Renz Weed Science
COLLEGE OF AGRICULTURAL & LIFE SCIENCES
UNIVERSITY OF WISCONSIN-MADISON

Extension
UNIVERSITY OF WISCONSIN-MADISON

UW – Madison Weed Science Renz Lab

Can weed suppression with Esplanade or Method enhance establishment of Pollinator-Friendly Forb Species? (2020 Experiment)

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Objective:

Determine if applications of Esplanade (indaziflam) or Method (aminocyclopyrachlor) applied before emergence of pollinator-friendly native forbs and weeds (PRE) or after weed emergence (POST) can increase planted forb cover compared to standard treatments.

Summary:

During the treatment summer (July), Method reduced native forb cover compared to untreated plots (20%), with PRE treatments resulting in greater reductions than POST treatments (1-6% vs 2-14% cover). Treatments containing Esplanade, Journey, or Plateau had similar native forb cover to untreated plots (14-28%). Native forb cover in treatments containing Journey, Esplanade at 1 fluid ounce per acre, or Plateau trended higher than untreated plots (2-8% higher), but the increase was not statistically significant. One year after treatment native forbs responded differently to treatments, with black eyed-Susan populations unaffected by Esplanade PRE or applications containing imazapic (Journey/Plateau). Wild bergamot was tolerant to low rates of Method or Esplanade PRE and POST treatments of Plateau or 1 oz/A of Method. Yellow coneflower appeared tolerant to Esplanade, and treatments containing imazapic pre or post. While treatments did not influence native grass cover 1.5 years after treatment, native forb cover was highest in Esplanade PRE at 1 fl oz/A (16%), Plateau POST (14%), and non-treated control plots (14%).

Results suggest that while forb species respond differently to treatments, there are options available for broadcast applications in establishing prairies that do not impact cover. Our research demonstrated that low rates of Esplanade (1 oz/A) applied PRE or Plateau applied POST maintained key forb plant populations and cover 1.5 years after treatment at levels comparable to untreated controls. While these herbicides provided short-term weed suppression (1-1.5 months), they did not improve forb establishment and cover the following year. Thus, these products should only be used when key weed species can be suppressed to a level/time to show a demonstrable improvement in forb population/cover.

Notes

- Site burndown sprayed prior to planting on June 26th, 2019, with Roundup PowerMax (32 fluid ounces per acre) + Alliance liquid ammonium sulfate (160 fluid ounces per acre)
- Site no-till drill seeded on July 2nd, 2019, at 20 pounds per acre with rolled oats carrier
- Site mowed to a six-inch residual height on August 30th, 2019

Herbicide Treatments

Treatment Number	Treatment	Application Timing	Rate
1	Untreated Control (UTC)	-	-
2	Method 240SL	PRE	1 fluid ounce per acre (fl oz/A)
3	Method 240SL	PRE	2 fl oz/A
4	Method 240SL	PRE	4 fl oz/A
5	Esplanade	PRE	1 fl oz/A
6	Esplanade	PRE	2 fl oz/A
7	Esplanade	PRE	4 fl oz/A
8	Journey	PRE	5.35 fl oz/A
9	Method 240SL	POST	1 fl oz/A
10	Method 240SL	POST	2 fl oz/A
11	Method 240SL	POST	4 fl oz/A
12	Plateau	POST	1.84 fl oz/A

Note: all POST treatments (9-12) included non-ionic surfactant at 0.25% volume/volume

Herbicide Application

Application Timing	PRE Application	POST Application
Date	April 15th, 2020 1:00pm – 1:30pm	June 5th, 2020 1:35pm – 2:10pm
Equipment	CO_2 pressurized 10-foot boom sprayer (20 gallons per acre)	CO_2 pressurized 10-foot boom sprayer (20 gallons per acre)
Nozzles & spacing	8 TeeJet 11002 VS nozzles, 15-inch spacing	8 TeeJet 11002 VS nozzles, 15-inch spacing
Regulator PSI	38	38

Weather Data

Weather Station	KWILANCA5	
Application Timing	**PRE Application**	**POST Application**
Temperature	33°F – 34°F	81°F – 82°F
Wind Speed and Direction	4.5 mph – 6.0 mph	2.8 mph- 5.5 mph
Relative Humidity	49% - 55%	66% - 69%
Cloud Cover	50%	50%
Previous Rain Event Within 48 Hours	None	June 4th, 2020 - 0.46 inches
When ≥ 0.25 inches of precipitation occurred after treatment	April 22nd, 2020, 19:40 – 0.58 inches	June 9th, 2020, 21:30 – 2.12 inches

Research Plot Information

Plot Dimensions	10 feet by 25 feet (250 square feet)
Design	Randomized Complete Block, 4 blocks
Soil Type	Fayette silt loam
Soil Characteristics	25% clay, 0.5% organic matter, 6.3 pH, 9% slope

Plants Present at Application – Developmental Stage			
PRE Application			
Native Forb Species	**Average Height (in)**	**Phenological Stage**	**True Leaves (#)**
black-eyed Susan (*Rudbeckia hirta*)	1	vegetative	4+
Weed Species	**Average Height (in)**	**Phenological Stage**	**True Leaves (#)**
buttercup sp. (*Ranunculus sp.*)	3	vegetative	4+
common dandelion (*Taraxacum officinale*)	1	90% vegetative, 10% flower bud	4+
red clover (*Trifolilum pratense*)	1	vegetative	10+
shepherd's purse (*Capsella bursa-pastoris*)	1	vegetative	10+
POST Application			
Native Forb Species	**Average Height (in)**	**Phenological Stage**	
black-eyed Susan (*Rudbeckia hirta*)	3	vegetative	
pale Indian-plantain (*Arnoglossum atriplicifolium*)	4	vegetative	
wild bergamot (*Monarda fistulosa*)	1	vegetative	
Weed Species	**Average Height (in)**	**Phenological Stage**	
alfalfa (*Medicago sativa*)	12	vegetative	
common dandelion (*Taraxacum officinale*)	6	flowering, in seed	
foxtail sp. (*Setaria sp.*)	0.1	seedling	
shepherd's purse (*Capsella bursa-pastoris*)	4-6	flowering	
speedwell sp. (*Veronica sp.*)	4-6	flowering	

