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Effect of different chemical treatments on capeweed control and crop yield.

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<u>Trial Title:</u>	Effect of different chemical treatments on capeweed control and crop yield.	
<u>Trial Number:</u>	87WH60	
<u>Location:</u>	Wongan Hills Research Station 4EA	
<u>Soil Type:</u>		
<u>Blanket Treatments:</u>	Crop direct drilled (disc seeder) on 19/6 with 50 g Eradu wheat/ha 15/7 Topdressed with 29.7 kg/ha urea 17/7 Misted with 50 ml/ha Sumicidin for web worm 21/7 Misted with 50 ml/ha Ambush for web worm.	
<u>Ground Preparations:</u>		
<u>Experimental Design:</u>		
<u>Application Record:</u>	Time 1	Time 2
<u>Sprayed:</u>	20/5	22/7
<u>Time:</u>	1.00-3.00 p.m.	9.45-10.05 a.m.
<u>Spray Vehicle:</u>	Toyota Dual Cab	
<u>Nozzle Type:</u>	110015 LP angled 45°	
<u>Pressure (kPa):</u>	180 kPa	180 kPa
<u>Volume of Application (L/ha):</u>	66	69
<u>Speed of Spraying (km/hr):</u>	12	12
<u>Wind Speed (km/hr):</u>	2-5 (SW)	6-12 (NE) gusting
<u>Temp. Dry Bulb (°C):</u>	22	17
<u>Wet Bulb (°C):</u>	16	10
<u>Relative Humidity:</u>	52	41
<u>Soil Surface:</u>	Dry	Dry
<u>At Depth:</u>	Dry	Damp
<u>Stage of Crop:</u>		
<u>Stage of Weeds:</u>	Small seedlings < 5 cm	5-25 cm

Table 5. 87WH60 Crop yield

	Treatment*	Rate/ha	Yield t/ha	Cost /ha	Net returns \$/ha	
10	Igran + Sprayseed 200	500 ml + 1 L	2.027	12.30	211.00	A
11	Tillmaster	2.0 L	2.013	10.64	211.54	A
12	Tillmaster	1.0 L	2.003	5.32	214.67	A
8	Roundup CT	500 ml	1.97	8.38	108.32	AB
14	Isoproturon	2.0 L	1.743	-	-	AB
3	Tordon 242 + Sprayseed 200	700 ml + 1 L	1.727	14.99	175.77	AB
7	Sprayseed	2.0 L	1.66	14.50	168.11	AB
13	Bromoxynil + MCPA	1.4 L	1.637	17.08	163.32	AB
5	Reglone	1.0 L	1.55	10.80	157.5	AB
9	Igran + 2,4-D amine	500 ml + 500 ml	1.50	7.15	157.85	AB
1	Tordon 242	100 ml	1.41	7.74	147.75	ABC
2	Tordon 242 + 2,4-D amine	100 ml + 500 ml	1.377	9.84	142.35	ABC
6	Sprayseed 200	1.0 L	1.323	7.25	139.05	BC
4	Tordon 242 + Sprayseed 200	700 ml + 500 ml	1.313	11.36	134.22	BC
16	Isoproturon	2.0 L	0.853	-	-	CD
19	Igran	850 ml	0.627	8.58	59.7	D
15	Unsprayed		0.520		57.2	D
18	Bromoxynil + MCPA	1.4 L	0.457	17.08	33.52	D
17	Diuron + MCPA	350 ml + 400 ml	0.367	4.06	36.64	D
20	Tordon 242	700 ml	0.333	7.74	30.05	D

* Treatments 16-20 applied post-emergence @ Z14-15, remainder applied pre-sowing.

With the exception of Isoproturon @ 2 L/ha all post-sowing treatments were inferior than the pre-sowing treatments. Because of the large variation between replications, there are no significant yield differences between the pre-seeding treatments. Web worm attack was mainly responsible for affecting yields between replications.

Table 6. 87WH60 Plant counts - Capeweed

	Treatment	Rate/ha	Cost \$/ha	Plants/m ² *	
18	Bromoxynil + MCPA	1.4 L	17.08	57.3	A
17	Diuron + MCPA	250 ml + 400 ml	4.06	52.3	A
20	Tordon 242	700 ml	7.74	51.8	A
15	Unsprayed			43.9	A
19	Igran	850 ml	8.58	30.5	B
16	Isoproturon	2.0 L	-	28.3	B
6	Sprayseed 200	1.0 L	7.25	10.4	C
7	Sprayseed 200	2.0 L	14.50	6.8	CD
10	Igran + Sprayseed 200	500 ml + 1 L	12.30	3.6	DE
13	Bromoxynil + MCPA	1.4 L	17.08	1.2	EF
11	Tillmaster	2.0 L	10.64	0.7	F
3	Tordon 242 + Sprayseed 200	700 ml + 1 L	14.99	0.5	F
4	Tordon 242 + Sprayseed 200	700 ml + 500 ml	11.36	0.4	F
9	Igran + 2,4-D amine	500 ml + 500 ml	7.15	0.4	F
14	Isoproturon	2.0 L	-	0.4	F
8	Roundup CT	500 ml	8.38	0.3	F
1	Tordon 242	700 ml	7.74	0.1	F
12	Tillmaster	1.0 L	5.32	0.1	F
2	Tordon 242 + 2,4-D amine	700 ml	9.84	0	F
5	Reglone	1.0 L	10.80	0	F

* Back transformed means.

