

Leafy Spurge Control by Tebuthiuron Applied in 1983

Location:	NE ¹ / ₄ , NE ¹ / ₄ , SW ¹ / ₄ Sec. 22, T. 141 N., R. 104 W. Property of Dale Maus
Replications:	Two Randomized Block Design
Study Size:	53' x 80' 0.1 acres
Plot Size:	10' x 53' 0.012 acres
Perimeter border:	2'
Soil:	Vebar fine sand loam
Range Site:	Sandy
Herbicide:	Tebuthiuron 20% concentrated pellets
Application Date:	12 July 1983
Treatments:	0 lbs ai/acre 1 lbs ai/acre 2 lbs ai/acre 3 lbs ai/acre

Figure 1: Control of Leafy Spurge with Tebuthiuron

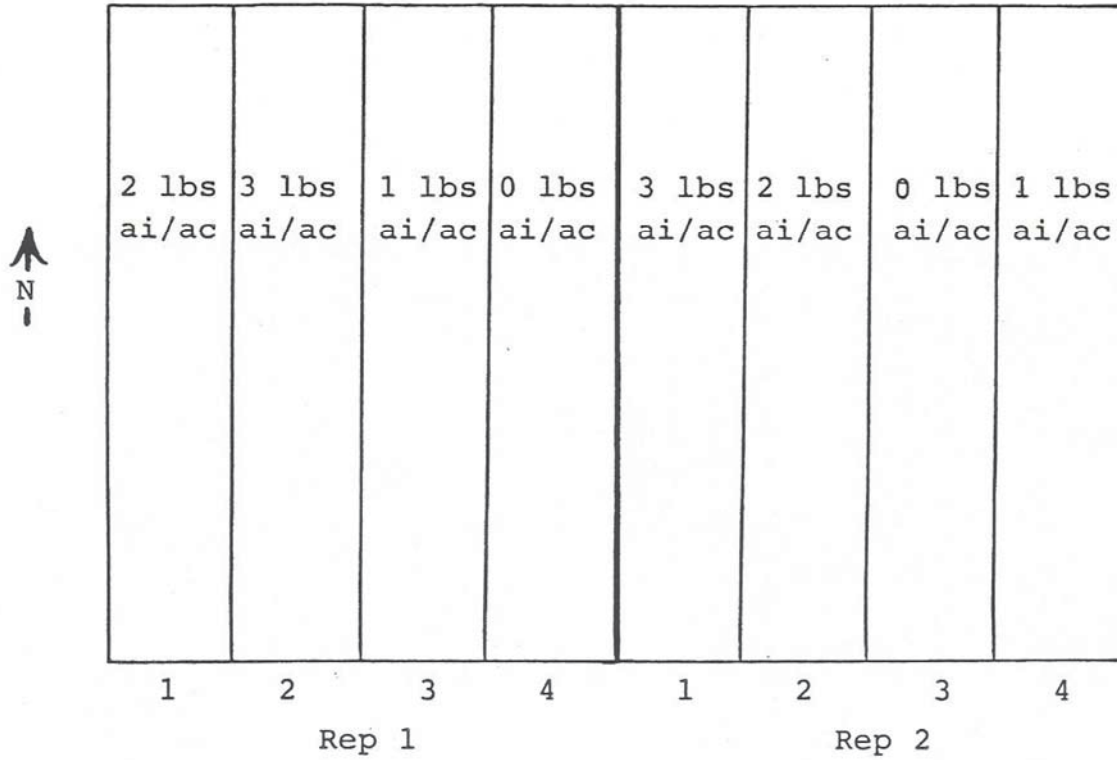


Figure 1. Control of Leafy Spurge with Tebuthiuron randomized block plot design with two replications. Rates are 0,1,2 and 3 pounds of active ingredient per acre using 20 percent concentration pellets. Located at NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 22, T.141 N., R.104 W. Plots are 10 feet by 53 feet.