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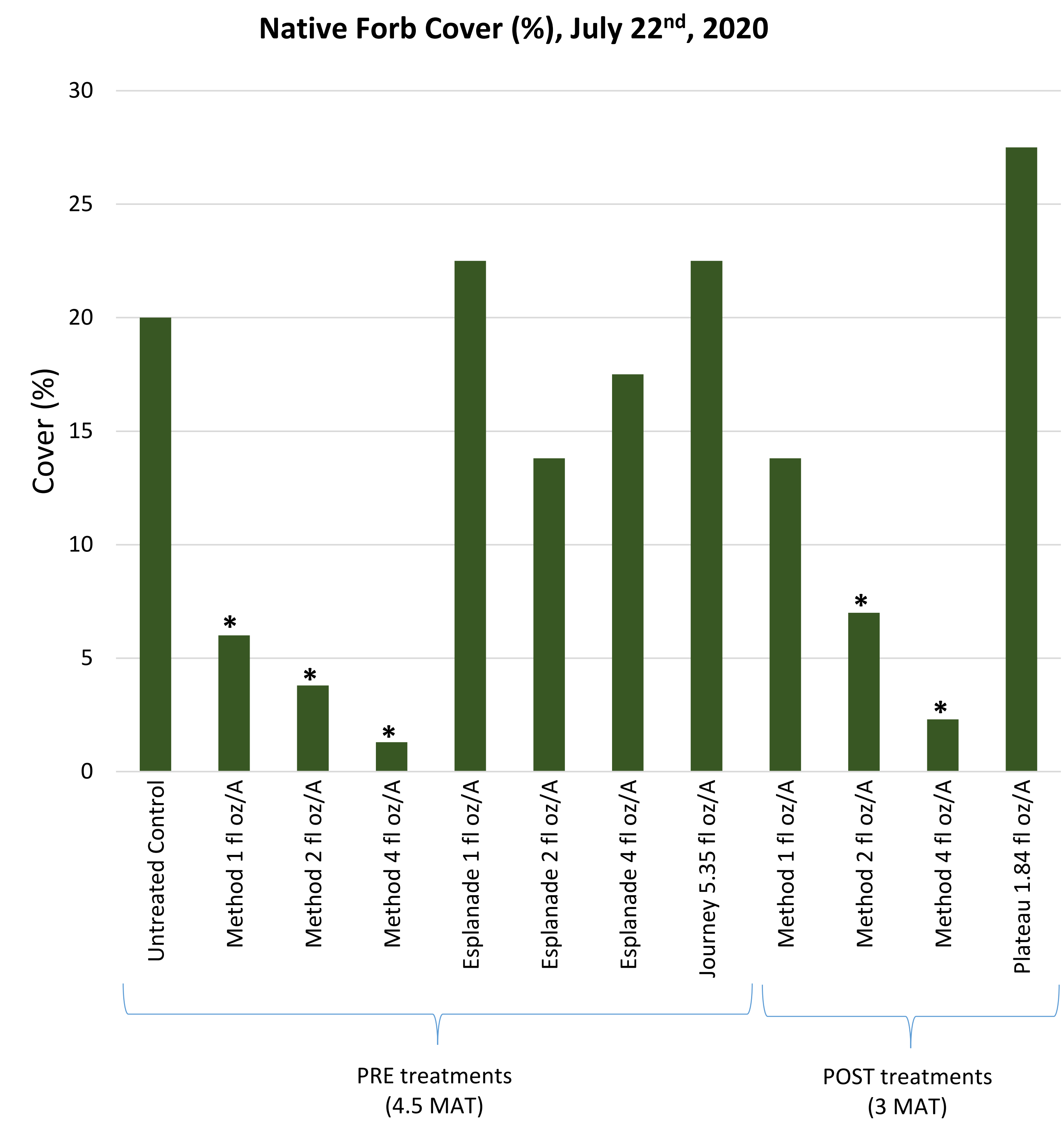
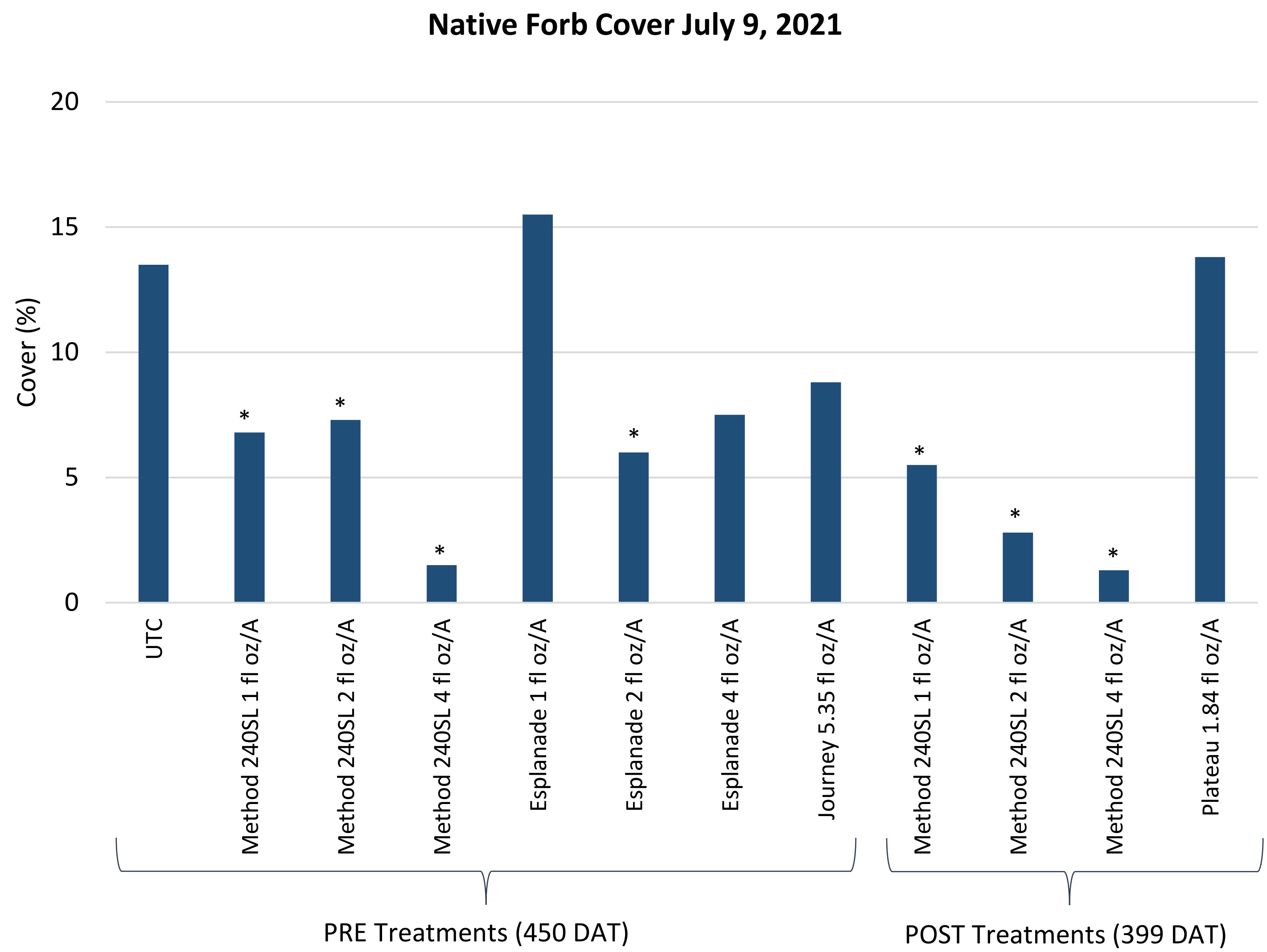
Index of Ratings and Results



