

HFL17FeGrowthStage - Efficacy of Fiesta applied at three doses in two spray volumes.

Objective: to evaluate the utility of Fiesta herbicide for control of seedling broadleaf weeds common in container nursery crops. Specifically to compare the efficacy of FeHEDTA (Fiesta) applied at 3 doses and two spray volumes. Secondarily, to compare the efficacy of FeHEDTA with FeSO₄.

Fiesta (Fe-HEDTA) was applied at three doses, 25, 50, and 100 oz product per 1000 ft², each at two spray carrier volumes of 50 or 200 GPA. Fiesta was applied 3 times at 14-day intervals. Weeds included in the experiment were established and seedling yellow woodsorrel (*Oxalis dillenii*) and bittercress (*Cardamine flexuosa*). Seedling (rosette stage) spiny sowthistle (*Sonchus asper*) was also included. The experiment was repeated with seedling and mature woodsorrel, bittercress, common groundsel (*Senecio vulgaris*), henbit (*Lamium amplexicaule*), and eclipta (*Eclipta prostrata*). Because in the first run of the experiment no differences were observed between carrier volumes of 50 and 200 GPA, in the 2nd run of the study only the 50 GPA carrier volume was used. As Fiesta is an expensive product, equivalent doses of FeSO₄ were included to determine if the less expensive FeSO₄ would be effective.

In the second run of the experiment, Fiesta and FeSO₄ were applied to either 3-week-old or 5-week old seedlings. Pots were seeded on August 2nd and treated starting September 7th (5 weeks old) and compared to plants seeded August 21st and treated starting 3 weeks later on September 10. Although, there was only 2 weeks difference between the timings, there were significant differences in the size and maturity of plants. Three-week-old plants were generally less than 3 inches tall with 2 to 5 true leaves. Five-week old plants were up to 12 inches tall, branched and many were flowering. In addition, some liriope plants heavily infested with yellow woodsorrel were included. The oxalis in the liriope pots was more than six months old.

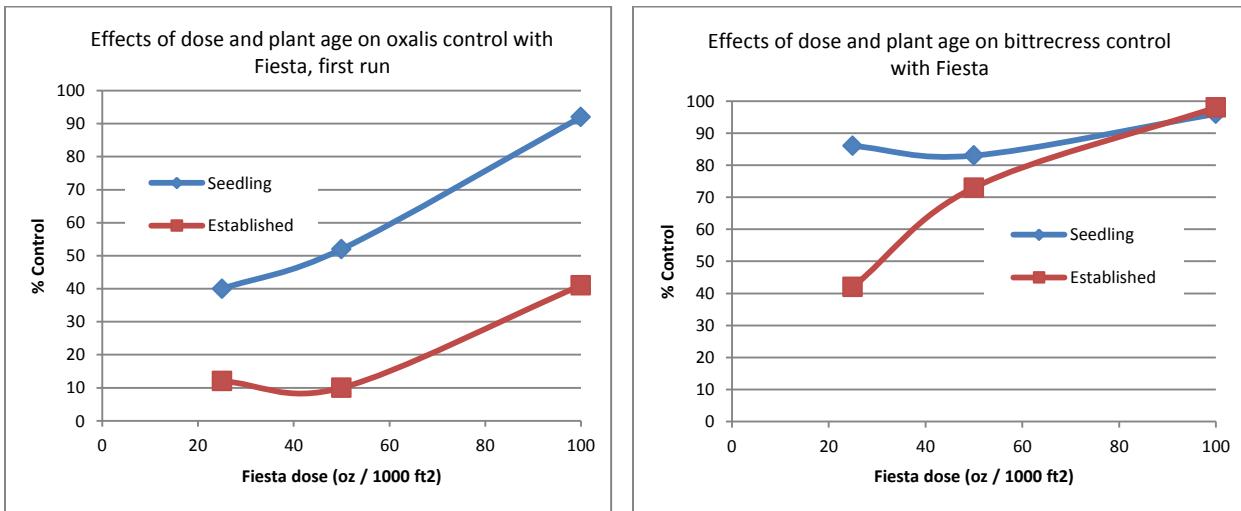
Weed species	Seedlings	Mature plants
Flexuous bittercress, <i>Cardamine flexuosa</i>	1-2" tall; 4 true leaves	8-12" tall x 8-10" spread; seeding
Eclipta, <i>Eclipta prostrata</i>	1" tall; 2-4 true leaves	10" tall x 8-10" spread
Henbit, <i>Lamium amplexicaule</i>	2-3" tall; 3-5 true leaves	4" tall x 8-10" spread; draping out of pots; beginning to flower
Yellow woodsorrel, <i>Oxalis dillenii</i>	1" tall or less; 2-6 true leaves	4-6" tall x 4-8" spread; flowering to seed pod
Common groundsel, <i>Senecio vulgaris</i>	1-2" tall; 2 true leaves	8-10" tall x 12-18" spread; 40% flowering

Weed control was evaluated 1, 3, 5 and 7 days after each treatment and evaluations continued for at least 4 weeks after the third application. Percent control was visually estimated. Above-ground fresh weights of surviving weeds was measured where possible.

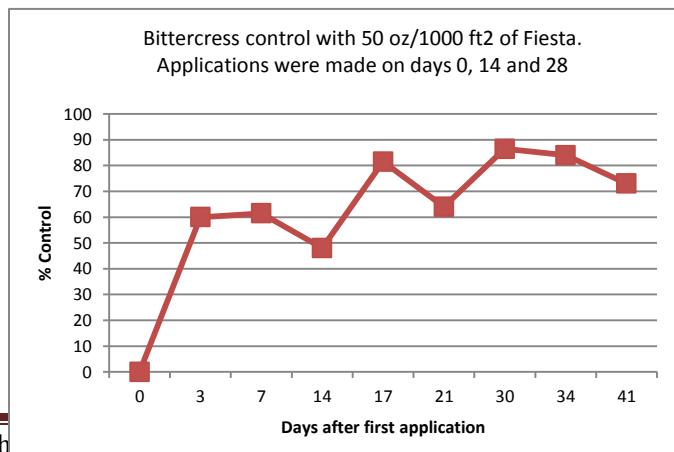


Seedling weed control with FeHEDTA experiment. On the right, nontreated plants ~4 weeks after the 3rd application.

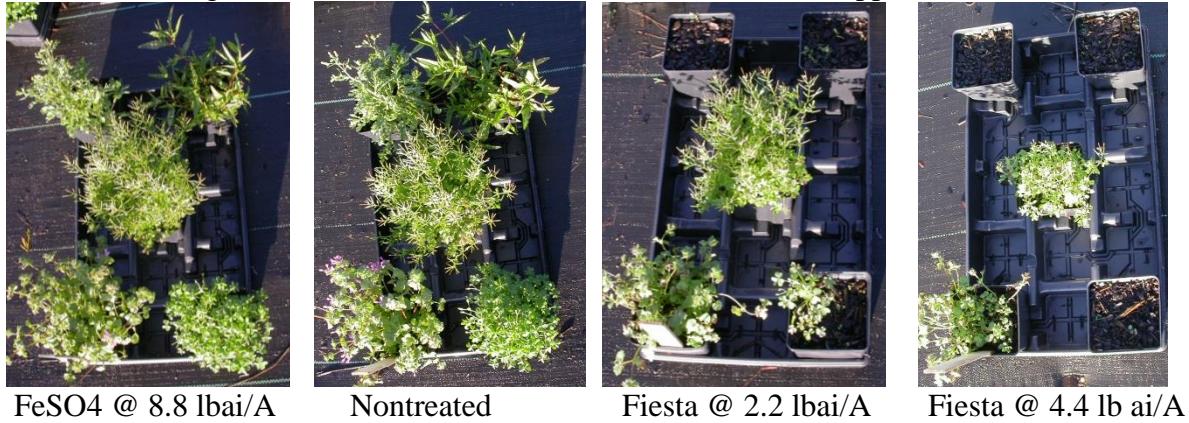
Results from the first experiment confirmed prior research that no significant differences were observed between carrier volumes between 50 and 200 GPA. Fiesta dose and plant age impacted the efficacy on wood sorrel and bittercress. Established wood sorrel was injured by high doses of Fiesta but recovered rapidly. Seedling oxalis was not well controlled by the lowest dose but was controlled over 95% by 100 oz / 1000 ft² Fiesta applied 3 times at 2-week intervals. Both seedling and mature bittercress were well controlled by 100 oz/1000 ft² of Fiesta but lower doses were less effective on established bittercress. See figures below.



Multiple applications are needed to provide complete control of weeds. When weeds were actively growing (as was the case in this study) re-growth after treatment was rapid. Applications at 2 week intervals resulted in some re-growth before the next application. In the following figure one can see the trend of bittercress injury and recovery between applications.



FeSO_4 did not control broadleaf weeds, even at the highest dose tested. Therefore, data for these treatments are not presented. The photos below are of the “seedling” control experiment about 3 weeks after the 3rd and final treatment. Weed species clockwise from the top left are: groundsel, eclipta, oxalis, henbit, and bittercress in the center. Photos left to right are flats treated with FeSO_4 at the highest dose of 8.8 lb Fe/A, nontreated, then Fiesta applied at 2.2 and 4.4 lb Fe/A.



Plant age dramatically affected control of henbit and oxalis with Fiesta, but not bittercress, eclipta or groundsel (see Table 1). Groundsel was very sensitive to Fiesta with complete control even at the lowest dose tested. Essentially complete control of groundsel was achieved with a single application of Fiesta. Three-week-old oxalis was well controlled by a single application but regrowth was observed in plants treated with the lowest dose. No other weed species tested were controlled by a single application of Fiesta.

Table 1. Comparison of Fiesta efficacy on 3-week vs. 5-week old seedling broadleaf weeds in containers. Percent weed control evaluated 27 days after the 3rd Fiesta application.

Fiesta dose (oz/1000 ft ²)	groundsel		eclipta		oxalis		henbit		bittercress	
	3-wk	5-wk	3-wk	5-wk	3-wk	5-wk	3-wk	5-wk	3-wk	5-wk
25	100	100	82 b	68 b	67 b	5	20 b	73	48 b	55 b
50	100	100	97 a	95 a	98 a	0	34 b	100	55 b	70 ab
100	100	100	100 a	100 a	100 a	3	78 a	100	97 a	100 a

Eclipta was well controlled by Fiesta but 3 applications at 50 oz/1000 ft² were required to maintain greater than 90% control. Oxalis was well controlled when applications were made to 3-week old seedlings, but 5-week-old seedlings were not controlled. Fiesta “burned off” the foliage but older plants re-grew rapidly. In contrast, 3-week old henbit plants treated with Fiesta were damaged then grew back; but 5-week-old plants were completely controlled by Fiesta applied at 50 oz/1000 ft². This finding was particularly surprising but may explain variable results in previous experiments with this species.

Bittercress plant age did not alter Fiesta efficacy. Percent control improved with increasing Fiesta dose. In this study the highest dose of 100 oz/1000 ft² was required to achieve complete control.



Fiesta @ 8.8 lb ai/A applied to 3-week old seedlings (left) vs 5-week old seedlings (right). Photos were taken about 2 weeks after the 2nd application. In these photos regrowth is visible in henbit, bittercress, and eclipta. These photos also clearly show the differential in efficacy on seedling vs. mature oxalis.

These results indicate that Fiesta may be a useful tool to control Asteracea weeds such as groundsel, eclipta, sowthistle, and horseweed (based on prior research). It may also suppress other common weeds such as bittercress but will not be a solution for controlling established oxalis. Multiple applications will be necessary to achieve complete control of most susceptible weeds with the exception of common groundsel.

Companion research on the safety of Fiesta applied over the top of ornamental grasses and coniferous nursery crops is on-going.

03/15/18 (HFL17FeGrowthStgYoung)

AOV Means Table Page 1 of 9

North Carolina State University

FeHEDTA and FeSO₄ Efficacy on Newly-emerged Seedling Broadleaf Weeds

Trial ID: HFL17FeGrowthStgYoung Protocol ID: HFL17FeGrowthStg
 Location: HFL, Raleigh NC Study Director: C. Harlow
 Investigator: Joseph C. Neal, Ph.D.

Pest Type	W Weed					
Pest Code	LAMAM2	LAMAM2	LAMAM2	LAMAM2	LAMAM2	LAMAM2
Pest Name	Henbit	Henbit	Henbit	Henbit	Henbit	Henbit
Rating Date	09/11/17	09/17/17	09/25/17	09/27/17	10/02/17	10/06/17
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	0-10	0-10	0-10	0-10	0-10	0-10
Days After First/Last Applic.	1 1	7 7	15 1	17 3	22 8	26 12
Trt-Eval Interval	1 DA-A	7 DA-A	1 DA-B	3 DA-B	8 DA-B	12 DA-B
Trt Treatment	Form	Form	Form	Rate		
No. Name	Conc	Unit	Type	Rate	Unit	
1 nontreated				1	6	11
				0.0 d	0.0 c	0.0 d
2 FeHEDTA (Fiesta)	61.6	G/L	L	4.4	lb ai/a	2.8 b
3 FeHEDTA (Fiesta)	61.6	G/L	L	8.8	lb ai/a	4.2 a
4 FeHEDTA (Fiesta)	61.6	G/L	L	17.6	lb ai/a	4.2 a
5 FeSO ₄	20 %	SP		4.4	lb ai/a	1.0 c
6 FeSO ₄	20 %	SP		8.8	lb ai/a	1.0 c
7 FeSO ₄	20 %	SP		17.6	lb ai/a	1.0 c
LSD (P=.05)				0.65	0.83	0.88
Standard Deviation				0.55	0.70	0.74
CV				27.42	47.44	32.52
Replicate F				2.119	3.107	1.966
Replicate Prob(F)				0.0905	0.0224	0.1128
Treatment F				55.464	31.990	70.172
Treatment Prob(F)				0.0001	0.0001	0.0001

03/15/18 (HFL17FeGrowthStgYoung)

AOV Means Table Page 2 of 9

North Carolina State University

Pest Type	W Weed					
Pest Code	LAMAM2	LAMAM2	LAMAM2	LAMAM2	LAMAM2	LAMAM2
Pest Name	Henbit	Henbit	Henbit	Henbit	Henbit	Henbit
Rating Date	10/08/17	10/10/17	10/13/17	10/21/17	10/30/17	11/03/17
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	0-10	0-10	0-10	0-10	0-10	0-10
Days After First/Last Applic.	28 1	30 3	33 6	41 14	50 23	54 27
Trt-Eval Interval	1 DA-C	3 DA-C	6 DA-C	14 DA-C	23 DA-C	27 DA-C
Trt Treatment	Form	Form	Form	Rate		
No. Name	Conc	Unit	Type	Rate	Unit	
1 nontreated				31	36	41
				0.0 e	0.0 d	0.0 d
2 FeHEDTA (Fiesta)	61.6	G/L	L	4.4	lb ai/a	3.8 c
3 FeHEDTA (Fiesta)	61.6	G/L	L	8.8	lb ai/a	5.0 b
4 FeHEDTA (Fiesta)	61.6	G/L	L	17.6	lb ai/a	7.8 a
5 FeSO ₄	20 %	SP		4.4	lb ai/a	1.0 d
6 FeSO ₄	20 %	SP		8.8	lb ai/a	1.0 d
7 FeSO ₄	20 %	SP		17.6	lb ai/a	1.0 d
LSD (P=.05)				0.96	1.09	1.36
Standard Deviation				0.81	0.92	1.15
CV				28.89	25.7	30.39
Replicate F				1.186	2.029	6.162
Replicate Prob(F)				0.3396	0.1030	0.0005
Treatment F				74.084	72.309	53.201
Treatment Prob(F)				0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

FeHEDTA and FeSO₄ Efficacy on Established Broadleaf Weeds							
Trial ID: HFL17FeGrowthStg Location: HFL, Raleigh NC		Protocol ID: HFL17FeGrowthStg Study Director: C. Harlow Investigator: Joseph C. Neal, Ph.D.					