Leafy Spurge Control by Tebuthiuron Applied in 1984

Location: NE $\frac{1}{4}$, SE $\frac{1}{4}$, NE $\frac{1}{4}$ Sec. 4, T. 140 N., R. 103 W.
Property of Cecil Adams

Replications: Two Randomized Block Design

Study Size: 44' x 120' 0.12 acres
Plot Size: 22' x 30' 0.02 acres
Perimeter Border: 2'

Soil: Havrelon silt loam

Range Site: Overflow

Herbicide: Tebuthiuron
20% concentrated pellets

Application Date: 4 June 1984

Treatments: 0 lbs ai/acre
1 lbs ai/acre
2 lbs ai/acre
3 lbs ai/acre

Figure 2: Plot Diagram for the 1984 Applied Tebuthiuron Leafy Spurge Control Trial

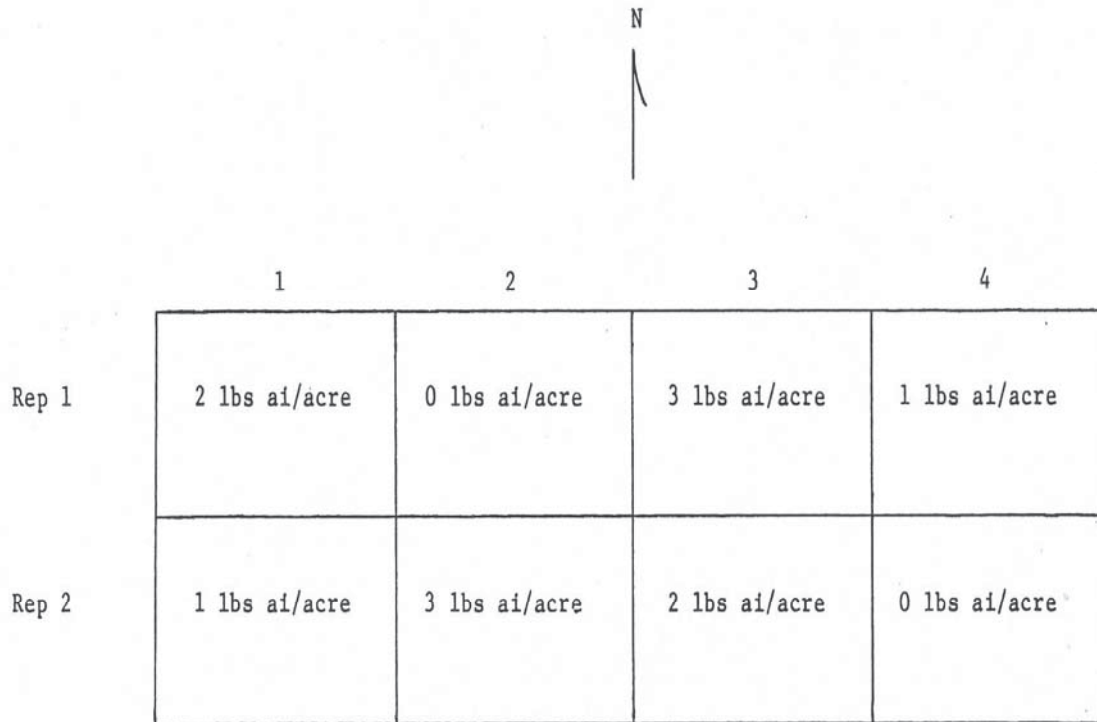


Figure 2. Plot diagram for the 1984 applied Tebuthiuron leafy spurge control trial at the Dickinson Experiment Station, 1984.

**Table 1. Mean Above Ground Herbage Production in Lbs/Acre for the 1983 Applied
Tebuthiuron Leafy Spurge Control Trial at the Dickinson Experiment Station, 1984**

Herbicide Rate In Lbs Ai / Acre	5 Jun	19 Jun	6 Jul	8 Aug	6 Sep	8 Oct
0 Lbs:						
Spurge	692.2	1193.5	1301.4	452.3	438.9	454.9
Grass	946.4	992.8	828.7	1063.3	1002.6	917.0
Forbs	0.0	1.8	17.8	14.3	0.0	0.0
Shrubs	0.0	1.8	8.9	0.0	0.0	0.0
TOTAL	1638.6	2189.9	2156.9	1529.8	1441.5	1371.9
1 Lbs:						
Spurge	360.4	548.6	576.2	251.5	223.0	109.7
Grass	614.6	986.6	762.3	1244.3	565.5	383.6
Forbs	0.0	0.0	0.0	0.0	0.0	0.0
Shrubs	0.0	7.1	21.4	0.0	0.0	0.0
TOTAL	915.0	1542.3	1359.9	1495.9	788.5	493.3
2 Lbs:						
Spurge	567.3	396.7	426.3	388.9	116.0	126.7
Grass	435.3	255.1	246.2	517.2	311.3	190.0
Forbs	0.0	5.4	8.0	0.0	0.0	0.0
Shrubs	17.8	44.6	22.3	0.0	0.0	0.0
TOTAL	1020.5	701.8	702.8	906.1	389.8	316.7
3 Lbs:						
Spurge	449.6	264.9	137.4	95.5	66.9	62.4
Grass	346.1	612.0	132.9	445.1	243.5	195.4
Forbs	0.0	0.0	0.0	0.0	0.0	0.0
Shrubs	0.0	0.0	9.8	0.0	0.0	0.0
TOTAL	795.7	876.9	280.1	540.6	310.4	257.8