Bars labelled with an asterisk (*) significantly differ from the untreated control (P=0.05, LSD)



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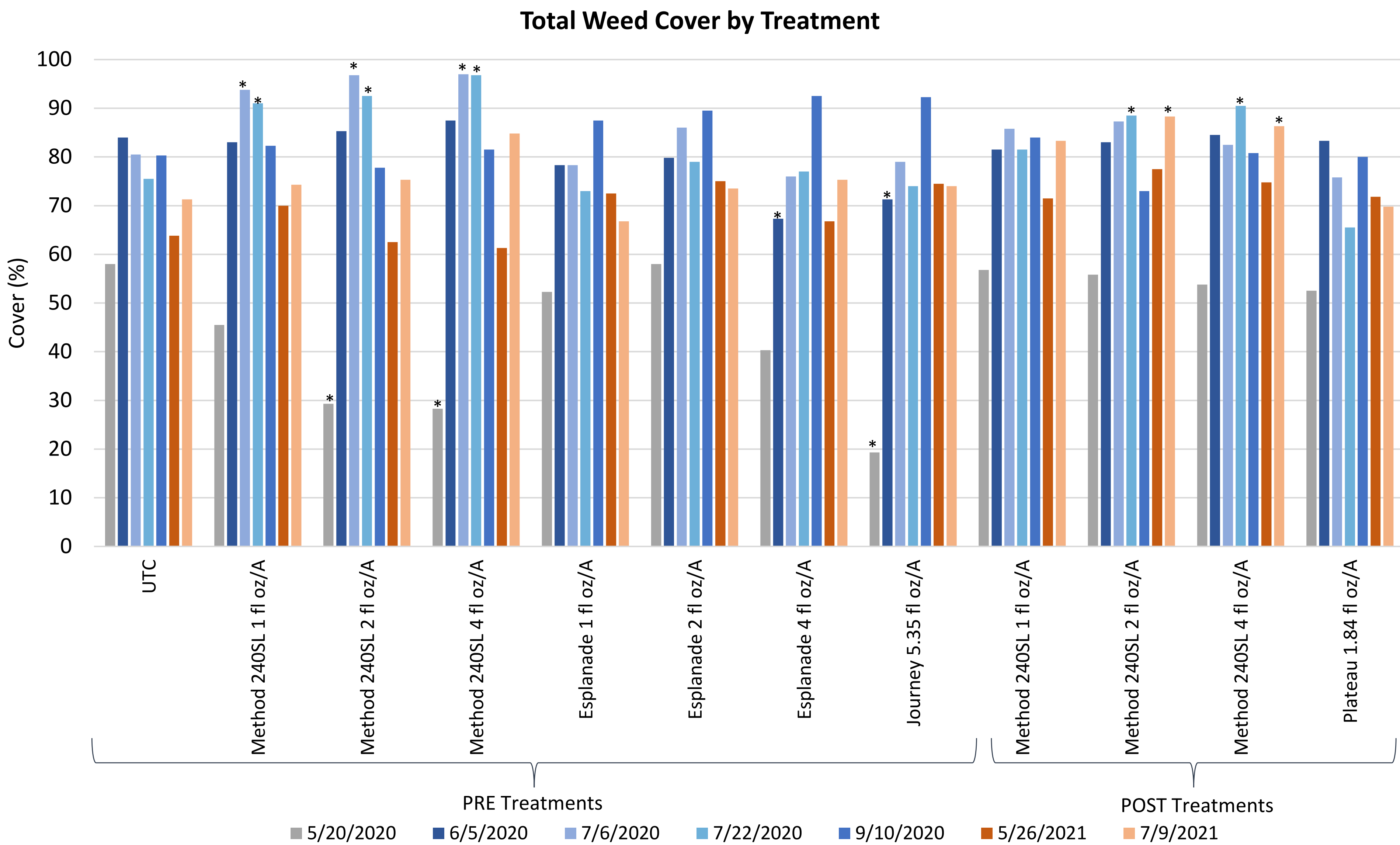

