Extension
UNIVERSITY OF WISCONSIN–MADISON

ID #17-3

UW – Madison Weed Science Renz Lab

2017 Evaluation of Wild Parsnip Control with Method – 2018 Update

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Objective:

Evaluate the effectiveness of Method (aminocyclopyrachlor) as compared to other recommended herbicides for control of Wild Parsnip (*Pastinaca sativa*) as well as for injury to Smooth Brome (*Bromus inermis*) and other grasses.

Summary:

At 31 Days After Treatment (DAT), wild parsnip cover was reduced by all treatments but only grass injury was observed with high concentration of Method (8%). By 62 DAT, grass injury was not observed and low wild parsnip cover remained (0-5%) in all treatments except Milestone (16%). This pattern persisted through 89 DAT. By fall (142 DAT), Wild Parsnip cover was similar among all treatment but rosette counts were < 0.01 plants per square foot in all treatments except Milestone. One year after treatment wild parsnip cover was similar across all treatments (377 DAT) but rosette count were near zero in all treatments containing Method and Escort (353 DAT).

Research Plot Information:

Plot Dimensions: 10 feet x 25 feet

Design: Randomized Complete Block, 4 blocks

Soil Type: Richwood silt loam 100%, 0 – 2 percent slopes

Notes:

7/28/17:

- High presence of leaf diseases (rust and leaf spot) made assessing grass injury difficult

9/8/17:

- Mowed parsnip plots

Herbicide Treatments:

Treatment Number	Treatment	Rate
1	Untreated Control (UTC)	-
2	Method 240SL Non-Ionic Surfactant (NIS)	4 ounces per acre (oz/A) 0.25% volume/volume (v/v)
3	Method 240SL NIS	8 oz/A 0.25% v/v
4	Method 240SL NIS	12 oz/A 0.25% v/v
5	Method 240SL NIS	16 oz/A 0.25% v/v
6	Milestone NIS	7 oz/A 0.25% v/v
7	Escort NIS	0.3 ounces dry weight per acre (oz wt/A) 0.25% v/v

Herbicide Application:

Date: May 27th, 2017 – 11:45am-12:20pm

Equipment: Backpack sprayer (20 GPA); 10ft boom

Nozzles: Eight (8) Flat Tip XR TeeJet 11002 VS; 15in nozzle spacing

Regulator PSI: 38

Boom PSI: 26

Plants Present/Stage of Development:

5/27/17:

- Wild Parsnip (6-24")
- Smooth Brome (24")
- Kentucky Bluegrass (18")
- Timothy-grass (24", sparse)

Weather Data:

Weather Station	KWIPRAIR10
Temperature	69.7°F
Wind Speed and Direction	2.8 mph SSW
Relative Humidity	81%
Cloud Cover	95%
Previous Rain Event Within 48 Hours	-
When ≥ 0.25 inches of precipitation occurred after treatment	05.27.18 – 2:30pm, 0.61 inches

Index of Ratings and Results

Results:

31 DAT – June 27th, 2017

Rating:			Parsnip Cover (%)	Broadleaf Cover (%)	Grass Cover (%)	Parsnip Control (%)	Smooth Brome Injury (%)	Other Grass Injury (%)
Trt	Treatment	Rate						
1	Control		26.3 a	13.8 a	60 c	0 e	0 -	0 b
2	Method 240SL	4.0 oz/a						
	NIS	0.25 % v/v	9.3 b	7.5 b	83.3 ab	67.5 bc	0 -	0.8 b
3	Method 240SL	8.0 oz/a						
	NIS	0.25 % v/v	9.5 b	5 b	85.5 ab	72.5 bc	0 -	1.3 b
4	Method 240SL	12.0 oz/a						
	NIS	0.25 % v/v	4.5 b	7 b	88.5 ab	77.5 ab	0.5 -	3 b
5	Method 240SL	16.0 oz/a						
	NIS	0.25 % v/v	5 b	2.5 b	92.5 a	88.8 a	0.8 -	8 a
6	Milestone	7.0 oz /a						
	NIS	0.25 % v/v	12.5 b	5 b	82.5 ab	40 d	0 -	1.8 b
7	Escort	0.3 oz wt/a						
	NIS	0.25 % v/v	18.8 ab	6.3 b	75 b	58.8 c	0 -	0.8 b
Statistics[1]								
LSD P=.05			10.21	5.47	10.63	11.83	1.04	3.31
Standard Deviation			6.87	3.68	7.16	7.96	0.7	2.23
CV			56.12	54.88	8.83	13.76	391.24	100.5
Treatment F			5.185	3.637	9.022	55.892	0.805	5.981
Treatment Prob(F)			0.003	0.0153	0.0001	0.0001	0.5791	0.0014
Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls)								