**Table 2. Mean Leafy Spurge Densities in Stems per Foot Square for the 1983 Applied
Tebuthiuron Leafy Spurge Control Trial at the Dickinson Experiment Station, 1984**

Herbicide Rate In Lbs Ai / Acre	5 Jun	19 Jun	6 Jul	8 Aug	6 Sep	8 Oct	8 Nov
0 Lbs:							
Seedling	23.1	26.6	0.0	0.0	0.0	0.0	0.0
Mature	14.7	23.5	18.2	10.9	7.9	0.0	0.0
Regrowth	0.0	0.0	0.0	0.0	0.0	0.9	0.1
Dead	0.0	0.1	0.0	1.2	2.1	14.6	8.5
Dead Regrowth	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1 Lbs:							
Seedling	23.1	3.3	0.0	0.0	0.0	0.0	0.0
Mature	12.5	14.6	9.9	5.8	3.7	0.0	0.0
Regrowth	0.0	0.0	0.0	0.0	0.0	3.4	0.2
Dead	0.0	0.9	0.2	1.0	3.2	3.0	3.6
Dead Regrowth	0.0	0.0	0.0	0.0	0.0	0.0	0.3
2 Lbs:							
Seedling	27.0	4.5	0.0	0.0	0.0	0.0	0.0
Mature	17.1	15.7	10.7	4.0	1.1	0.0	0.0
Regrowth	0.0	0.0	0.0	0.0	0.0	7.8	2.2
Dead	0.0	0.7	1.8	3.3	3.7	5.8	0.7
Dead Regrowth	0.0	0.0	0.0	0.0	0.0	0.0	0.7
3 Lbs:							
Seedling	12.0	26.6	0.2	0.0	0.0	0.0	0.0
Mature	15.8	23.5	3.7	0.8	0.1	0.0	0.0
Regrowth	0.0	0.0	0.0	0.0	0.0	6.5	4.9
Dead	0.0	0.1	2.0	1.2	2.4	2.1	0.2
Dead Regrowth	0.0	0.0	0.0	0.0	0.0	0.0	1.4

**Table 3. Mean Dry Weight per Stem of Leafy Spurge in Grams for the 1983 Applied
Tebuthiuron Leafy Spurge Control Trial at the Dickinson Experiment Station, 1984**

Herbicide Rate In Lbs Ai / Acre	Grams / Stem					
	5 Jun	19 Jun	6 Jul	8 Aug	6 Sep	8 Oct
0 lbs	0.49	0.53	0.74	0.39	0.46	0.34
1 lbs	0.30	0.36	0.59	0.39	0.34	0.25
2 lbs	0.35	0.29	0.36	0.28	0.25	0.09
3 lbs	0.30	0.16	0.25	0.56	0.28	0.08

**Table 4. Mean Percentage of Difference in Herbage Production from the Application Date
for the 1983 Applied Tebuthiuron Leafy Spurge Control Trial at the Dickinson
Experiment Station, 1984**

Herbicide Rate In Lbs Ai / Acre	5 Jun	19 Jun	6 Jul	8 Aug	6 Sep	8 Oct
	Days after Treatment					
	329	343	360	393	422	454
0 Lbs:						
Spurge	-48.95	-11.97	- 4.01	-66.64	-67.63	-66.45
Grass	- 5.71	- 1.09	-17.44	+ 5.94	- 0.11	- 8.64
1 Lbs:						
Spurge	-64.03	-45.30	-42.49	-74.90	-77.74	-89.05
Grass	-48.09	-16.67	-35.61	+ 5.10	-52.23	-67.60
2 Lbs:						
Spurge	-66.42	-76.52	-74.77	-76.98	-93.13	-92.50
Grass	-52.49	-72.16	-73.13	-43.56	-66.03	-79.26
3 Lbs:						
Spurge	-64.95	-79.35	-89.29	-92.55	-94.78	-95.14
Grass	-68.17	-43.72	-87.78	-59.07	-77.61	-82.03