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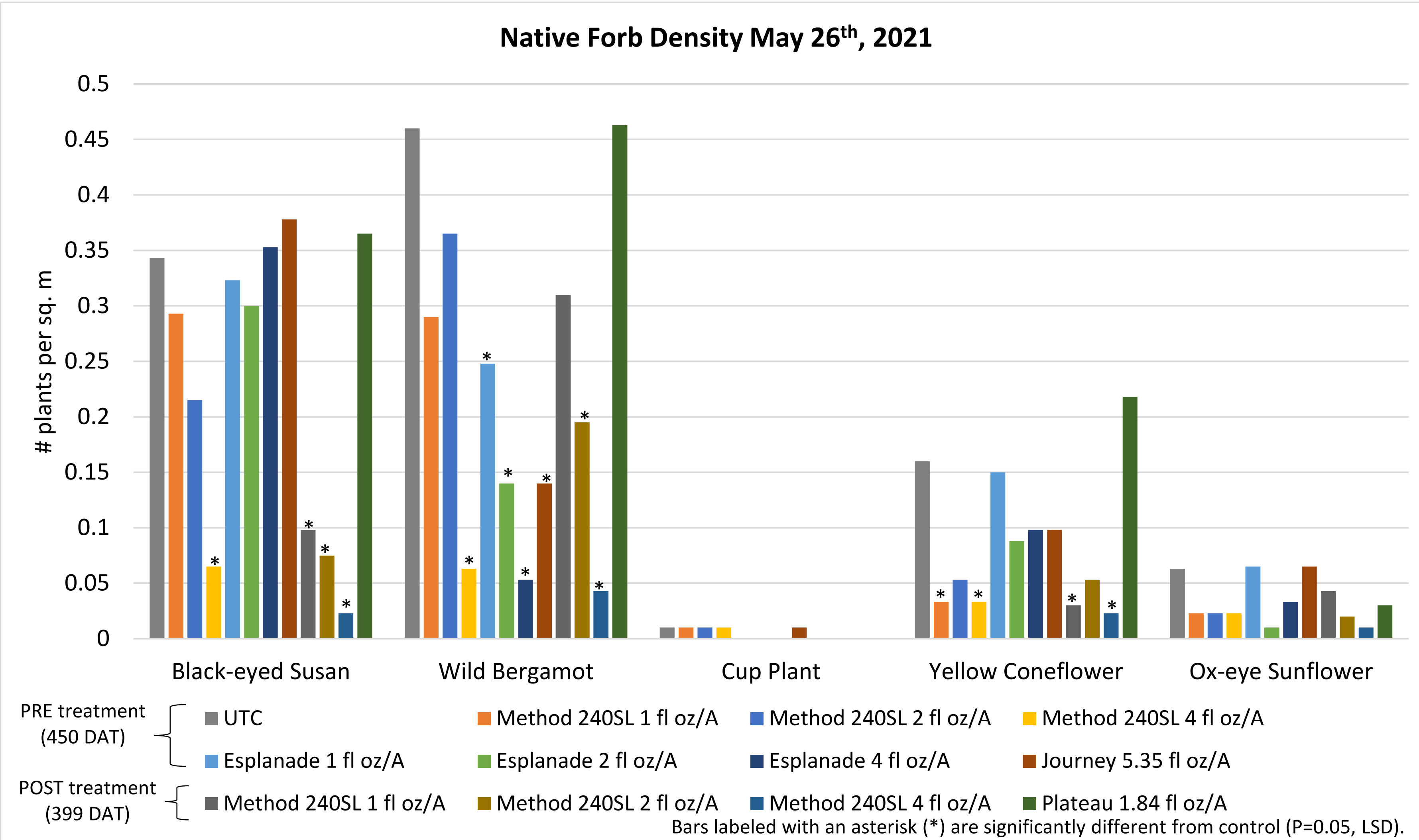
Native Forb Density May 26th, 2021
plants per sq. m
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Black-eyed Susan
Wild Bergamot
Cup Plant
Yellow Coneflower
Ox-eye Sunflower
PRE treatment (450 DAT)
UTC
Method 240SL 1 fl oz/A
Method 240SL 2 fl oz/A
Method 240SL 4 fl oz/A
Esplanade 1 fl oz/A
Esplanade 2 fl oz/A
Esplanade 4 fl oz/A
Journey 5.35 fl oz/A
POST treatment (399 DAT)
Method 240SL 1 fl oz/A
Method 240SL 2 fl oz/A
Method 240SL 4 fl oz/A
Plateau 1.84 fl oz/A
Bars labeled with an asterisk (*) are significantly different from control (P=0.05, LSD).

