Nozzle Type: Hardi - 14

Spraying Pressure: (kPa) 230

Spraying Speed: (km/hr) 10

Volume of Application: (L/ha) 77

Plant Counts before spraying = 76/m^2

CHEMICAL CONTROL OF FOUR O'CLOCK IN PASTURE

Treatments	Rate/ha	% Control of Four O'Clock	% Damage to pasture	Cost/ha Treatment $
1. Glean	30 g	76.5	11.1	23.00
2. Glean	50 g	55	52.2	38.50
3. Ally	10 g	91.7	44.4	10.00*
4. Ally	20 g	98.8	72.2	20.00*
5. Ally	30 g	99.9	68.2	30.00*
6. Glean + 2,4-D	30 g + 1000 ml	42.8	35.6	26.00
7. Glean + Roundup	30 g + 1000 ml	95	97.7	40.00
8. Basta	500 ml	27.8	70	-
9. Basta	1000 ml	51.7	38.3	-
10. Roundup	1000 ml	90.5	74.5	16.68
11. Roundup	2000 ml	91	82.8	33.35
12. Roundup	3000 ml	95	84.4	50.03
13. Nil		2.2		

* Assuming the price of Ally is $1.00/g

Treatments are too expensive for large treatments. In addition most treatments are too damaging to pastures. Treatments for selective control in cereal crops are proposed for next season.

TRIAL TITLE: Saffron Thistle control in pasture

Experiment No: 85TS26

Officers:

Location: McAlear, Three Springs

Crop:

Growth Stage When Sprayed: Cotyledon to 4 leaves

Soil Moisture Status:

Surface	Dry
Depth	Damp

Temperature

Dry bulb	19
Wet bulb	12

Relative Humidity: 42%

Wind Speed: (km/hr) 8-12 from the N.E.

Rainfall: None in previous 24 hours to spraying
None expected for 24 hours after treatment

Date Sprayed: 19/6/85

Time Sprayed: 11.00-12.45 pm

Equipment

Nozzle Type: Hardi - 14 with 45° angle adaptors

Spraying Pressure: (kPa) 200

Spraying Speed: (km/hr) 8

Volume of Application: (L/ha) 92

TRIAL TITLE: Saffron Thistle control in pasture

Experiment No: 85ME48

Officers:

Location: C. Crook, Moorine Rock

Crop:

Growth Stage When Sprayed: Cotyledon to 6 leaves

Soil Moisture Status:

Surface	Dry
Depth	Damp

Temperature

Dry bulb	19
Wet bulb	15

Relative Humidity: 66%

Wind Speed: (km/hr) 0-5 from S.W.

Rainfall: None recorded in previous 24 hours to spraying
No rain expected for 24 hours after treatment

Date Sprayed: 14/6/85

Time Sprayed: 9.30-11.20 am

Equipment

Nozzle Type Hardi - 14

Spraying Pressure: (kPa) 200

Spraying Speed: (km/hr) 10

Volume of Application: (L/ha) 75

TRIAL TITLE: Saffron Thistle control in pasture

Experiment No: 85ME104

Officers:

Location: Carey Dixon, Kellerberin

Crop:

Growth Stage When Sprayed: Cotyledon to 6-8 leaves

Soil Moisture Status:

Surface	Dry
Depth	Damp

Temperature

Dry bulb	22
Wet bulb	17

Relative Humidity: 60%

Wind Speed: (km/hr) 10-16 from the N.W.

Rainfall: None in previous 24 hours to spraying
None expected for 24 hours after treatment

Date Sprayed: 26/6/85

Time Sprayed: 1.45-3.00 pm

Equipment

Nozzle Type Hardi - 14 with 45^{o} angle adaptors

Spraying Pressure: (kPa) 200

Spraying Speed: (km/hr) 8

Volume of Application: (L/ha) 92

TRIAL TITLE: Saffron Thistle control in pasture

Experiment No: 85GE29

Officers:

Location: Marshall Flavell - Geraldton - Glengarry

Crop:

Growth Stage When Sprayed: Cotyledon to 6-8 leaves

Soil Moisture Status:

Surface	Dry
Depth	Dry

Temperature

Dry bulb	25
Wet bulb	18

Relative Humidity: 49%

Wind Speed: (km/hr) 2-5 from the N.E.

