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UNIVERSITY OF WISCONSIN-MADISON

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UW – Madison Weed Science Renz Lab

2017 Evaluation of Autumn Olive Control with Method - 2018 Update

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Objective:

Evaluate control of Autumn Olive (*Elaeagnus umbellata)* in right-of-ways and natural areas with various Method herbicide (aminocyclopyrachlor) concentrations as compared to Milestone (aminopyralid) and Garlon 3A (triclopyr).

Summary:

At 30 days after treatment (DAT), the lowest concentration of Method (treatment 2, 0.25 %v/v) resulted in the least defoliation and control of Autumn Olive as compared to other treatments. By 51 DAT all 5 herbicide treatments resulted in near-total defoliation and control of Autumn Olive. By 10 months after treatment (MAT), all treatments achieved total control of Autumn Olive shrubs.

However, by 12 and 14 MAT Autumn Olive resprouting was between five and ten times more common with Garlon treatments than Method treated shrubs. Results suggest that Method is effective at Autumn olive control with limited resprouting compared to standard Garlon treatments.

Research Plot Information:

Plot Dimensions: Individual Shrub

Design: Randomized Complete Block, 6 Blocks

Soil Type: 68.3% Richwood silt loam, 0-2% slope, 31.7% Toddville silt loam, 0-2% slope

Herbicide Treatments:

Treatment Number	Treatment	Rate
1	Untreated Control (UTC)	-
2	Method 240SL Methylated Seed Oil (MSO)	0.25% volume/volume (v/v) 1% v/v
3	Method 240SL MSO	0.5% v/v 1% v/v
4	Method 240SL MSO	1% v/v 1% v/v
5	Milestone MSO	0.33% v/v 1% v/v
6	Garlon 3A MSO	3% v/v 1% v/v

Herbicide Application:

Date: August 7th, 2017, 2:00pm – 3:00pm

Equipment: CO_2 Backpack Sprayer (30 GPA); Single Nozzle Boom

Nozzles: One Flat Fan TeeJet 8003 XR

Regulator PSI: 32 PSI

Weather Data:

Weather Station	KWISAUKC3
Temperature	76.0°F
Wind Speed and Direction	2.0 MPH North
Relative Humidity	57%
Cloud Cover	50%
Previous Rain Event Within 48 Hours	August 6th, 2017: 0.04 inches
Next Rain Event Within 48 Hours	None

Index of Ratings and Results

Results:

30 DAT – September 6th, 2017

Rating:			Brush Control (%)	Brush Leaf Chlorosis (%)	Brush Defoliation (%)	Kentucky Bluegrass Injury (%)	Smooth Brome Injury (%)
Trt	Treatment	Rate					
1	Control		0 c	1.8 b	0 c	0 -	0 -
2	Method 240SL	0.25 %v/v					
	MSO	1 % v/v	86.83 b	50.8 a	75 b	0 -	11.7 -
3	Method 240SL	0.5 % v/v					
	MSO	1 % v/v	92.75 ab	58.2 a	83.3 ab	0 -	1.7 -
4	Method 240SL	1 % v/v					
	MSO	1 % v/v	97.33 a	54.4 a	93.3 a	0 -	12.5 -
5	Milestone	0.33 % v/v					
	MSO	1 % v/v	95.25 ab	75 a	85.8 ab	0 -	0 -
6	Garlon 3A	3 % v/v					
	MSO	1 % v/v	98.5 a	13 b	98.3 a	0 -	0 -
Statistics							
LSD P=.05			7.0683	23.11	12.47	.	8.49
Standard Deviation			5.9444	18.89	10.49	0	7.14
CV			7.55	41.25	14.44	0	165.91
Treatment F			244.007	10.819	72.624	0	4.325
Treatment Prob(F)			0.0001	0.0001	0.0001	1	0.0057
Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls)							

51 DAT – September 27th, 2017

Rating:			Brush Control (%)	Brush Leaf Chlorosis (%)	Brush Defoliation (%)
Trt	Treatment	Rate			
1	Control		3.17 b	3.2 -	0 b
2	Method 240SL	0.25 %v/v			
	MSO	1 % v/v	92.08 a	7.5 -	91.7 a
3	Method 240SL	0.5 % v/v			
	MSO	1 % v/v	95.46 a	39.9 -	90.8 a
4	Method 240SL	1 % v/v			
	MSO	1 % v/v	99.53 a	59.4 -	99 a
5	Milestone	0.33 % v/v			
	MSO	1 % v/v	97.43 a	29.6 -	96.3 a
6	Garlon 3A	3 % v/v			
	MSO	1 % v/v	99 a	41.8 -	98.3 a
Statistics					
LSD P=.05			5.712	21.17	8.93
Standard Deviation			4.8037	15.51	7.51
CV			5.92	72.68	9.46
Treatment F			381.046	6.469	162.055
Treatment Prob(F)			0.0001	0.0148	0.0001
Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls)					