Table 5. Mean Percentage of Difference in Mature Leafy Spurge Stem Density from the Application Date for the 1983 Applied Tebuthiuron Leafy Spurge Control Trial At the Dickinson Experiment Station, 1984

Herbicide Rate In Lbs Ai / Acre	5 Jun	19 Jun	6 Jul	8 Aug	6 Sep	8 Oct	8 Nov
	Days After Treatment						
	329	343	360	393	422	454	485
0 lbs	+12.06	+79.43	+39.01	-17.02	-39.72	-100.00	-100.00
1 lbs	+13.56	+33.05	- 9.32	-47.46	-66.10	-100.00	-100.00
2 lbs	- 8.46	-15.92	-42.79	-78.61	-94.03	-100.00	-100.00
3 lbs	-29.46	+ 4.98	-83.40	-96.27	-99.59	-100.00	-100.00

Table 6. Mean Percentage of Difference in Mean Dry Weight per Stem of Leafy Spurge from the Application Date for the 1983 Applied Tebuthiuron Leafy Spurge Control Trial at the Dickinson Experiment Station, 1984

Herbicide Rate In Lbs Ai / Acre	5 Jun	19 Jun	6 Jul	8 Aug	6 Sep	8 Oct
	Days After Treatment					
	329	343	360	393	422	454
0 lbs	-54.63	-50.93	-31.48	-63.89	-57.41	-68.52
1 lbs	-69.70	-63.64	-40.40	-60.61	-65.66	-74.75
2 lbs	-63.92	-70.10	-62.89	-71.13	-74.23	-90.72
3 lbs	-64.71	-81.18	-70.59	-34.12	-67.06	-90.59

Table 7. Mean Percentage of Difference in Herbage Production, Leafy Spurge Stem Density and Weight per Stem of Leafy Spurge from the Application Date for the 1983 Applied Tebuthiuron Leafy Spurge Control Trial at the Dickinson Experiment Station, 1984

Herbicide Rate In Lbs Ai / Acre	5 Jun	19 Jun	6 Jul	8 Aug	6 Sep	8 Oct	8 Nov
	Days After Treatment						
	329	343	360	393	422	454	485
0 Lbs:							
Herbage Production:							
Leafy Spurge	-48.95	-11.97	- 4.01	-66.64	-67.63	-66.45	
Grass	- 5.71	- 1.09	-17.44	+ 5.94	- 0.11	- 8.64	
Stem Density	+12.06	+79.43	+39.01	-17.02	-39.72	-100.00	-100.00
Stem Weight	-54.63	-50.93	-31.48	-63.89	-57.41	-68.52	
1 Lbs:							
Herbage Production::							
Leafy Spurge	- 64.03	- 45.30	-42.49	-74.90	-77.74	-89.05	
Grass	- 48.09	- 16.67	-35.61	+ 5.10	-52.23	-67.60	
Stem Density	+13.56	+33.05	- 9.32	-47.46	-66.10	-100.00	-100.00
Stem Weight	-69.70	-63.64	-40.40	-60.61	-65.66	-74.75	
2 Lbs:							
Herbage Production:							
Leafy Spurge	-66.42	-76.52	-74.77	-76.98	-93.13	-92.50	
Grass	-52.49	-72.16	-73.13	-43.56	-66.03	-79.26	
Stem Density	- 8.46	-15.92	-42.79	-78.61	-94.03	-100.00	-100.00
Stem Weight	-63.92	-70.10	-62.89	-71.13	-74.23	-90.72	
3 Lbs:							
Herbage Production:							
Leafy Spurge	-64.95	-79.35	-89.29	-92.55	-94.78	-95.14	
Grass	-68.17	-43.72	-87.78	-59.07	-77.61	-82.03	
Stem Density	-29.46	+ 4.98	-83.40	-96.27	-99.59	-100.00	-100.00
Stem Weight	-64.71	-81.18	-70.59	-34.12	-67.06	-90.59	

Table 8. Mean Above Ground Herbage Production in Lbs/Acre for the 1984 Applied Tebuthiuron Leafy Spurge Control Trial at the Dickinson Experiment Station, 1984