Rainfall: None in previous 24 hours to spraying
None expected for 24 hours after treatment

Date Sprayed: 21/6/85

Time Sprayed: 10.45-12.00 noon

Equipment

Nozzle Type: Hardi 14 with 45° angle adaptors

Spraying Pressure: (kPa) 200

Spraying Speed: (km/hr) 10

Volume of Application: (L/ha) 76

SAFFRON THISTLE CONTROL IN PASTURES

HERBICIDES APPLIED EARLY AFTER BREAK OF THE SEASON

Treatments	85TS26 Three Springs plants/m^2		85ME48 Moorine Rock August		85ME104 Kellerberrin August		85GE29 Geraldton September
	July	Sept.	Small	Lge	Small	Lge	
1. Sprayseed 1L	1.87	3.2	1.3	7.2	62.4	10.9	0
2. " 2L	1.87	3.7	20.5	22.4	28.2	9.9	0
3. Reglone 1L	9.73	4.0	6.8	26.8	71.3	9.2	0
4. " 2L	3.07	8.8	11.2	15.6	29.1	4.8	0
5. Gramaxone 1L	1.33	4.9	6.3	4.8	17.0	7.5	0
6. " 2L	1.33	3.7	3.3	0.3	26.4	10.0	0
7. Igran 550 ml	9.87	8.3	11.6	36.7	60.4	7.2	9.9
8. " 850 ml	6.40	4.5	7.2	23.5	73.1	6.4	4.5
7. Diuron 500 ml	11.33	8.5	23.1	53.7	67.7	10.9	10.5
10. "	22.4	18.4	14.8	27.7	58.4	5.3	4.1
11. Garlon 500 ml	15.07	7.6	28.3	40.5	74.8	15.1	6.9
12. " 1L	18.93	10.5	18.8	28.4	30.5	12.1	0
13. Basta 500 ml	11.6	10.9	26.0	33.7	84.7	12.1	1.2
14. " 1L	2.67	6.4	8.1	9.9	87.9	9.6	0
15. Roundup 500 ml	3.6	2.8	11.1	8.3	75.7	11.1	20.3
16. " 1L	2.53	4.5	17.5	0.9	26.2	7.6	0.7
17. Tribunil 750 g	17.20	16.5	22.4	32.1	70.8	10.7	21.6
18. " 1.5 kg	8.13	7.9	9.6	35.5	55.6	8.0	6.7
19. 2,4-DB 1L	20.67	15.3	18.4	18.8	98.1	22.4	14.3
20. " 2L	20.8	14.3	22.3	39.9	58.5	12.9	10.7
21. Nil	22.13	15.3	18.0	22.3	49.6	5.6	33.9
22. Nil	21.33	12.7	22.5	20.9	66.1	7.7	32.0

EFFECT OF HERBICIDES ON SAFFRON THISTLE
SEED PRODUCTION

WEIGHT OF SAFFRON THISTLE SEEDS PRODUCED kg/ha

	Three Springs 85TS26	Kellerberrin 85ME48	Moorine Rock 85ME104	Geraldton 85GE29
1. Sprayseed 1L	225	62.6	77.2	-
2. " 2L	54	38.3	77.5	1.7
3. Reglone 1L	12	45.4	147.1	-
4. " 2L	211	57.3	109.2	-
5. Gramaxone 1L	218	43.7	82.0	-
6. " 2L	500	14.2	23.4	-
7. Igran 550 ml	69	77.4	206.2	127.4
8. " 850 ml	19	125.6	229.5	108.5
7. Diuron 500 ml	86	142.7	254.3	308.2
10. " 1L	65	109.4	109.8	210.6
11. Garlon 500 ml	28	44.8	23.4	115.8
12. " 1L	28	6.1	21.1	-
13. Basta 500 ml	520	76.7	128.1	142.3
14. " 1L	45	52.3	76.4	-
15. Roundup 500 ml	309	124.8	43.9	1061.5
16. " 1L	432	21.9	92.2	328.8
17. Tribunil 750 g	98	75.0	193.8	329.2
18. " 1.5 kg	17	95.9	148.4	223.2
19. 2,4-DB 1L	61	97.1	16.8	182.1
20. " 2L	70	130.9	36.3	166.6
21. Nil	134	81.5	158.4	538.3
22. Nil	109	79.0	185.2	349.1

