DATA EVALUATION RECORD
VEGETATIVE VIGOR EC_{25} TEST
GUIDELINE 123-1 (TIER II)

1. **CHEMICAL:** Glyphosate, Shaughnessey #:103601

2. **TEST MATERIAL:** N-phosphonomethylglycine, CAS No. 1071-83-6, Lot No. RUD-9202-4776-T (Technical), RUD-9202-3961-A (Analytical Standard), Purity:96.6%, White Powder.

3. **CITATION:** Chetram, R.S., 1994. Tier 2 Vegetative Vigor Nontarget Phytotoxicity Study Using Glyphosate. Pan-Ag Study No. 93235. Conducted by Pan-Agricultural Labs, Inc. Madera, CA. Submitted by Monsanto, St. Louis, MO. EPA MRID No. 430887-01.

4. **REVIEWED BY:**
Michael Davy
Agronomist
Ecological Effects Branch (7507C)
U.S.E.P.A.
Signature: Michael Davy
Date: 12/6/94

5. **APPROVED BY:**
Daniel Rieder
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Ecological Effects Branch (7507C)
U.S.E.P.A.
Signature: Daniel Rieder
Date: 12-6-94

6. **CONCLUSION:** This study is scientifically valid and has met all of the guidelines for 123-1 (b) vegetative vigor for non-target plants and is classified as core. The most sensitive monocot is corn with an EC_{25} value of 0.4341 lb ae/A. The most sensitive dicot is tomato with an EC_{25} value of 0.1106 lb ae/A.

7. **ADEQUACY OF THE STUDY:** CORE

8. **MAJOR GUIDELINE DEVIATIONS:**

- Failure to measure the dead plants for weight or height. This did not significantly affect the results of the study. DR 12-6-94

9. MATERIALS AND METHODS:

A. Test Organisms:

Guideline Criteria	Reported Information
Species: 6 dicots in 4 families including soybean and rootcrop; 4 monocots in 2 families including corn	Onion, Tomato, Lettuce, Cabbage, Radish, Ryegrass, Cucumber, Soybean, Corn, Oat
Number of plants/rep: 5	5 plants/rep and 4 reps
Source of Seed:	see p. 61 of author's report

Comments: planted large seeds 2.5 cm and 1.3 cm into sandy loam with perlite. Age of plants on date of application on p. 19 of author's report. Each rep consists of one 4" pot.

B. Test System:

Guideline Criteria	Reported Information
Solvent used:	2 drops of Triton surfactant added per 250 ml deionized test solution and control
Site of test:	greenhouse
Planting Method: species/pot	one species/pot/rep
Method of Application:	jet spray in booth
Watering Method:under foliage	1st 48 hrs hand watered under foliage, then overhead spray
No. Days After Application: 14	21 days
Growth Stage/Application: Past first true leaf stage	third true leaf stage

Comments: N/A

C. Test Design:

Guideline Criteria	Reported Information
Dose range and No.: 2X or 3X	2x
Controls:negative and solvent	one control w/ triton
Parameters Observed/Measured	dry weight, height, phytotoxicity, survival
Maximum Labeled Rate:	4.5 lb ae/A

Comments: N/A

10. REPORTED RESULTS:

Guideline Criteria	Reported Information
NOEC Observed?	Yes
Phytotoxic Observations:	stunting,leaf chlorosis, leaf necrosis, leaf desiccation
Measured Initial Chemical Concentrations? Optional	Yes
Raw data included? (Y/N)	Yes

Author's end point values are in lb ae/A. The parameter bearing the most sensitive EC_{25} values are listed for each plant species. Values in bold denotes the most sensitive monocot and dicot.

species	Parameter	EC_{25}	NOEC
corn	**dry weight**	**0.37**	**0.07**[1]
oat	dry weight	0.38	0.14
ryegrass	dry weight	0.80	0.56[1]
onion	dry weight	0.85	0.56
soybean	dry weight	0.42	0.28
lettuce	dry weight	0.40	0.28
cucumber	dry weight	0.41	0.14[1]
radish	dry wt & ht.	0.14	0.035
tomato	**dry weight**	**0.090**	**0.035**
cabbage	dry weight	0.30	0.14

Comments [1]phytotoxic symptoms

Author has included the dead plants in the mean for dry weight and height.

The most sensitive EC_{25} for monocots is 0.37 lb ae/A (corn) and for dicots is 0.090 lb ae/A (tomato). The NOECs are 0.07 and 0.035 lb ae/A, respectively.

Since NOEC was not achieved on tomato and radish in regular testing, a continuation test was done with lower concentrations.

Plant deaths by day 21:

Number of dead plants out of 20 total (4 reps)

concentrations	0.56	1.1	2.3	4.5
soybean	0	0	0	3
lettuce	0	0	12	19
radish	4	14	20	20
tomato	11	20	20	20
cucumber	0	0	4	15
cabbage	0	0	3	12
oat	0	1	3	4
ryegrass	0	1	5	9
corn	0	5	17	14
onion	0	0	0	0

Statistical Results

Statistical Method: Regression analysis and Dunnett's test.

11. STUDY AUTHORS'S CONCLUSIONS / QUALITY ASSURANCE MEASURES:
Quality assurance measures were taken.

12. REVIEWER'S DISCUSSION AND INTERPRETATION OF STUDY RESULTS:

A. Test Procedure:

The study met all of the guideline criteria under the SEP and Subdivision J except for the following :

-Failure to measure the dead plants for weight or height.

B. Statistical Analysis:

1. Most sensitive monocot: corn, Parameter : dry weight
Statistical Method: probit; **EC_{25}: 0.4341 lb ae/A**

2. Most sensitive dicot: tomato, Parameter: dry weight
Statistical Method: probit; **EC_{25}: 0.1106 lb ae/A**

C. **Discussion/Results:** This study is scientifically valid and has met all of the guidelines for 123-1 (b) vegetative vigor for non-target plants and is classified as core. The most sensitive monocot is corn with an EC_{25} value of 0.4341 lb ae/A. The most sensitive dicot is tomato with an EC_{25} value of 0.1106 lb ae/A.

The only concern the reviewer has is that in reviewing the raw data for dry weight and height, it is noticed that the dead plants were measured as having zero dry weight and zero height and thereby factored into the means for mean weight or height. The more correct method would be to measure the weight and height of the dead plants and use the measurements as part of the mean for the dose. Since the weight and height have been measured as zero, the EC_{25} value may be more sensitive than it should be. However for risk assessment purposes, the reviewer feels that above values can be useful. If the registrant wants the reviewer to recalculate the EC_{25} values, then data on the measurements of the dead plants must be submitted.

13. **COMPLETION OF ONE-LINER FOR STUDY: Yes**

Table VI. **Mean plant height and percent effect of glyphosate on soybean, lettuce, and radish plants 0 and 21 days after treatment.**

Crop	Treatment Rate (lb ae/A)	0 Days After Treatment		21 Days After Treatment	
		Plant Height [x] (mm)	Pretreatment Difference [y]	Plant Height (mm)	Percent Effect [y]
Soybean	0.0	112**		565	
	0.070	112	0	564	0
	0.14	112	0	527	-7
	0.28	113	1	549	-3
	0.56	112	0	511	-10
	1.1	111	-1	270*	-52
	2.3	112	0	174*	-69
	4.5	113	1	115*	-80
Lettuce	0.0	45**		147	
	0.070	45	0	160	9
	0.14	45	0	146	-1
	0.28	44	-2	146	-1
	0.56	45	0	136	-7
	1.1	45	0	74*	-50
	2.3	45	0	20*	-86
	4.5	45	0	2*	-99
Radish	0.0	50**		129	
	0.070	51	2	115	-11
	0.14	52	4	109*	-16
	0.28	51	2	76*	-41
	0.56	51	2	41*	-68
	1.1	51	2	14*	-89
	2.3	50	0	0*	-100
	4.5	51	2	0*	-100
	0.0	50**		191**	
	0.0044	49	-2	185	-3
	0.0088	49	-2	191	0
	0.018	51	2	196	3
	0.035	51	2	188	-2
	0.070	49	-2	186	-3

[x] The number of observations and the standard deviation of each treatment can be found in the calculation sheets (Appendix C).

[y] Pretreatment difference and Percent effect on plant growth = $\frac{\text{(treatment mean - control mean)}}{\text{control mean}} \times 100$

* Indicates significant difference from control at $p < 0.05$.

** Column values do not differ at $p < 0.05$ according to Dunnetts.

Table VII. Mean plant height and percent effect of glyphosate on tomato, cucumber, cabbage, and oat plants 0 and 21 days after treatment.

