UW – Madison Weed Science Renz Lab

2016 Evaluation of Wild Parsnip Control with Method – 2018 Update

Lead Investigator: Dr. Mark Renz

Contact: mrenz@wisc.edu – 357 Moore Hall, 1575 Linden Drive, Madison, WI, 53706

Study Directors: Christopher Bloomingdale, Leo Roth

Contact: nlroth2@wisc.edu – 236 Moore Hall, 1575 Linden Drive, Madison, WI, 53706

Objective:

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

Summary:

At 33 Days After Treatment (DAT), Highest control of Wild Parsnip resulted from treatments containing Method (71-84%) and Escort (84%). Injury of Smooth Brome was observed from higher rates of Method (20-23%). Similar results were seen at 55 DAT as control of Wild Parsnip was high with Method (81-99%) and Escort (99%) but injury to smooth brome from Method persisted (22%).

One year after treatment (321 DAT), the highest three rate of Method and Escort resulted in no rosettes but due to variability difference were not statistically different. Two years after treatment (730 DAT), all treatments had identical amounts of Wild Parsnip cover (4-10%) suggesting that control did not persist for two years.

Research Plot Information:

Plot Dimensions: 10 feet x 25 feet

Design: Randomized Complete Block, 4 blocks

Soil Type: 100% Richwood silt loam, 0 to 2% slope

Notes:

8/2/16 Hay bale went through 200 block, flattening multiple plots

8/15/16 Plots mowed

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	0.5 ounces/dry weight per acre (oz wt/A) 0.25% v/v

Herbicide Application:

Date: June 8th, 2016

Equipment: Backpack sprayer (15 gallons per acre), 10-foot boom

Nozzles: Eight flat tip TeeJet AIXR 110015, 15-inch nozzle spacing

Regulator PSI: 32

Boom PSI: 18

Plants Present/Stage of Development:

June 8th, 2016:

- Wild Parsnip beginning to bolt and between 1-2 feet tall

Weather Data:

Weather Station	KWIPRAIR10
Temperature	67°F
Wind Speed and Direction	1mph S
Relative Humidity	42%
Cloud Cover	0%
Previous Rain Event Within 48 Hours	-
When $\geq$ 0.25 inches of precipitation occurred after treatment	06.10.18 – 0.27”

Index of Ratings and Results

Results:

33 DAT – July 2nd, 2016

Rating Type			Parsnip Control (%)		Smooth Brome Injury (%)		Tall Fescue Injury (%)	
Trt No.	Treatment	Rate						
1	Control		1.3	d	0	b	0	-
2	Method 240SL	4 oz/a	46.3	b	4.5	b	0	-
3	Method 240SL	8 oz/a	71.3	a	10	b	0	-
4	Method 240SL	12 oz/a	82.5	a	21.3	a	0	-
5	Method 240SL	16 oz/a	83.8	a	22.5	a	0	-
6	Milestone	7 oz/a	28.8	c	7.5	b	0	-
7	Escort	0.5 oz wt/a	83.8	a	4.5	b	0	-
Statistics[1]								
LSD P=.05			17.02		8.12		.	
Standard Deviation			11.46		5.46		0	
CV			20.18		54.45		0	
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.

55 DAT – August 2nd, 2016

Rating Type			Parsnip Control (%)		Smooth Brome Injury (%)		Tall Fescue Injury (%)	
Trt No.	Treatment	Rate						
1	Control		0	c	0	b	0	-
2	Method 240SL	4 oz/a	81.3	a	2.5	ab	0	-
3	Method 240SL	8 oz/a	97.5	a	11.3	ab	0	-
4	Method 240SL	12 oz/a	92.7	a	21.9	a	0	-
5	Method 240SL	16 oz/a	99.4	a	18.5	ab	0	-
6	Milestone	7 oz/a	49.4	b	15.2	ab	0	-
7	Escort	0.5 oz wt/a	99.4	a	0.2	b	0	-
LSD P=.05			12.5		12.18		.	
Standard Deviation			8.18		7.97		0	
CV			13.13		93		0	
Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls)								

321 DAT – April 25th, 2017

Rating Type			Parsnip Rosettes/m^2
Trt No.	Treatment	Rate	
1	Control		1.04 -
2	Method 240SL	4 oz/a	0.12 -
3	Method 240SL	8 oz/a	0 -
4	Method 240SL	12 oz/a	0 -
5	Method 240SL	16 oz/a	0 -
6	Milestone	7 oz/a	1.05 -
7	Escort	0.5 oz wt/a	0 -
Statistics			
LSD P=.05			0.746107559
Standard Deviation			0.502234452
CV			158.55

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

352 DAT – May 26th, 2017

Rating Type			Parsnip Seedlings/m^2
Trt No.	Treatment	Rate	
1	Control		2.28 a
2	Method 240SL	4 oz/a	0.23 b
3	Method 240SL	8 oz/a	0.01 b
4	Method 240SL	12 oz/a	0.01 b
5	Method 240SL	16 oz/a	0.03 b
6	Milestone	7 oz/a	0.20 b
7	Escort	0.5 oz wt/a	0.10 b
Statistics			
LSD P=.05			0.596777785
Standard Deviation			0.401714686
CV			98.21

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

730 DAT – June 8th, 2018

Trt. No.	Treatment	Rate	Parsnip Cover (%)	Grass Cover (%)	Broadleaf Cover (%)	Bareground Cover (%)
1	UTC	-	9.3 -	80.3 -	10 -	0.5 -
2	Method 240SL NIS	4 oz/A 0.25% v/v	5.5 -	82.8 -	11.3 -	0.5 -
3	Method 240SL NIS	8 oz/A 0.25% v/v	6.3 -	86.8 -	4.5 -	2.5 -
4	Method 240SL NIS	12 oz/A 0.25% v/v	4 -	88.8 -	4.8 -	2.5 -
5	Method 240SL NIS	16 oz/A 0.25% v/v	4 -	85 -	6.8 -	4.3 -
6	Milestone NIS	7 oz/A 0.25% v/v	6.8 -	83.3 -	8 -	2 -
7	Escort NIS	0.5 oz wt/A 0.25% v/v	6 -	77.8 -	15 -	1.3 -
Statistics						
Least Significant Difference (LSD) P=.05			7.7	9.43	8.55	3.54
Standard Deviation			5.18	6.35	5.76	2.38
Coefficient of Variation (CV)			86.89	7.6	66.89	123.39
Treatment Prob(F)			0.8129	0.2682	0.1743	0.3295

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