EFFECT OF HERBICIDES ON SAFFRON THISTLE SEED PRODUCTION

85TS26 and 85ME104

NUMBER OF SEEDS PRODUCED 10^6/ha

	Three Springs 85TS26	Kellerberrin 85ME104	Moorine Rock 85ME48	Geraldton 85GE29
1. Sprayseed 1L	9.136	3.308	3.390	-
2. " 2L	1.967	2.123	3.600	0.075
3. Reglone 1L	0.456	2.691	6.670	-
4. " 2L	8.448	3.103	4.800	-
5. Gramaxone 1L	8.427	2.583	3.480	-
6. " 2L	20.293	0.880	1.160	-
7. Igran 550 ml	2.900	4.574	9.440	5.240
8. " 850 ml	0.702	6.486	10.600	4.756
7. Diuron 500 ml	3.775	7.736	10.650	12.733
10. " 1L	2.804	6.361	4.940	9.331
11. Garlon 500 ml	1.136	2.434	1.120	4.924
12. " 1L	1.117	0.347	1.020	
13. Basta 500 ml	20.812	4.697	5.910	5.606
14. " 1L	1.729	2.866	3.340	-
15. Roundup 500 ml	12.800	7.180	1.950	43.90
16. " 1L	17.438	1.292	4.060	13.097
17. Tribunil 750 g	4.008	4.026	8.890	14.737
18. " 1.5 kg	0.668	4.866	6.820	8.997
19. 2,4-DB 1L	2.360	4.588	0.740	7.363
20. " 2L	3.168	6.682	2.00	7.638
21. Nil	5.548	4.461	7.16	22.605
22. Nil	4.015	4.192	8.32	16.050

TRIAL TITLE: The effect of chemicals applied to control seed set in Saffron Thistle

Experiment No: 85TS41

Officers: Messrs Peirce, Rayner, Ritchie (APB Three Springs)

Location: T. McAlear, Arrino

Crop: Pasture

Growth Stage When Sprayed: Saffron 5 cms tall

Soil Moisture Status:

Surface	Dry
Depth	Dry

Temperature

Dry bulb	17
Wet bulb	14

Relative Humidity: 72%

Wind Speed: (km/hr)

Rainfall:

Date Sprayed: 18/9/85

Time Sprayed: 5.40-7.00 pm

Equipment Toyota Dual Cab

Nozzle Type Spraying Systems 8003

Spraying Pressure: (kPa) 220

Spraying Speed: (km/hr) 12

Volume of Application: (L/ha) 72

TRIAL TITLE: The effect of chemicals applied to control seed set in Saffron Thistle

Experiment No: 85GE29a

Officers: Messrs Peirce, Rayner, Chant (APB, Geraldton)

Location: M. Flavell - Geraldton

Crop: Pasture

Growth Stage When Sprayed: Saffron running - Maximum height 50 cm

Soil Moisture Status:

Surface	Dry
Depth	Dry

Temperature

Dry bulb	22
Wet bulb	17

Relative Humidity: 60%

Wind Speed: (km/hr) 8 Gusting from S.E.