Results:

35 Days After PRE Application (DA-PRE), May 20th, 2020								
Trt No.	**Treatment**	**Application Timing**	**Rate**	**Native Broadleaf Cover (%)**	**Broadleaf Weed Cover (%)**	**Grass Cover (%)**	**Bareground /Litter Cover (%)**	**Total Weed Cover (%)**
1	UTC	-	-	2 -	51 a	6 -	40 c	58 a
2	Method 240SL	PRE	1 fl oz/A	1 -	32 bc	13 -	53 bc	46 ab
3	Method 240SL	PRE	2 fl oz/A	1 -	18 cd	10 -	70 ab	29 bc
4	Method 240SL	PRE	4 fl oz/A	1 -	17.5 d	10 -	70 ab	28 bc
5	Esplanade	PRE	1 fl oz/A	2 -	43 ab	8 -	46 c	52 a
6	Esplanade	PRE	2 fl oz/A	2 -	51 a	6 -	40 c	58 a
7	Esplanade	PRE	4 fl oz/A	2 -	32 bc	8 -	58 bc	40 ab
8	Journey	PRE	5.35 fl oz/A	2 -	11 d	8 -	78 a	19 c
9	Method 240SL	POST	1 fl oz/A	2 -	48 a	8 -	40 c	56 a
10	Method 240SL	POST	2 fl oz/A	2 -	43 ab	12 -	42 c	56 a
11	Method 240SL	POST	4 fl oz/A	2 -	46 ab	8 -	44 c	54 a
12	Plateau	POST	1.84 fl oz/A	3 -	43 ab	8 -	44 c	52 a
Statistics[1]								
Least Significant Difference (LSD) P=.05				1.38	14.61	8.39	18.21	1833
Standard Deviation				0.96	10.16	5.83	12.66	12.74
Coefficient of Variation (CV)				47.15	27.62	64.62	24.27	27.82
Treatment Prob(F)				0.0609	0.0001	0.8906	0.0002	0.0004

Note: Treatments labelled with the same letter do not significantly differ (p=0.05, LSD)

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

51 DA-PRE, 0 Days after POST (DA-POST) June 5th, 2020								
Trt No.	Treatment	Application Timing	Rate	Native Broadleaf Cover (%)	Broadleaf Weed Cover (%)	Grass Cover (%)	Bareground /Litter Cover (%)	Total Weed Cover (%)
1	UTC	-	-	4.8 a	72 a	12 c	11 c	84 a
2	Method 240SL	PRE	1 fl oz/A	0.8 b	51 ab	32 bc	16 bc	83 a
3	Method 240SL	PRE	2 fl oz/A	1 b	41 b	44 b	14 c	85 a
4	Method 240SL	PRE	4 fl oz/A	1.3 b	6 c	81 a	11 c	88 a
5	Esplanade	PRE	1 fl oz/A	5.5 a	62 ab	16 c	16 bc	78 ab
6	Esplanade	PRE	2 fl oz/A	4 a	67 a	12 c	16 bc	80 ab
7	Esplanade	PRE	4 fl oz/A	4 a	56 ab	11 c	28 a	67 a
8	Journey	PRE	5.35 fl oz/A	3.8 a	58 ab	14 c	25 ab	71 bc
9	Method 240SL	POST	1 fl oz/A	4.8 a	69 a	12 c	14 c	82 ab
10	Method 240SL	POST	2 fl oz/A	4.5 a	52 ab	31 bc	12 c	83 a
11	Method 240SL	POST	4 fl oz/A	4.3 a	70 a	14 c	11 c	84 a
12	Plateau	POST	1.84 fl oz/A	5.5 a	68 a	15 c	11 c	83 a
Statistics								
LSD P=.05				2.28	24.93	24.06	9.95	10.42
Standard Deviation				1.58	17.33	16.72	6.91	7.24
CV				43.17	30.93	67.74	44.24	8.97
Treatment Prob(F)				0.0003	0.0004	0.0001	0.0135	0.0139

Note: Treatments labelled with the same letter do not significantly differ (p=0.05, LSD)