Pest Type		W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code		LAMAM	LAMAM	LAMAM	LAMAM	LAMAM	LAMAM
Pest Name		Henbit	Henbit	Henbit	Henbit	Henbit	Henbit
Crop Name							
Rating Date	09/08/17	09/10/17	09/14/17	09/20/17	09/23/17	09/25/17	09/29/17
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Days After First/Last Applic.	1 1	3 3	7 7	13 13	16 1	18 3	22 7
Trt-Eval Interval	1 DA-A	3 DA-A	7 DA-A	13 DA-A	1 DA-B	3 DA-B	7 DA-B
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit	
1	nontreated				1	7	13
2	FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	1.8 c	2.7 c	2.8 c
3	FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	2.8 b	4.0 b	4.0 b
4	FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	4.0 a	6.7 a	7.0 a
LSD (P=.05)					0.92	0.77	0.79
Standard Deviation					0.75	0.62	0.64
CV					34.4	18.71	18.48
Replicate F					0.480	2.486	1.327
Replicate Prob(F)					0.7858	0.0787	0.3057
Treatment F					31.000	118.857	123.367
Treatment Prob(F)					0.0001	0.0001	0.0001

North Carolina State University

Pest Type		W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code		LAMAM	LAMAM	LAMAM	LAMAM	LAMAM	LAMAM
Pest Name		Henbit	Henbit	Henbit	Henbit	Henbit	Henbit
Crop Name							
Rating Date	10/05/17	10/06/17	10/08/17	10/13/17	10/20/17	10/27/17	11/02/17
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Days After First/Last Applic.	28 0	29 1	31 3	36 8	43 15	50 22	56 28
Trt-Eval Interval	13 DA-B	1 DA-C	3 DA-C	8 DA-C	15 DA-C	22 DA-C	28 DA-C
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit	
1	nontreated				49	58	67
2	FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	0.0 c	0.0 c	0.0 c
3	FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	5.2 b	6.2 b	8.2 b
4	FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	8.7 a	9.2 a	9.3 a
LSD (P=.05)					2.18	1.77	1.07
Standard Deviation					1.77	1.44	0.87
CV					29.97	23.14	12.89
Replicate F					1.643	0.989	1.443
Replicate Prob(F)					0.2090	0.4566	0.2657
Treatment F					37.191	56.332	163.227
Treatment Prob(F)					0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

03/15/18 (HFL17FeGrowthStgYoung)

AOV Means Table Page 1 of 9

North Carolina State University

FeHEDTA and FeSO₄ Efficacy on Newly-emerged Seedling Broadleaf Weeds

Trial ID: HFL17FeGrowthStgYoung
Location: HFL, Raleigh NC

Protocol ID: HFL17FeGrowthStg
Study Director: C. Harlow
Investigator: Joseph C. Neal, Ph.D.

Pest Type	W Weed				
Pest Code	OXAST2	OXAST2	OXAST2	OXAST2	OXAST2
Pest Name	Common yell>				
Rating Date	09/11/17	09/17/17	09/25/17	09/27/17	10/02/17
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	0-10	0-10	0-10	0-10	0-10
Days After First/Last Applic.	1 1	7 7	15 1	17 3	22 8
Trt-Eval Interval	1 DA-A	7 DA-A	1 DA-B	3 DA-B	8 DA-B
Trt Treatment No. Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit
1 nontreated				2	
2 FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	0.0 c	0.0 d
3 FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	4.7 b	9.1 b
4 FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	6.3 a	9.9 a
5 FeSO ₄	20 %	SP	4.4 lb ai/a	6.5 a	10.0 a
6 FeSO ₄	20 %	SP	8.8 lb ai/a	0.2 c	0.8 c
7 FeSO ₄	20 %	SP	17.6 lb ai/a	0.0 c	0.8 c
LSD (P=.05)				1.41	0.54
Standard Deviation				1.19	0.26
CV				47.33	0.43
Replicate F				2.269	0.22
Replicate Prob(F)				0.0729	0.43
Treatment F				41.752	10.08
Treatment Prob(F)				0.0001	2.400

03/15/18 (HFL17FeGrowthStgYoung)

AOV Means Table Page 2 of 9

North Carolina State University

Pest Type	W Weed	W Weed	W Weed	W Weed	OXAST2
Pest Code	OXAST2	OXAST2	OXAST2	OXAST2	Common yell>
Pest Name	Common yell>	Common yell>	Common yell>	Common yell>	10/21/17
Rating Date	10/06/17	10/08/17	10/10/17	10/13/17	CONTRO
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	0-10	0-10	0-10	0-10	0-10
Days After First/Last Applic.	26 12	28 1	30 3	33 6	41 14
Trt-Eval Interval	12 DA-B	1 DA-C	3 DA-C	6 DA-C	14 DA-C
Trt Treatment No. Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit
1 nontreated				27	
2 FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	0.0 d	0.0 e
3 FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	8.3 c	8.7 c
4 FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	9.2 b	9.6 b
5 FeSO ₄	20 %	SP	4.4 lb ai/a	10.0 a	10.0 a
6 FeSO ₄	20 %	SP	8.8 lb ai/a	0.5 d	0.0 e
7 FeSO ₄	20 %	SP	17.6 lb ai/a	0.0 d	0.0 e
LSD (P=.05)				0.55	0.36
Standard Deviation				0.47	0.46
CV				11.59	1.05
Replicate F				1.358	0.39
Replicate Prob(F)				0.2679	0.89
Treatment F				645.693	22.47
Treatment Prob(F)				0.0001	0.3049

Means followed by same letter do not significantly differ (P=.05, LSD)

03/15/18 (HFL17FeGrowthStgYoung)

AOV Means Table Page 3 of 9

North Carolina State University

Pest Type		OXAST2	OXAST2
Pest Code		Common yell>	Common yell>
Pest Name		10/30/17	11/03/17
Rating Date		CONTRO	CONTRO
Rating Data Type		0-10	0-10
Rating Unit		50 23	54 27
Days After First/Last Applic.		23 DA-C	27 DA-C
Trt-Eval Interval			
Trt Treatment No.	Form Conc	Form Unit	Rate Unit
			52
1 nontreated		0.0 c	0.0 c
2 FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a
3 FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a
4 FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a
5 FeSO4	20 %	SP	4.4 lb ai/a
6 FeSO4	20 %	SP	8.8 lb ai/a
7 FeSO4	20 %	SP	17.6 lb ai/a
LSD (P=.05)		1.00	1.24
Standard Deviation		0.84	1.05
CV		21.75	26.65
Replicate F		1.717	1.991
Replicate Prob(F)		0.1611	0.1087
Treatment F		198.987	119.506
Treatment Prob(F)		0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

03/15/18 (HFL17FeGrowthStg)

AOV Means Table Page 1 of 8

North Carolina State University

FeHEDTA and FeSO4 Efficacy on Established Broadleaf Weeds						
Trial ID: HFL17FeGrowthStg Location: HFL, Raleigh NC			Protocol ID: HFL17FeGrowthStg Study Director: C. Harlow Investigator: Joseph C. Neal, Ph.D.			
Pest Type			W Weed OXAST	W Weed OXAST	W Weed OXAST	W Weed OXAST
Pest Code			Common yell>	Common yell>	Common yell>	Common yell>
Pest Name			09/08/17	09/10/17	09/14/17	09/20/17
Crop Name			CONTRO	CONTRO	CONTRO	CONTRO
Rating Date			0-10	0-10	0-10	0-10
Rating Data Type			1 1	3 3	7 7	13 13
Rating Unit			1 DA-A	3 DA-A	7 DA-A	13 DA-A
Days After First/Last Applic.						
Trt-Eval Interval						
Trt Treatment No.	Form Conc	Form Unit	Rate Unit	2	8	14
						20
1 nontreated		0.0 c	0.0 d	0.0 c	0.0 b	
2 FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	1.0 b	2.3 c	2.2 b
3 FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	1.0 b	3.8 b	3.2 b
4 FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	1.8 a	5.5 a	2.5 a
LSD (P=.05)			0.79	1.47	1.20	1.46
Standard Deviation			0.64	1.19	0.98	1.19
CV			66.68	40.89	37.84	113.93
Replicate F			0.347	1.172	2.791	0.953
Replicate Prob(F)			0.8763	0.3679	0.0563	0.4764
Treatment F			8.265	23.008	27.267	5.000
Treatment Prob(F)			0.0018	0.0001	0.0001	0.0134

Means followed by same letter do not significantly differ (P=.05, LSD)

03/15/18 (HFL17FeGrowthStg)

AOV Means Table Page 2 of 8

North Carolina State University

Pest Type	W Weed OXAST	W Weed OXAST	W Weed OXAST	W Weed OXAST						
Pest Code	Common yell>	Common yell>	Common yell>	Common yell>						
Pest Name										
Crop Name										
Rating Date	09/23/17	09/25/17	09/29/17	10/05/17						
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO						
Rating Unit	0-10	0-10	0-10	0-10						
Days After First/Last Applic.	16 1	18 3	22 7	28 0						
Trt-Eval Interval	1 DA-B	3 DA-B	7 DA-B	13 DA-B						
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit				
1	nontreated				26		32		41	50
2	FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb	ai/a		0.0 b	0.0 c	0.0 b	0.0 a
3	FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb	ai/a		1.0 b	1.0 bc	0.2 b	0.0 a
4	FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb	ai/a		3.3 a	2.0 b	1.0 ab	0.0 a
							4.3 a	3.8 a	2.0 a	0.2 a
LSD (P=.05)							1.32	1.53	1.04	0.25
Standard Deviation							1.07	1.24	0.84	0.20
CV							49.61	72.68	106.31	489.9
Replicate F							2.308	1.000	0.624	1.000
Replicate Prob(F)							0.0961	0.4509	0.6844	0.4509
Treatment F							20.962	10.405	7.118	1.000
Treatment Prob(F)							0.0001	0.0006	0.0034	0.4199

03/15/18 (HFL17FeGrowthStg)

AOV Means Table Page 3 of 8

North Carolina State University

Pest Type	W Weed OXAST	W Weed OXAST	W Weed OXAST	W Weed OXAST						
Pest Code	Common yell>	Common yell>	Common yell>	Common yell>						
Pest Name										
Crop Name										
Rating Date	10/06/17	10/08/17	10/13/17	10/20/17						
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO						
Rating Unit	0-10	0-10	0-10	0-10						
Days After First/Last Applic.	29 1	31 3	36 8	43 15						
Trt-Eval Interval	1 DA-C	3 DA-C	8 DA-C	15 DA-C						
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit				
1	nontreated				59		68		74	83
2	FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb	ai/a		0.0 c	0.0 c	0.0 c	0.0 b
3	FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb	ai/a		0.7 bc	2.0 b	1.2 b	1.0 ab
4	FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb	ai/a		1.5 ab	2.5 ab	1.8 ab	0.8 ab
							2.7 a	3.3 a	2.3 a	2.0 a
LSD (P=.05)							1.35	0.96	0.85	1.50
Standard Deviation							1.09	0.78	0.69	1.21
CV							90.55	39.83	51.84	126.65
Replicate F							2.039	2.534	3.279	1.657
Replicate Prob(F)							0.1309	0.0745	0.0337	0.2095
Treatment F							6.624	19.795	12.791	2.743
Treatment Prob(F)							0.0046	0.0001	0.0002	0.0825

Means followed by same letter do not significantly differ (P=.05, LSD)

North Carolina State University

Pest Code		OXAST	OXAST	OXAST
Pest Name		Common yell>	Common yell>	Common yell>
Rating Date		10/20/17	10/27/17	11/2/17
Rating Data Type		CONTRO	CONTRO	CONTRO
Rating Unit		0-10	0-10	0-10
Days After First/Last Applic.		43 15	50 22	56 28
Trt-Eval Interval		15 DA-C	22 DA-C	28 DA-C
Trt No.	Treatment Name	Form Conc	Form Type	Rate Unit
1	nontreated			83
2	FeHEDTA (Fiesta)	61.6 L	4.4 lb ai/a	0.0 b
3	FeHEDTA (Fiesta)	61.6 L	8.8 lb ai/a	1.0 ab
4	FeHEDTA (Fiesta)	61.6 L	17.6 lb ai/a	0.8 ab
5	FeSO4	20 SP	4.4 lb ai/a	2.0 a
6	FeSO4	20 SP	8.8 lb ai/a	0.2 b
7	FeSO4	20 SP	17.6 lb ai/a	0.5 b
LSD (P=.05)				0.0 a
Standard Deviation				0.5 a
CV				0.0 a
Replicate F				0.0 a
Replicate Prob(F)				0.0 a
Treatment F				0.0 a
Treatment Prob(F)				0.0 a

Means followed by same letter do not significantly differ (P=.05, LSD)

03/15/18 (HFL17FeGrowthStg)

AOV Means Table Page 1 of 8

North Carolina State University

FeHEDTA and FeSO₄ Efficacy on Well Established (emerged fall 2016, treated Summer 2017) Oxalis

Trial ID: HFL17FeGrowthStg
 Location: HFL, Raleigh NC

Protocol ID: HFL17FeGrowthStg
 Study Director: C. Harlow
 Investigator: Joseph C. Neal, Ph.D.

Pest Type	W Weed	W Weed	OXASTPOT	OXASTPOT
Pest Code	OXASTPOT	OXASTPOT	Common yell>	Common yell>
Pest Name	Common yell>	Common yell>		
Crop Name				
Rating Date	09/08/17	09/10/17	09/14/17	09/20/17
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	0-10	0-10	0-10	0-10
Days After First/Last Applic.	1 1	3 3	7 7	13 13
Trt-Eval Interval	1 DA-A	3 DA-A	7 DA-A	13 DA-A
Trt Treatment	Form	Form	Form	Rate
No. Name	Conc	Unit	Type	Rate Unit
1 nontreated	6			12
2 FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a
3 FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a
4 FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a
LSD (P=.05)			0.75	1.18
Standard Deviation			0.61	0.96
CV			51.9	24.52
Replicate F			0.455	5.602
Replicate Prob(F)			0.8036	0.0042
Treatment F			17.273	54.277
Treatment Prob(F)			0.0001	0.0001

03/15/18 (HFL17FeGrowthStg)

AOV Means Table Page 2 of 8

North Carolina State University

Pest Type	OXASTPOT	OXASTPOT	OXASTPOT	OXASTPOT
Pest Code	Common yell>	Common yell>	Common yell>	Common yell>
Pest Name				
Crop Name				
Rating Date	09/23/17	09/25/17	09/29/17	10/05/17
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	0-10	0-10	0-10	0-10
Days After First/Last Applic.	16 1	18 3	22 7	28 0
Trt-Eval Interval	1 DA-B	3 DA-B	7 DA-B	13 DA-B
Trt Treatment	Form	Form	Form	Rate
No. Name	Conc	Unit	Type	Rate Unit
1 nontreated	30			36
2 FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a
3 FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a
4 FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a
LSD (P=.05)			1.74	1.88
Standard Deviation			1.42	1.53
CV			39.09	72.01
Replicate F			0.734	1.399
Replicate Prob(F)			0.6090	0.2803
Treatment F			30.560	10.694
Treatment Prob(F)			0.0001	0.0005

Means followed by same letter do not significantly differ (P=.05, LSD)

03/15/18 (HFL17FeGrowthStg)

AOV Means Table Page 3 of 8

North Carolina State University

Pest Type		OXASTPOT	OXASTPOT	OXASTPOT	OXASTPOT
Pest Code		Common yell>	Common yell>	Common yell>	Common yell>
Pest Name					
Crop Name					
Rating Date		10/06/17	10/08/17	10/13/17	10/20/17
Rating Data Type		CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit		0-10	0-10	0-10	0-10
Days After First/Last Applic.		29 1	31 3	36 8	43 15
Trt-Eval Interval		1 DA-C	3 DA-C	8 DA-C	15 DA-C
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Unit
1	nontreated			0.0 c	0.0 c
2	FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	1.8 b
3	FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	3.3 b
4	FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	5.7 a
LSD (P=.05)				1.69	2.03
Standard Deviation				1.37	1.65
CV				50.71	35.66
Replicate F				2.249	2.602
Replicate Prob(F)				0.1028	0.0692
Treatment F				18.284	24.203
Treatment Prob(F)				0.0001	0.0001

03/15/18 (HFL17FeGrowthStg)

AOV Means Table Page 4 of 8

North Carolina State University

Pest Type		OXASTPOT	OXASTPOT		
Pest Code		Common yell>	Common yell>		
Pest Name					
Crop Name					
Rating Date		10/27/17	11/02/17		
Rating Data Type		CONTRO	CONTRO		
Rating Unit		0-10	0-10		
Days After First/Last Applic.		50 22	56 28		
Trt-Eval Interval		22 DA-C	28 DA-C		
Trt No.	Treatment Name	Form Conc	Form Unit		
1	nontreated			0.0 b	0.0 b
2	FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	0.2 b
3	FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	1.0 b
4	FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	4.2 a
LSD (P=.05)				2.60	2.35
Standard Deviation				2.11	1.91
CV				158.31	183.48
Replicate F				1.204	1.736
Replicate Prob(F)				0.3539	0.1871
Treatment F				5.062	3.510
Treatment Prob(F)				0.0128	0.0416

Means followed by same letter do not significantly differ (P=.05, LSD)

03/15/18 (HFL17FeGrowthStgYoung)

AOV Means Table Page 1 of 9

North Carolina State University

FeHEDTA and FeSO₄ Efficacy on Newly-emerged Seedling Broadleaf Weeds

Trial ID: HFL17FeGrowthStgYoung
 Location: HFL, Raleigh NC

Protocol ID: HFL17FeGrowthStg
 Study Director: C. Harlow
 Investigator: Joseph C. Neal, Ph.D.