Rainfall: Dew present

Date Sprayed: 18/9/85

Time Sprayed: 9.50-10.50 am

Equipment: Dual Cab Toyota

Nozzle Type: Spraying Systems 8003

Spraying Pressure: (kPa) 220

Spraying Speed: (km/hr) 12

Volume of Application: (L/ha) 72

THE EFFECT OF HERBICIDES ON SEED SET CONTROL
IN SAFFRON THISTLE

85TS41 & 85GE29a

Treatments	Rate ml/ha		No. of heads m^2 Three Springs	Geraldton	% Reduction Three Springs	Geraldton	% Damage to grasses
1. Sprayseed	1000		0.3	0.2	>99	>99	42
2. "	2000		0.06	0	>99	100	88
3. Reglone	1000	No	44	50.4	45	57	8
4. "	2000	Crop	29.6	77.6	63	34	5
5. Basta	1000	Oil	0.1	0	>99	100	8
6. "	2000		0.03	0	>99	100	15
7. Roundup CT	1000		0.08	0	>99	100	35
8. "	2000		0.06	0	>99	100	60
9. Sprayseed	1000		10.87	0.1	86	>99	22
10. "	2000		1.61	0	98	100	88
11. Reglone	1000	1%	38.4	53.6	52	54	8
12. "	2000	Crop	33.6	76.8	58	34	6
13. Basta	1000	Oil	0.37	0.06	>99	>99	15
14. "	2000		0.02	0	>99	100	5
15. Roundup CT	1000		0.14	0	>99	100	62
16. "	2000		0.02	0	>99	100	51
17. Control			80.4	117			0

Three Springs treated 18 September. Saffron 5 cm tall

Geraldton treated 18 September. Running up. Maximum height 50 cm

Comments

Early spraying of Saffron thistle only successful at Geraldton. This is because under late breaks to the season and the trend to cooler conditions during winter at Three Springs, Moorine Rock and Kellerberrin there is usually additional germinations of Saffron-thistle after chemical treatments have been applied. In addition to the very high costs associated with chemical control there is also considerable damage to other pasture species. In some instances where all pasture species were removed the saffron was allowed to grow without any restrictions by way of competition and produce more seed than saffron plants growing in untreated areas.

Treatment of saffron plants later in the season may be more practical, though still expensive treatment. By this time all saffron seeds that are to germinate in any one season would have formed a seedling by the time of spraying (September). In addition most grasses and clover would have set sufficient seed to maintain their seed banks. Results from this year's work suggests treatments from any time after the saffron plants commence stem elongation to just before flowering commences. Products such as sprayseed, and Roundup at 1 L per hectare have reduced seed head formation by as much as 99%. The experimental product Basta was just as effective and caused less visual pasture damage.

THE EFFECT OF GRAZING TREATMENTS ON REDUCTION OF SEED HEADS OF SAFFRON THISTLE

85TS27

Four grazing treatments used

1) Sheep @ 2.4/ha + higher stocking rate at flowering time

2) Goats @ 2.4/ha + higher stocking rate at flowering time

3) Goats @ 2.4/ha

4) Goats + Sheep 2.4 each/ha

Grazing commenced 7/8/85

High stocking rates increased to 20/ha on 18/10/85

Saffron thistle flowering commenced and goats were observed to be eating the flowering heads.

Weights of goats was increasing (early December), but sheep starting to lose weight on high grazing treatments.

Sheep removed from high stocking 13/12/85 leaving only 2.4/ha on treatment. Goats maintained at high rate.

Goats from high stocking rate (18 of APB purchases) suffered from mouth damage, but goats belonging to owner of property did not show mouth damage. These were all fed with oats and hay supplements.

High stocking rate of goats reduced to 7 per hectare on 14/1/86. Remainder of sheep removed from high stocking rate treatments.

Results of grazing treatments expressed as percentage of saffron thistle heads removed from sixty-four sample areas in each treatment.

a) 97-100% Heads eaten
b) 91-96%
c) 71-90%
d) 41-70%
e) 0-40%
x) No plants recorded

e	a	e	e	e	c	d	e	e	e	c	c	x	d	a	b
x	e	a	e	e	c	e	e	e	e	c	b	d	a	d	c
d	e	d	e	e	c	s	s	e	c	x	c	a	d	a	a
a	e	e	e	e	a	c	a	c	c	a	a	c	a	a	c
e	e	c	a 1	a	a	e	e	a	b	d	a 2	c	a	c	a
e	x	e	c	a	c	a	a	b	a	a	a	a	a	d	a
e	e	e	a	a	x	e	d	a	a	c	a	a	x	b	a
e	e	e	e	e	e	d	e	b	c	b	a	a	c	c	c
e	e	x	e	e	x	e	e	e	d	a	a	a	e	a	e
e	e	e	e	x	e	e	e	d	a	a	e	a	a	a	e
a	d	e	x	e	e	e	e	a	a	a	a	x	x	a	e
e	e	e	e	x	x	e	e	a	a	c	a	x	a	a	e
a	a	e	e 4	x	d	e	e	e	e	e	b 3	a	a	b	a
c	d	a	e	e	e	x	x	e	x	e	e	e	e	e	e
a	a	e	e	x	x	x	x	e	e	x	e	e	e	e	a
x	x	e	e	e	e	x	e	x	e	x	e	e	x	x	e