82 DA-PRE, 31 DA-POST, July 6th, 2020								
Trt No.	**Treatment**	**Application Timing**	**Rate**	**Native Broadleaf Cover (%)**	**Broadleaf Weed Cover (%)**	**Grass Cover (%)**	**Bareground/ Litter Cover (%)**	**Total Weed Cover (%)**
1	UTC	-	-	16 ab	69 ab	11 e	2.8 de	80 cd
2	Method 240SL	PRE	1 fl oz/A	4 de	18 d	75 bc	2.3 e	94 ab
3	Method 240SL	PRE	2 fl oz/A	2 de	11 d	86 ab	1.3 e	96 a
4	Method 240SL	PRE	4 fl oz/A	0.8 e	4 d	93 a	2.3 e	97 a
5	Esplanade	PRE	1 fl oz/A	18 a	48 c	30 d	4.3 cde	78 cd
6	Esplanade	PRE	2 fl oz/A	10 a-d	76 a	10 e	3.5 cde	86 bcd
7	Esplanade	PRE	4 fl oz/A	16 ab	64 abc	12 e	7.8 bc	76 d
8	Journey	PRE	5.35 fl oz/A	18 a	65 abc	14 de	2.3 e	79 cd
9	Method 240SL	POST	1 fl oz/A	8 b-e	20 d	66 c	5.5 cde	86 bcd
10	Method 240SL	POST	2 fl oz/A	6 cde	8 d	80 abc	6.8 bcd	87 abc
11	Method 240SL	POST	4 fl oz/A	5 de	2 d	80 abc	12.5 a	82 cd
12	Plateau	POST	1.84 fl oz/A	14 abc	52 bc	24 de	10 ab	76 d
Statistics								
LSD P=.05				8.62	20.68	17.08	4.32	10.59
Standard Deviation				5.99	14.37	11.87	3	7.36
CV				59.69	39.51	24.47	59.07	8.68
Treatment Prob(F)				0.0003	0.0001	0.0001	0.0001	0.0005

Note: Treatments labelled with the same letter do not significantly differ (p=0.05, LSD)

98 DA-PRE, 47 DA-POST, July 22nd, 2020 (1/2)							
Trt No.	**Treatment**	**Application Timing**	**Rate**	**Black-Eyed Susan Injury (%)**	**Native Broadleaf Cover (%)**	**Native Grass Cover (%)**	**Bareground/ Litter Cover (%)**
1	UTC	-	-	0.3 d	20 ab	2 -	2.8 bcd
2	Method 240SL	PRE	1 fl oz/A	12 cd	6 de	2 -	0.8 d
3	Method 240SL	PRE	2 fl oz/A	15 cd	4 de	2 -	1 d
4	Method 240SL	PRE	4 fl oz/A	38 b	1 e	2 -	0.5 d
5	Esplanade	PRE	1 fl oz/A	2 d	22 ab	2 -	2.8 bcd
6	Esplanade	PRE	2 fl oz/A	0 d	14 bcd	1 -	6 a
7	Esplanade	PRE	4 fl oz/A	2 d	18 abc	1 -	4 abc
8	Journey	PRE	5.35 fl oz/A	0.5 d	22 ab	2 -	1 d
9	Method 240SL	POST	1 fl oz/A	28 bc	14 bcd	3 -	2 cd
10	Method 240SL	POST	2 fl oz/A	44 b	7 cde	2 -	2.8 bcd
11	Method 240SL	POST	4 fl oz/A	84 a	2 e	2 -	5.5 ab
12	Plateau	POST	1.84 fl oz/A	0 d	28 a	2 -	5.5 ab
Statistics							
LSD P=.05				20.06	10.67	1.6	3.2
Standard Deviation				13.95	7.41	1.11	2.22
CV				74.06	56.4	59.14	76.2
Treatment Prob(F)				0.0001	0.0001	0.3725	0.0045

Note: Treatments labelled with the same letter do not significantly differ (p=0.05, LSD)

98 DA-PRE, 47 DA-POST, July 22nd, 2020 (2/2)								
Trt No.	Treatment	Application Timing	Rate	Perennial Grass Weed Cover (%)	Annual Grass Weed Cover (%)	Total Grass Weed Cover (%)	Broadleaf Weed Cover (%)	Total Weed Cover (%)
1	UTC	-	-	6 -	6 d	11 de	64 ab	76 f
2	Method 240SL	PRE	1 fl oz/A	24 -	54 c	78 bc	12 c	91 abc
3	Method 240SL	PRE	2 fl oz/A	8 -	79 ab	88 abc	4 cd	92 ab
4	Method 240SL	PRE	4 fl oz/A	9 -	85 a	94 a	2 cd	96 a
5	Esplanade	PRE	1 fl oz/A	5 -	14 d	20 de	53 b	73 ef
6	Esplanade	PRE	2 fl oz/A	5 -	2 d	7 e	72 a	79 cde
7	Esplanade	PRE	4 fl oz/A	6 -	9 d	15 de	62 ab	77 def
8	Journey	PRE	5.35 fl oz/A	6 -	14 d	20 d	54 b	74 ef
9	Method 240SL	POST	1 fl oz/A	8 -	68 abc	76 c	5 cd	82 b-e
10	Method 240SL	POST	2 fl oz/A	2 -	60 bc	86 abc	2 cd	88 a-d
11	Method 240SL	POST	4 fl oz/A	15 -	74 abc	89 ab	0.8 d	90 abc
12	Plateau	POST	1.84 fl oz/A	7 -	2 d	10 de	56 b	66 f
Statistics								
LSD P=.05				17.23	21.74	12.58	11.59	12.30
Standard Deviation				11.97	15.11	8.75	8.05	8.55
CV				113.36	38.68	17.63	24.83	10.42
Treatment Prob(F)				0.1771	0.0001	0.0001	0.0001	0.0001

Note: Treatments labelled with the same letter do not significantly differ (p=0.05, LSD)