Crop	Treatment Rate (lb ae/A)	0 Days After Treatment		21 Days After Treatment	
		Plant Height [x] (mm)	Pretreatment Difference [y]	Plant Height (mm)	Percent Effect [y]
Tomato	0.0	50**		290	
	0.070	51	2	264*	-9
	0.14	52	4	257*	-11
	0.28	52	4	198*	-32
	0.56	52	4	35*	-88
	1.1	50	0	0*	-100
	2.3	50	0	0*	-100
	4.5	52	4	0*	-100
	0.0	67**		469**	
	0.0044	66	-1	493	5
	0.0088	67	0	460	-2
	0.018	67	0	500	7
	0.035	67	0	468	0
	0.070	67	0	478	2
Cucumber	0.0	126**		328	
	0.070	125	-1	336	2
	0.14	127	1	341	4
	0.28	125	-1	290	-12
	0.56	126	0	205*	-38
	1.1	125	-1	185*	-44
	2.3	126	0	113*	-66
	4.5	126	0	29*	-91
Cabbage	0.0	40**		139	
	0.070	40	0	129	-7
	0.14	40	0	132	-5
	0.28	40	0	120	-14
	0.56	40	0	125	-10
	1.1	40	0	67*	-52
	2.3	40	0	36*	-74
	4.5	41	3	12*	-91
Oat	0.0	103**		582	
	0.070	103	0	581	0
	0.14	103	0	548	-6
	0.28	103	0	538	-8
	0.56	103	0	491	-16
	1.1	103	0	317*	-46
	2.3	103	0	133*	-77
	4.5	103	0	103*	-82

[x] The number of observations and the standard deviation of each treatment can be found in the calculation sheets (Appendix C).

[y] Pretreatment difference and Percent effect on plant growth = $\frac{\text{(treatment mean - control mean)}}{\text{control mean}} \times 100$

* Indicates significant difference from control at $p < 0.05$.

** Column values do not differ at $p < 0.05$ according to Dunnetts.

Table VIII. Mean plant height and percent effect of glyphosate on ryegrass, corn, and onion plants 0 and 21 days after treatment.

Crop	Treatment Rate (lb ae/A)	0 Days After Treatment		21 Days After Treatment	
		Plant Height [x] (mm)	Pretreatment Difference [y]	Plant Height (mm)	Percent Effect [y]
Ryegrass	0.0	56**		179	
	0.070	57	2	186	4
	0.14	58	4	181	1
	0.28	58	4	188	5
	0.56	58	4	177	-1
	1.1	57	2	139*	-22
	2.3	56	0	58*	-68
	4.5	59	5	36*	-80
Corn	0.0	141**		735	
	0.070	139	-1	718	-2
	0.14	139	-1	705	-4
	0.28	141	0	681	-7
	0.56	141	0	632	-14
	1.1	137	-3	151*	-79
	2.3	136	-4	24*	-97
	4.5	140	-1	61*	-92
Onion	0.0	119**		241	
	0.070	121	2	235	-2
	0.14	121	2	241	0
	0.28	123	3	221	-8
	0.56	123	3	241	0
	1.1	121	2	175*	-27
	2.3	120	1	144*	-40
	4.5	123	3	125*	-48

[x] The number of observations and the standard deviation of each treatment can be found in the calculation sheets (Appendix C).

[y] Pretreatment difference and Percent effect on plant growth = $\frac{\text{(treatment mean - control mean)}}{\text{control mean}} \times 100$

* Indicates significant difference from control at $p < 0.05$.

** Column values do not differ at $p < 0.05$ according to Dunnetts.

Table IX. Mean plant dry weight and percent effect of glyphosate on soybean, lettuce, and radish plants 21 days after treatment.

Crop	Treatment Rate (lb ae/A)	Dry Weight [x y] (g/rep)	Percent Effect [z]
Soybean	0.0	8.895	
	0.070	9.260	4
	0.14	8.462	-5
	0.28	8.014	-10
	0.56	6.068*	-32
	1.1	3.044*	-66
	2.3	1.634*	-82
	4.5	0.691*	-92
Lettuce	0.0	3.540	
	0.070	3.972	12
	0.14	3.781	7
	0.28	3.393	-4
	0.56	2.314*	-35
	1.1	0.603*	-83
	2.3	0.107*	-97
	4.5	0.002*	-100
Radish	0.0	2.040	
	0.070	1.535*	-25
	0.14	1.547*	-24
	0.28	0.762*	-63
	0.56	0.313*	-85
	1.1	0.080*	-96
	2.3	0.000*	-100
	4.5	0.000*	-100
	0.0	1.483**	
	0.0044	1.702	15
	0.0088	1.679	13
	0.018	1.581	7
	0.035	1.548	4
	0.070	1.343	-9

[x] Plants were cut at the soil level, placed in preweighed aluminum sheets, and dried at 100°C for a minimum of 48 hours.

[y] The number of observations and the standard deviation of each treatment mean can be found in the calculation sheets (Appendix C).

[z] Percent effect = $\frac{\text{(treatment mean - control mean)}}{\text{control mean}} \times 100$

* Indicates significant reduction from control at $p < 0.05$.

** Column values do not differ at $p < 0.05$ according to Dunnetts.

Table X. **Mean plant dry weight and percent effect of glyphosate on tomato, cucumber, cabbage, and oat plants 21 days after treatment.**

Crop	Treatment Rate (lb ae/A)	Dry Weight [x y] (g/rep)	Percent Effect [z]
Tomato	0.0	5.634	
	0.070	4.988*	-11
	0.14	3.524*	-37
	0.28	1.725*	-69
	0.56	0.129*	-98
	1.1	0.000*	-100
	2.3	0.000*	-100
	4.5	0.000*	-100
	0.0	4.667**	
	0.0044	7.203	54
	0.0088	6.184	33
	0.018	6.192	33
	0.035	6.268	34
	0.070	4.911	5
Cucumber	0.0	8.473	
	0.070	8.948	6
	0.14	8.566	1
	0.28	7.567	-11
	0.56	5.191*	-39
	1.1	3.103*	-63
	2.3	1.272*	-85
	4.5	0.317*	-96
Cabbage	0.0	4.951	
	0.070	4.703	-5
	0.14	4.822	-3
	0.28	3.786*	-24
	0.56	2.834*	-43
	1.1	0.634*	-87
	2.3	0.208*	-96
	4.5	0.083*	-98
Oat	0.0	4.151	
	0.070	4.036	-3
	0.14	4.056	-2
	0.28	3.432*	-17
	0.56	2.965*	-29
	1.1	1.402*	-66
	2.3	0.342*	-92
	4.5	0.247*	-94

[x] Plants were cut at the soil level, placed in preweighed aluminum sheets, and dried at 100°C for a minimum of 48 hours.
[y] The number of observations and the standard deviation of each treatment mean can be found in the calculation sheets (Appendix C).
[z] Percent effect = $\frac{\text{(treatment mean - control mean)}}{\text{control mean}} \times 100$
* Indicates significant reduction from control at $p < 0.05$.
** Column values do not differ at $p < 0.05$ according to Dunnetts.

Table XI. Mean plant dry weight and percent effect of glyphosate on ryegrass, corn, and onion plants 21 days after treatment.

Crop	Treatment Rate (lb ae/A)	Dry Weight [x y] (g/rep)	Percent Effect [z]
Ryegrass	0.0	0.833	
EC50 = 0.134633	0.070	1.159	39
SLOPE = 0.90404	0.14	1.249	50
EC25 = 0.0808	0.28	1.058	27
	0.56	0.859	3
	1.1	0.517*	-38
	2.3	0.074*	-91
	4.5	0.021*	-97
Corn	0.0	7.237	
EC50 = 0.661498	0.070	7.394	2
SLOPE = 3.68663	0.14	7.629	5
EC25 = 0.4341	0.28	6.246	-14
	0.56	5.547	-23
	1.1	0.655*	-91
	2.3	0.085*	-99
	4.5	0.175*	-98
Onion	0.0	0.955	
EC50 = 1.5824	0.070	0.994	4
SLOPE = 2.39852	0.14	1.094	15
EC25 = 0.3281	0.28	0.857	-10
	0.56	1.063	11
	1.1	0.567*	-41
	2.3	0.274*	-71
	4.5	0.162*	-83

[x] Plants were cut at the soil level, placed in preweighed aluminum sheets, and dried at 100°C for a minimum of 48 hours.

[y] The number of observations and the standard deviation of each treatment mean can be found in the calculation sheets (Appendix C).

[z] Percent effect = $\frac{\text{(treatment mean - control mean)}}{\text{control mean}} \times 100$

* Indicates significant reduction from control at $p < 0.05$.

Table XII. No-effect concentration (NOEC) (lb ae/A), EC_{25} and EC_{50} values (lb ae/A) for parameters measured during a nontarget plant study with glyphosate 21 days after treatment.