Herbicide Rate In Lbs Ai / Acre	5 Jun	19 Jun	6 Jul	8 Aug	6 Sep	8 Oct
0 Lbs:						
Spurge	2184.4	2575.2	2988.2	2052.5	2080.2	1764.4
Grass	8.9	26.8	1.8	5.4	0.0	102.6
Forbs	1.8	0.0	0.0	0.0	0.0	0.0
Shrubs	28.6	0.0	25.9	15.2	83.9	24.1
TOTAL	2223.6	2602.0	3015.9	2073.0	2164.0	1891.0
1 Lbs:						
Spurge	2337.9	2317.4	2401.3	1699.3	1464.7	1545.0
Grass	48.2	9.8	19.6	17.8	0.0	29.4
Forbs	5.4	0.0	0.0	0.0	0.0	0.0
Shrubs	32.1	45.5	0.0	0.0	0.0	0.0
TOTAL	2423.6	2372.7	2420.9	1717.1	1464.7	1574.4
2 Lbs:						
Spurge	2556.5	2750.0	2040.0	1496.8	1220.3	1343.4
Grass	35.7	8.0	6.3	0.0	0.0	17.8
Forbs	0.0	0.0	0.0	7.1	0.0	0.0
Shrubs	108.8	8.0	0.9	0.0	0.0	0.0
TOTAL	2701.0	2766.1	2047.2	1503.9	1220.3	1361.2
3 Lbs:						
Spurge	2769.7	2413.8	1401.3	1290.7	854.5	1291.6
Grass	8.9	58.0	32.1	232.8	0.0	0.0
Forbs	4.5	0.0	0.0	0.0	0.0	0.0
Shrubs	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	2783.0	2471.7	1433.4	1523.5	854.5	1291.6

Table 9. Mean Leafy Spurge Densities in Stems per Foot Square for the 1984 Applied Tebuthiuron Leafy Spurge Control Trial at the Dickinson Experiment Station, 1984

Herbicide Rate In Lbs Ai / Acre	5 Jun	19 Jun	6 Jul	8 Aug	6 Sep	8 Oct	8 Nov
0 Lbs:							
Seedling	72.1	59.7	0.0	0.0	0.0	0.0	0.0
Mature	54.5	39.3	43.7	33.7	36.9	7.2	0.0
Regrowth	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dead	0.0	0.0	0.0	1.8	1.8	24.9	36.0
1 Lbs:							
Seedling	24.8	24.0	0.0	0.0	0.0	0.0	0.0
Mature	56.5	45.5	34.4	27.3	29.8	6.0	0.0
Regrowth	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Dead	0.0	0.0	0.0	1.6	4.2	22.5	23.2
2 Lbs:							
Seedling	45.1	32.5	1.0	0.0	0.0	0.0	0.0
Mature	49.2	44.6	26.4	29.9	27.9	10.1	0.0
Regrowth	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Dead	0.0	0.0	0.0	3.4	1.2	20.3	23.6
3 Lbs:							
Seedling	28.4	46.5	0.0	0.2	0.0	0.0	0.0
Mature	62.3	48.8	28.0	32.3	23.5	13.2	0.0
Regrowth	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Dead	0.0	0.0	0.0	1.5	4.2	12.8	22.8

Table 10. Mean Dry Weight per Stem of Leafy Spurge in Grams for the 1984 Applied Tebuthiuron Leafy Spurge Control Trial at the Dickinson Experiment Station. 1984

Herbicide Rate In Lbs Ai / Acre	Grams / Stem					
	5 Jun	19 Jun	6 Jul	8 Aug	6 Sep	8 Oct
0 lbs	0.45	0.68	0.71	0.61	0.56	0.58
1 lbs	0.43	0.55	0.73	0.63	0.45	0.56
2 lbs	0.51	0.64	0.81	0.47	0.44	0.45
3 lbs	0.46	0.52	0.52	0.47	0.33	0.52

Table 11. Mean Percentage of Difference in Herbage Production from the Application Date for the 1984 Applied Tebuthiuron Leafy Spurge Control Trial at the Dickinson Experiment Station, 1984