148 DA-PRE, 97 DA-POST, September 10th, 2020 (1/2)						
Trt No.	**Treatment**	**Application Timing**	**Rate**	**Native Broadleaf Cover (%)**	**Native Grass Cover (%)**	**Bareground/ Litter Cover (%)**
1	UTC	-	-	2 -	15 -	2.5 -
2	Method 240SL	PRE	1 fl oz/A	1 -	15 -	1.5 -
3	Method 240SL	PRE	2 fl oz/A	0.5 -	20 -	1.8 -
4	Method 240SL	PRE	4 fl oz/A	1 -	16 -	1 -
5	Esplanade	PRE	1 fl oz/A	1 -	10 -	1 -
6	Esplanade	PRE	2 fl oz/A	2 -	8 -	1.3 -
7	Esplanade	PRE	4 fl oz/A	1 -	4 -	1.8 -
8	Journey	PRE	5.35 fl oz/A	0 -	6 -	2.3 -
9	Method 240SL	POST	1 fl oz/A	2 -	13 -	1.3 -
10	Method 240SL	POST	2 fl oz/A	3 -	22 -	1.5 -
11	Method 240SL	POST	4 fl oz/A	0 -	18 -	1.3 -
12	Plateau	POST	1.84 fl oz/A	2 -	16 -	1.5 -
Statistics						
LSD P=.05				2.74	1.6	1.36
Standard Deviation				1.91	1.11	0.94
CV				147.68	59.14	61.24
Treatment Prob(F)				0.5856	0.3725	0.4993

Note: Treatments labelled with the same letter do not significantly differ (p=0.05, LSD)

148 DA-PRE, 97 DA-POST, September 10th, 2020 (2/2)								
Trt No.	**Treatment**	**Application Timing**	**Rate**	**Perennial Grass Weed Cover (%)**	**Annual Grass Weed Cover (%)**	**Total Grass Weed Cover (%)**	**Broadleaf Weed Cover (%)**	**Total Weed Cover (%)**
1	UTC	-	-	0.5 -	73 bcd	74 bcd	6.5 bcd	80 -
2	Method 240SL	PRE	1 fl oz/A	0 -	71 cd	71 cd	11.3 ab	82 -
3	Method 240SL	PRE	2 fl oz/A	0 -	65 d	65 d	12.5 a	78 -
4	Method 240SL	PRE	4 fl oz/A	0 -	76 a-d	76 a-d	6 cd	82 -
5	Esplanade	PRE	1 fl oz/A	0 -	81 abc	81 abc	6.3 bcd	88 -
6	Esplanade	PRE	2 fl oz/A	0 -	84 abc	84 abc	5.8 cd	90 -
7	Esplanade	PRE	4 fl oz/A	0 -	86 ab	86 ab	5.8 cd	92 -
8	Journey	PRE	5.35 fl oz/A	0 -	88 a	88 a	3.5 cd	92 -
9	Method 240SL	POST	1 fl oz/A	0 -	76 a-d	76 a-d	8 abc	84 -
10	Method 240SL	POST	2 fl oz/A	0.5 -	64 d	65 d	7.8 a-d	73 -
11	Method 240SL	POST	4 fl oz/A	0 -	78 a-d	78 a-d	2.8 d	80 -
12	Plateau	POST	1.84 fl oz/A	0.5 -	76 a-d	76 a-d	3.5 cd	80 -
Statistics								
LSD P=.05				0.71	13.86	14.06	5.1	12.91
Standard Deviation				0.49	9.63	9.77	3.54	8.97
CV				395.94	12.56	12.72	53.47	10.75
Treatment Prob(F)				0.6077	0.0205	0.0272	0.0115	0.1036

Note: Treatments labelled with the same letter do not significantly differ (p=0.05, LSD)

406 DA-PRE, 355-DA POST, May 26th, 2021									
Trt No.	**Treatment**	**Application Timing**	**Rate**	**Native Broadleaf Cover (%)**	**Perennial Broadleaf Cover (%)**	**Grass Weeds Cover (%)**	**Native Grass Cover (%)**	**Bareground/ Litter Cover (%)**	**Total Weed Cover (%)**
1	UTC	-	-	8.3 a	28.8 abc	35.3 c	1.8 -	26.3 -	63.8 -
2	Method 240SL	PRE	1 fl oz/A	4.8 bc	20.5 bcd	49.5 abc	1.5 -	23.8 -	70 -
3	Method 240SL	PRE	2 fl oz/A	5.3 abc	22.5 bcd	40 bc	2.3 -	30 -	62.5 -
4	Method 240SL	PRE	4 fl oz/A	1.0 de	14.3 d	47 bc	1.5 -	36.3 -	61.3 -
5	Esplanade	PRE	1 fl oz/A	6.8 ab	38.8 a	33.8 c	0.8 -	20 -	72.5 -
6	Esplanade	PRE	2 fl oz/A	3.8 bcd	32.5 ab	42.5 bc	1.3 -	20 -	75 -
7	Esplanade	PRE	4 fl oz/A	4.3 bc	28.8 abc	38 c	1.5 -	27.5 -	66.8 -
8	Journey	PRE	5.35 fl oz/A	4.3 bc	36.3 a	38.3 c	1.3 -	20 -	74.5 -
9	Method 240SL	POST	1 fl oz/A	3.5 cd	20.5 bcd	51 abc	1.3 -	23.8 -	71.5 -
10	Method 240SL	POST	2 fl oz/A	2.5 cde	10.0 d	67.5 a	2.5 -	17.5 -	77.5 -
11	Method 240SL	POST	4 fl oz/A	0.3 e	16.8 cd	58 ab	1.3 -	23.8 -	74.8 -
12	Plateau	POST	1.84 fl oz/A	6.8 ab	30.0 ab	41.8 bc	1.5 -	20 -	71.8 -
Statistics									
LSD P=0.05				3.12	13.06	18.78	1.71	12.45	12.51
Standard Deviation				2.17	9.08	13.06	1.19	8.65	8.7
CV				50.8	36.38	28.89	78.07	35.96	12.4
Treatment Prob(F)				0.0003	0.0012	0.0291	0.7923	0.1769	0.1681