Crop	Phytotoxicity	Percent Survival		
	NOEC [z]	NOEC	EC_{25}	EC_{50}
Soybean	0.28	4.5	>4.5*	>4.5*
Lettuce	0.28	1.1	1.4	2.5
Radish	0.14	0.28	0.44	0.82
Tomato	0.070	0.28	0.26	0.46
Cucumber	0.14	2.3	2.6	3.6
Cabbage	0.56	1.1	2.9	4.1
Oat	0.56	2.3	4.4	>4.5*
Ryegrass	0.56	1.1	2.3	4.1
Corn	0.070	0.56	0.79	1.5
Onion	0.56	4.5	>4.5*	>4.5*

Crop	Plant Height (mm)			Plant Dry Weight (mg)		
	NOEC	EC_{25}	EC_{50}	NOEC	EC_{25}	EC_{50}
Soybean	0.56	0.57	1.4	0.28	0.42	0.87
Lettuce	0.56	0.64	1.2	0.28	0.40	0.68
Radish	0.070	0.14	0.32	0.035	0.14	0.22
Tomato	0.035	0.20	0.30	0.035	0.090	0.13
Cucumber	0.28	0.46	1.3	0.28	0.41	0.80
Cabbage	0.56	0.67	1.3	0.14	0.30	0.66
Oat	0.56	0.55	1.2	0.14	0.38	0.78
Ryegrass	0.56	0.96	2.1	0.56	0.80	1.2
Corn	0.56	0.42	0.82	0.56	0.37	0.67
Onion	0.56	1.2	>4.5*	0.56	0.85	1.6

[y] EC_{25} and EC_{50} values are not normally determined for mean phytotoxicity rating.

[z] Highest treatment concentration which was not statistically ($p < 0.05$) different from the control.

* Estimated EC value

Title: Randomized Block Analysis of an 8 Treatment 4 Rep Design with Dunnett's Comparison
Date: 23-Aug-93

Treatment (lb ae/A)	Rep	Replicate Values: Tare Wt.(gm)	Total Wt.(gm)	plant Wt.(gm)	Mean Plant Wt.(gm)	Std. Dev.	Percent Effect
0.0	1	3.545	13.714	10.169	8.895	1.072	NA
	2	3.767	12.268	8.501			
	3	3.547	12.801	9.254			
	4	3.774	11.428	7.654			
0.070	1	3.535	12.721	9.186	9.260	1.115	4
	2	3.777	12.152	8.375			
	3	3.545	14.398	10.853			
	4	3.774	12.400	8.626			
0.14	1	3.548	12.945	9.397	8.462	1.186	-5
	2	3.768	13.277	9.509			
	3	3.539	10.630	7.091			
	4	3.772	11.624	7.852			
0.28	1	3.524	10.249	6.725	8.014	1.006	-10
	2	3.778	12.789	9.011			
	3	3.526	11.274	7.748			
	4	3.779	12.352	8.573			
0.56	1	3.529	10.576	7.047	6.068	0.753	-32
	2	3.772	9.706	5.934			
	3	3.530	8.747	5.217			
	4	3.761	9.836	6.075			
1.1	1	3.529	6.788	3.259	3.044	0.372	-66
	2	3.758	6.528	2.770			
	3	3.531	6.221	2.690			
	4	3.759	7.214	3.455			
2.3	1	3.543	5.162	1.619	1.634	0.306	-82
	2	3.766	5.060	1.294			
	3	3.534	5.571	2.037			
	4	3.770	5.356	1.586			
4.5	1	3.534	4.693	1.159	0.691	0.419	-92
	2	3.766	4.617	0.851			
	3	3.547	3.719	0.172			
	4	3.759	4.340	0.581			

Analysis of Variance (Plant Dry Weight) F (critical value) = 2.49

Source	df	SS	MS	F value	Signif
Total	31	355.97705			
Treatments	7	338.61772	48.37396	63.08	S
Block(reps)	3	1.25425	0.41808		
Error	21	16.10508	0.76691		

NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Data entered by DAG Verified by RJC

Data printed on 23-Aug-93

Vegetative vigor - Plant dry weight (gm)

Compound - Glyphosate Study Number - 90235

Treatment date - June 16, 1993 Plant collection date - July 7, 1993

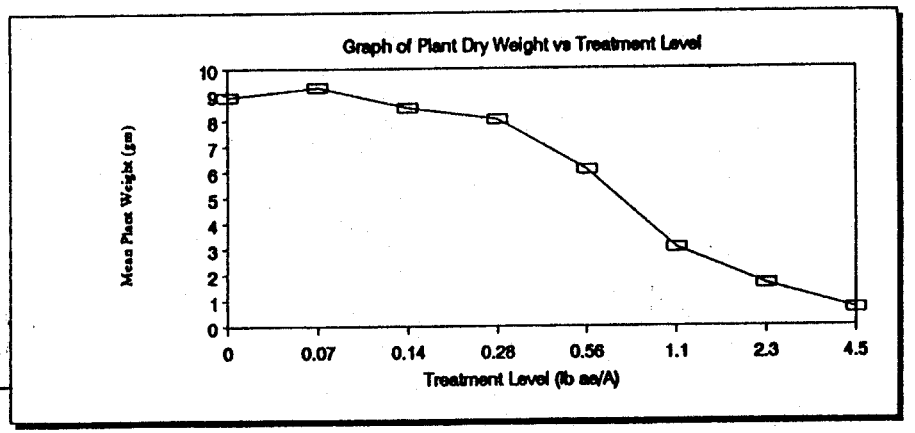
Days after treatment - 21 Test system - Soybean

Comments:

One-sided Dunnett value - 2.51
NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Dunnett's Procedure

Comparison	Difference	Signif	D (crit diff)
Grp 1 vs Grp 2	0.00	NS	1.55
Grp 1 vs Grp 3	0.43	NS	1.55
Grp 1 vs Grp 4	0.88	NS	1.55
Grp 1 vs Grp 5	2.83	S	1.55
Grp 1 vs Grp 6	5.85	S	1.55
Grp 1 vs Grp 7	7.26	S	1.55
Grp 1 vs Grp 8	8.20	S	1.55



Title: Randomized Block Analysis of an 8 Treatment 4 Rep Design with Dunnett's Comparison
Date: 12-Jul-93

Treatment (lb ae/A)	Rep	Replicate Values: Tare Wt.(gm)	Total Wt.(gm)	plant Wt.(gm)	Mean Plant Wt.(gm)	Std. Dev.	Percent Effect
0.0	1	3.572	6.742	3.170	3.540	0.391	NA
	2	3.768	7.096	3.328			
	3	3.568	7.631	4.063			
	4	3.774	7.373	3.599			
0.070	1	3.559	7.029	3.470	3.972	0.509	12
	2	3.785	8.427	4.642			
	3	3.563	7.626	4.063			
	4	3.784	7.496	3.712			
0.14	1	3.573	7.160	3.587	3.781	0.173	7
	2	3.773	7.601	3.828			
	3	3.577	7.571	3.994			
	4	3.775	7.489	3.714			
0.28	1	3.567	7.056	3.489	3.393	0.212	-4
	2	3.767	7.406	3.639			
	3	3.570	6.733	3.163			
	4	3.775	7.057	3.282			
0.56	1	3.562	5.896	2.334	2.314	0.114	-35
	2	3.777	6.105	2.328			
	3	3.555	5.990	2.435			
	4	3.775	5.934	2.159			
1.1	1	3.539	4.133	0.594	0.603	0.268	-83
	2	3.776	4.261	0.485			
	3	3.560	4.537	0.977			
	4	3.774	4.128	0.354			
2.3	1	3.554	3.750	0.196	0.107	0.101	-97
	2	3.769	0.000	0.000			
	3	3.554	3.597	0.043			
	4	3.780	3.970	0.190			
4.5	1	0.000	0.000	0.000	0.002	0.004	-100
	2	0.000	0.000	0.000			
	3	3.869	3.877	0.008			
	4	0.000	0.000	0.000			

Analysis of Variance (Plant Dry Weight) F (critical value) = 2.49

Source	df	SS	MS	F value	Signif
Total	31	84.27212			
Treatments	7	82.52628	11.78947	174.43	S
Blocks(reps)	3	0.32647	0.10882		
Error	21	1.41937	0.06759		

NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Data entered by SAG Verified by RSL

Data printed on 12-Jul-93

Vegetative vigor - Plant dry weight (gm)