Poor control was obtained using post-emergence in-crop herbicides (Tr 16-20). Good capeweed control was obtained on most of the treatments applied before seeding. The two rates of Sprayseed 200® did not give as good control as the rest of the pre-sowing treatments, but the four week delay between spraying and seeding is outside the period recommended by the manufacturers of one to ten days. However Reglone® which is part of the Sprayseed 200® mix gave complete control despite the extended period between spraying and seeding.

Table 7. 87WH60 Plant counts - Ryegrass

	Treatment†	Rate/ha	Plants/m ² *	
7	Sprayseed 200	2.0 L	11.8	A
11	Tillmaster	2.0 L	10.6	AB
8	Roundup CT	500 ml	7.3	ABC
15	Unsprayed		5.8	ABCD
14	Isoproturon	2.0 L	5.3	ABCD
10	Igran + Sprayseed 200	500 ml + 1 L	4.8	ABCD
12	Tillmaster	1.0 L	4.6	ABCD
9	Igran + 2,4-D amine	500 ml + 500 ml	4.0	ABCD
3	Tordon 242 + Sprayseed 200	700 ml + 1 L	3.9	ABCD
20	Tordon 242	700 ml	3.9	ABCD
1	Tordon 242	700 ml	3.8	BCD
4	Tordon 242 + Sprayseed 200	700 ml + 500 ml	3.5	BCD
6	Sprayseed 200	1.0 L	3.4	BCD
19	Igran	850 ml	3.4	BCD
18	Bromoxynil + MCPA	1.4 L	2.9	CD
2	Tordon 242 + 2,4-D amine	700 ml + 500 ml	2.7	CD
17	Diuron + MCPA	350 ml + 400 ml	2.4	CD
13	Bromoxynil + MCPA	1.4 L	2.0	CD
16	Isoproturon	2.0 L	1.1	CD
5	Reglone	1.0 L	1.1	D

† Treatments 16-20 applied Z14-15.

* Back transformed means.

Most of the products showing good ryegrass control are not usually effective, so assume some other factor operating. Treatments usually associated with good ryegrass control have higher ryegrass densities than the treatments using herbicides with only broadleaved activity.

Table 8. 87WH60 Plant counts - Silvergrass

	Treatment†	Rate/ha	Plants/m ² *	
4	Tordon 242 + Sprayseed 200	700 ml + 500 ml	55.3	A
2	Tordon 242 + 2,4-D amine	700 ml + 500 ml	41.8	AB
9	Igran + 2,4-D amine	500 ml + 1 L	33.1	ABC
18	Bromoxynil + MCPA	1.4 L	32.8	ABC
19	Igran	850 ml	27.9	ABCD
3	Tordon 242 + Sprayseed	700 ml + 1 L	27.5	ABCD
13	Bromoxynil + MCPA	1.4 L	25.5	ABCDE
5	Reglone	1.0 L	22.5	ABCDEF
1	Tordon 242	700 ml	22.0	ABCDEF
17	Diuron + MCPA	350 ml + 400 ml	20.3	ABCDEFGH
20	Tordon 242	700 ml	13.4	BCDEFGH
15	Unsprayed		10.7	CDEFGH
11	Tillmaster	2.0 L	7.9	CDEFGH
16	Isoproturon	2.0 L	5.9	DEFGH
8	Roundup CT	500 ml	5.8	DEFGH
7	Sprayseed 200	2.0 L	4.7	EFGH
6	Sprayseed 200	1.0 L	3.9	FGH
12	Tillmaster	1.0 L	3.8	FGH
10	Igran + Sprayseed	500 ml + 1 L	2.6	GH
14	Isoproturon	2.0 L	0.2	H

† Treatments 16-20 applied Z14-15.

* Back transformed means.

Although large reductions in density of silvergrass were obtained none was significantly better than the unsprayed. However some treatments, particularly those favouring grass dominance allowed the silvergrass density to build up. Products such as Isoproturon and Igran + Sprayseed gave good control.

Table 9. 87WH60 Plant counts - Brome grass

	Treatment†	Rate/ha	Plants/m ² *	
16	Isoproturon	2.0 L	36.7	A
13	Bromoxynil + MCPA	1.4 L	34.9	A
1	Tordon 242	700 ml	29.1	AB
14	Isoproturon	2.0 L	28.9	AB
8	Roundup CT	500 ml	26.5	AB
2	Tordon 242 + 2,4-D amine	700 ml + 500 ml	25.8	AB
3	Tordon 242 + Sprayseed 200	700 ml + 1 L	22.8	AB
11	Tillmaster	2.0 L	22.8	AB
12	Tillmaster	1.0 L	22.8	AB
5	Reglone	1.0 L	22.3	AB
10	Igran + Sprayseed 200	500 ml + 1 L	21.9	AB
7	Sprayseed 200	2.0 L	21.6	AB
9	Igran + 2,4-D amine	500 ml + 500 ml	20	AB
19	Igran	850 ml	18.9	AB
4	Tordon 242 + Sprayseed 200	700 ml + 500 ml	18.0	ABC
6	Sprayseed 200	1.0 L	17.5	BC
17	Diuron + MCPA	350 ml + 400 ml	13.7	BC
18	Bromoxynil + MCPA	1.4 L	13.3	BC
20	Tordon 242	700 ml	12.9	BC
15	Unsprayed		4.8	C

† Treatments 16-20 applied Z14-15, remainder applied pre-sowing.

* Back transformed means.

Bromegrass appears to be very sensitive to competition from capeweed. On nearly all the plots having very high capeweed infestations the density of bromegrass is lower than on treatments where good capeweed control was obtained, the lowest density of bromegrass being on the unsprayed treatment.