Pest Type		W Weed CARFL2				
Pest Code		Flexuous bi>				
Pest Name		09/11/17	09/17/17	09/25/17	09/27/17	10/02/17
Rating Date		CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Data Type		0-10	0-10	0-10	0-10	0-10
Rating Unit		1 1	7 7	15 1	17 3	22 8
Days After First/Last Applic.		1 DA-A	7 DA-A	1 DA-B	3 DA-B	8 DA-B
Trt-Eval Interval						
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit Unit
					3	8
1	nontreated				0.0 c	0.0 c
2	FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	2.5 b	2.8 b
3	FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	3.2 ab	4.8 a
4	FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	3.8 a	5.7 a
5	FeSO ₄	20 %	SP	4.4 lb ai/a	0.2 c	0.0 d
6	FeSO ₄	20 %	SP	8.8 lb ai/a	0.2 c	0.0 d
7	FeSO ₄	20 %	SP	17.6 lb ai/a	0.5 c	0.5 d
LSD (P=.05)					0.80	0.97
Standard Deviation					0.68	0.83
CV					46.04	51.43
Replicate F					1.938	3.563
Replicate Prob(F)					0.1173	0.0120
Treatment F					34.691	31.750
Treatment Prob(F)					0.0001	0.0001

03/15/18 (HFL17FeGrowthStgYoung)

AOV Means Table Page 2 of 9

North Carolina State University

Pest Type		W Weed CARFL2	W Weed CARFL2	W Weed CARFL2	W Weed CARFL2	CARFL2
Pest Code		Flexuous bi>	Flexuous bi>	Flexuous bi>	Flexuous bi>	Flexuous bi>
Pest Name		10/06/17	10/08/17	10/10/17	10/13/17	10/21/17
Rating Date		CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Data Type		0-10	0-10	0-10	0-10	0-10
Rating Unit		26 12	28 1	30 3	33 6	41 14
Days After First/Last Applic.		12 DA-B	1 DA-C	3 DA-C	6 DA-C	14 DA-C
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit Unit
					28	33
1	nontreated				0.0 d	0.0 e
2	FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	1.8 c	2.7 c
3	FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	3.0 b	3.8 b
4	FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	4.2 a	5.7 a
5	FeSO ₄	20 %	SP	4.4 lb ai/a	0.2 d	1.0 d
6	FeSO ₄	20 %	SP	8.8 lb ai/a	0.0 d	1.0 d
7	FeSO ₄	20 %	SP	17.6 lb ai/a	0.3 d	1.2 d
LSD (P=.05)					0.80	0.87
Standard Deviation					0.68	0.74
CV					50.16	33.78
Replicate F					2.558	1.426
Replicate Prob(F)					0.0483	0.2435
Treatment F					36.610	43.261
Treatment Prob(F)					0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

03/15/18 (HFL17FeGrowthStgYoung)

AOV Means Table Page 3 of 9

North Carolina State University

Pest Type		CARFL2	CARFL2								
Pest Code		Flexuous bi>	Flexuous bi>								
Pest Name		10/30/17	11/03/17								
Rating Date		CONTRO	CONTRO								
Rating Data Type		0-10	0-10								
Rating Unit		50 23	54 27								
Days After First/Last Applic.		23 DA-C	27 DA-C								
Trt-Eval Interval											
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit		53	58		
1	nontreated				0.0	c		0.0	c		
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4	lb ai/a		3.0	b	4.8	b
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8	lb ai/a		2.3	b	5.5	b
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6	lb ai/a		4.8	a	9.7	a
5	FeSO4	20	%	SP	4.4	lb ai/a		0.0	c	0.0	c
6	FeSO4	20	%	SP	8.8	lb ai/a		0.0	c	0.3	c
7	FeSO4	20	%	SP	17.6	lb ai/a		0.0	c	0.3	c
LSD (P=.05)					1.71			1.80			
Standard Deviation					1.45			1.53			
CV					99.93			51.69			
Replicate F					1.992			2.446			
Replicate Prob(F)					0.1086			0.0567			
Treatment F					10.938			37.045			
Treatment Prob(F)					0.0001			0.0001			

Means followed by same letter do not significantly differ (P=.05, LSD)

03/15/18 (HFL17FeGrowthStg)

AOV Means Table Page 1 of 7

North Carolina State University

FeHEDTA and FeSO4 Efficacy on Established Broadleaf Weeds										
Trial ID: HFL17FeGrowthStg Location: HFL, Raleigh NC					Protocol ID: HFL17FeGrowthStg Study Director: C. Harlow Investigator: Joseph C. Neal, Ph.D.					
Pest Type			W Weed CARFL	W Weed CARFL	W Weed CARFL	W Weed CARFL	W Weed CARFL	W Weed CARFL	W Weed CARFL	
Pest Code			Flexuous bi>	Flexuous bi>	Flexuous bi>	Flexuous bi>	Flexuous bi>	Flexuous bi>	Flexuous bi>	
Pest Name										
Crop Name										
Rating Date			09/08/17	09/10/17	09/14/17	09/20/17	09/23/17			
Rating Data Type			CONTRO	CONTRO	CONTRO	CONTRO	CONTRO			
Rating Unit			0-10	0-10	0-10	0-10	0-10			
Days After First/Last Applic.			1 1	3 3	7 7	13 13	16 1			
Trt-Eval Interval			1 DA-A	3 DA-A	7 DA-A	13 DA-A	1 DA-B			
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit				
1	nontreated				0.0	c	0.0	b	0.0	c
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4	lb ai/a	3.8	b	5.5	b
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8	lb ai/a	4.3	b	5.8	b
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6	lb ai/a	6.2	a	7.3	a
LSD (P=.05)					1.41		1.38		1.27	
Standard Deviation					1.15		1.12		1.03	
CV					31.95		24.01		21.01	
Replicate F					1.119		0.770		1.938	
Replicate Prob(F)					0.3920		0.5859		0.1474	
Treatment F					30.720		49.292		61.719	
Treatment Prob(F)					0.0001		0.0001		0.0001	

Means followed by same letter do not significantly differ (P=.05, LSD)

03/15/18 (HFL17FeGrowthStg)

AOV Means Table Page 2 of 7

North Carolina State University

Pest Type	W Weed CARFL	W Weed CARFL	W Weed CARFL	W Weed CARFL	W Weed CARFL
Pest Code	Flexuous bi>	Flexuous bi>	Flexuous bi>	Flexuous bi>	Flexuous bi>
Pest Name					
Crop Name					
Rating Date	09/25/17	09/29/17	10/05/17	10/06/17	10/08/17
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	0-10	0-10	0-10	0-10	0-10
Days After First/Last Applic.	18 3 3 DA-B	22 7 7 DA-B	28 0 13 DA-B	29 1 1 DA-C	31 3 3 DA-C
Trt-Eval Interval					
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Unit
1	nontreated				
2	FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	4.7 b
3	FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	6.3 b
4	FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	9.5 a
LSD (P=.05)					
Standard Deviation					
CV					
Replicate F		0.808		1.169	
Replicate Prob(F)		0.5617		0.3691	
Treatment F		16.272		23.769	
Treatment Prob(F)		0.0001		0.0001	

03/15/18 (HFL17FeGrowthStg)

AOV Means Table Page 3 of 7

North Carolina State University

Pest Type	W Weed CARFL	W Weed CARFL	W Weed CARFL	W Weed CARFL
Pest Code	Flexuous bi>	Flexuous bi>	Flexuous bi>	Flexuous bi>
Pest Name				
Crop Name				
Rating Date	10/13/17	10/20/17	10/27/17	11/02/17
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	0-10	0-10	0-10	0-10
Days After First/Last Applic.	36 8 8 DA-C	43 15 15 DA-C	50 22 22 DA-C	56 28 28 DA-C
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type
1	nontreated			
2	FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a
3	FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a
4	FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a
LSD (P=.05)		3.44	3.40	5.80
Standard Deviation		2.80	2.76	4.21
CV		53.73	52.2	107.95
Replicate F		0.733	0.988	1.006
Replicate Prob(F)		0.6098	0.4570	0.4423
Treatment F		13.613	14.013	2.441
Treatment Prob(F)		0.0001	0.0001	0.1147

Means followed by same letter do not significantly differ (P=.05, LSD)

03/15/18 (HFL17FeGrowthStgYoung)

AOV Means Table Page 1 of 6

North Carolina State University

FeHEDTA and FeSO₄ Efficacy on Newly-emerged Seedling Broadleaf Weeds

Trial ID: HFL17FeGrowthStgYoung
 Location: HFL, Raleigh NC

Protocol ID: HFL17FeGrowthStg
 Study Director: C. Harlow
 Investigator: Joseph C. Neal, Ph.D.

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	ECLAL2	ECLAL2	Eclipta	ECLAL2	Eclipta	ECLAL2
Pest Name	Eclipta	09/17/17	09/25/17	Eclipta	10/02/17	Eclipta
Rating Date	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Data Type	0-10	0-10	0-10	0-10	0-10	0-10
Rating Unit	1	7	15	17	22	26
Days After First/Last Applic.	1 DA-A	7 DA-A	1 DA-B	3 DA-B	8 DA-B	12 DA-B
Trt-Eval Interval						
Trt Treatment No. Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit	
1 nontreated	5	10	15	20	25	30
2 FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	8.3 b	8.2 b	8.5 c
3 FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	9.0 a	9.2 a	9.4 b
4 FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	9.0 a	9.7 a	10.0 a
5 FeSO ₄	20 %	SP	4.4 lb ai/a	0.5 cd	1.2 c	1.2 d
6 FeSO ₄	20 %	SP	8.8 lb ai/a	0.7 c	0.5 cd	1.0 d
7 FeSO ₄	20 %	SP	17.6 lb ai/a	1.0 c	0.3 cd	0.8 d
LSD (P=.05)			0.66	1.03	0.51	0.37
Standard Deviation			0.56	0.87	0.43	0.31
CV			13.73	21.02	9.67	7.12
Replicate F			0.503	1.726	1.656	3.145
Replicate Prob(F)			0.7719	0.1590	0.1758	0.0212
Treatment F			374.492	166.152	684.017	1286.452
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001

03/15/18 (HFL17FeGrowthStgYoung)

AOV Means Table Page 2 of 6

North Carolina State University

Pest Type	W Weed	W Weed	W Weed	ECLAL2	ECLAL2	ECLAL2
Pest Code	ECLAL2	ECLAL2	Eclipta	Eclipta	Eclipta	Eclipta
Pest Name	Eclipta	10/08/17	10/10/17	10/13/17	10/21/17	10/30/17
Rating Date	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Data Type	0-10	0-10	0-10	0-10	0-10	0-10
Rating Unit	28	30	33	41	50	54
Days After First/Last Applic.	1 DA-C	3 DA-C	6 DA-C	14 DA-C	23 DA-C	27 DA-C
Trt Treatment No. Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit	
1 nontreated	35	40	45	50	55	60
2 FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	8.3 b	8.3 b	8.0 b
3 FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	9.5 a	9.6 a	9.7 a
4 FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	10.0 a	10.0 a	10.0 a
5 FeSO ₄	20 %	SP	4.4 lb ai/a	0.3 cd	0.2 cd	0.3 c
6 FeSO ₄	20 %	SP	8.8 lb ai/a	0.7 c	0.3 cd	0.2 c
7 FeSO ₄	20 %	SP	17.6 lb ai/a	0.7 c	0.7 c	0.0 c
LSD (P=.05)			0.59	0.60	0.64	0.70
Standard Deviation			0.50	0.51	0.54	0.60
CV			11.79	12.33	13.48	14.91
Replicate F			2.712	1.657	1.779	1.125
Replicate Prob(F)			0.0388	0.1756	0.1475	0.3685
Treatment F			552.334	537.678	490.020	409.375
Treatment Prob(F)			0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

03/15/18 (HFL17FeGrowthStg)

AOV Means Table Page 1 of 5

North Carolina State University

FeHEDTA and FeSO₄ Efficacy on Established Broadleaf Weeds

Trial ID: HFL17FeGrowthStg
 Location: HFL, Raleigh NC

Protocol ID: HFL17FeGrowthStg
 Study Director: C. Harlow
 Investigator: Joseph C. Neal, Ph.D.

Pest Type	W Weed ECLAL Eclipta						
Pest Code							
Pest Name							
Crop Name							
Rating Date	09/08/17	09/10/17	09/14/17	09/20/17	09/23/17	09/25/17	09/29/17
Rating Data Type	CONTRO						
Rating Unit	0-10	0-10	0-10	0-10	0-10	0-10	0-10
Days After First/Last Applic.	1 1	3 3	7 7	13 13	16 1	18 3	22 7
Trt-Eval Interval	1 DA-A	3 DA-A	7 DA-A	13 DA-A	1 DA-B	3 DA-B	7 DA-B
Trt Treatment No.	Form Conc	Form Unit	Form Type	Rate Rate			
					5	11	17
1 nontreated					0.0 c	0.0 c	0.0 d
2 FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a		4.5 b	6.7 b	6.0 c
3 FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a		6.2 a	7.8 a	7.3 b
4 FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a		6.7 a	8.3 a	8.7 a
LSD (P=.05)					0.92	0.66	1.11
Standard Deviation					0.75	0.53	0.90
CV					17.2	9.37	16.37
Replicate F					2.640	2.243	2.096
Replicate Prob(F)					0.0663	0.1035	0.1226
Treatment F					99.400	313.932	108.219
Treatment Prob(F)					0.0001	0.0001	0.0001

03/15/18 (HFL17FeGrowthStg)

AOV Means Table Page 2 of 5

North Carolina State University

Pest Type	W Weed ECLAL Eclipta					
Pest Code						
Pest Name						
Crop Name						
Rating Date	10/05/17	10/06/17	10/08/17	10/13/17	10/20/17	10/27/17
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	0-10	0-10	0-10	0-10	0-10	0-10
Days After First/Last Applic.	28 0	29 1	31 3	36 8	43 15	50 22
Trt-Eval Interval	13 DA-B	1 DA-C	3 DA-C	8 DA-C	15 DA-C	22 DA-C
Trt Treatment No.	Form Conc	Form Unit	Form Type	Rate Rate		
					53	62
1 nontreated					0.0 d	0.0 c
2 FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a		3.2 c	9.0 b
3 FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a		7.0 b	9.2 ab
4 FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a		9.2 a	9.5 a
LSD (P=.05)					1.14	0.39
Standard Deviation					0.92	0.32
CV					19.14	4.57
Replicate F					0.662	1.667
Replicate Prob(F)					0.6575	0.2032
Treatment F					115.974	1278.334
Treatment Prob(F)					0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

North Carolina State University

FeHEDTA and FeSO₄ Efficacy on Newly-emerged Seedling Broadleaf Weeds

Trial ID: HFL17FeGrowthStgYoung
Location: HFL, Raleigh NC

Protocol ID: HFL17FeGrowthStg
Study Director: C. Harlow
Investigator: Joseph C. Neal, Ph.D.