		Nos. Recorded					
		a	b	c	d	e	x
1.	High stocking rate sheep	15	0	7	5	34	3
2.	High stocking rate goats	26	7	17	6	5	3
3.	Low stocking rate goats	23	2	1	2	27	9
4.	Low stocking rate goats + sheep	6	0	1	3	38	16

91-96% 41-70% No saffron

97-100% 71-96% 0-40%

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SAFFRON THISTLE FEEDING TRIALS (PART OF 85TS27)

Aim:

To determine if whole seeds of Saffron thistle and a clover medic mixture will pass unaltered through the digestive tract of sheep and goats.

Methods:

Two sheep and goats under penned conditions were fed a known weight of Saffron thistle daily for eight feeding periods. Weights and Number of uneaten Saffron was noted. Faeces were collected and Saffron thistle recovered, counted and weighed. The seeds were put into germination tested to determine viability.

Following the Saffron seed tests and 50:50 mixture of its medic and subterranean clover were fed to the animals. Faeces collected were dried put into trays and watered. Counts of germinated medic and clover were taken after germination was completed remaining seeds were recovered and counted and weighed.

Results:

Both sheep and goats passed a small quantity of Saffron thistle seed through the digestive tract.

Large numbers of medic germinated in the treated faeces, but only a small number of clover seedlings appeared.

Comments:

Sheep and goats could assist in the spread of Saffron thistle.

SAFFRON THISTLE FEEDING TRIALS

Goat 1 Date	Wt Saffron Thistle	No. seeds	Wt. Seeds not eaten g	No. Seeds not eaten	Wt. of Saffron passed	No of Saffron passed
31/10	50	2140	-	-	-	-
1/11	75	3200	-	-	-	-
3/11	50	2140	-	-	-	-
4/11	50	2140	0.29	12	0.23	10
5/11	75	3200	-	-	0.70	30
6/11	75	3200	0.64	26	0.26	11
7/11	75	3200	-	-	0.68	29
8/11	75	3200	-	-	0.26	18
10/11					0.09	26
11/11	-	-	-	-	-	2
TOTAL		22,420				126

Goat 1 Date	Wt Saffron Thistle	No. seeds	Wt. Seeds not eaten g	No. Seeds not eaten	Wt. of Saffron passed	No of Saffron passed
31/10	50	2140	1.96	84	-	-
1/11	75	3200	-	-	-	-
3/11	50	2140	39.36	1692	-	-
4/11	50	2140	26.23	1128	0.07	3
5/11	75	3200	45.65	1963	0.09	4
6/11	75	3200	25.33	1089	0.12	5
7/11	75	3200	30.49	1311	0.54	23
8/11	75	3200	-	-	0.19	8
10/11	-	-	-	-	0.37	16
11/11	-	-	-	-	0.05	2
TOTAL		22,420				61

Sheep 1 Date	Wt Saffron Thistle	No. seeds	Wt. Seeds not eaten g	No. Seeds not eaten	Wt. of Saffron passed	No of Saffron passed
31/10	50	2140	-	-	-	-
1/11	75	3200	-	-	-	-
3/11	50	2140	-	-	-	-
4/11	50	2140	4.91	210	2.39	102
5/11	75	3200	-	-	0.07	3
6/11	75	3200	-	-	0.33	14
7/11	75	3200	-	-	0.80	34
8/11	75	3200	-	-	1.33	57
10/11	-	-	-	-	1.05	45
11/11	-	-	-	-	0.47	20
TOTAL		22,420				275

Sheep 2 Date	Wt Saffron Thistle	No. seeds	Wt. Seeds not eaten g	No. Seeds not eaten	Wt. of Saffron passed	No of Saffron passed
31/10	50	2140	-	-	-	-
1/11	75	3200	-	-	-	-
3/11	50	2140	0.52	21	-	-
4/11	50	2140	-	-	1.26	54
5/11	75	3200	-	-	0.30	13
6/11	75	3200	-	-	0.26	11
7/11	75	3200	-	-	0.37	16
8/11	-	-	-	-	0.54	23
10/11	-	-	-	-	0.16	7
11/11						
TOTAL		22,420				143

TRIAL TITLE: Onion weed control in pasture

Experiment No: 85GE36

Officers:

Location: Peter Rudick, Geraldton

Crop:

Growth Stage When Sprayed:

Soil Moisture Status:

Surface	Dry
Depth	Damp

Temperature

Dry bulb	24
Wet bulb	17

Relative Humidity: 48%

Wind Speed: (km/hr) 2-8 from the N.W.