[1] All statistical analyses were conducted in ARM software and assumptions of ANOVA were not evaluated.

62 DAT – July 28th, 2017

Rating:			Parsnip Cover (%)	Broadleaf Cover (%)	Grass Cover (%)	Parsnip Control (%)	Smooth Brome Injury (%)	Other Grass Injury (%)
Trt	Treatment	Rate						
1	Control		32.5 a	17.5 a	50 c	0 c	0 -	0 -
2	Method 240SL NIS	4.0 oz/a 0.25 % v/v	5 c	3.8 b	91.3 a	85 ab	0 -	0 -
3	Method 240SL NIS	8.0 oz/a 0.25 % v/v	2.8 c	2.3 b	95 a	60 ab	0 -	0 -
4	Method 240SL NIS	12.0 oz/a 0.25 % v/v	0 c	2.5 b	97.5 a	100 a	0 -	0 -
5	Method 240SL NIS	16.0 oz/a 0.25 % v/v	0.5 c	5 b	94.5 a	97.5 a	5 -	0 -
6	Milestone NIS	7.0 oz /a 0.25 % v/v	16.3 b	6.3 b	77.5 b	47.5 b	0 -	0 -
7	Escort NIS	0.3 oz wt/a 0.25 % v/v	1.5 c	7.3 b	91.3 a	94.8 a	0 -	0 -
Statistics								
LSD P=.05			7.77	9.21	10.91	34.42	.	5.61
Standard Deviation			5.23	6.2	7.34	23.17	0	3.78
CV			62.55	97.49	8.61	33.46	0	529.15
Treatment F			21.143	2.87	21.079	9.931	0	1
Treatment Prob(F)			0.0001	0.0384	0.0001	0.0001	1	0.4552
Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls)								

89 DAT – August 24th, 2017

Rating:			Parsnip Cover (%)	Broadleaf Cover (%)	Grass Cover (%)	Parsnip Control (%)	Smooth Brome Injury (%)	Other Grass Injury (%)
Trt	Treatment	Rate						
1	Control		25 a	26.3 a	48.8 b	0 c	0 -	0 -
2	Method 240SL	4.0 oz/a						
	NIS	0.25 % v/v	1 c	2.5 b	96.5 a	95 a	0 -	0 -
3	Method 240SL	8.0 oz/a						
	NIS	0.25 % v/v	1.5 c	1.3 b	97.3 a	92.3 a	0 -	0 -
4	Method 240SL	12.0 oz/a						
	NIS	0.25 % v/v	0 c	0 b	100 a	100 a	0 -	1.3 -
5	Method 240SL	16.0 oz/a						
	NIS	0.25 % v/v	0 c	1.3 b	98.8 a	100 a	0 -	1.3 -
6	Milestone	7.0 oz /a						
	NIS	0.25 % v/v	10.8 b	5 b	84.3 a	30 b	0 -	0 -
7	Escort	0.3 oz wt/a						
	NIS	0.25 % v/v	1.3 c	2.5 b	96.3 a	90 a	0 -	0 -
Statistics								
LSD P=.05			7.02	10.79	11.03	25.17	.	1.81
Standard Deviation			4.73	7.26	7.42	16.94	0	1.22
CV			83.76	131.21	8.36	23.38	0	341.57
Treatment F			15.594	6.51	24.626	22.711	0	1
Treatment Prob(F)			0.0001	0.0009	0.0001	0.0001	1	0.4552
Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls)								