Pest Type		W Weed SENVU2	W Weed SENVU2	W Weed SENVU2	W Weed SENVU2				
Pest Code		Common group	Common group	Common group	Common group				
Pest Name		09/11/17	09/17/17	09/25/17	09/27/17				
Rating Date		CONTRO	CONTRO	CONTRO	CONTRO				
Rating Data Type		0-10	0-10	0-10	0-10				
Rating Unit		1 1	7 7	15 1	17 3				
Days After First/Last Applic.		1 DA-A	7 DA-A	1 DA-B	3 DA-B				
Trt-Eval Interval									
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate Unit				
						4	9	14	19
1	nontreated					0.0 c	0.0 d	0.0 d	0.0 e
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a	8.7 a	8.8 b	9.2 b	9.2 b
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a	9.0 a	9.8 a	10.0 ab	9.8 a
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a	9.0 a	10.0 a	10.0 a	10.0 a
5	FeSO ₄	20	%	SP	4.4 lb ai/a	0.7 b	0.8 cd	1.7 c	1.0 cd
6	FeSO ₄	20	%	SP	8.8 lb ai/a	0.7 b	0.7 cd	1.3 c	0.8 d
7	FeSO ₄	20	%	SP	17.6 lb ai/a	0.8 b	1.0 c	1.5 c	1.5 c
LSD (P=.05)						0.45	0.93	0.75	0.61
Standard Deviation						0.38	0.79	0.63	0.52
CV						9.33	17.69	13.16	11.25
Replicate F						0.548	0.089	1.427	1.412
Replicate Prob(F)						0.7382	0.9934	0.2431	0.2484
Treatment F						812.419	222.362	321.604	501.471
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001

North Carolina State University

Pest Type		W Weed SENVU2	W Weed SENVU2	W Weed SENVU2	W Weed SENVU2				
Pest Code		Common group	Common group	Common group	Common group				
Pest Name		10/02/17	10/06/17	10/08/17	10/10/17				
Rating Date		CONTRO	CONTRO	CONTRO	CONTRO				
Rating Data Type		0-10	0-10	0-10	0-10				
Rating Unit		22 8	26 12	28 1	30 3				
Days After First/Last Applic.		8 DA-B	12 DA-B	1 DA-C	3 DA-C				
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate Unit				
						24	29	34	39
1	nontreated					0.0 c	0.0 c	0.0 e	0.0 c
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a	9.2 b	8.8 b	9.2 b	9.5 a
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a	9.8 ab	9.7 a	9.9 a	10.0 a
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a	10.0 a	10.0 a	10.0 a	10.0 a
5	FeSO ₄	20	%	SP	4.4 lb ai/a	0.5 c	0.3 c	1.5 c	1.0 b
6	FeSO ₄	20	%	SP	8.8 lb ai/a	0.0 c	0.0 c	1.0 d	0.5 bc
7	FeSO ₄	20	%	SP	17.6 lb ai/a	0.7 c	0.5 c	1.2 cd	1.0 b
LSD (P=.05)						0.69	0.78	0.44	0.58
Standard Deviation						0.59	0.66	0.38	0.49
CV						13.65	15.77	8.04	10.8
Replicate F						1.225	0.873	1.588	0.904
Replicate Prob(F)						0.3219	0.5110	0.1936	0.4913
Treatment F						437.569	341.145	944.160	599.627
Treatment Prob(F)						0.0001	0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

03/15/18 (HFL17FeGrowthStgYoung)

AOV Means Table Page 3 of 9

North Carolina State University

Pest Type		W Weed SENVU2			
Pest Code		SENVU2			
Pest Name		Common grou>			
Rating Date	10/13/17	10/21/17			
Rating Data Type	CONTRO	CONTRO			
Rating Unit	0-10	0-10			
Days After First/Last Applic.	33 6	41 14			
Trt-Eval Interval	6 DA-C	14 DA-C			
Trt Treatment No.	Form Conc	Form Unit	Form Type	Rate Rate	Unit
				44	
1 nontreated				0.0 c	
2 FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	9.8 a	10.0 a
3 FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	10.0 a	10.0 a
4 FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	10.0 a	10.0 a
5 FeSO4	20 %	SP	4.4 lb ai/a	0.5 bc	0.0 b
6 FeSO4	20 %	SP	8.8 lb ai/a	0.3 bc	0.0 b
7 FeSO4	20 %	SP	17.6 lb ai/a	0.7 b	0.4 b
LSD (P=.05)				0.64	0.45
Standard Deviation				0.54	0.35
CV				12.11	7.95
Replicate F				1.492	0.958
Replicate Prob(F)				0.2219	0.4489
Treatment F				535.487	1174.917
Treatment Prob(F)				0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

03/15/18 (HFL17FeGrowthStg)

AOV Means Table Page 1 of 8

North Carolina State University

FeHEDTA and FeSO4 Efficacy on Established Broadleaf Weeds					
Trial ID: HFL17FeGrowthStg		Protocol ID: HFL17FeGrowthStg			
Location: HFL, Raleigh NC		Study Director: C. Harlow			
		Investigator: Joseph C. Neal, Ph.D.			
Pest Type		W Weed SENVU			
Pest Code		Common grou>			
Pest Name					
Crop Name					
Rating Date	09/08/17				
Rating Data Type	CONTRO				
Rating Unit	0-10				
Days After First/Last Applic.	1 1				
Trt-Eval Interval	1 DA-A				
Trt Treatment No.	Form Conc	Form Unit	Form Type	Rate Rate	Unit
				4	
1 nontreated				0.0 b	
2 FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	7.3 a	8.2 a
3 FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	7.2 a	8.7 a
4 FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	7.8 a	8.7 a
LSD (P=.05)				1.01	0.51
Standard Deviation				0.82	0.42
CV				14.75	6.56
Replicate F				1.426	3.286
Replicate Prob(F)				0.2712	0.0335
Treatment F				123.361	621.191
Treatment Prob(F)				0.0001	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

03/15/18 (HFL17FeGrowthStg)

AOV Means Table Page 2 of 8

North Carolina State University

Pest Type		W Weed SENVU	W Weed SENVU	W Weed SENVU	W Weed SENVU
Pest Code		Common grou>	Common grou>	Common grou>	Common grou>
Pest Name		09/23/17	09/25/17	09/29/17	10/05/17
Rating Date		CONTRO	CONTRO	CONTRO	CONTRO
Rating Data Type		0-10	0-10	0-10	0-10
Rating Unit		16 1	18 3	22 7	28 0
Days After First/Last Applic.		1 DA-B	3 DA-B	7 DA-B	13 DA-B
Trt-Eval Interval					
Trt Treatment No.	Form Conc	Form Unit	Form Type	Rate Rate	Unit
1 nontreated				28	
2 FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	0.0 c	0.0 b
3 FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	9.7 b	9.8 a
4 FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	10.0 a	10.0 a
LSD (P=.05)				0.25	0.25
Standard Deviation				0.20	0.20
CV				2.75	2.74
					15.25

03/15/18 (HFL17FeGrowthStg)

AOV Means Table Page 3 of 8

North Carolina State University

Pest Type		W Weed SENVU	W Weed SENVU	W Weed SENVU	W Weed SENVU
Pest Code		Common grou>	Common grou>	Common grou>	Common grou>
Pest Name		10/06/17	10/08/17	10/13/17	10/20/17
Rating Date		CONTRO	CONTRO	CONTRO	CONTRO
Rating Data Type		0-10	0-10	0-10	0-10
Rating Unit		29 1	31 3	36 8	43 15
Days After First/Last Applic.		1 DA-C	3 DA-C	8 DA-C	15 DA-C
Trt-Eval Interval					
Trt Treatment No.	Form Conc	Form Unit	Form Type	Rate Rate	Unit
1 nontreated				61	
2 FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	0.0 c	0.0 b
3 FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	9.0 b	9.8 a
4 FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	9.8 a	9.8 a
LSD (P=.05)				0.25	0.28
Standard Deviation				0.20	0.22
CV				2.83	3.05
					0.0

03/15/18 (HFL17FeGrowthStg)

AOV Means Table Page 4 of 8

North Carolina State University

Pest Type		W Weed SENVU	W Weed SENVU
Pest Code		Common grou>	Common grou>
Pest Name		10/27/17	11/02/17
Rating Date		CONTRO	CONTRO
Rating Data Type		0-10	0-10
Rating Unit		50 22	56 28
Days After First/Last Applic.		22 DA-C	28 DA-C
Trt-Eval Interval			
Trt Treatment No.	Form Conc	Form Unit	Form Type
1 nontreated			
2 FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a
3 FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a
4 FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a
LSD (P=.05)			1.13
Standard Deviation			0.35
CV			4.79
			.

Means followed by same letter do not significantly differ (P=.05, LSD)

Fresh weight harvest, 27 DAA-C
FeHEDTA and FeSO₄ Efficacy on Newly-emerged Seedling Broadleaf Weeds

Pest Type							
Pest Code							
Pest Name					LAMAM2		
Rating Date					Henbit	OXAST2	
Rating Data Type					11/03/17	Common yell>	SENVU2
Rating Unit					WEIFRE	11/03/17	Common grou>
Days After First/Last Applic.					G	WEIFRE	11/03/17
Trt-Eval Interval					54 27	G	WEIFRE
					27 DA-C	54 27	G
						27 DA-C	54 27
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit	Rate Unit
1	non-treated				61		63
2	FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	29.2 a	16.2 cd	40.0 a
3	FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	11.0 de	10.2 c	9.2 c
4	FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	3.2 e	0.0 d	0.2 d
5	FeSO4	20 %	SP	4.4 lb ai/a	20.7 bc	41.5 a	44.7 b
6	FeSO4	20 %	SP	8.8 lb ai/a	24.8 ab	44.2 a	57.8 a
7	FeSO4	20 %	SP	17.6 lb ai/a	23.5 abc	32.7 b	58.5 a
LSD (P=.05)					8.23	6.54	11.49
Standard Deviation					6.98	5.54	9.75
CV					38.03	23.15	28.76
Replicate F					2.388	0.787	2.388
Replicate Prob(F)					0.0615	0.5669	0.0615
Treatment F					9.853	78.330	54.399
Treatment Prob(F)					0.0001	0.0001	0.0001

Means followed by same letter do not significantly differ ($P=.05$, LSD)

03/15/18 (HFL17FeGrowthStg)

Fresh weight harvest, 27 DAA-C
FeHEDTA and FeSO₄ Efficacy on Established Broadleaf Weeds

Trial ID: HFL17FeGrowthStg Protocol ID: HFL17FeGrowthStg
Location: HFL, Raleigh NC Study Director: C. Harlow
Investigator: Joseph C. Neal, Ph.D.

Pest Type		W Weed	W Weed					
Pest Code		OXAST	ECLAL					
Pest Name		Common yell>	Eclipta					
Rating Date		11/06/17	11/06/17					
Rating Data Type		WEIFRE	WEIFRE					
Rating Unit		G	G					
Days After First/Last Applic.		60	60					
Trt-Eval Interval		32 DA-C	32 DA-C					
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit	109	110
1	nontreated				15.5	a	16.7	a
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4	lb ai/a	16.7	a
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8	lb ai/a	18.3	a
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6	lb ai/a	18.8	a
LSD (P=.05)					3.66		3.23	
Standard Deviation					2.97		2.62	
CV					17.16		46.97	
Replicate F					3.987		1.042	
Replicate Prob(F)					0.0168		0.4292	
Treatment F					1.595		51.511	
Treatment Prob(F)					0.2322		0.0001	

Means followed by same letter do not significantly differ ($P=.05$, LSD)

Experiment #: HFL17FeGrowthStg

Title: FeHEDTA and FeSO₄ Efficacy on established Broadleaf Weeds

Location: Neal Pad, NCSU Horticultural Field Laboratory, Raleigh

Soil Type / Substrate: Pine Bark + Lime @ 6#/yd³ + Harrell's 18-4-8 Slow Release Fertilizer @ 10#/yd³

Application Equipment: CO₂ Pressurized Bottle Sprayer

Nozzles	2-8006 XR	PSI:	51, 54, 52.5	Speed:	3mph
GPA:	50				

Experimental Design: RCB **Replicates:** 6

# of Treatments:	7	Plants / Species / Plot:	1
-------------------------	---	---------------------------------	---

Plot Size:	3.33' x 4'	Seeding Date:	8/2/2017
		Pot Size:	4" square quart

Application Information

Date:	9/7/2017	9/22/2017	10/5/2017
Calibration (ml/15 Seconds):	475 @ 51 psi	475 @ 54 psi	471 @ 52.5
Target: 473ml (50 GPA)			
Treatments Applied:	all	all	all
Soil Moisture:	moist	moist	moist
Soil Condition:	potted 5 weeks	potted 7 weeks	potted 9 weeks
Temperatures (°F):			
Air: Soil Surface / 2 Inches / 4 Inches	81/83/87/95	81/87/88/87	86/85/93/94
Sky	clear	clear	30% 'wispy' clouds
Wind Speed (MPH) & Direction:	1-3 mph, W	1-2 mph, N	1-3 mph, S
Date of First Rain (R) or Irrigation (I):	9/8/2017	9/23/2017	10/6/2017
Amount (Inches) for R or I	~0.2", I	~0.2", I	~0.2", I

Weed Status:

Flexuous bittercress, <i>Cardamine flexuosa</i> (CARFL): 'Castle Hayne 2017' (mixed w/sand); 0.25 tsp/pot ~ 30 seeds	8-12" tall x 8-10" spread; seeding	original plants mostly senesced; new seedlings 1-2" tall w/4+ true leaves	original plants senesced; new seedlings cotyledon to 4" tall w/seed pods
Eclipta, <i>Eclipta prostrata</i> (ECLAL): 'HFL 8 & 9/2013-Good'; 1 pinch/pot (~ 20 seeds)	10" tall x 8-10" spread	10-12" tall w/similar spread; 50% flowering	12" tall w/similar spread; flowering to (most) w/seedheads+ many newly emerged seedlings
Henbit, <i>Lamium</i> (LAMAM): ~0.5 TBSP 'HFL 12/5/2012-87%' (2016 test) + ~0.5 TBSP 'HFL 3/2013-67%' (2016 test) + ~0.5 TBSP 'HFL 4/2010-70%'; 1 pinch/pot (~20 seeds)	4" tall x 8-10" spread; draping out of pots; beginning to flower	declining; 1-4" tall x 14-24" spread; trailing out of pot; flowering to seed production	declining; 1-4" tall x 14-24" spread; trailing out of pot; flowering to seed production + many newly emerged seedlings
Yellow woodsorrel, <i>Oxalis dillenii</i> (OXAST): 'Castle Hayne 2017' (mixed w/sand); 0.25 tsp/pot ~ 20 seeds	4-6" tall x 4-8" spread; flowering to seed pod	8-10" tall x 8" spread; upright clump; full seed pods	8-10" clumps+ many newly emerged seedlings
Common groundsel, <i>Senecio vulgaris</i> (SENVU): small amount of 'HFL 5/2016' + HFL (wild) 10/12-11/12; 1 pinch/pot	8-10" tall x 12-18" spread; 40% flowering	declining; 10-14" tall x 6" spread; full flower to seed	declining; 10-12" tall, sprawling; full flower to seedhead+ many newly emerged seedlings
**Yellow woodsorrel, <i>Oxalis dillenii</i> (OXASTPot): established in nursery containers from previous experiments	established; 10-12" tall w/similar spread; 40% flowering	mature; 100% seed pod production	beginning to decline; 12" mounds; most w/seed pods already gone

Experiment #: HFL17FeGrowthStgYoung

Title:	FeHEDTA and FeSO ₄ Efficacy on Young Seedling Broadleaf Weeds		
Location:	Neal Pad, NCSU Horticultural Field Laboratory, Raleigh		
Soil Type / Substrate:	Pine Bark + Lime @ 6#/yd ³ + Harrell's 18-4-8 Slow Release Fertilizer @ 10#/yd ³		
Application Equipment:	CO ₂ Pressurized Bottle Sprayer		
Nozzles:	2-8006 XR	PSI:	50, 54.5, 52
GPA:	50	Speed:	3 MPH
Experimental Design:	RCB	Replicates:	6
# of Treatments:	7	Plants / Species / Plot:	1
Plot Size:	3.33' x 4'	Seeding Date:	8/21/2017
		Pot Size:	4" square quart

