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UW – Madison Weed Science Renz Lab

Evaluation of Phragmites Control with Fluazifop

2019 Update

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Objective:

Evaluate control of phragmites (*Phragmites australis*) with Fluazifop-p-butyl as compared to other recommended herbicides registered for use in aquatic environments.

Summary:

Fall applications to phragmites applied just prior to senescence provided control the year following treatment. At 251 Days After Treatment (DAT), Habitat (imazapyr) provided the highest level of phragmites control (90%), with fluazifop providing similar control if applied at a 2-3% v/v (70-73%). This trend continued and by 351 DAT, both Habitat (imazapyr) and high concentrations of fluazifop (2 – 3% v/v) provided similar levels of phragmites control (46 – 88%). In these treatments, phragmites cover was < 15%. No differences in other vegetation (cattails, reed canarygrass, sedges, annual broadleaf weeds) was observed among treatments.

Research Plot Information:

Plot Dimensions: 5 feet x 7 feet

Design: Randomized Complete Block, 4 blocks

Soil Type: Houghton muck 100%

Notes:

September 29th, 2018: Phragmites 4-8 feet tall, flowering

Herbicide Treatments:

Treatment Number	Treatment	Rate
1	Untreated Control (UTC)	-
2	Fluazifop-p-butyl (Fluazifop) Crop Oil Concentrate (COC)	1% volume/volume (v/v) 1% v/v
3	Fluazifop COC	2% v/v 1% v/v
4	Fluazifop COC	1% v/v 1% v/v
5	Fluazifop COC	2% v/v 1% v/v
6	Fluazifop COC	3% v/v 1% v/v
7	Habitat COC	1.5% v/v 1% v/v

Herbicide Application:

Date: September 29th, 2018

Equipment: Backpack Sprayer (50-70 GPA)

Nozzles: One (1) flat fanned nozzle

Plants Present/Stage of Development:

September 29th, 2018:

Cattail spp. (*Typha spp.*), flowering/fruit present

Phragmites (*Phragmites australis*), flowering/fruit present

Reed canarygrass (*Phalaris arundinacea*), vegetative

Sedge spp. (*Carex spp.*), flowering/fruit present

Weather Data:

Weather Station	KWIMADIS35
Temperature	50°F
Wind Speed and Direction	1 mph ESE
Relative Humidity	58%
Previous Rain Event Within 48 Hours	-
When ≥ 0.25 inches of precipitation occurred after treatment	09.30.18 – 0.68 inches

Index of Ratings and Results

Results:

0 DAT - September 29th, 2018

Trt. No.	Treatment	Rate	Phragmites Cover (%)	Reed Canarygrass Cover (%)	Cattail Cover (%)	Sedge Cover (%)	Other Vegetative Cover (%)
1	UTC	-	56.3 -	18.8 -	5.0 -	11.3 -	8.8 -
2	A12460A COC	1% v/v 1% v/v	57.5 -	20.0 -	5.0 -	13.8 -	3.8 -
3	A12460A COC	2% v/v 1% v/v	61.3 -	15.0 -	3.8 -	17.5 -	2.5 -
4	A12460A COC	1% v/v 1% v/v	52.5 -	27.5 -	6.3 -	12.5 -	3.8 -
5	A12460A COC	2% v/v 1% v/v	55.0 -	21.3 -	6.3 -	12.5 -	5.0 -
6	A12460A COC	3% v/v 1% v/v	50.0 -	22.5 -	5.0 -	21.3 -	1.3 -
7	Habitat COC	1.5% v/v 1% v/v	56.3 -	30.0 -	5.0 -	5.0 -	3.3 -
Statistics[1]							
Least Significant Difference (LSD) P=.05			21.45	14.89	6.45	13.17	5.14
Standard Deviation			14.44	10.02	4.34	8.86	3.46
Coefficient of Variation (CV)			26.0	45.27	83.84	66.18	85.79
Treatment Prob(F)			0.9537	0.4262	0.9848	0.2994	0.1372

Note: 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.