Compound - Glyphosate Study Number - 93235

Treatment date - June 16, 1993 Plant collection date - July 7, 1993

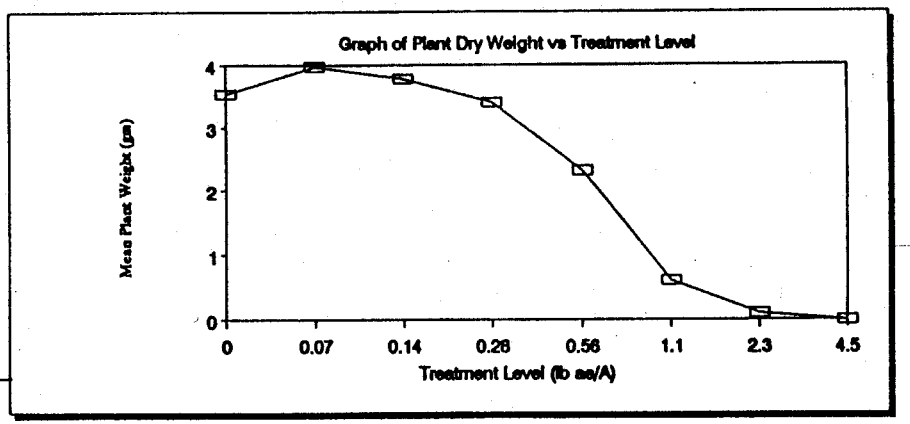
Days after treatment - 21 Test system - Lettuce

Comments:

One-sided Dunnett value - 2.51
NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Dunnett's Procedure

Comparison	Difference	Signif	D (crit diff)
Grp 1 vs Grp 2	0.00	NS	0.46
Grp 1 vs Grp 3	0.00	NS	0.46
Grp 1 vs Grp 4	0.15	NS	0.46
Grp 1 vs Grp 5	1.23	S	0.46
Grp 1 vs Grp 6	2.94	S	0.46
Grp 1 vs Grp 7	3.43	S	0.46
Grp 1 vs Grp 8	3.54	S	0.46



Title: Randomized Block Analysis of an 8 Treatment 4 Rep Design with Dunnett's Comparison
Date: 12-Jul-93

Treatment (lb ae/A)	Rep	Replicate Values: Tare Wt.(gm)	Total Wt.(gm)	plant Wt.(gm)	Mean Plant Wt.(gm)	Std. Dev.	Percent Effect
0.0	1	3.553	5.237	1.684	2.040	0.246	NA
	2	3.764	6.020	2.256			
	3	3.571	5.644	2.073			
	4	3.775	5.940	2.165			
0.070	1	3.548	5.034	1.486	1.535	0.185	-25
	2	3.780	5.264	1.484			
	3	3.552	5.352	1.800			
	4	3.779	5.149	1.370			
0.14	1	3.547	4.720	1.173	1.547	0.276	-24
	2	3.758	5.295	1.537			
	3	3.555	5.205	1.650			
	4	3.773	5.599	1.826			
0.28	1	3.554	4.753	1.199	0.762	0.295	-63
	2	3.784	4.379	0.595			
	3	3.551	4.229	0.678			
	4	3.777	4.352	0.575			
0.56	1	3.552	3.934	0.382	0.313	0.067	-85
	2	3.781	4.129	0.348			
	3	3.551	3.847	0.296			
	4	3.780	4.008	0.228			
1.1	1	3.547	3.638	0.091	0.080	0.067	-96
	2	3.779	3.805	0.026			
	3	3.540	3.710	0.170			
	4	3.776	3.809	0.033			
2.3	1	3.532	0.000	0.000	0.000	0.000	-100
	2	3.789	0.000	0.000			
	3	3.535	0.000	0.000			
	4	3.792	0.000	0.000			
4.5	1	0.000	0.000	0.000	0.000	0.000	-100
	2	0.000	0.000	0.000			
	3	0.000	0.000	0.000			
	4	0.000	0.000	0.000			

Analysis of Variance (Plant Dry Weight) F (critical value) = 2.49

Source	df	SS	MS	F value	Signif
Total	31	19.47438			
Treatments	7	18.67391	2.66770	72.59	S
Blocks(reps)	3	0.02872	0.00957		
Error	21	0.77175	0.03675		

NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Data entered by DAG Verified by K'JL

Data printed on 12-Jul-93

Vegetative vigor - Plant dry weight (gm)

Compound - Glyphosate Study Number - 93235

Treatment date - June 16, 1993 Plant collection date - July 7, 1993

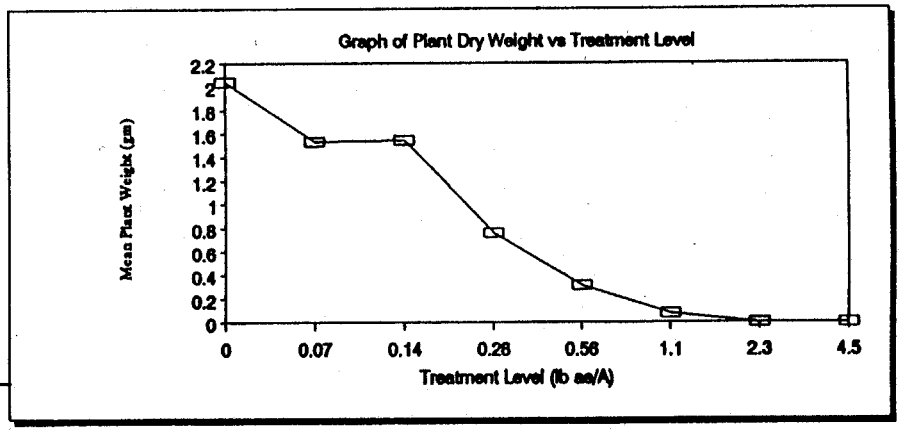
Days after treatment - 21 Test system - Radish

Comments:

One-sided Dunnett value - 2.51
NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Dunnett's Procedure

Comparison	Difference	Signif	D (crit diff)
Grp 1 vs Grp 2	0.51	S	0.34
Grp 1 vs Grp 3	0.49	S	0.34
Grp 1 vs Grp 4	1.28	S	0.34
Grp 1 vs Grp 5	1.73	S	0.34
Grp 1 vs Grp 6	1.96	S	0.34
Grp 1 vs Grp 7	2.04	S	0.34
Grp 1 vs Grp 8	2.04	S	0.34



163 MSL- 1 3 3 2 0 Par-Ag #: 93235

Title: Randomized Block Analysis of a 6 Treatment 4 Rep Design with Dunnett's Comparison
Date: 07-Sep-93

Treatment (lb ae/A)	Rep	Replicate Values: Tare Wt.(gm)	Total Wt.(gm)	Plant Wt.(gm)	Mean plant Wt.(gm)	Std. Dev.	Percent Effect
0.0	1	3.670	5.213	1.543	1.483	0.149	NA
	2	3.663	4.962	1.299			
	3	3.670	5.113	1.443			
	4	3.683	5.331	1.648			
0.0044	1	3.660	5.583	1.923	1.702	0.350	15
	2	3.691	4.875	1.184			
	3	3.652	5.561	1.909			
	4	3.685	5.478	1.793			
0.0088	1	3.667	5.668	2.001	1.679	0.245	13
	2	3.671	5.345	1.674			
	3	3.667	5.073	1.406			
	4	3.684	5.318	1.634			
0.018	1	3.683	5.044	1.361	1.581	0.183	7
	2	3.691	5.498	1.807			
	3	3.686	5.288	1.602			
	4	3.680	5.233	1.553			
0.035	1	3.676	5.270	1.594	1.548	0.169	4
	2	3.680	5.025	1.345			
	3	3.678	5.181	1.503			
	4	3.681	5.429	1.748			
0.070	1	3.681	4.809	1.128	1.343	0.167	-9
	2	3.684	5.118	1.434			
	3	3.695	4.997	1.302			
	4	3.666	5.174	1.508			

Analysis of Variance (Plant Dry Weight) F (critical value) = 2.90

Source	df	SS	MS	F value	Signif
Total	23	1.23551			
Treatments	5	0.35121	0.07024	1.38	NS
Blocks(reps)	3	0.12116	0.04039		
Error	15	0.76314	0.05088		

One-sided Dunnett value - 2.44
NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Data entered by KMR Data verified by RSC

Data printed on 07-Sep-93

Vegetative vigor - plant dry weight (gm)

Compound - Glyphosate Study Number - 93235 (cont.)