Application Information

Date:	9/10/2017	9/24/2017	10/7/2017
Calibration (ml/15 Seconds):	473 @ 50 psi	470 @ 54.5 psi	473 @ 52 psi
Target: 473 (50 GPA)			
Treatments Applied:	all	all	all
Soil Moisture:	moist	moist	moist
Soil Condition:	potted 5 weeks	potted 7 weeks	potted 9 weeks
Temperatures (°F):			
Air:	73	83	82
Soil Surface / 2 Inches / 4 Inches	85/80/79	85/85/89	82/84/85
Sky	40% 'wispy' clouds	30% cloud cover	85% cloud cover
Wind Speed (MPH) & Direction:	2-5 mph, NE	1-3 mph, NW	1-3 mph, SE
Date of First Rain (R) or Irrigation (I):	9/11/2017	9/25/2017	10/7/2012, ~4.5 hrs after treatment
Amount (Inches) for R or I	~0.2", I	~0.2", I	~0.2", I
Weed Status:	PLANT description		CLUMP description (nontreated plants)
Flexuous bittercress, <i>Cardamine flexuosa</i> (CARFL): 'Castle Hayne 2017' (mixed w/sand) 0.25 tsp/pot	1-2" tall; 4 true leaves	10" tall x 8" spread; 70% seed pod production	upright; 10" tall x 10-12" spread; full flower to seed pod
Eclipta, <i>Eclipta prostrata</i> (ECLAL): 'HFL 8 & 9/2013-Good'; 1 pinch/pot	1" tall; 2-4 true leaves	8" tall x 8-10" spread	10" tall x 10" spread; beginning to flower
Henbit, <i>Lamium</i> (LAMAM): 'HFL 12/5/2012-87% (2016 test)' + 'HFL 3/2013-67% (2016 test)' + 'HFL 4/2010-70%'; 1 pinch/pot	2-3" tall; 3-5 true leaves	8-10" tall w/similar spread; 30% flowering	8-10" tall x 15" spread; draping over pot; flowering
Yellow woodsorrel, <i>Oxalis dillenii</i> (OXAST): 'Castle Hayne 2017' (mixed w/sand); 0.25 tsp/pot	1" tall or less; 2-6 true leaves	1-3" tall x 4-5" spread	8" clumps; mostly flowering, some seed pods
Common groundsel, <i>Senecio vulgaris</i> (SENVU): small amount of 'HFL 5/2016' + HFL (wild) 10/12-11/12; 1 pinch/pot	1-2" tall; 2 true leaves	2-4" tall x 4-5" spread; beginning to flower	upright; 10-12" tall x 8-10" spread; flowering

Raw Data

Seedling Weed control

Seedling Lamium -- Raw Data												
					W Weed LAMAM2 Henbit 09/11/17 CONTRO 0-10 1 1 1 DA-A	W Weed LAMAM2 Henbit 09/17/17 CONTRO 0-10 7 7 7 DA-A	W Weed LAMAM2 Henbit 09/25/17 CONTRO 0-10 15 1 1 DA-B	W Weed LAMAM2 Henbit 09/27/17 CONTRO 0-10 17 3 3 DA-B	W Weed LAMAM2 Henbit 10/02/17 CONTRO 0-10 22 8 8 DA-B	W Weed LAMAM2 Henbit 10/06/17 CONTRO 0-10 26 12 12 DA-B		
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit Plot	1	6	11	16	21	26
1	nontreated				107 204 301 407 506 603		0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	
					Mean =		0.0	0.0	0.0	0.0	0.0	0.0
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a	105 206 304 403 502 605	3.0 3.0 2.0 3.0 3.0 3.0	1.0 2.0 2.0 3.0 3.0 3.0	3.0 3.0 3.0 4.0 3.0 3.0	2.0 2.0 2.0 3.0 3.0 3.0	2.0 3.0 2.0 3.0 3.0 2.0	
					Mean =		2.8	2.3	3.2	2.3	2.7	2.2
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a	106 202 306 401 504 601	5.0 4.0 3.0 3.0 5.0 5.0	3.0 4.0 2.0 2.0 3.0 4.0	4.0 4.0 3.0 5.0 4.0 5.0	3.0 4.0 3.0 4.0 4.0 5.0	3.0 3.0 2.0 5.0 4.0 4.0	
					Mean =		4.2	3.0	4.2	4.2	3.8	3.3
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a	101 207 305 402 507 604	3.0 4.0 3.0 4.0 6.0 5.0	3.0 3.0 3.0 4.0 5.0 6.0	5.0 5.0 6.0 8.0 8.0 9.0	5.0 3.0 5.0 7.0 8.0 9.0	6.0 4.0 6.0 7.0 9.0 9.0	
					Mean =		4.2	4.0	6.8	6.0	6.8	6.5
5	FeSO4	20 %	SP	4.4 lb ai/a	104 205 303 406 505 602	1.0 1.0 1.0 1.0 1.0 1.0	0.0 0.0 0.0 0.0 1.0 0.0	0.0 1.0 1.0 0.0 1.0 1.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 1.0 0.0 1.0 0.0	0.0 0.0 0.0 0.0 2.0 0.0	
					Mean =		1.0	0.2	0.7	0.0	0.3	0.3
6	FeSO4	20 %	SP	8.8 lb ai/a	102 203 302 404 503 606	1.0 1.0 1.0 1.0 1.0 1.0	0.0 0.0 0.0 0.0 1.0 0.0	0.0 1.0 0.0 0.0 0.0 1.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	
					Mean =		1.0	0.2	0.3	0.0	0.0	0.0
7	FeSO4	20 %	SP	17.6 lb ai/a	103 201 307 405 501 607	1.0 1.0 1.0 1.0 1.0 1.0	0.0 2.0 0.0 0.0 2.0 0.0	1.0 0.0 1.0 0.0 1.0 0.0	1.0 1.0 0.0 0.0 1.0 0.0	0.0 1.0 0.0 0.0 0.0 0.0	1.0 0.0 0.0 0.0 1.0 0.0	
					Mean =		1.0	0.7	0.8	0.5	0.2	0.3

North Carolina State University

Pest Type	W Weed	W Weed	W Weed	LAMAM2	LAMAM2	LAMAM2
Pest Code	LAMAM2	LAMAM2	LAMAM2	Henbit	Henbit	Henbit
Pest Name				10/08/17	10/10/17	10/13/17
Rating Date	CONTRO	CONTRO	CONTRO	10/21/17	CONTRO	10/30/17
Rating Data Type	0-10	0-10	0-10	0-10	0-10	0-10
Rating Unit	28	30	33	41	50	54
Days After First/Last Applic.	1	3	6	14	23	27
Trt-Eval Interval	1 DA-C	3 DA-C	6 DA-C	14 DA-C	23 DA-C	27 DA-C
Trt Treatment No.	Form Conc	Form Unit	Form Type	Rate Rate	Unit Unit	Plot Plot
1 nontreated	107	0.0	0.0	0.0	0.0	.
	204	0.0	0.0	0.0	0.0	0.0
	301	0.0	0.0	0.0	0.0	0.0
	407	0.0	0.0	0.0	0.0	0.0
	506	0.0	0.0	0.0	0.0	0.0
	603	0.0	0.0	0.0	0.0	0.0
	Mean =	0.0	0.0	0.0	0.0	0.0
2 FeHEDTA (Fiesta)	61.6	G/L	L	4.4	lb ai/a	105
				3.0	5.0	3.0
				206	5.0	4.0
				304	6.0	9.0
				403	7.0	9.0
				502	7.0	7.0
				605	4.0	5.0
				Mean =	3.8	5.7
3 FeHEDTA (Fiesta)	61.6	G/L	L	8.8	lb ai/a	106
				5.0	6.0	6.0
				202	5.0	5.0
				306	6.0	7.0
				401	9.0	9.0
				504	4.0	4.0
				601	6.0	7.0
				Mean =	5.0	6.2
4 FeHEDTA (Fiesta)	61.6	G/L	L	17.6	lb ai/a	101
				7.0	9.0	9.0
				207	7.0	7.0
				305	8.0	9.0
				402	9.0	10.0
				507	9.0	10.0
				604	9.0	10.0
				Mean =	7.8	8.6
5 FeSO4	20 %	SP	4.4	lb ai/a	104	1.0
				1.0	1.0	1.0
				205	2.0	2.0
				303	3.0	4.0
				406	2.0	4.0
				505	2.0	3.0
				602	1.0	1.0
				Mean =	1.0	1.8
6 FeSO4	20 %	SP	8.8	lb ai/a	102	1.0
				1.0	1.0	0.0
				203	1.0	0.0
				302	3.0	0.0
				404	2.0	3.0
				503	1.0	0.0
				606	1.0	1.0
				Mean =	1.0	1.5
7 FeSO4	20 %	SP	17.6	lb ai/a	103	1.0
				1.0	2.0	2.0
				201	1.0	0.0
				307	1.0	1.0
				405	2.0	3.0
				501	1.0	1.0
				607	1.0	1.0
				Mean =	1.0	1.3

Oxalis Seedling - raw data										
					W Weed OXAST2 Common yell> 09/11/17 CONTRO 0-10 1 1 1 DA-A	W Weed OXAST2 Common yell> 09/17/17 CONTRO 0-10 7 7 7 DA-A	W Weed OXAST2 Common yell> 09/25/17 CONTRO 0-10 15 1 1 DA-B	W Weed OXAST2 Common yell> 09/27/17 CONTRO 0-10 17 3 3 DA-B		
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate Unit	Plot	2	7	12	17
1	nontreated				107 204 301 407 506 603	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	
					Mean =	0.0	0.0	0.0	0.0	
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a	105 206 304 403 502 605	2.0 3.0 6.0 3.0 7.0 7.0	9.0 9.0 9.0 9.0 9.5 9.0	8.0 9.0 9.0 9.0 9.5 9.0	9.0 9.0 9.0 9.0 9.0 9.0
					Mean =	4.7	9.1	8.9	9.0	
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a	106 202 306 401 504 601	4.0 8.0 4.0 7.0 9.0 6.0	9.9 9.5 9.9 10.0 10.0 9.9	9.0 9.9 9.9 9.9 9.9 9.9	10.0 10.0 10.0 10.0 10.0 10.0
					Mean =	6.3	9.9	9.8	10.0	
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a	101 207 305 402 507 604	4.0 6.0 6.0 7.0 8.0 8.0	10.0 9.9 10.0 9.9 9.9 10.0	10.0 10.0 10.0 10.0 10.0 10.0	10.0 10.0 10.0 10.0 10.0 10.0
					Mean =	6.5	10.0	10.0	10.0	
5	FeSO4	20 %	SP		4.4 lb ai/a	104 205 303 406 505 602	0.0 1.0 0.0 0.0 0.0 0.0	0.0 2.0 1.0 0.0 0.0 2.0	0.0 1.0 2.0 0.0 0.0 1.0	0.0 1.0 0.0 0.0 0.0 0.0
					Mean =	0.2	0.8	0.7	0.2	
6	FeSO4	20 %	SP		8.8 lb ai/a	102 203 302 404 503 606	0.0 0.0 0.0 0.0 0.0 0.0	1.0 1.0 1.0 1.0 0.0 1.0	1.0 1.0 1.0 0.0 0.0 2.0	0.0 0.0 0.0 0.0 0.0 0.0
					Mean =	0.0	0.8	0.8	0.0	
7	FeSO4	20 %	SP		17.6 lb ai/a	103 201 307 405 501 607	0.0 0.0 0.0 0.0 0.0 0.0	0.0 1.0 0.0 1.0 3.0 3.0	0.0 1.0 1.0 0.0 1.0 1.0	0.0 0.0 0.0 0.0 1.0 0.0
					Mean =	0.0	1.3	0.7	0.2	

North Carolina State University

Pest Type		W Weed	W Weed	W Weed	W Weed
Pest Code		OXAST2	OXAST2	OXAST2	OXAST2
Pest Name		Common yell>	Common yell>	Common yell>	Common yell>
Rating Date		10/02/17	10/06/17	10/08/17	10/10/17
Rating Data Type		CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit		0-10	0-10	0-10	0-10
Days After First/Last Applic.		22 8	26 12	28 1	30 3
Trt-Eval Interval		8 DA-B	12 DA-B	1 DA-C	3 DA-C
Trt No.	Treatment Name	Form Conc	Form Unit	Rate Type	Rate Unit
					Plot
1	nontreated			22	27
		107		0.0	0.0
		204		0.0	0.0
		301		0.0	0.0
		407		0.0	0.0
		506		0.0	0.0
		603		0.0	0.0
		Mean =		0.0	0.0
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a
		105		8.0	8.0
		206		9.0	9.0
		304		9.0	9.0
		403		8.0	8.0
		502		9.0	9.0
		605		9.0	9.0
		Mean =		8.7	8.3
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a
		106		9.0	9.0
		202		10.0	9.5
		306		10.0	9.5
		401		10.0	9.5
		504		10.0	9.9
		601		10.0	10.0
		Mean =		9.8	9.2
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a
		101		10.0	10.0
		207		10.0	10.0
		305		10.0	10.0
		402		10.0	10.0
		507		10.0	10.0
		604		10.0	10.0
		Mean =		10.0	10.0
5	FeSO4	20 %	SP		4.4 lb ai/a
		104		0.0	0.0
		205		2.0	0.0
		303		1.0	0.0
		406		0.0	0.0
		505		0.0	0.0
		602		1.0	0.0
		Mean =		0.7	0.5
6	FeSO4	20 %	SP		8.8 lb ai/a
		102		0.0	0.0
		203		0.0	0.0
		302		1.0	0.0
		404		0.0	0.0
		503		0.0	0.0
		606		0.0	0.0
		Mean =		0.2	0.0
7	FeSO4	20 %	SP		17.6 lb ai/a
		103		0.0	0.0
		201		0.0	0.0
		307		0.0	0.0
		405		0.0	1.0
		501		1.0	0.0
		607		1.0	1.0
		Mean =		0.3	0.2
					0.5
					0.2

North Carolina State University

Pest Type		W Weed	OXAST2	OXAST2	OXAST2					
Pest Code		OXAST2	Common yell>	Common yell>	Common yell>					
Pest Name		Common yell>	10/13/17	10/21/17	10/30/17					
Rating Date		CONTRO	CONTRO	CONTRO	CONTRO					
Rating Data Type		0-10	0-10	0-10	0-10					
Rating Unit		33 6	41 14	50 23	54 27					
Days After First/Last Applic.		6 DA-C	14 DA-C	23 DA-C	27 DA-C					
Trt-Eval Interval										
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate Unit	Plot	42	47	52	57
1	nontreated									
		107					0.0	0.0	0.0	0.0
		204					0.0	0.0	0.0	0.0
		301					0.0	0.0	0.0	0.0
		407					0.0	0.0	0.0	0.0
		506					0.0	0.0	0.0	0.0
		603					0.0	0.0	0.0	0.0
		Mean =					0.0	0.0	0.0	0.0
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a	105	7.0	4.0	5.0	4.0
						206	9.0	9.0	9.0	9.0
						304	9.0	9.0	9.0	8.0
						403	7.0	7.0	4.0	3.0
						502	9.0	9.0	9.0	9.0
						605	8.0	6.0	8.0	7.0
		Mean =					8.2	7.3	7.3	6.7
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a	106	9.0	9.0	9.0	9.0
						202	10.0	10.0	10.0	10.0
						306	10.0	9.5	10.0	10.0
						401	10.0	9.5	9.0	10.0
						504	10.0	10.0	10.0	10.0
						601	10.0	10.0	10.0	10.0
		Mean =					9.8	9.7	9.7	9.8
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a	101	10.0	10.0	10.0	10.0
						207	10.0	10.0	10.0	10.0
						305	10.0	10.0	10.0	10.0
						402	10.0	10.0	10.0	10.0
						507	10.0	10.0	10.0	10.0
						604	10.0	10.0	10.0	10.0
		Mean =					10.0	10.0	10.0	10.0
5	FeSO4	20 %	SP		4.4 lb ai/a	104	0.0	0.0	0.0	0.0
						205	0.0	2.0	1.0	2.0
						303	0.0	0.0	0.0	0.0
						406	0.0	0.0	0.0	0.0
						505	0.0	0.0	0.0	0.0
						602	0.0	0.0	0.0	0.0
		Mean =					0.0	0.3	0.2	0.3
6	FeSO4	20 %	SP		8.8 lb ai/a	102	0.0	0.0	0.0	0.0
						203	0.0	0.0	0.0	0.0
						302	0.0	0.0	0.0	0.0
						404	0.0	0.0	0.0	0.0
						503	0.0	0.0	0.0	0.0
						606	0.0	0.0	0.0	0.0
		Mean =					0.0	0.0	0.0	0.0
7	FeSO4	20 %	SP		17.6 lb ai/a	103	0.0	0.0	0.0	0.0
						201	0.0	0.0	0.0	3.0
						307	0.0	0.0	0.0	0.0
						405	0.0	1.0	0.0	1.0
						501	0.0	0.0	0.0	0.0
						607	0.0	2.0	0.0	1.0
		Mean =					0.0	0.5	0.0	0.8