Note: Treatments labelled with the same letter do not significantly differ (p=0.05, LSD)

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406 DA-PRE, 355-DA POST, May 26th, 2021								
Trt No.	Treatment	App. Timing	Rate	Black-eyed Susan (#/m^2)	Wild Bergamot (#/m^2)	Cup Plant (#/m^2)	Yellow Coneflower (#/m^2)	Oxeye Sunflower (#/m^2)
1	UTC	-	-	0.343 a	0.46 a	0.01 -	0.16 ab	0.063 -
2	Method 240SL	PRE	1 fl oz/A	0.293 abc	0.29 abc	0.01 -	0.033 c	0.023 -
3	Method 240SL	PRE	2 fl oz/A	0.215 a-d	0.365 ab	0.01 -	0.053 bc	0.023 -
4	Method 240SL	PRE	4 fl oz/A	0.065 d	0.063 d	0.01 -	0.033 c	0.023 -
5	Esplanade	PRE	1 fl oz/A	0.323 a	0.248 bc	0 -	0.15 ab	0.065 -
6	Esplanade	PRE	2 fl oz/A	0.3 ab	0.14 cd	0 -	0.088 bc	0.01 -
7	Esplanade	PRE	4 fl oz/A	0.353 a	0.053 d	0 -	0.098 bc	0.033 -
8	Journey	PRE	5.35 fl oz/A	0.378 a	0.14 cd	0.01 -	0.098 bc	0.065 -
9	Method 240SL	POST	1 fl oz/A	0.098 bcd	0.31 abc	0 -	0.03 c	0.043 -
10	Method 240SL	POST	2 fl oz/A	0.075 cd	0.195 bcd	0 -	0.053 bc	0.02 -
11	Method 240SL	POST	4 fl oz/A	0.023 d	0.043 d	0 -	0.023 c	0.01 -
12	Plateau	POST	1.84 fl oz/A	0.365 a	0.463 a	0 -	0.218 a	0.03 -
Statistics								
LSD P=0.05				0.2225	0.1808	0.0169	0.1128	0.0647
Standard Deviation				0.1546	0.1257	0.0118	0.0784	0.0450
CV				65.63	54.49	282.33	91.12	133.22
Treatment Prob(F)				0.0073	0.0001	0.6695	0.0207	0.6195

Note: Treatments labelled with the same letter do not significantly differ (p=0.05, LSD)

Renz Weed Science
COLLEGE OF AGRICULTURAL & LIFE SCIENCES
UNIVERSITY OF WISCONSIN-MADISON

Extension
UNIVERSITY OF WISCONSIN-MADISON

450 DA-PRE, 399 DA-POST, July 9th, 2021											
Trt No.	**Treatment**	**App. Timing**	**Rate**	**Native Broadleaf Cover (%)**	**Annual Broadleaf Cover (%)**	**Perennial Broadleaf Cover (%)**	**Native Grass Cover (%)**	**Annual Grass Weed Cover (%)**	**Perennial Grass Weed Cover (%)**	**Bareground / Litter Cover (%)**	**Total weed cover (%)**
1	UTC	-	-	13.5 abc	1.3 d	14.3 a-d	3.5 -	1.3 -	54.5 -	11.8 -	71.3 cde
2	Method 240SL	PRE	1 fl oz/A	6.8 abc	1 d	8.8 a-e	2.8 -	0.8 -	63.8 -	16.3 -	74.3 b-e
3	Method 240SL	PRE	2 fl oz/A	7.3 def	2.5 d	7.5 b-e	4.5 -	0.8 -	64.5 -	13 -	75.3 a-e
4	Method 240SL	PRE	4 fl oz/A	1.5 ef	4 cd	4 de	5 -	1 -	75.8 -	8.8 -	84.8 abc
5	Esplanade	PRE	1 fl oz/A	15.5 a	1.8 d	19.8 a	4.3 -	1.5 -	43.8 -	13.5 -	66.8 e
6	Esplanade	PRE	2 fl oz/A	6 def	1.8 d	11.3 a-e	3.8 -	2.3 -	58.3 -	16.8 -	73.5 b-e
7	Esplanade	PRE	4 fl oz/A	7.5 cde	7.8 bcd	16.3 ab	2.3 -	1.3 -	50 -	15 -	75.3 a-e
8	Journey	PRE	5.35 fl oz/A	8.8 bcd	2 d	15.5 abc	2.8 -	0.5 -	56 -	14.5 -	74 b-e
9	Method 240SL	POST	1 fl oz/A	5.5 def	13.8 bc	4.5 cde	5 -	1 -	64 -	6.3 -	83.3 a-d
10	Method 240SL	POST	2 fl oz/A	2.8 def	15.8 b	1.8 e	5 -	1 -	69.8 -	4 -	88.3 a
11	Method 240SL	POST	4 fl oz/A	1.3 f	26.8 a	1 e	8.5 -	1 -	57.5 -	4 -	86.3 ab
12	Plateau	POST	1.84 fl oz/A	13.8 ab	1.5 d	8 b-e	3.5 -	1.8 -	58.5 -	13 -	69.8 de
Statistics											
LSD P=0.05				6.17	9.97	11.32	3.79	1.19	21.2	10.22	13.8
Standard deviation				4.29	6.93	7.87	2.63	0.83	14.73	7.10	9.59
CV				57.2	104.27	83.92	62.25	70.78	24.69	62.34	12.48
Treatment Prob(F)				0.0002	0.0001	0.0264	0.1582	0.2397	0.2358	0.1334	0.0470

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