Treatment date - August 11, 1993 Plant collection date - September 1, 1993

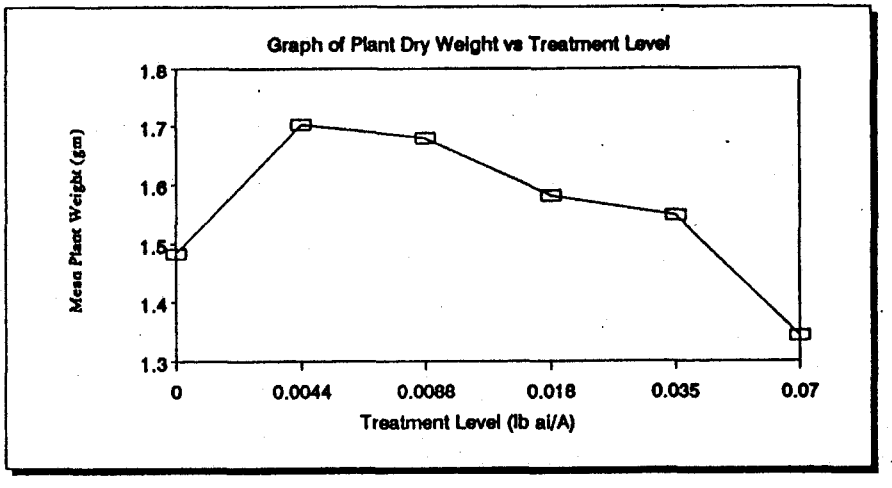
Days after treatment - 21 Test system - Radish

Comments:

Dunnett's Procedure

Comparison	Difference	Signif	D (crit diff)
Grp 1 vs Grp 2	0.00	NS	0.39
Grp 1 vs Grp 3	0.00	NS	0.39
Grp 1 vs Grp 4	0.00	NS	0.39
Grp 1 vs Grp 5	0.00	NS	0.39
Grp 1 vs Grp 6	0.14	NS	0.39

NS - Not significant at alpha 0.05
S - Significant at alpha 0.05



Title: Randomized Block Analysis of an 8 Treatment 4 Rep Design with Dunnett's Comparison
Date: 12-Jul-93

Treatment (lb ae/A)	Rep	Replicate Values: Tare Wt.(gm)	Total Wt.(gm)	plant Wt.(gm)	Mean Plant Wt.(gm)	Std. Dev.	Percent Effect
0.0	1	3.572	9.740	6.168	5.634	0.671	NA
	2	3.800	8.528	4.728			
	3	3.580	9.103	5.523			
	4	3.811	9.927	6.116			
0.070	1	3.581	8.689	5.108	4.988	0.391	-11
	2	3.809	9.185	5.376			
	3	3.570	8.592	5.022			
	4	3.786	8.233	4.447			
0.14	1	3.565	7.002	3.437	3.524	0.487	-37
	2	3.785	6.987	3.202			
	3	3.571	7.807	4.236			
	4	3.784	7.004	3.220			
0.28	1	3.579	5.027	1.448	1.725	0.302	-69
	2	3.769	5.655	1.886			
	3	3.560	5.628	2.068			
	4	3.763	5.259	1.496			
0.56	1	3.574	3.675	0.101	0.129	0.045	-98
	2	3.778	3.877	0.099			
	3	3.564	3.759	0.195			
	4	3.784	3.905	0.121			
1.1	1	3.568	0.000	0.000	0.000	0.000	-100
	2	3.787	0.000	0.000			
	3	3.559	0.000	0.000			
	4	3.784	0.000	0.000			
2.3	1	0.000	0.000	0.000	0.000	0.000	-100
	2	0.000	0.000	0.000			
	3	0.000	0.000	0.000			
	4	0.000	0.000	0.000			
4.5	1	0.000	0.000	0.000	0.000	0.000	-100
	2	0.000	0.000	0.000			
	3	0.000	0.000	0.000			
	4	0.000	0.000	0.000			

Analysis of Variance (Plant Dry Weight) F (critical value) = 2.49

Source	df	SS	MS	F value	Signif
Total	31	162.92740			
Treatments	7	160.12853	22.87550	188.67	S
Blocks(reps)	3	0.25266	0.08422		
Error	21	2.54622	0.12125		

NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Data entered by JAG Verified by RJL

Data printed on 12-Jul-93

Vegetative vigor - Plant dry weight (gm)

Compound - Glyphosate Study Number - 93235

Treatment date - June 16, 1993 Plant collection date - July 7, 1993

Days after treatment - 21 Test system - Tomato

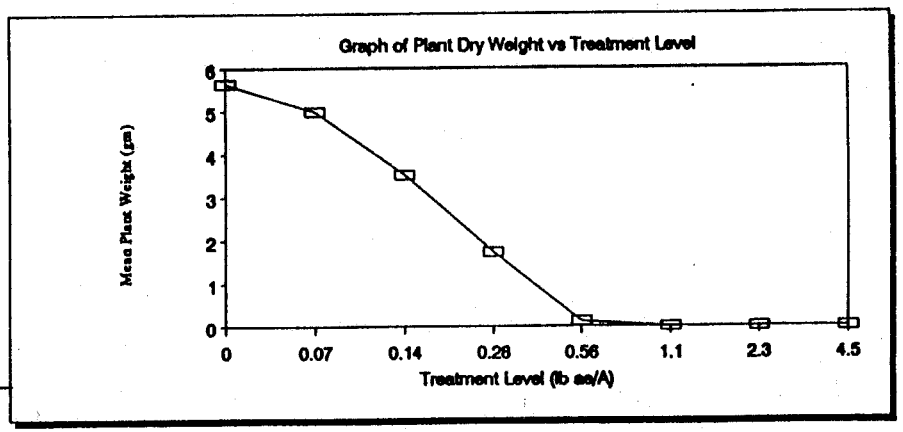
Comments:

One or more treatment level standard deviations equal to 0 - possible nonnormality !

One-sided Dunnett value - 2.51
NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Dunnett's Procedure

Comparison	Difference	Signif	D (crit diff)
Grp 1 vs Grp 2	0.65	S	0.62
Grp 1 vs Grp 3	2.11	S	0.62
Grp 1 vs Grp 4	3.91	S	0.62
Grp 1 vs Grp 5	5.51	S	0.62
Grp 1 vs Grp 6	5.63	S	0.62
Grp 1 vs Grp 7	5.63	S	0.62
Grp 1 vs Grp 8	5.63	S	0.62



Title: Randomized Block Analysis of a 6 Treatment 4 Rep Design with Dunnett's Comparison
Date: 07-Sep-93

Treatment (lb ae/A)	Rep	Replicate Values: Tare Wt.(gm)	Total Wt.(gm)	Plant Wt.(gm)	Mean plant Wt.(gm)	Std. Dev.	Percent Effect
0.0	1	3.642	7.666	4.024	4.667	0.757	NA
	2	3.660	8.593	4.933			
	3	3.661	9.278	5.617			
	4	3.656	7.748	4.092			
0.0044	1	3.658	8.389	4.731	7.203	1.680	54
	2	3.673	11.395	7.722			
	3	3.659	12.142	8.483			
	4	3.673	11.548	7.875			
0.0088	1	3.672	10.107	6.435	6.184	1.144	33
	2	3.666	8.259	4.593			
	3	3.678	10.067	6.389			
	4	3.683	11.003	7.320			
0.018	1	3.675	10.264	6.589	6.192	0.738	33
	2	3.683	8.795	5.112			
	3	3.682	10.413	6.731			
	4	3.683	10.018	6.335			
0.035	1	3.703	9.763	6.060	6.268	1.285	34
	2	3.663	8.200	4.537			
	3	3.693	10.794	7.101			
	4	3.652	11.025	7.373			
0.070	1	3.676	8.784	5.108	4.911	0.674	5
	2	3.670	7.597	3.927			
	3	3.661	9.115	5.454			
	4	3.683	8.839	5.156			

Analysis of Variance (Plant Dry Weight) F (critical value) = 2.90

Source	df	SS	MS	F value	Signif
Total	23	40.05517			
Treatments	5	17.98946	3.59789	4.11	S
Blocks(reps)	3	8.94388	2.98129		
Error	15	13.12184	0.87479		

One-sided Dunnett value - 2.44
NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Data entered by KMR Data verified by RES

Data printed on 07-Sep-93

Vegetative vigor - plant dry weight (gm)

Compound - Glyphosate Study Number - 93235 (cont.)