Bittercress seedlings - raw data										
					W Weed CARFL2 Flexuous bi> 09/11/17 CONTRO 0-10 1 1 1 DA-A	W Weed CARFL2 Flexuous bi> 09/17/17 CONTRO 0-10 7 7 7 DA-A	W Weed CARFL2 Flexuous bi> 09/25/17 CONTRO 0-10 15 1 1 DA-B	W Weed CARFL2 Flexuous bi> 09/27/17 CONTRO 0-10 17 3 3 DA-B	W Weed CARFL2 Flexuous bi> 10/02/17 CONTRO 0-10 22 8 8 DA-B	
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit Plot				
1	nontreated				107 204 301 407 506 603	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	
					Mean =	0.0	0.0	0.0	0.0	
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a	105 206 304 403 502 605	3.0 2.0 2.0 3.0 2.0 3.0	3.0 1.0 1.0 2.0 3.0 5.0	2.0 2.0 2.0 3.0 3.0 4.0	2.0 2.0 2.0 2.0 3.0 4.0
					Mean =	2.5	2.5	2.8	2.8	
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a	106 202 306 401 504 601	4.0 3.0 2.0 5.0 2.0 3.0	6.0 5.0 2.0 6.0 6.0 5.0	7.0 4.0 3.0 5.0 5.0 4.0	6.0 4.0 2.0 6.0 6.0 6.0
					Mean =	3.2	5.0	4.8	4.8	
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a	101 207 305 402 507 604	6.0 3.0 3.0 4.0 3.0 4.0	7.0 3.0 3.0 4.0 6.0 6.0	6.0 5.0 4.0 5.0 6.0 8.0	7.0 4.0 4.0 5.0 6.0 7.0
					Mean =	3.8	4.5	5.7	5.8	
5	FeSO4	20 %	SP		4.4 lb ai/a	104 205 303 406 505 602	0.0 1.0 0.0 0.0 0.0 0.0	1.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0
					Mean =	0.2	0.2	0.0	0.0	
6	FeSO4	20 %	SP		8.8 lb ai/a	102 203 302 404 503 606	0.0 1.0 0.0 0.0 0.0 0.0	2.0 0.0 0.0 0.0 0.0 0.0	1.0 0.0 0.0 0.0 0.0 1.0	0.0 0.0 0.0 0.0 0.0 0.0
					Mean =	0.2	0.3	0.3	0.0	
7	FeSO4	20 %	SP		17.6 lb ai/a	103 201 307 405 501 607	0.0 1.0 0.0 1.0 1.0 0.0	0.0 1.0 0.0 0.0 0.0 1.0	0.0 1.0 1.0 1.0 1.0 2.0	0.0 0.0 0.0 0.0 0.0 1.0
					Mean =	0.5	0.3	1.0	0.5	

North Carolina State University

Pest Type							W Weed CARFL2	W Weed CARFL2	W Weed CARFL2	W Weed CARFL2	CARFL2
Pest Code							Flexuous bi> 10/06/17	Flexuous bi> 10/08/17	Flexuous bi> 10/10/17	Flexuous bi> 10/13/17	Flexuous bi> 10/21/17
Pest Name							CONTRO 0-10				
Rating Date							26	28	30	33	41
Rating Data Type							12	1	3	6	14
Rating Unit							12 DA-B	1 DA-C	3 DA-C	6 DA-C	14 DA-C
Days After First/Last Applic.											
Trt-Eval Interval											
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit Plot	28	33	38	43	48
1	nontreated				107		0.0	0.0	0.0	0.0	0.0
					204		0.0	0.0	0.0	0.0	0.0
					301		0.0	0.0	0.0	0.0	0.0
					407		0.0	0.0	0.0	0.0	0.0
					506		0.0	0.0	0.0	0.0	0.0
					603		0.0	0.0	0.0	0.0	0.0
					Mean =		0.0	0.0	0.0	0.0	0.0
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4	lb ai/a	105	2.0	3.0	5.0	6.0
					206		2.0	3.0	3.0	3.0	2.0
					304		1.0	2.0	3.0	3.0	3.0
					403		2.0	2.0	2.0	3.0	2.0
					502		2.0	3.0	3.0	2.0	1.0
					605		2.0	3.0	4.0	5.0	5.0
					Mean =		1.8	2.7	3.3	3.7	2.8
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8	lb ai/a	106	4.0	5.0	7.0	8.0
					202		2.0	3.0	5.0	4.0	3.0
					306		1.0	3.0	3.0	2.0	3.0
					401		4.0	4.0	5.0	5.0	4.0
					504		4.0	4.0	4.0	3.0	2.0
					601		3.0	4.0	4.0	4.0	3.0
					Mean =		3.0	3.8	4.7	4.3	3.3
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6	lb ai/a	101	4.0	5.0	6.0	6.0
					207		4.0	6.0	6.0	5.0	4.0
					305		2.0	4.0	5.0	4.0	6.0
					402		5.0	5.0	6.0	6.0	4.0
					507		4.0	5.0	6.0	6.0	5.0
					604		6.0	9.0	9.0	9.0	8.0
					Mean =		4.2	5.7	6.3	6.0	5.2
5	FeSO4	20 %	SP	4.4	lb ai/a		104	1.0	1.0	1.0	1.0
					205		0.0	1.0	1.0	0.0	0.0
					303		0.0	1.0	0.0	0.0	0.0
					406		0.0	1.0	1.0	0.0	0.0
					505		0.0	1.0	0.0	0.0	0.0
					602		0.0	1.0	1.0	0.0	0.0
					Mean =		0.2	1.0	0.7	0.2	0.0
6	FeSO4	20 %	SP	8.8	lb ai/a		102	0.0	1.0	1.0	1.0
					203		0.0	1.0	1.0	0.0	0.0
					302		0.0	1.0	0.0	0.0	0.0
					404		0.0	1.0	1.0	0.0	0.0
					503		0.0	1.0	0.0	0.0	0.0
					606		0.0	1.0	1.0	0.0	0.0
					Mean =		0.0	1.0	0.7	0.2	0.0
7	FeSO4	20 %	SP	17.6	lb ai/a		103	0.0	1.0	1.0	0.0
					201		1.0	1.0	1.0	1.0	0.0
					307		0.0	1.0	0.0	0.0	0.0
					405		0.0	1.0	1.0	0.0	0.0
					501		0.0	2.0	0.0	0.0	0.0
					607		1.0	1.0	0.0	0.0	0.0
					Mean =		0.3	1.2	0.5	0.2	0.0

North Carolina State University

Pest Type				CARFL2	CARFL2			
Pest Code				Flexuous bi>	Flexuous bi>			
Pest Name				10/30/17	11/03/17			
Rating Date				CONTRO	CONTRO			
Rating Data Type				0-10	0-10			
Rating Unit				50 23	54 27			
Days After First/Last Applic.				23 DA-C	27 DA-C			
Trt-Eval Interval								
Trt No.	Treatment Name	Form Conc	Form Unit	Rate Type	Rate Unit	Plot		
1	nontreated					53	58	
				107	0.0			0.0
				204	0.0			0.0
				301	0.0			0.0
				407	0.0			0.0
				506	0.0			0.0
				603	0.0			0.0
				Mean =	0.0			0.0
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a	105	5.0	5.0
						206	3.0	5.0
						304	2.0	2.0
						403	1.0	8.0
						502	1.0	2.0
						605	6.0	7.0
				Mean =	3.0			4.8
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a	106	5.0	6.0
						202	2.0	4.0
						306	1.0	1.0
						401	3.0	10.0
						504	2.0	3.0
						601	1.0	9.0
				Mean =	2.3			5.5
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a	101	9.0	9.0
						207	2.0	10.0
						305	7.0	9.0
						402	2.0	10.0
						507	2.0	10.0
						604	7.0	10.0
				Mean =	4.8			9.7
5	FeSO4	20 %	SP		4.4 lb ai/a	104	0.0	0.0
						205	0.0	0.0
						303	0.0	0.0
						406	0.0	0.0
						505	0.0	0.0
						602	0.0	0.0
				Mean =	0.0			0.0
6	FeSO4	20 %	SP		8.8 lb ai/a	102	0.0	2.0
						203	0.0	0.0
						302	0.0	0.0
						404	0.0	0.0
						503	0.0	0.0
						606	0.0	0.0
				Mean =	0.0			0.3
7	FeSO4	20 %	SP		17.6 lb ai/a	103	0.0	0.0
						201	0.0	0.0
						307	0.0	0.0
						405	0.0	1.0
						501	0.0	1.0
						607	0.0	0.0
				Mean =	0.0			0.3

Seedling groundsel - raw data										
					W Weed SENVU2 Common grou> 09/11/17 CONTRO 0-10 1 1 1 DA-A	W Weed SENVU2 Common grou> 09/17/17 CONTRO 0-10 7 7 7 DA-A	W Weed SENVU2 Common grou> 09/25/17 CONTRO 0-10 15 1 1 DA-B	W Weed SENVU2 Common grou> 09/27/17 CONTRO 0-10 17 3 3 DA-B		
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate Unit	Plot	4	9	14	19
1	nontreated				107 204 301 407 506 603		0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0
					Mean =		0.0	0.0	0.0	0.0
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a	105 206 304 403 502 605	8.0 9.0 8.0 9.0 9.0 9.0	8.0 9.0 7.0 9.9 9.0 9.9	8.0 9.5 9.0 9.9 9.0 10.0	8.0 9.0 9.0 10.0 9.0 10.0
					Mean =		8.7	8.8	9.2	9.2
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a	106 202 306 401 504 601	9.0 9.0 9.0 9.0 9.0 9.0	9.5 9.5 9.9 9.9 9.9 10.0	10.0 9.9 10.0 9.9 10.0 10.0	10.0 9.0 10.0 10.0 10.0 10.0
					Mean =		9.0	9.8	10.0	9.8
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a	101 207 305 402 507 604	9.0 9.0 9.0 9.0 9.0 9.0	10.0 10.0 10.0 10.0 10.0 10.0	10.0 10.0 10.0 10.0 10.0 10.0	10.0 10.0 10.0 10.0 10.0 10.0
					Mean =		9.0	10.0	10.0	10.0
5	FeSO4	20 %	SP		4.4 lb ai/a	104 205 303 406 505 602	1.0 1.0 1.0 0.0 0.0 1.0	2.0 0.0 2.0 0.0 0.0 1.0	1.0 1.0 2.0 1.0 1.0 4.0	1.0 1.0 1.0 1.0 0.0 2.0
					Mean =		0.7	0.8	1.7	1.0
6	FeSO4	20 %	SP		8.8 lb ai/a	102 203 302 404 503 606	1.0 1.0 0.0 1.0 0.0 1.0	0.0 2.0 1.0 0.0 0.0 1.0	1.0 2.0 1.0 1.0 1.0 2.0	1.0 1.0 0.0 1.0 1.0 1.0
					Mean =		0.7	0.7	1.3	0.8
7	FeSO4	20 %	SP		17.6 lb ai/a	103 201 307 405 501 607	1.0 0.0 1.0 1.0 1.0 1.0	1.0 0.0 1.0 2.0 2.0 0.0	1.0 2.0 1.0 1.0 3.0 1.0	1.0 1.0 1.0 1.0 3.0 2.0
					Mean =		0.8	1.0	1.5	1.5

North Carolina State University

Pest Type		W Weed	W Weed	W Weed	W Weed
Pest Code		SENVU2	SENVU2	SENVU2	SENVU2
Pest Name		Common grou>	Common grou>	Common grou>	Common grou>
Rating Date		10/02/17	10/06/17	10/08/17	10/10/17
Rating Data Type		CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit		0-10	0-10	0-10	0-10
Days After First/Last Applic.		22 8	26 12	28 1	30 3
Trt-Eval Interval		8 DA-B	12 DA-B	1 DA-C	3 DA-C
Trt No.	Treatment Name	Form Conc	Form Unit	Rate Type	Unit Plot
1	nontreated	107		0.0	0.0
		204		0.0	0.0
		301		0.0	0.0
		407		0.0	0.0
		506		0.0	0.0
		603		0.0	0.0
		Mean =		0.0	0.0
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a
		105		9.0	8.0
		206		9.0	9.0
		304		9.0	9.0
		403		9.0	9.0
		502		9.0	9.0
		605		10.0	10.0
		Mean =		9.2	8.8
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a
		106		10.0	10.0
		202		9.0	9.5
		306		10.0	10.0
		401		10.0	10.0
		504		10.0	10.0
		601		10.0	10.0
		Mean =		9.8	9.7
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a
		101		10.0	10.0
		207		10.0	10.0
		305		10.0	10.0
		402		10.0	10.0
		507		10.0	10.0
		604		10.0	10.0
		Mean =		10.0	10.0
5	FeSO4	20 %	SP		4.4 lb ai/a
		104		0.0	0.0
		205		0.0	1.0
		303		0.0	2.0
		406		0.0	0.0
		505		0.0	1.0
		602		3.0	3.0
		Mean =		0.5	1.5
6	FeSO4	20 %	SP		8.8 lb ai/a
		102		0.0	0.0
		203		0.0	1.0
		302		0.0	1.0
		404		0.0	0.0
		503		0.0	1.0
		606		0.0	1.0
		Mean =		0.0	1.0
7	FeSO4	20 %	SP		17.6 lb ai/a
		103		1.0	0.0
		201		0.0	1.0
		307		0.0	1.0
		405		1.0	0.0
		501		2.0	2.0
		607		0.0	1.0
		Mean =		0.7	1.2

North Carolina State University

Pest Type		W Weed	SENVU2	SENVU2	SENVU2
Pest Code		SENVU2	Common grou>	Common grou>	Common grou>
Pest Name		SENVU2	10/13/17	10/21/17	10/30/17
Rating Date		SENVU2	10/13/17	10/21/17	10/30/17
Rating Data Type		CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit		0-10	0-10	0-10	0-10
Days After First/Last Applic.		33 6	41 14	50 23	54 27
Trt-Eval Interval		6 DA-C	14 DA-C	23 DA-C	27 DA-C
Trt No.	Treatment Name	Form Conc	Form Unit	Rate Type	Unit Plot
1	nontreated	107	0.0	0.0	.
		204	0.0	.	.
		301	0.0	0.0	0.0
		407	0.0	0.0	0.0
		506	0.0	0.0	0.0
		603	0.0	0.0	0.0
		Mean =	0.0	0.0	0.0
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a
		105	10.0	10.0	.
		206	10.0	.	.
		304	9.0	10.0	10.0
		403	10.0	10.0	10.0
		502	10.0	10.0	10.0
		605	10.0	10.0	10.0
		Mean =	9.8	10.0	10.0
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a
		106	10.0	10.0	.
		202	10.0	.	.
		306	10.0	10.0	10.0
		401	10.0	10.0	10.0
		504	10.0	10.0	10.0
		601	10.0	10.0	10.0
		Mean =	10.0	10.0	10.0
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a
		101	10.0	10.0	.
		207	10.0	.	.
		305	10.0	10.0	10.0
		402	10.0	10.0	10.0
		507	10.0	10.0	10.0
		604	10.0	10.0	10.0
		Mean =	10.0	10.0	10.0
5	FeSO4	20 %	SP		4.4 lb ai/a
		104	0.0	0.0	.
		205	0.0	.	.
		303	1.0	0.0	1.0
		406	0.0	0.0	.
		505	1.0	.	.
		602	1.0	0.0	0.0
		Mean =	0.5	0.0	0.5
6	FeSO4	20 %	SP		8.8 lb ai/a
		102	0.0	0.0	.
		203	0.0	.	.
		302	0.0	0.0	0.0
		404	2.0	0.0	0.0
		503	0.0	0.0	0.0
		606	0.0	0.0	.
		Mean =	0.3	0.0	0.0
7	FeSO4	20 %	SP		17.6 lb ai/a
		103	0.0	0.0	.
		201	0.0	.	.
		307	0.0	0.0	0.0
		405	2.0	0.0	3.0
		501	2.0	2.0	5.0
		607	0.0	0.0	0.0
		Mean =	0.7	0.4	2.0