Rainfall: None in previous 24 hours to spraying
None expected 24 hours after treatment

Date Sprayed: 20/6/85

Time Sprayed: 11.45-1.15 pm

Equipment

Nozzle Type: Hardi - 14

Spraying Pressure: (kPa) 200

Spraying Speed: (km/hr) 8

Volume of Application: (L/ha) 93

ONION WEED CONTROL IN PASTURE

85GE36

Treatment	Rate/ha	% Control Onion Weed	Cost/ha
1. 2,4-DB	2.0 L	35	
2. Brominil M	1.0 L	7	
3. "	2.0 L	13	
4. Glean	5 g	62	$3.85
5. "	10 g	89	$7.70
6. Garlon	1.0 L	17	
7. "	2.0 L	32	
8. Sprayseed	1.0 L	28	$7.16
9. "	2.0 L	94	$14.30
10. Roundup	1.0 L	9	
11. "	2.0 L	23	
12. Basta	1.0 L	34	
13. "	2.0 L	87	
14. Glean + Humic Acid	10 g + 2.0 L	52	
15. Roundup + "	1.0 L + 2.0 L	5	
16. Nil		0	

Heavy regrowth was noted on all but the Glean, Sprayseed and Basta treatments. Sprayseed at 2.0 L gave the best control. Glean and Basta also produced worthwhile reductions in Onion Weed. The claims made that Humic Acid additions would increase the effectiveness of herbicides was not apparent with Glean and Roundup applications.

A demonstration put at Esperance (85ES58) supported the results obtained using Glean and Sprayseed, however Sprayseed tended to remove grasses and medics, while Glean only took out the medics. Garlon and Roundup were also giving good control, but regrowth was appearing.

TRIAL TITLE: Chemical control of Carnation weed

Experiment No: 85GE35

Officers:

Location: Peter Rudick, Geraldton

Crop:

Growth Stage When Sprayed:

Soil Moisture Status:

Surface	Dry
Depth	Dry

Temperature

Dry bulb	24
Wet bulb	17

Relative Humidity: 48%

Wind Speed: (km/hr) 2-6 from the N.W.

Rainfall: None in previous 24 hours to spraying
None expected 24 hours after treatment

Date Sprayed: 20/6/85

Time Sprayed: 3.30-4.40 pm

Equipment

Nozzle Type: Hardi - 14 with 45° angle adaptors

Spraying Pressure: (kPa) 123

Spraying Speed: (km/hr) 6

Volume of Application: (L/ha) 123

CONTROL OF CARNATION WEED IN PASTURE

Treatments	Rate	% Control				Cost of treatment /ha
		Carnation Weed				
		Large	Small	Grass	B/Leaves	
Glean	5 g	57	75	8	32	$3.85
"	10 g	80	90	16	46	$7.70
Basta	550 ml	10	13	17	40	
"	1000 ml	24	66	51	52	
Arsenal	500 ml	12	0	21	40	
"	1000 ml	56	74	44	27	
Lontrel	500 ml	8	2	2	7	
"	1000 ml	0	0	0	0	
Garlon	500 ml	42	3	5	10	$21.40
"	1000 ml	54	0	7	13	$42.70
Sprayseed	500 ml	35	82	68	80	$3.58
"	1000 ml	75	89	61	86	$7.16
Roundup CT	500 ml	25	22	61	49	$8.35
"	1000 ml	43	47	81	69	$16.70
Nil		10	0	0	0	

Glean at 10 g gave good control without excessive pasture damage. Sprayseed although giving similar control at about the same cost, did cause considerable pasture reduction.