Treatment date - August 11, 1993 Plant collection date - September 1, 1993

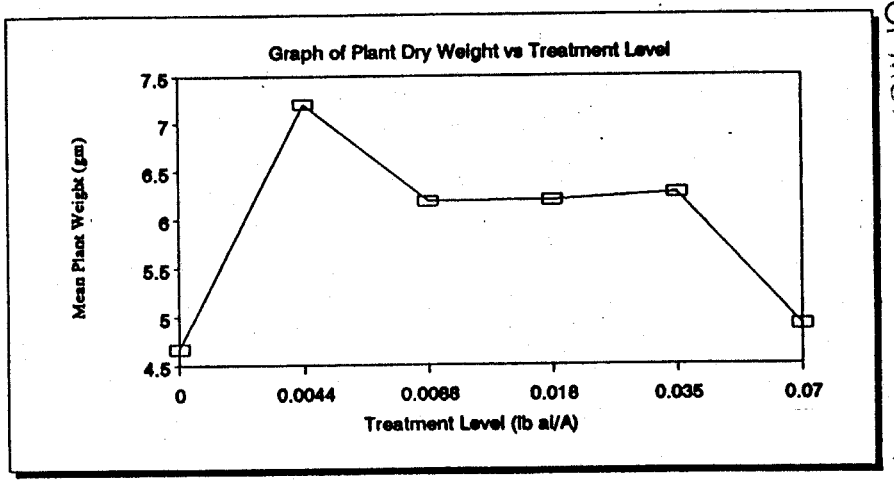
Days after treatment - 21 Test system - Tomato

Comments:

Dunnett's Procedure

Comparison	Difference	Signif	D (crit diff)
Grp 1 vs Grp 2	0.00	NS	1.61
Grp 1 vs Grp 3	0.00	NS	1.61
Grp 1 vs Grp 4	0.00	NS	1.61
Grp 1 vs Grp 5	0.00	NS	1.61
Grp 1 vs Grp 6	0.00	NS	1.61

NS - Not significant at alpha 0.05
S - Significant at alpha 0.05



Title: Randomized Block Analysis of an 8 Treatment 4 Rep Design with Dunnett's Comparison
Date: 12-Jul-93

Treatment (lb ae/A)	Rep	Replicate Values: Tare Wt.(gm)	Total Wt.(gm)	plant Wt.(gm)	Mean Plant Wt.(gm)	Std. Dev.	Percent Effect
0.0	1	3.553	11.426	7.873	8.473	1.192	NA
	2	3.767	12.095	8.328			
	3	3.560	11.063	7.503			
	4	3.769	13.957	10.188			
0.070	1	3.558	12.766	9.208	8.948	0.898	6
	2	3.792	12.662	8.870			
	3	3.571	11.348	7.777			
	4	3.780	13.716	9.936			
0.14	1	3.568	13.669	10.101	8.566	1.561	1
	2	3.773	13.472	9.699			
	3	3.573	11.043	7.470			
	4	3.780	10.774	6.994			
0.28	1	3.576	11.987	8.411	7.567	1.118	-11
	2	3.780	9.845	6.065			
	3	3.559	10.923	7.364			
	4	3.771	12.198	8.427			
0.56	1	3.577	9.371	5.794	5.191	0.631	-39
	2	3.774	9.335	5.561			
	3	3.593	8.629	5.036			
	4	3.784	8.156	4.372			
1.1	1	3.594	6.019	2.425	3.103	1.147	-63
	2	3.785	6.455	2.670			
	3	3.592	6.092	2.500			
	4	3.775	8.592	4.817			
2.3	1	3.584	5.311	1.727	1.272	0.646	-85
	2	3.774	5.262	1.488			
	3	3.595	5.151	1.556			
	4	3.779	4.094	0.315			
4.5	1	3.595	3.955	0.360	0.317	0.262	-96
	2	3.792	4.428	0.636			
	3	3.588	3.861	0.273			
	4	3.801	0.000	0.000			

Analysis of Variance (Plant Dry Weight) F (critical value) = 2.49

Source	df	SS	MS	F value	Signif
Total	31	364.10623			
Treatments	7	339.76045	48.53721	47.85	S
Blocks(reps)	3	3.04252	1.01417		
Error	21	21.30326	1.01444		

NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Data entered by DAG Verified by RJL

Data printed on 12-Jul-93

Vegetative vigor - Plant dry weight (gm)

Compound - Glyphosate Study Number - 93235

Treatment date - June 16, 1993 Plant collection date - July 7, 1993

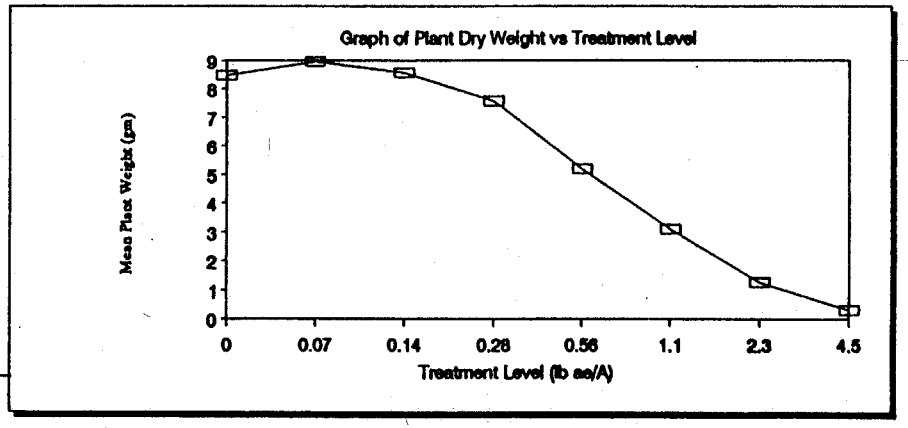
Days after treatment - 21 Test system - Cucumber

Comments:

One-sided Dunnett value - 2.51
NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Dunnett's Procedure

Comparison	Difference	Signif	D (crit diff)
Grp 1 vs Grp 2	0.00	NS	1.79
Grp 1 vs Grp 3	0.00	NS	1.79
Grp 1 vs Grp 4	0.91	NS	1.79
Grp 1 vs Grp 5	3.28	S	1.79
Grp 1 vs Grp 6	5.37	S	1.79
Grp 1 vs Grp 7	7.20	S	1.79
Grp 1 vs Grp 8	8.16	S	1.79



169 MSL- 1 3 3 2 0 Par-Ag #: 93235

Title: Randomized Block Analysis of an 8 Treatment 4 Rep Design with Dunnett's Comparison
Date: 12-Jul-93

Treatment (lb ae/A)	Rep	Replicate Values: Tare Wt.(gm)	Total Wt.(gm)	plant Wt.(gm)	Mean Plant Wt.(gm)	Std. Dev.	Percent Effect
0.0	1	3.567	8.052	4.485	4.951	0.612	NA
	2	3.776	8.220	4.444			
	3	3.550	8.691	5.141			
	4	3.783	9.517	5.734			
0.070	1	3.562	8.623	5.061	4.703	0.348	-5
	2	3.788	8.188	4.400			
	3	3.552	8.494	4.942			
	4	3.787	8.195	4.408			
0.14	1	3.549	8.996	5.447	4.822	0.896	-3
	2	3.797	8.540	4.743			
	3	3.529	7.114	3.585			
	4	3.794	9.308	5.514			
0.28	1	3.541	7.541	4.000	3.786	0.240	-24
	2	3.789	7.400	3.611			
	3	3.540	7.087	3.547			
	4	3.796	7.780	3.984			
0.56	1	3.538	6.752	3.214	2.834	0.696	-43
	2	3.792	6.915	3.123			
	3	3.550	6.756	3.206			
	4	3.796	5.587	1.791			
1.1	1	3.552	4.419	0.867	0.634	0.230	-87
	2	3.785	4.509	0.724			
	3	3.556	4.176	0.620			
	4	3.783	4.108	0.325			
2.3	1	3.555	3.781	0.226	0.208	0.097	-96
	2	3.779	4.077	0.298			
	3	3.556	3.792	0.236			
	4	3.797	3.868	0.071			
4.5	1	3.549	3.733	0.184	0.083	0.070	-98
	2	3.781	3.812	0.031			
	3	3.559	3.603	0.044			
	4	3.777	3.851	0.074			

Analysis of Variance (Plant Dry Weight) F (critical value) = 2.49

Source	df	SS	MS	F value	Signif
Total	31	134.05319			
Treatments	7	128.33233	18.33319	72.12	S
Block(reps)	3	0.38292	0.12764		
Error	21	5.33794	0.25419		

NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Data entered by DAG Verified by RJL

Data printed on 12-Jul-93

Vegetative vigor - Plant dry weight (gm)

Compound - Glyphosate Study Number - 93235

Treatment date - June 16, 1993 Plant collection date - July 7, 1993

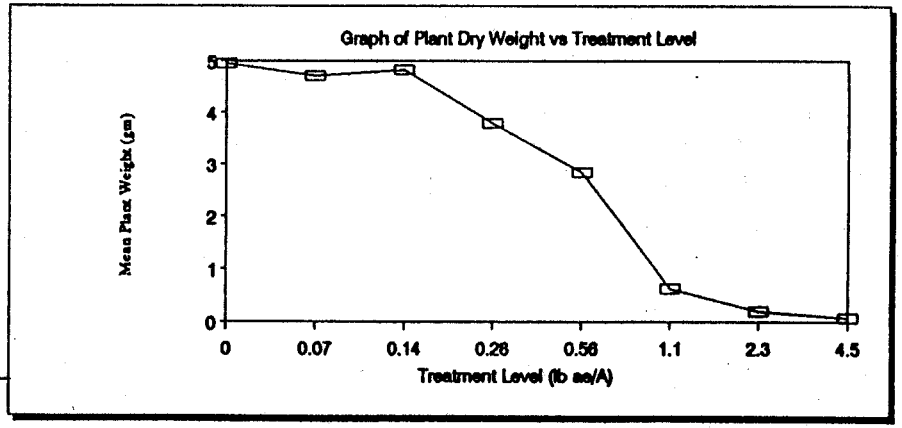
Days after treatment - 21 Test system - Cabbage