Eclipta seedling control - raw data											
						W Weed ECLAL2	W Weed ECLAL2	W Weed ECLAL2	W Weed ECLAL2	W Weed ECLAL2	
Pest Type	Pest Code	Pest Name	Rating Date	Rating Data Type	Rating Unit	Eclipta 09/11/17 CONTROL	Eclipta 09/17/17 CONTROL	Eclipta 09/25/17 CONTROL	Eclipta 09/27/17 CONTROL	Eclipta 10/02/17 CONTROL	
Days After First/Last Appl.	Trt-Eval Interval	Form Conc	Form Unit	Form Type	Rate Unit	0-10 1 1 1 DA-A	0-10 7 7 7 DA-A	0-10 15 1 1 DA-B	0-10 17 3 3 DA-B	0-10 22 8 8 DA-B	
Trt No.	Treatment Name	Plot	5	10	15	20	25	30			
1	nontreated		107 204 301 407 506 603		0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0	
		Mean =			0.0	0.0	0.0	0.0	0.0	0.0	
2	FeHEDTA (Fiesta)	61.6 G/L L	4.4 lb ai/a	105 206 304 403 502 605		8.0 9.0 6.0 9.0 9.0 9.0	9.0 9.0 4.0 9.0 9.0 9.0	8.0 8.0 8.0 9.9 9.0 9.0	8.0 8.0 8.0 9.0 9.0 9.0	8.0 8.0 8.0 9.0 9.0 9.0	7.0 6.0 8.0 9.0 9.0 9.0
		Mean =			8.3	8.2	8.7	8.5	8.5	8.0	
3	FeHEDTA (Fiesta)	61.6 G/L L	8.8 lb ai/a	106 202 306 401 504 601		9.0 9.0 9.0 9.0 9.0 9.0	9.0 9.0 9.0 9.9 9.0 9.5	9.0 9.0 9.5 10.0 9.0 10.0	9.0 9.0 9.0 10.0 9.0 10.0	9.0 9.0 9.0 10.0 9.0 9.0	8.0 9.0 8.0 10.0 9.0 9.0
		Mean =			9.0	9.2	9.4	9.3	9.2	9.0	
4	FeHEDTA (Fiesta)	61.6 G/L L	17.6 lb ai/a	101 207 305 402 507 604		9.0 9.0 9.0 9.0 9.0 9.0	9.5 9.5 9.5 9.9 9.9 10.0	9.9 10.0 10.0 10.0 10.0 10.0	10.0 10.0 10.0 10.0 10.0 10.0	9.0 10.0 10.0 10.0 10.0 10.0	9.0 10.0 10.0 10.0 10.0 10.0
		Mean =			9.0	9.7	10.0	10.0	9.8	9.8	
5	FeSO4	20 % SP	4.4 lb ai/a	104 205 303 406 505 602		0.0 1.0 1.0 0.0 1.0 0.0	1.0 1.0 1.0 1.0 0.0 3.0	1.0 2.0 0.0 1.0 1.0 2.0	1.0 1.0 1.0 1.0 1.0 2.0	0.0 2.0 0.0 0.0 1.0 3.0	0.0 1.0 1.0 0.0 0.0 1.0
		Mean =			0.5	1.2	1.2	1.2	1.0	0.5	
6	FeSO4	20 % SP	8.8 lb ai/a	102 203 302 404 503 606		1.0 1.0 1.0 1.0 0.0 0.0	1.0 0.0 0.0 1.0 1.0 0.0	1.0 1.0 1.0 1.0 1.0 1.0	1.0 1.0 1.0 1.0 1.0 1.0	0.0 0.0 0.0 0.0 0.0 0.0	0.0 1.0 0.0 0.0 0.0 0.0
		Mean =			0.7	0.5	1.0	1.0	0.3	0.0	
7	FeSO4	20 % SP	17.6 lb ai/a	103 201 307 405 501 607		1.0 1.0 1.0 1.0 1.0 1.0	0.0 1.0 0.0 0.0 1.0 1.0	1.0 1.0 1.0 1.0 1.0 1.0	1.0 0.0 1.0 1.0 1.0 1.0	0.0 0.0 1.0 0.0 1.0 0.0	0.0 0.0 0.0 0.0 0.0 0.0
		Mean =			1.0	0.3	1.0	0.8	0.7	0.0	

North Carolina State University

Pest Type	W Weed	W Weed	W Weed	ECLAL2	ECLAL2	ECLAL2
Pest Code	ECLAL2	ECLAL2	ECLAL2	Eclipta	Eclipta	Eclipta
Pest Name	Eclipta	Eclipta	Eclipta	10/13/17	10/21/17	10/30/17
Rating Date	10/08/17	10/10/17	10/13/17	10/13/17	10/21/17	10/30/17
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit	0-10	0-10	0-10	0-10	0-10	0-10
Days After First/Last Applic.	28	30	33	41	50	54
Trt-Eval Interval	1 DA-C	3 DA-C	6 DA-C	14 DA-C	23 DA-C	27 DA-C
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit Plot
1	nontreated	107	0.0	0.0	0.0	0.0
		204	0.0	0.0	0.0	0.0
		301	0.0	0.0	0.0	0.0
		407	0.0	0.0	0.0	0.0
		506	0.0	0.0	0.0	0.0
		603	0.0	0.0	0.0	0.0
		Mean =	0.0	0.0	0.0	0.0
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a	105
		206	7.0	7.0	7.0	6.0
		304	7.0	6.0	7.0	8.0
		403	9.0	9.0	9.0	9.0
		502	9.0	9.0	8.0	8.0
		605	9.0	9.0	9.0	9.0
		Mean =	8.3	8.3	8.0	8.3
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a	106
		202	9.0	9.0	9.0	9.0
		306	9.9	9.5	10.0	10.0
		401	10.0	10.0	10.0	10.0
		504	9.0	9.0	9.0	9.0
		601	10.0	10.0	10.0	10.0
		Mean =	9.5	9.6	9.6	9.7
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a	101
		207	10.0	10.0	10.0	10.0
		305	10.0	10.0	10.0	10.0
		402	10.0	10.0	10.0	10.0
		507	10.0	10.0	10.0	10.0
		604	10.0	10.0	10.0	10.0
		Mean =	10.0	10.0	10.0	10.0
5	FeSO4	20 %	SP	4.4 lb ai/a	104	0.0
		205	1.0	1.0	1.0	2.0
		303	0.0	0.0	0.0	0.0
		406	0.0	0.0	1.0	0.0
		505	0.0	0.0	0.0	0.0
		602	1.0	0.0	0.0	0.0
		Mean =	0.3	0.2	0.3	0.2
6	FeSO4	20 %	SP	8.8 lb ai/a	102	0.0
		203	1.0	1.0	0.0	0.0
		302	0.0	0.0	0.0	0.0
		404	1.0	1.0	1.0	0.0
		503	1.0	0.0	0.0	0.0
		606	1.0	0.0	0.0	0.0
		Mean =	0.7	0.3	0.2	0.0
7	FeSO4	20 %	SP	17.6 lb ai/a	103	0.0
		201	0.0	0.0	0.0	0.0
		307	1.0	1.0	0.0	0.0
		405	1.0	1.0	0.0	0.0
		501	1.0	1.0	0.0	0.0
		607	1.0	1.0	0.0	0.0
		Mean =	0.7	0.7	0.0	0.0

Seedling control. Fresh weights Raw data

Pest Type	LAMAM2	OXAST2	SENVU2							
Pest Code	Henbit	Common yell>	Common grou>							
Pest Name	11/03/17	11/03/17	11/03/17							
Rating Date	WEIFRE	WEIFRE	WEIFRE							
Rating Data Type	G	G	G							
Rating Unit	54 27	54 27	54 27							
Days After First/Last Applic.	27 DA-C	27 DA-C	27 DA-C							
Trt-Eval Interval										
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit Plot	61	62	63	
1	nontreated	107			5.0		31.0		54.0	
		204			30.0		42.0		83.0	
		301			43.0		39.0		72.0	
		407			28.0		34.0		59.0	
		506			32.0		46.0		73.0	
		603			37.0		48.0		55.0	
		Mean =				29.2	40.0	66.0		
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4	lb ai/a	105	15.0	14.0	18.0
		206			22.0		4.0		26.0	
		304			27.0		6.0		5.0	
		403			4.0		19.0		1.0	
		502			7.0		2.0		7.0	
		605			22.0		10.0		3.0	
		Mean =				16.2	9.2	10.0		
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8	lb ai/a	106	13.0	1.0	1.0
		202			9.0		0.0		0.0	
		306			7.0		0.0		0.0	
		401			2.0		0.0		0.0	
		504			20.0		0.0		1.0	
		601			15.0		0.0		0.0	
		Mean =				11.0	0.2	0.3		
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6	lb ai/a	101	1.0	0.0	0.0
		207			12.0		0.0		0.0	
		305			6.0		0.0		0.0	
		402			0.0		0.0		0.0	
		507			0.0		0.0		0.0	
		604			0.0		0.0		0.0	
		Mean =				3.2	0.0	0.0		
5	FeSO4	20 %	SP		4.4	lb ai/a	104	24.0	37.0	42.0
		205			13.0		39.0		44.0	
		303			23.0		44.0		53.0	
		406			19.0		43.0		35.0	
		505			21.0		37.0		64.0	
		602			24.0		49.0		30.0	
		Mean =				20.7	41.5	44.7		
6	FeSO4	20 %	SP		8.8	lb ai/a	102	24.0	45.0	58.0
		203			19.0		50.0		69.0	
		302			23.0		40.0		68.0	
		404			20.0		34.0		44.0	
		503			30.0		48.0		39.0	
		606			33.0		48.0		69.0	
		Mean =				24.8	44.2	57.8		
7	FeSO4	20 %	SP		17.6	lb ai/a	103	13.0	45.0	80.0
		201			20.0		25.0		72.0	
		307			25.0		36.0		55.0	
		405			23.0		24.0		38.0	
		501			29.0		30.0		50.0	
		607			31.0		36.0		56.0	
		Mean =				23.5	32.7	58.5		

RAW DATA

Established Weeds

North Carolina State University

FeHEDTA and FeSO₄ Efficacy on Established Broadleaf Weeds

Trial ID: HFL17FeGrowthStg
 Location: HFL, Raleigh NC

Protocol ID: HFL17FeGrowthStg
 Study Director: C. Harlow
 Investigator: Joseph C. Neal, Ph.D.

Pest Type		W Weed	W Weed	W Weed				
Pest Code	LAMAM	LAMAM	LAMAM	LAMAM	LAMAM	LAMAM	LAMAM	LAMAM
Pest Name	Henbit	Henbit	Henbit	Henbit	Henbit	Henbit	Henbit	Henbit
Crop Name								
Rating Date	09/08/17	09/10/17	09/14/17	09/20/17	09/23/17	09/25/17	09/29/17	
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	
Rating Unit	0-10	0-10	0-10	0-10	0-10	0-10	0-10	
Days After First/Last Applic.	1 1	3 3	7 7	13 13	16 1	18 3	22 7	
Trt-Eval Interval	1 DA-A	3 DA-A	7 DA-A	13 DA-A	1 DA-B	3 DA-B	7 DA-B	
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit Plot	1	7
1	nontreated	107			0.0		0.0	
		204			0.0		0.0	
		301			0.0		0.0	
		407			0.0		0.0	
		506			0.0		0.0	
		603			0.0		0.0	
		Mean =			0.0		0.0	
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4	lb ai/a	105	0.0
		206			2.0		2.0	
		304			3.0		3.0	
		403			3.0		3.0	
		502			1.0		2.0	
		605			2.0		3.0	
		Mean =			1.8		2.7	
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8	lb ai/a	106	4.0
		202			3.0		4.0	
		306			3.0		4.0	
		401			2.0		3.0	
		504			2.0		3.0	
		601			3.0		6.0	
		Mean =			2.8		4.0	
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6	lb ai/a	101	4.0
		207			4.0		6.0	
		305			4.0		7.0	
		402			4.0		6.0	
		507			4.0		7.0	
		604			4.0		8.0	
		Mean =			4.0		6.7	
							7.0	
							6.3	
							9.3	
							9.7	
							9.7	

North Carolina State University

Pest Type	W	Weed	W	Weed	W	Weed	W	Weed	W	Weed	W	Weed
Pest Code	LAMAM	Henbit	LAMAM	Henbit	LAMAM	Henbit	LAMAM	Henbit	LAMAM	Henbit	LAMAM	Henbit
Pest Name												
Crop Name												
Rating Date	10/05/17	10/06/17	10/08/17	10/13/17	10/20/17	10/27/17						
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO						
Rating Unit	0-10	0-10	0-10	0-10	0-10	0-10						
Days After First/Last Applic.	28	29	31	36	43	50						
Trt-Eval Interval	0	1	3	8	15	22						
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit Unit	Plot Plot					
1	nontreated				49		58	67	73	82	91	100
		107			0.0		0.0	0.0	0.0	0.0	.	.
		204			0.0		0.0	0.0	0.0	0.0	0.0	.
		301			0.0		0.0	0.0	0.0	0.0	0.0	0.0
		407			0.0		0.0	0.0	0.0	0.0	0.0	0.0
		506			0.0		0.0	0.0	0.0	0.0	0.0	0.0
		603			0.0		0.0	0.0	0.0	0.0	0.0	0.0
		Mean =			0.0		0.0	0.0	0.0	0.0	0.0	0.0
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4	lb ai/a	105	2.0	8.0	7.0	9.0	7.0
							206	2.0	4.0	8.0	8.0	9.0
							304	10.0	9.0	10.0	10.0	10.0
							403	3.0	4.0	8.0	9.0	9.0
							502	5.0	3.0	6.0	4.0	5.0
							605	9.0	9.0	10.0	10.0	10.0
							Mean =	5.2	6.2	8.2	8.3	7.6
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8	lb ai/a	106	6.0	9.0	8.0	9.0	8.0
							202	9.0	9.0	9.0	10.0	10.0
							306	9.0	9.0	9.0	10.0	10.0
							401	9.0	9.0	9.5	10.0	10.0
							504	9.0	9.0	10.0	10.0	10.0
							601	10.0	10.0	10.0	10.0	10.0
							Mean =	8.7	9.2	9.3	9.8	9.7
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6	lb ai/a	101	10.0	9.0	9.0	10.0	10.0
							207	10.0	10.0	9.5	10.0	10.0
							305	10.0	10.0	9.5	10.0	10.0
							402	9.0	9.0	9.0	9.0	9.0
							507	10.0	10.0	10.0	10.0	10.0
							604	10.0	9.0	10.0	10.0	10.0
							Mean =	9.8	9.5	9.5	9.8	9.8
												10.0

North Carolina State University

FeHEDTA and FeSO₄ Efficacy on Seedling Broadleaf Weeds

Trial ID: HFL17FeGrowthStg
 Location: HFL, Raleigh NC

Protocol ID: HFL17FeGrowthStg
 Study Director: C. Harlow
 Investigator: Joseph C. Neal, Ph.D.