142 DAT – October 16th, 2017

Rating:			Parsnip Cover (%)	Broadleaf Cover (%)	Grass Cover (%)	Parsnip Control (%)	Rosettes per Square Foot (count)
Trt	Treatment	Rate					
1	Control		12 a	3 -	85 c	0 c	0.29 a
2	Method 240SL NIS	4.0 oz/a 0.25 % v/v	1.3 b	0 -	98.8 ab	98 a	0.01 b
3	Method 240SL NIS	8.0 oz/a 0.25 % v/v	0.5 b	0.3 -	99.3 ab	99.5 a	0.003 b
4	Method 240SL NIS	12.0 oz/a 0.25 % v/v	0.3 b	0 -	99.8 a	99.5 a	0.003 b
5	Method 240SL NIS	16.0 oz/a 0.25 % v/v	0 b	1 -	99 ab	100 a	0 b
6	Milestone NIS	7.0 oz /a 0.25 % v/v	7.8 ab	0 -	92.3 b	29.8 b	0.13 ab
7	Escort NIS	0.3 oz wt/a 0.25 % v/v	0.8 b	0 -	99.3 ab	99.3 a	0.003 b
Statistics							
LSD P=.05			5.67	2.66	4.87	26.35	0.158778076
Standard Deviation			3.82	1.79	3.28	17.74	0.106879791
CV			118.79	295.11	3.41	23.61	169.01
Treatment F			6.136	1.554	11.597	22.491	4.309
Treatment Prob(F)			0.0012	0.2176	0.0001	0.0001	0.0073
Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls)							

353 DAT – May 15th, 2018

Trt. No.	Treatment	Rate	Wild Parsnip Seedlings per square foot (count)	Wild Parsnip Rosettes per square foot (count)
1	UTC	-	36.3a	48.5 -
2	Method 240SL NIS	4 oz/A 0.25% v/v	1b	2.5 -
3	Method 240SL NIS	8 oz/A 0.25% v/v	1.5b	3 -
4	Method 240SL NIS	12 oz/A 0.25% v/v	0b	0 -
5	Method 240SL NIS	16 oz/A 0.25% v/v	0b	0 -
6	Milestone NIS	7 oz/A 0.25% v/v	17ab	31.5 -
7	Escort NIS	0.3 oz wt/A 0.25% v/v	0.3b	1 -
Statistics				
Least Significant Difference (LSD) P=.05			20.74	31.30
Standard Deviation			13.96	21.07
Coefficient of Variation (CV)			174.48	170.51
Treatment Prob(F)			0.0106	0.0192

Note: Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).

377 DAT – June 8th, 2018

Trt. No.	Treatment	Rate	Wild Parsnip Cover (%)	Grass Cover (%)	Broadleaf Cover (%)	Bareground Cover (%)
1	UTC	-	13.8 -	33.8b	51.3a	1.3 -
2	Method 240SL NIS	4 oz/A 0.25% v/v	3 -	91.8a	4b	1.3 -
3	Method 240SL NIS	8 oz/A 0.25% v/v	2 -	87.8a	6.5b	3.8 -
4	Method 240SL NIS	12 oz/A 0.25% v/v	0.8 -	93.3a	5b	1 -
5	Method 240SL NIS	16 oz/A 0.25% v/v	0 -	92a	4b	4 -
6	Milestone NIS	7 oz/A 0.25% v/v	13.3 -	77a	8.8b	1 -
7	Escort NIS	0.3 oz wt/A 0.25% v/v	0.3 -	85.3a	10.3b	4.3 -
Statistics						
Least Significant Difference (LSD) P=.05			9.56	14.98	11.97	4.87
Standard Deviation			6.44	10.08	8.06	3.28
Coefficient of Variation (CV)			136.54	12.59	62.86	139.07
Treatment Prob(F)			0.0163	0.0001	0.0001	0.5221

Note: Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).