Comments:

One-sided Dunnett value - 2.51
NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Dunnett's Procedure

Comparison	Difference	Signif	D (crit diff)
Grp 1 vs Grp 2	0.25	NS	0.89
Grp 1 vs Grp 3	0.13	NS	0.89
Grp 1 vs Grp 4	1.16	S	0.89
Grp 1 vs Grp 5	2.12	S	0.89
Grp 1 vs Grp 6	4.32	S	0.89
Grp 1 vs Grp 7	4.74	S	0.89
Grp 1 vs Grp 8	4.87	S	0.89



171 MSL- 133320 PanAg #: 93235

Title: Randomized Block Analysis of an 8 Treatment 4 Rep Design with Dunnett's Comparison
Date: 12-Jul-93

Treatment (lb ae/A)	Rep	Replicate Values: Tare Wt.(gm)	Total Wt.(gm)	plant Wt.(gm)	Mean Plant Wt.(gm)	Std. Dev.	Percent Effect
0.0	1	3.543	7.948	4.405	4.151	0.479	NA
	2	3.771	7.961	4.190			
	3	3.547	8.088	4.541			
	4	3.765	7.231	3.466			
0.070	1	3.555	7.859	4.304	4.036	0.284	-3
	2	3.753	7.729	3.976			
	3	3.554	7.216	3.662			
	4	3.755	7.956	4.201			
0.14	1	3.545	7.332	3.787	4.056	0.204	-2
	2	3.756	8.034	4.278			
	3	3.552	7.666	4.114			
	4	3.757	7.800	4.043			
0.28	1	3.549	7.005	3.456	3.432	0.300	-17
	2	3.751	6.773	3.022			
	3	3.552	7.059	3.507			
	4	3.756	7.498	3.742			
0.56	1	3.549	6.866	3.317	2.965	0.291	-29
	2	3.759	6.603	2.844			
	3	3.545	6.604	3.059			
	4	3.773	6.412	2.639			
1.1	1	3.547	4.199	0.652	1.402	0.517	-66
	2	3.771	5.259	1.488			
	3	3.552	5.369	1.817			
	4	3.766	5.415	1.649			
2.3	1	3.557	3.824	0.267	0.342	0.108	-92
	2	3.772	4.008	0.236			
	3	3.550	3.954	0.404			
	4	3.773	4.235	0.462			
4.5	1	3.550	3.688	0.138	0.247	0.100	-94
	2	3.778	4.133	0.355			
	3	3.546	3.852	0.306			
	4	3.782	3.972	0.190			

Analysis of Variance (Plant Dry Weight) F (critical value) = 2.49

Source	df	SS	MS	F value	Signif
Total	31	80.34517			
Treatments	7	77.89754	11.12822	99.63	S
Blocks(reps)	3	0.10194	0.03398		
Error	21	2.34569	0.11170		

NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Data entered by DKG Verified by RSC

Data printed on 12-Jul-93

Vegetative vigor - Plant dry weight (gm)

Compound - Glyphosate Study Number - 93235

Treatment date - June 16, 1993 Plant collection date - July 7, 1993

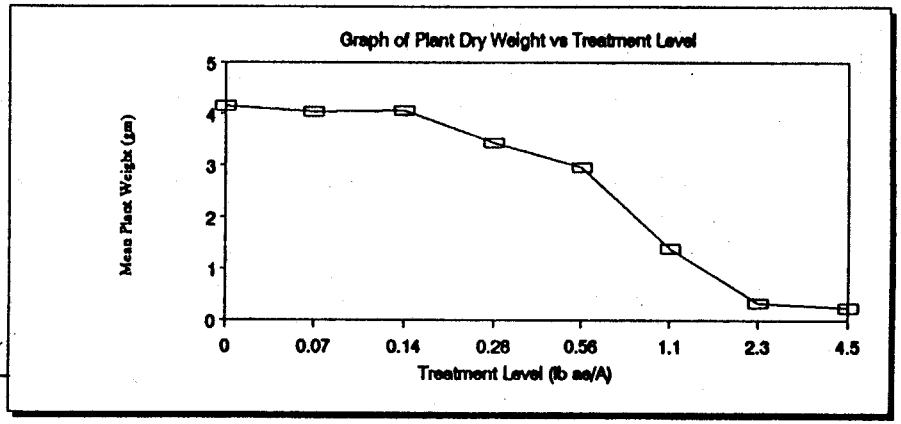
Days after treatment - 21 Test system - Oat

Comments:

One-sided Dunnett value - 2.51
NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Dunnett's Procedure

Comparison	Difference	Signif	D (crit diff)
Grp 1 vs Grp 2	0.12	NS	0.59
Grp 1 vs Grp 3	0.09	NS	0.59
Grp 1 vs Grp 4	0.72	S	0.59
Grp 1 vs Grp 5	1.19	S	0.59
Grp 1 vs Grp 6	2.75	S	0.59
Grp 1 vs Grp 7	3.81	S	0.59
Grp 1 vs Grp 8	3.90	S	0.59



Title: Randomized Block Analysis of an 8 Treatment 4 Rep Design with Dunnett's Comparison
Date: 12-Jul-93

Treatment (lb ae/A)	Rep	Replicate Values: Tare Wt.(gm)	Total Wt.(gm)	plant Wt.(gm)	Mean Plant Wt.(gm)	Std. Dev.	Percent Effect
0.0	1	3.549	4.427	0.878	0.833	0.157	NA
	2	3.783	4.437	0.654			
	3	3.549	4.573	1.024			
	4	3.785	4.559	0.774			
0.070	1	3.554	4.664	1.110	1.159	0.059	39
	2	3.773	4.968	1.195			
	3	3.545	4.653	1.108			
	4	3.785	5.008	1.223			
0.14	1	3.563	4.876	1.313	1.249	0.053	50
	2	3.785	4.973	1.188			
	3	3.564	4.792	1.228			
	4	3.785	5.051	1.266			
0.28	1	3.571	4.788	1.217	1.058	0.135	27
	2	3.783	4.753	0.970			
	3	3.565	4.490	0.925			
	4	3.781	4.899	1.118			
0.56	1	3.563	4.377	0.814	0.859	0.047	3
	2	3.785	4.695	0.910			
	3	3.563	4.388	0.825			
	4	3.788	4.677	0.889			
1.1	1	3.559	4.207	0.648	0.517	0.144	-38
	2	3.769	4.404	0.635			
	3	3.566	3.967	0.401			
	4	3.787	4.171	0.384			
2.3	1	3.566	3.628	0.062	0.074	0.040	-91
	2	3.783	3.900	0.117			
	3	3.561	3.585	0.024			
	4	3.774	3.867	0.093			
4.5	1	3.561	3.593	0.032	0.021	0.008	-97
	2	3.776	3.790	0.014			
	3	3.572	3.589	0.017			
	4	3.775	3.797	0.022			

Analysis of Variance (Plant Dry Weight) F (critical value) = 2.49

Source	df	SS	MS	F value	Signif
Total	31	6.48107			
Treatments	7	6.25982	0.89426	92.60	S
Blocks(reps)	3	0.01844	0.00615		
Error	21	0.20281	0.00966		

NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Data entered by DAG Verified by RSL

Data printed on 12-Jul-93

Vegetative vigor - Plant dry weight (gm)

Compound - Glyphosate Study Number - 93235

Treatment date - June 16, 1993 Plant collection date - July 7, 1993

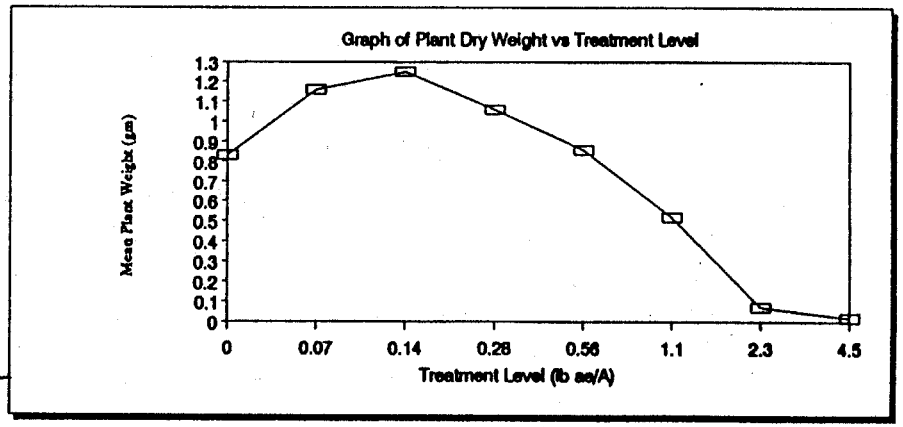
Days after treatment - 21 Test system - Ryegrass