Pest Type		W Weed CARFL	W Weed CARFL	W Weed CARFL	W Weed CARFL
Pest Code		Flexuous bi>	Flexuous bi>	Flexuous bi>	Flexuous bi>
Pest Name					
Crop Name					
Rating Date		09/08/17	09/10/17	09/14/17	09/20/17
Rating Data Type		CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit		0-10	0-10	0-10	0-10
Days After First/Last Applic.		1 1	3 3	7 7	13 13
Trt-Eval Interval		1 DA-A	3 DA-A	7 DA-A	13 DA-A
Trt No.	Treatment Name	Form Conc	Form Unit	Rate Type	Rate Unit
					Plot
1	nontreated			107	3
				204	9
				301	
				407	
				506	
				603	
				Mean =	15
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a
		105			105
				206	21
				304	
				403	
				502	
				605	
				Mean =	21
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a
		106			106
				202	3.8
				306	5.5
				401	
				504	
				601	
				Mean =	6.0
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a
		101			101
				207	4.3
				305	5.8
				402	
				507	
				604	
				Mean =	6.5
					6.2
					7.0

North Carolina State University

Pest Type		W Weed CARFL	W Weed CARFL	W Weed CARFL	W Weed CARFL					
Pest Code		Flexuous bi>	Flexuous bi>	Flexuous bi>	Flexuous bi>					
Pest Name										
Crop Name										
Rating Date		09/23/17	09/25/17	09/29/17	10/05/17					
Rating Data Type		CONTRO	CONTRO	CONTRO	CONTRO					
Rating Unit		0-10	0-10	0-10	0-10					
Days After First/Last Applic.		16 1	18 3	22 7	28 0					
Trt-Eval Interval		1 DA-B	3 DA-B	7 DA-B	13 DA-B					
Trt No.	Treatment Name	Form Conc	Form Unit	Rate Type	Rate Unit	Plot	27	33	42	51
1	nontreated					107	0.0	0.0	0.0	0.0
						204	0.0	0.0	0.0	0.0
						301	0.0	0.0	0.0	0.0
						407	0.0	0.0	0.0	0.0
						506	0.0	0.0	0.0	0.0
						603	0.0	0.0	0.0	0.0
						Mean =	0.0	0.0	0.0	0.0
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a	105	3.0	1.0	2.0	0.0
						206	7.0	8.0	9.0	9.0
						304	6.0	8.0	8.0	9.0
						403	3.0	1.0	0.0	0.0
						502	8.0	7.0	4.0	3.0
						605	4.0	3.0	3.0	1.0
						Mean =	5.2	4.7	4.3	3.7
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a	106	9.0	9.0	9.0	9.0
						202	7.0	4.0	8.0	4.0
						306	8.0	8.0	9.0	7.0
						401	9.0	9.0	9.0	8.0
						504	6.0	7.0	7.0	5.0
						601	5.0	1.0	3.0	0.0
						Mean =	7.3	6.3	7.5	5.5
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a	101	9.5	10.0	10.0	10.0
						207	9.0	9.0	9.0	9.0
						305	9.0	10.0	10.0	10.0
						402	9.0	10.0	10.0	10.0
						507	7.0	9.0	9.0	9.0
						604	9.0	9.0	9.0	10.0
						Mean =	8.8	9.5	9.5	9.7

North Carolina State University

Pest Type		W Weed CARFL	W Weed CARFL	W Weed CARFL	W Weed CARFL
Pest Code		Flexuous bi>	Flexuous bi>	Flexuous bi>	Flexuous bi>
Pest Name					
Crop Name					
Rating Date		10/06/17	10/08/17	10/13/17	10/20/17
Rating Data Type		CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit		0-10	0-10	0-10	0-10
Days After First/Last Applic.		29 1 1 DA-C	31 3 3 DA-C	36 8 8 DA-C	43 15 15 DA-C
Trt-Eval Interval					
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Unit
					Rate Plot
1	nontreated				60
		107			0.0
		204			0.0
		301			0.0
		407			0.0
		506			0.0
		603			0.0
		Mean =			0.0
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a
		105			105
		206			9.0
		304			9.0
		403			2.0
		502			5.0
		605			2.0
		Mean =			4.7
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a
		106			106
		202			6.0
		306			9.0
		401			9.0
		504			6.0
		601			2.0
		Mean =			7.0
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a
		101			101
		207			9.0
		305			10.0
		402			10.0
		507			9.0
		604			9.0
		Mean =			9.5

North Carolina State University

Pest Type					W Weed	W Weed
Pest Code					CARFL	CARFL
Pest Name					Flexuous bi>	Flexuous bi>
Crop Name						
Rating Date					10/27/17	11/02/17
Rating Data Type					CONTRO	CONTRO
Rating Unit					0-10	0-10
Days After First/Last Applic.					50 22	56 28
Trt-Eval Interval					22 DA-C	28 DA-C
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Plot Unit
1	nontreated	61.6	G/L	L	4.4 lb ai/a	93
					107	0.0
					204	.
					301	0.0
					407	7.0
					506	0.0
					603	0.0
					Mean =	1.4
2	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a	102
					105	0.0
					206	.
					304	10.0
					403	0.0
					502	1.0
					605	0.0
					Mean =	2.2
3	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a	106
					202	10.0
					306	.
					401	8.0
					504	0.0
					601	2.0
					Mean =	4.0
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a	101
					207	10.0
					305	.
					402	10.0
					507	0.0
					604	10.0
					Mean =	8.0
						10.0

North Carolina State University

FeHEDTA and FeSO₄ Efficacy on Seedling Broadleaf Weeds

Trial ID: HFL17FeGrowthStg
 Location: HFL, Raleigh NC

Protocol ID: HFL17FeGrowthStg
 Study Director: C. Harlow
 Investigator: Joseph C. Neal, Ph.D.

Pest Type	Pest Code	Pest Name	Crop Name	Rating Date	Rating Data Type	Rating Unit	Days After First/Last Applic.	Trt-Eval Interval	W Weed SENVU	W Weed SENVU	W Weed SENVU	W Weed SENVU
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit Unit	Plot	Plot	Common group	Common group	Common group	Common group
1	nontreated				107		4	10	0.0	0.0	0.0	0.0
					204				0.0	0.0	0.0	0.0
					301				0.0	0.0	0.0	0.0
					407				0.0	0.0	0.0	0.0
					506				0.0	0.0	0.0	0.0
					603				0.0	0.0	0.0	0.0
					Mean =				0.0	0.0	0.0	0.0
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4	lb ai/a	105		7.0	8.0	9.0	9.0
					206				8.0	9.0	9.0	9.0
					304				8.0	8.0	9.0	9.0
					403				8.0	8.0	9.0	9.0
					502				5.0	7.0	8.0	8.0
					605				8.0	9.0	9.0	9.0
					Mean =				7.3	8.2	8.8	8.8
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8	lb ai/a	106		6.0	9.0	9.0	9.0
					202				7.0	9.0	8.0	8.0
					306				8.0	9.0	9.0	10.0
					401				7.0	8.0	8.0	9.0
					504				8.0	8.0	9.0	9.0
					601				7.0	9.0	9.0	9.0
					Mean =				7.2	8.7	8.7	9.0
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6	lb ai/a	101		8.0	9.0	10.0	10.0
					207				8.0	9.0	9.0	10.0
					305				8.0	8.0	8.0	9.0
					402				8.0	9.0	9.0	10.0
					507				6.0	8.0	9.0	9.0
					604				9.0	9.0	9.0	10.0
					Mean =				7.8	8.7	9.0	9.7

North Carolina State University

Pest Type	W Weed SENVU	W Weed SENVU	W Weed SENVU	W Weed SENVU						
Pest Code	Common grou>	Common grou>	Common grou>	Common grou>						
Pest Name										
Crop Name										
Rating Date	09/23/17	09/25/17	09/29/17	10/05/17						
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO						
Rating Unit	0-10	0-10	0-10	0-10						
Days After First/Last Applic.	16 1 1 DA-B	18 3 3 DA-B	22 7 7 DA-B	28 0 13 DA-B						
Trt-Eval Interval										
Trt No.	Treatment Name	Form Conc	Form Unit	Rate Type	Rate Unit	Plot	28	34	43	52
1	nontreated									
		107					0.0	0.0	0.0	0.0
		204					0.0	0.0	0.0	0.0
		301					0.0	0.0	0.0	0.0
		407					0.0	0.0	0.0	0.0
		506					0.0	0.0	0.0	0.0
		603					0.0	0.0	0.0	0.0
		Mean =					0.0	0.0	0.0	0.0
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a	105	9.5	9.0	10.0	10.0
						206	9.0	10.0	10.0	10.0
						304	10.0	10.0	5.0	10.0
						403	10.0	10.0	10.0	10.0
						502	9.5	10.0	10.0	10.0
						605	10.0	10.0	10.0	10.0
		Mean =					9.7	9.8	9.2	10.0
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a	106	10.0	10.0	10.0	10.0
						202	10.0	10.0	10.0	10.0
						306	10.0	10.0	5.0	10.0
						401	10.0	10.0	10.0	10.0
						504	10.0	10.0	10.0	10.0
						601	10.0	10.0	10.0	10.0
		Mean =					10.0	10.0	9.2	10.0
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a	101	10.0	10.0	10.0	10.0
						207	10.0	10.0	10.0	10.0
						305	10.0	10.0	9.0	10.0
						402	10.0	10.0	10.0	10.0
						507	10.0	10.0	10.0	10.0
						604	10.0	10.0	10.0	10.0
		Mean =					10.0	10.0	9.8	10.0

North Carolina State University

Pest Type					W Weed SENVU	W Weed SENVU	W Weed SENVU	W Weed SENVU
Pest Code					Common grou>	Common grou>	Common grou>	Common grou>
Pest Name								
Crop Name								
Rating Date					10/06/17	10/08/17	10/13/17	10/20/17
Rating Data Type					CONTRO	CONTRO	CONTRO	CONTRO
Rating Unit					0-10	0-10	0-10	0-10
Days After First/Last Applic.					29 1	31 3	36 8	43 15
Trt-Eval Interval					1 DA-C	3 DA-C	8 DA-C	15 DA-C
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit Unit	Plot	Plot
1	nontreated				107	0.0	61	70
					204	0.0		
					301	0.0		
					407	0.0		
					506	0.0		
					603	0.0		
					Mean =	0.0		
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4	lb ai/a	105	9.0
					206	9.0		
					304	9.0		
					403	9.0		
					502	9.0		
					605	9.0		
					Mean =	9.0		
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8	lb ai/a	106	10.0
					202	10.0		
					306	10.0		
					401	10.0		
					504	9.0		
					601	10.0		
					Mean =	9.8		
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6	lb ai/a	101	10.0
					207	10.0		
					305	10.0		
					402	10.0		
					507	10.0		
					604	10.0		
					Mean =	10.0		

North Carolina State University

Pest Type		W Weed	W Weed					
Pest Code		SENVU	SENVU					
Pest Name		Common grou>	Common grou>					
Crop Name								
Rating Date		10/27/17	11/02/17					
Rating Data Type		CONTRO	CONTRO					
Rating Unit		0-10	0-10					
Days After First/Last Applic.		50 22	56 28					
Trt-Eval Interval		22 DA-C	28 DA-C					
Trt No.	Treatment Name	Form Conc	Form Unit	Rate Type	Rate Unit	Plot	94	103
1	nontreated						.	.
				107				
				204				
				301		0.0		0.0
				407				
				506				
				603		0.0		
				Mean =		0.0		0.0
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a	105	.	.
						206	.	.
						304	9.0	10.0
						403	.	.
						502	.	.
						605	10.0	.
				Mean =		9.5		10.0
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a	106	.	.
						202	.	.
						306	10.0	10.0
						401	.	.
						504	.	.
						601	10.0	.
				Mean =		10.0		10.0
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a	101	.	.
						207	.	.
						305	10.0	10.0
						402	.	.
						507	.	.
						604	10.0	.
				Mean =		10.0		10.0

North Carolina State University

FeHEDTA and FeSO₄ Efficacy on Seedling Broadleaf Weeds

Trial ID: HFL17FeGrowthStg
 Location: HFL, Raleigh NC

Protocol ID: HFL17FeGrowthStg
 Study Director: C. Harlow
 Investigator: Joseph C. Neal, Ph.D.

Pest Type		W Weed	W Weed	W Weed	W Weed	W Weed	W Weed				
Pest Code		ECLAL	ECLAL	ECLAL	ECLAL	ECLAL	ECLAL				
Pest Name		Eclipta	Eclipta	Eclipta	Eclipta	Eclipta	Eclipta				
Crop Name											
Rating Date	09/08/17										
Rating Data Type	CONTRO										
Rating Unit	0-10										
Days After First/Last Applic.	1	1	3	7	13	16	18				
Trt-Eval Interval	1 DA-A	3 DA-A	7 DA-A	13 DA-A	1 DA-B	3 DA-B					
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit Plot					
1	nontreated	107	0.0	0.0	0.0	0.0	0.0				
		204	0.0	0.0	0.0	0.0	0.0				
		301	0.0	0.0	0.0	0.0	0.0				
		407	0.0	0.0	0.0	0.0	0.0				
		506	0.0	0.0	0.0	0.0	0.0				
		603	0.0	0.0	0.0	0.0	0.0				
		Mean =	0.0	0.0	0.0	0.0	0.0				
2	FeHEDTA (Fiesta)	61.6 G/L	L	4.4 lb ai/a	105	4.0	5.0	5.0	2.0	5.0	4.0
		206	5.0	7.0	7.0	4.0	8.0	7.0			
		304	4.0	7.0	5.0	3.0	6.0	6.0			
		403	5.0	7.0	8.0	1.0	7.0	5.0			
		502	4.0	7.0	5.0	4.0	8.0	6.0			
		605	5.0	7.0	6.0	1.0	8.0	5.0			
		Mean =	4.5	6.7	6.0	2.5	7.0	5.5			
3	FeHEDTA (Fiesta)	61.6 G/L	L	8.8 lb ai/a	106	7.0	8.0	9.0	8.0	9.5	9.0
		202	7.0	8.0	8.0	6.0	9.5	9.0			
		306	4.0	7.0	5.0	4.0	8.0	7.0			
		401	6.0	8.0	8.0	4.0	9.0	6.0			
		504	5.0	8.0	6.0	5.0	9.0	8.0			
		601	8.0	8.0	8.0	5.0	8.5	8.0			
		Mean =	6.2	7.8	7.3	5.3	8.9	7.8			
4	FeHEDTA (Fiesta)	61.6 G/L	L	17.6 lb ai/a	101	6.0	7.0	8.0	3.0	9.5	9.0
		207	7.0	8.0	9.0	7.0	9.5	9.0			
		305	6.0	8.0	8.0	7.0	9.0	9.0			
		402	6.0	9.0	9.0	7.0	9.5	9.0			
		507	7.0	9.0	9.0	7.0	9.5	10.0			
		604	8.0	9.0	9.0	9.0	9.5	9.0			
		Mean =	6.7	8.3	8.7	6.7	9.4	9.2			

North Carolina State University

Pest Type	W	Weed	W	Weed	W	Weed	W	Weed	W	Weed
Pest Code	ECLAL	Eclipta	ECLAL	Eclipta	ECLAL	Eclipta	ECLAL	Eclipta	ECLAL	Eclipta
Pest Name										
Crop Name										
Rating Date	09/29/17	10/05/17	10/06/17	10/08/17	10/13/17	10/20/17				
Rating Data Type	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	CONTRO				
Rating Unit	0-10	0-10	0-10	0-10	0-10	0-10				
Days After First/Last Applic.	22	28	29	31	36	43				
Trt-Eval Interval	7 DA-B	13 DA-B	1 DA-C	3 DA-C	8 DA-C	15 DA-C				
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit Unit	Plot			
1	nontreated	107			0.0		44	53	62	71
		204			0.0					
		301			0.0					
		407			0.0					
		506			0.0					
		603			0.0					
		Mean =			0.0					
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4	lb ai/a	105	2.0	2.0	9.0
					206		6.0	4.0	9.0	9.0
					304		10.0	4.0	9.0	9.0
					403		5.0	4.0	9.0	9.5
					502		4.0	3.0	9.0	9.0
					605		3.0	2.0	9.0	7.0
					Mean =		5.0	3.2	9.0	8.8
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8	lb ai/a	106	9.0	9.0	9.5
					202		8.0	8.0	10.0	10.0
					306		10.0	5.0	9.0	9.5
					401		7.0	7.0	9.0	9.5
					504		9.0	7.0	9.0	9.0
					601		9.0	6.0	9.0	10.0
					Mean =		8.7	7.0	9.2	9.7
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6	lb ai/a	101	9.0	9.0	9.5
					207		10.0	9.0	10.0	10.0
					305		10.0	9.0	10.0	10.0
					402		10.0	9.0	10.0	10.0
					507		10.0	10.0	10.0	10.0
					604		10.0	9.0	10.0	10.0
					Mean =		9.8	9.2	9.5	10.0

North Carolina State University

Pest Type		W Weed					
Pest Code		ECLAL					
Pest Name		Eclipta					
Crop Name							
Rating Date		10/27/17					
Rating Data Type		CONTRO					
Rating Unit		0-10					
Days After First/Last Applic.		50 22					
Trt-Eval Interval		22 DA-C					
Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate Rate	Unit Plot	95
1	nontreated				107 204 301 407 506 603		0.0 0.0 0.0 0.0 0.0 0.0
					Mean =		0.0
2	FeHEDTA (Fiesta)	61.6	G/L	L	4.4 lb ai/a	105 206 304 403 502 605	5.0 8.0 6.0 8.0 8.0 6.0
					Mean =		6.8
3	FeHEDTA (Fiesta)	61.6	G/L	L	8.8 lb ai/a	106 202 306 401 504 601	10.0 10.0 9.0 9.0 10.0 9.0
					Mean =		9.5
4	FeHEDTA (Fiesta)	61.6	G/L	L	17.6 lb ai/a	101 207 305 402 507 604	10.0 10.0 10.0 10.0 10.0 10.0
					Mean =		10.0