70 DAT – October 16th, 2017

Rating:			Brush Control (%)	Brush Leaf Chlorosis (%)	Brush Defoliation (%)
Trt	**Treatment**	**Rate**			
1	Control		9.43 b	3.8 -	5.8 b
2	Method 240SL	0.25 %v/v			
	MSO	1 % v/v	96.25 a	19.7 -	95 a
3	Method 240SL	0.5 % v/v			
	MSO	1 % v/v	99.42 a	19.5 -	99.2 a
4	Method 240SL	1 % v/v			
	MSO	1 % v/v	100 a	-	100 a
5	Milestone	0.33 % v/v			
	MSO	1 % v/v	98.77 a	55.9 -	98 a
6	Garlon 3A	3 % v/v			
	MSO	1 % v/v	99.16 a	54.3 -	98.3 a
Statistics					
LSD P=.05			2.6986	23.53	3.78
Standard Deviation			2.2695	14.68	3.18
CV			2.71	67.83	3.84
Treatment F			1549.752	5.806	843.67
Treatment Prob(F)			0.0001	0.0584	0.0001
Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls)					

305 DAT – June 8th, 2018:

Trt. No.	Treatment	Rate	Autumn Olive Control (%)
1	UTC	-	0
2	Method 240SL MSO	0.25% v/v 1% v/v	100 -
3	Method 240SL MSO	0.5% v/v 1% v/v	100 -
4	Method 240SL MSO	1% v/v 1% v/v	100 -
5	Milestone MSO	0.33% v/v 1% v/v	100 -
6	Garlon 3A MSO	3% v/v 1% v/v	100 -
Statistics			
LSD P=.05			-
Standard Deviation			0.00
CV			0.00
Treatment F			0.00
Treatment Prob(F)			1.00

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

366 DAT – August 8th, 2018:

Trt. No.	Treatment	Rate	Autumn Olive Control (%)	Autumn Olive Resprout (Count)	Autumn Olive Cover (%)	Woody Cover (%)	Grass Cover (%)	Broadleaf Cover (%)	Bareground Cover (%)
1	UTC	-	0.0 -	-	-	11.0a	23.1b	2.5c	64.0a
2	Method 240SL MSO	0.25% v/v 1% v/v	100.0 -	0.3b	2.5 -	2.5b	79.2a	5.0bc	10.8b
3	Method 240SL MSO	0.5% v/v 1% v/v	100.0 -	0.2b	0.8 -	3.5b	65.7a	15.0abc	15.0b
4	Method 240SL MSO	1% v/v 1% v/v	100.0 -	0.3b	1.7 -	0.8b	38.3b	24.2a	35.0b
5	Milestone MSO	0.33% v/v 1% v/v	100.0 -	0.3b	2.5 -	2.7b	69.8a	15.0abc	10.0b
6	Garlon 3A MSO	3% v/v 1% v/v	100.0 -	3.3a	6.0 -	11.0a	40.5b	19.2ab	23.3b
Statistics									
LSD P=.05			-	1.65	5.08	5.53	19.95	11.01	19.45
Standard Deviation			0.00	1.37	4.22	4.64	16.74	9.24	16.32
CV			0.00	152.08	156.19	93.86	30.99	67.4	65.29
Treatment F			0.00	5.943	1.309	4.913	8.996	4.671	7.969
Treatment Prob(F)			1.00	0.0026	0.3004	0.0031	0.0001	0.0041	0.0002

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

422 DAT – October 3rd, 2018:

Trt. No.	Treatment	Rate	Autumn Olive Control (%)	Autumn Olive Resprout (Count)	Autumn Olive Cover (%)	Woody Cover (%)	Grass Cover (%)	Broadleaf Cover (%)	Bareground Cover (%)
1	UTC	-	0.0 -	-	-	-	-	-	-
2	Method 240SL MSO	0.25% v/v 1% v/v	100.0 -	1.0b	1.7 -	2.5 -	84.2a	4.2c	7.5 -
3	Method 240SL MSO	0.5% v/v 1% v/v	100.0 -	0.2b	0.2 -	1.7 -	64.0a	18.3bc	15.8 -
4	Method 240SL MSO	1% v/v 1% v/v	100.0 -	0.0b	0.0 -	1.7 -	39.2b	37.5a	21.7 -
5	Milestone MSO	0.33% v/v 1% v/v	100.0 -	0.5b	0.3 -	0.0 -	83.8a	8.3c	7.5 -
6	Garlon 3A MSO	3% v/v 1% v/v	100.0 -	5.2a	7.0 -	4.3 -	36.5a	31.3ab	20.8 -
Statistics									
Least Standard Deviation (LSD) P=.05			-	2.66	5.47	3.40	19.25	15.55	15.89
Standard Deviation			0.00	2.21	4.54	2.82	15.98	12.91	13.20
Coefficient of Variation (CV)			0.0	161.85	247.85	138.81	25.97	64.77	89.98
Treatment F			0.000	5.716	2.551	1.866	12.585	7.418	1.646
Treatment Prob(F)			1.0000	0.0031	0.0710	0.1559	0.0001	0.0008	0.2020

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