Comments:

One-sided Dunnett value - 2.51
NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Dunnett's Procedure

Comparison	Difference	Signif	D (crit diff)
Grp 1 vs Grp 2	0.00	NS	0.17
Grp 1 vs Grp 3	0.00	NS	0.17
Grp 1 vs Grp 4	0.00	NS	0.17
Grp 1 vs Grp 5	0.00	NS	0.17
Grp 1 vs Grp 6	0.32	S	0.17
Grp 1 vs Grp 7	0.76	S	0.17
Grp 1 vs Grp 8	0.81	S	0.17



Title: Randomized Block Analysis of an 8 Treatment 4 Rep Design with Dunnett's Comparison
Date: 23-Aug-93

Treatment (lb ae/A)	Rep	Replicate Values: Tare Wt.(gm)	Total Wt.(gm)	plant Wt.(gm)	Mean Plant Wt.(gm)	Std. Dev.	Percent Effect
0.0	1	3.564	9.119	5.555	7.237	1.244	NA
	2	3.788	12.341	8.553			
	3	3.539	10.873	7.334			
	4	3.781	11.287	7.506			
0.070	1	3.545	11.657	8.112	7.394	1.290	2
	2	3.780	9.432	5.652			
	3	3.547	12.130	8.583			
	4	3.803	11.030	7.227			
0.14	1	3.533	11.634	8.101	7.629	2.258	5
	2	3.806	14.432	10.626			
	3	3.544	9.630	6.086			
	4	3.806	9.508	5.702			
0.28	1	3.551	7.706	4.155	6.246	2.624	-14
	2	3.811	13.823	10.012			
	3	3.557	8.376	4.819			
	4	3.802	9.799	5.997			
0.56	1	3.544	10.369	6.825	5.547	1.194	-23
	2	3.777	9.522	5.745			
	3	3.531	9.211	5.680			
	4	3.787	7.725	3.938			
1.1	1	3.539	4.300	0.761	0.655	0.200	-91
	2	3.779	4.647	0.868			
	3	3.544	3.963	0.419			
	4	3.787	4.357	0.570			
2.3	1	3.547	3.888	0.341	0.085	0.170	-99
	2	3.777	0.000	0.000			
	3	3.544	0.000	0.000			
	4	3.781	0.000	0.000			
4.5	1	3.554	3.925	0.371	0.175	0.164	-98
	2	3.782	4.023	0.241			
	3	3.547	3.637	0.090			
	4	3.770	0.000	0.000			

Analysis of Variance (Plant Dry Weight) F (critical value) = 2.49

Source	df	SS	MS	F value	Signif
Total	31	380.72242			
Treatments	7	330.56923	47.22418	23.66	S
Block(reps)	3	8.23651	2.74550		
Error	21	41.91669	1.99603		

NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Data entered by JAG Verified by KSC

Data printed on 23-Aug-93

Vegetative vigor - Plant dry weight (gm)

Compound - Glyphosate Study Number - 93235

Treatment date - June 16, 1993 Plant collection date - July 7, 1993

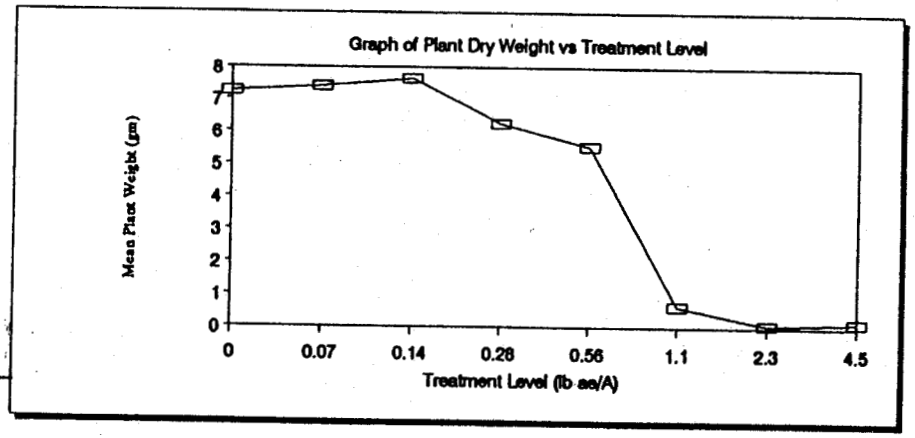
Days after treatment - 21 Test system - Corn

Comments:

One-sided Dunnett value - 2.51
NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Dunnett's Procedure

Comparison	Difference	Signif	D (crit diff)
Grp 1 vs Grp 2	0.00	NS	2.51
Grp 1 vs Grp 3	0.00	NS	2.51
Grp 1 vs Grp 4	0.99	NS	2.51
Grp 1 vs Grp 5	1.69	NS	2.51
Grp 1 vs Grp 6	6.58	S	2.51
Grp 1 vs Grp 7	7.15	S	2.51
Grp 1 vs Grp 8	7.06	S	2.51



Title: Randomized Block Analysis of an 8 Treatment 4 Rep Design with Dunnett's Comparison
Date: 12-Jul-93

Treatment (lb ae/A)	Rep	Replicate Values: Tare Wt.(gm)	Total Wt.(gm)	plant Wt.(gm)	Mean Plant Wt.(gm)	Std. Dev.	Percent Effect
0.0	1	3.540	4.689	1.149	0.955	0.181	NA
	2	3.774	4.529	0.755			
	3	3.534	4.391	0.857			
	4	3.779	4.838	1.059			
0.070	1	3.521	4.348	0.827	0.994	0.126	4
	2	3.768	4.887	1.119			
	3	3.538	4.512	0.974			
	4	3.766	4.821	1.055			
0.14	1	3.533	4.574	1.041	1.094	0.078	15
	2	3.762	4.776	1.014			
	3	3.538	4.710	1.172			
	4	3.772	4.922	1.150			
0.28	1	3.530	4.356	0.826	0.857	0.049	-10
	2	3.765	4.585	0.820			
	3	3.535	4.462	0.927			
	4	3.754	4.607	0.853			
0.56	1	3.561	4.569	1.008	1.063	0.062	11
	2	3.756	4.838	1.082			
	3	3.544	4.562	1.018			
	4	3.757	4.899	1.142			
1.1	1	3.543	4.260	0.717	0.567	0.127	-41
	2	3.764	4.261	0.497			
	3	3.552	4.173	0.621			
	4	3.778	4.211	0.433			
2.3	1	3.544	3.927	0.383	0.274	0.124	-71
	2	3.771	4.147	0.376			
	3	3.567	3.767	0.200			
	4	3.773	3.911	0.138			
4.5	1	3.556	3.690	0.134	0.162	0.031	-83
	2	3.770	3.951	0.181			
	3	3.558	3.754	0.196			
	4	3.778	3.915	0.137			

Analysis of Variance (Plant Dry Weight) F (critical value) = 2.49

Source	df	SS	MS	F value	Signif
Total	31	4.01793			
Treatments	7	3.73746	0.53392	40.50	S
Block(reps)	3	0.00363	0.00121		
Error	21	0.27684	0.01318		

NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Data entered by DAG Verified by RJL

Data printed on 12-Jul-93

Vegetative vigor - Plant dry weight (gm)

Compound - Glyphosate Study Number - 93235

Treatment date - June 16, 1993 Plant collection date - July 7, 1993

Days after treatment - 21 Test system - Onion

Comments:

One-sided Dunnett value - 2.51
NS - Not significant at alpha 0.05
S - Significant at alpha 0.05

Dunnett's Procedure

Comparison	Difference	Signif	D (crit diff)
Grp 1 vs Grp 2	0.00	NS	0.20
Grp 1 vs Grp 3	0.00	NS	0.20
Grp 1 vs Grp 4	0.10	NS	0.20
Grp 1 vs Grp 5	0.00	NS	0.20
Grp 1 vs Grp 6	0.39	S	0.20
Grp 1 vs Grp 7	0.68	S	0.20
Grp 1 vs Grp 8	0.79	S	0.20