23 DAT – October 22nd, 2018

Trt. No.	Treatment	Rate	Phragmites Green Vegetation (%)	Reed Canarygrass Green Vegetation (%)
1	UTC	-	0.0 -	21.3 -
2	A12460A COC	1% v/v 1% v/v	0.0 -	8.8 -
3	A12460A COC	2% v/v 1% v/v	0.0 -	16.3 -
4	A12460A COC	1% v/v 1% v/v	0.0 -	11.3 -
5	A12460A COC	2% v/v 1% v/v	0.0 -	22.5 -
6	A12460A COC	3% v/v 1% v/v	0.0 -	12.5 -
7	Habitat COC	1.5% v/v 1% v/v	0.3 -	15.3 -
Statistics				
LSD P=.05			0.28	16.14
Standard Deviation			0.19	10.86
CV			529.15	70.57
Treatment Prob(F)			0.4552	0.5310

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

251 DAT – June 7th, 2019

Trt. No.	Treatment	Rate	Phragmites Control (%)	Phragmites Cover (%)	Cattail Cover (%)	Reed Canarygrass Cover (%)	Bareground/Litter Cover (%)	Sedge Sp. Cover (%)
1	UTC	-	7.5 c	25.0 -	3.8 -	18.8 -	27.5 -	10.0 -
2	A12460A COC	1% v/v 1% v/v	41.3 abc	19.0 -	7.5 -	15.0 -	30.0 -	28.5 -
3	A12460A COC	2% v/v 1% v/v	30.0 bc	18.8 -	11.3 -	12.8 -	30.0 -	27.3 -
4	A12460A COC	1% v/v 1% v/v	20.0 bc	18.8 -	8.8 -	15.3 -	33.8 -	13.5 -
5	A12460A COC	2% v/v 1% v/v	70.0 ab	6.8 -	7.5 -	12.5 -	33.5 -	39.8 -
6	A12460A COC	3% v/v 1% v/v	72.5 ab	7.8 -	8.8 -	15.3 -	29.8 -	38.5 -
7	Habitat COC	1.5% v/v 1% v/v	90.0 a	5.0 -	2.5 -	20.0 -	67.5 -	5.0 -
Statistics								
LSD P=.05			39.68	13.35	8.83	13.12	27.52	26.18
Standard Deviation			26.71	8.99	5394	8.83	18.53	17.62
CV			56.45	62.3	83.2	56.44	51.46	75.91
Treatment Prob(F)			0.0027	0.0331	0.4297	0.8647	0.0793	0.0637

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

351 DAT – September 15th, 2019

Trt. No.	Treatment	Rate	Phragmites Control (%)	Phragmites Cover (%)	Cattail Cover (%)	Sedge Sp. Cover (%)	Reed Canarygrass Cover (%)	Broadleaf Weeds Cover (%)	Bareground/Litter Cover (%)
1	UTC	-	8.8 c	51.3 a	5.0 -	11.25 -	23.8 -	8.75 -	0.0 b
2	A12460A COC	1% v/v 1% v/v	30.0 bc	36.3 ab	15.0 -	22.50 -	13.8 -	10.00 -	2.5 b
3	A12460A COC	2% v/v 1% v/v	46.3 abc	28.8 ab	17.5 -	18.13 -	18.8 -	14.38 -	2.5 b
4	A12460A COC	1% v/v 1% v/v	6.3 c	52.5 a	12.5 -	10.00 -	21.3 -	3.75 -	0.0 b
5	A12460A COC	2% v/v 1% v/v	88.8 a	7.5 b	17.5 -	32.50 -	30.0 -	10.00 -	2.5 b
6	A12460A COC	3% v/v 1% v/v	68.8 ab	15.0 ab	17.5 -	36.25 -	26.3 -	5.00 -	0.0 b
7	Habitat COC	1.5% v/v 1% v/v	81.3 a	13.8 ab	2.5 -	16.25 -	37.5 -	13.75 -	16.3 a
Statistics									
LSD P=.05			37.34	27.48	18.86	19.472	19.88	10.249	9.85
Standard Deviation			25.13	18.50	12.69	13.107	13.38	6.899	6.63
CV			53.31	63.17	101.54	62.47	54.7	73.59	195.39
Treatment Prob(F)			0.0005	0.0117	0.4653	0.0716	0.2876	0.2884	0.0301

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