Herbicide Rate In Lbs Ai / Acre	5 Jun	19 Jun	6 Jul	8 Aug	6 Sep	8 Oct
	Days After Treatment					
	0	14	31	64	93	125
0 Lbs:						
Spurge		+17.89	+36.80	- 6.04	- 4.77	-19.23
Grass		+ 2.00	-79.93	-40.02	-100.00	+1050.00
1 Lbs:						
Spurge		- 0.88	+ 2.71	-27.32	-37.35	-33.92
Grass		- 79.63	-59.25	-62.96	-100.00	-38.88
2 Lbs:						
Spurge		+ 7.57	-20.20	-41.45	-52.27	-47.45
Grass		- 77.49	-82.48	-100.00	-100.00	-50.00
3 Lbs:						
Spurge		-12.85	-49.40	-53.40	-69.15	-53.37
Grass		+550.00	+259.98	+2509.98	-100.00	-100.00

Table 12. Mean Percentage of Difference in Mature Leafy Spurge Stem Density from the Application Date for the 1984 Applied Tebuthiuron Leafy Spurge Control Trial at the Dickinson Experiment Station, 1984

Herbicide Rate In Lbs Ai / Acre	5 Jun	19 Jun	6 Jul	8 Aug	6 Sep	8 Oct	8 Nov
	Days After Treatment						
	0	14	31	64	93	125	156
0 lbs		-27.94	-19.93	-38.16	-32.37	-86.88	-100.00
1 lbs		-19.41	-39.14	-51.64	-47.20	-89.47	-100.00
2 lbs		- 9.43	-46.42	-39.25	-43.40	-79.43	-100.00
3 lbs		-21.76	-55.14	-48.14	-62.30	-78.84	-100.00

Table 13. Mean Percentage of Difference in Mean Dry Weight per Stem of Leafy Spurge from the Application Date for the 1984 Applied Tebuthiuron Leafy Spurge Control Trial at the Dickinson Experiment Station, 1984

Herbicide Rate In Lbs Ai / Acre	5 Jun	19 Jun	6 Jul	8 Aug	6 Sep	8 Oct
	Days After Treatment					
	0	14	31	64	93	125
0 lbs		+51.11	+57.78	+35.56	+24.44	+28.89
1 lbs		+27.91	+69.77	+46.52	+ 4.65	+30.23
2 lbs		+30.20	+58.82	- 7.84	-13.73	-11.76
3 lbs		+ 6.00	+ 6.00	+ 2.17	-28.26	+ 6.00

Table 14. Mean Percentage of Difference in Herbage Production, Leafy Spurge Stem Density and Weight per Stem of Leafy Spurge from the Application Date for the 1984 Applied Tebuthiuron Leafy Spurge Control Trial at the Dickinson Experiment Station, 1984

Herbicide Rate In Lbs Ai / Acre	5 Jun	19 Jun	6 Jul	8 Aug	6 Sep	8 Oct	8 Nov
	Days After Treatment						
	0	14	31	64	93	125	156
0 Lbs:							
Herbage Production:							
Leafy Spurge		+17.89	+36.80	- 6.04	- 4.77	-19.23	
Grass		+ 2.00	-79.93	-40.02	-100.00	+1050.00	
Stem Density		-27.94	-19.93	-38.16	-32.37	-86.88	-100.00
Stem Weight		+51.11	+57.78	+35.56	+24.44	+28.89	
1 Lbs:							
Herbage Production:							
Leafy Spurge		- 0.88	+ 2.71	-27.32	-37.35	-33.92	
Grass		-79.63	-59.25	-62.96	-100.00	-38.88	
Stem Density		-19.41	-39.14	-51.64	-47.20	-89.47	-100.00
Stem Weight		+27.91	+69.77	+46.52	+ 4.65	+30.23	
2 Lbs:							
Herbage Production:							
Leafy Spurge		+ 7.57	-20.20	-41.45	-52.27	-47.45	
Grass		-77.49	-82.48	-100.00	-100.00	-50.00	
Stem Density		- 9.43	-46.42	-39.25	-43.40	-79.43	-100.00
Stem Weight		+30.20	+58.82	- 7.84	-13.73	-11.76	
3 Lbs:							
Herbage Production:							
Leafy Spurge		-12.85	-49.40	-53.40	-69.15	-53.37	
Grass		+550.00	+259.98	+2509.98	-100.00	-100.00	
Stem Density		-21.76	-55.14	-48.14	-62.30	-78.84	-100.00
Stem Weight		+ 6.00	+ 6.00	+ 2.17	-28.26	+ 6.00	