

Rec'd

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....} EPA MRID Number 465789-42

Data Requirement: PMRA Data Code: 9.8.4 (TGAI) or 9.8.6 (EP)  
EPA DP Barcode: D319377  
OECD Data Point: IIA 8.12 (TGAI) and IIIA 10.8.1.1 (EP)  
EPA Guideline: 850.4150 and 850.4250

Test material: IR5878 50WG Purity: 49.96%  
Common name: Orthosulfamuron  
Chemical name: IUPAC: Not reported  
CAS name: Not reported  
CAS No.: Not reported  
Synonyms: Not reported

Primary Reviewer: John Marton  
Staff Scientist, Cambridge Environmental, Inc.

Signature: *John Marton*  
Date: 3/21/06

Secondary Reviewer: Teri S. Myers  
Senior Scientist, Cambridge Environmental Inc.

Signature: *Teri S. Myers*  
Date: 3/23/06

Primary Reviewer: Christopher Salice  
EPA/OPP/EFED/ERB - IV

Date: 6/28/06 *Chris Salice*

Secondary Reviewer(s): Christopher Salice  
EPA/OPP/EFED/ERB - IV

Date: 7/31/06 *Chris Salice*

Reference/Submission No.: {.....}

Company Code {.....} [For PMRA]  
Active Code {.....} [For PMRA]  
Use Site Category: {.....} [For PMRA]  
EPA PC Code 108209

Date Evaluation Completed: 31-07-2006

**CITATION:** Porch, John R. and H. O. Krueger. 2003. IR5878 50WG: A Toxicity Test to Determine the Effects on Vegetative Vigor of Ten Species of Plants. Performed by Wildlife International, Ltd., Easton, MD. Laboratory study number 544-111. Sponsored by ISAGRO S.p.A., Milano, Italy. Study completed on December 23, 2003.

**DISCLAIMER:** This document provides guidance for EPA and PMRA reviewers on how to complete a data evaluation record after reviewing a scientific study concerning the acute toxicity of a pesticide to terrestrial vascular plants. It is not intended to prescribe conditions to any external party for conducting this study nor to establish absolute criteria regarding the assessment of whether the study is scientifically sound and whether the study satisfies any applicable data requirements. Reviewers are expected to review and to determine for each study, on a case-by-case basis, whether it is scientifically sound and provides sufficient information to satisfy applicable data requirements. Studies that fail to meet any of the conditions may be accepted, if appropriate; similarly, studies that meet all of the conditions may be rejected, if appropriate. In sum, the reviewer is to take into account the totality of factors related to the test methodology and results in determining the acceptability of the study.



# Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 465789-42

## EXECUTIVE SUMMARY:

The effects of IR5878 50WG (formulation with the active ingredient Orthosulfamuron) on vegetative vigor of monocot (onion, *Allium cepa*; oat, *Avena sativa*; rice, *Oryza sativa* and corn, *Zea mays*) and dicot (carrot, *Daucus carota*; oilseed rape, *Brassica napus*; soybean, *Glycine max*; mung bean, *Phaseolus aureus*; pea, *Pisum sativum* and radish, *Raphanus sativus*) crops were studied at nominal concentrations of 0 (negative and adjuvant controls), 0.00163, 0.00489, 0.0147, 0.0440 and 0.132 lbs ai/A for all species with the exception of carrot and radish; mean-measured concentrations for rice, corn, oat, oilseed rape and soybean were <1.00 ppb ai (negative and adjuvant controls), 0.00170, 0.00527, 0.0150, 0.0366 and 0.115 lbs ai/A; mean-measured concentrations for onion, pea and mung bean were <1.00 ppb ai (negative and adjuvant controls), 0.00169, 0.00514, 0.0143, 0.0337 and 0.125 lbs ai/A. Carrot and radish were tested at nominal concentrations of 0 (negative and adjuvant controls), 0.0000604, 0.000181, 0.000543, 0.00163 and 0.00489 lbs ai/A; mean-measured concentrations were <1.00 ppb ai (negative and adjuvant controls), 0.0000664, 0.000198, 0.000587, 0.00169 and 0.00488 lbs ai/A. The growth medium used in the test was a sandy loam soil composed of kaolinite clay, industrial quartz sand and peat mixed in a 4:50:2 ratio (w:w:w). The pH was measured to be 7.3 and the organic matter content was determined to be 2.0%. On day 21, the surviving plants per pot were recorded and cut at soil level for measuring the dry weight. Survival, plant height and seedling condition were determined on Days 7, 14 and 21.

In the vegetative vigor test, percent survival, dry weight and plant height were affected by IR5878 50WG treatment; dry weight was the most affected endpoint, followed by plant height and percent survival. The most sensitive monocot species (and endpoint) in the vegetative vigor test was onion dry weight with an EC<sub>25</sub> of 0.0048 lbs ai/A. The most sensitive dicot species (and endpoint) was carrot dry weight with an EC<sub>25</sub> of 0.00012 lbs ai/A. Carrot was the most sensitive species, based on dry weight, and the NOAEC and EC<sub>05</sub> values for this endpoint could not be determined (<0.0000664 lbs ai/A).

For soybean and pea height and mung bean dry weight, the EC<sub>25</sub> was lower than the lowest treatment level (<0.0017 lbs ai/A) and could not be determined for these leguminous species.

All species exhibited phytotoxic effects throughout the study and all effects appeared to be dose-related. These effects included chlorosis, necrosis and leaf curl. Corn, carrot, mung bean, pea, radish and soybean showed greater incidence and severity of dose-dependent effects, compared to the other affected species; for all species, the phytotoxic effects were generally reduced over time.

**Maximum Labeled Rate:** Not Reported

### Results Synopsis

#### Vegetative vigor

##### Monocot

Most sensitive monocot: Onion

Most sensitive parameter: Dry Weight

Value	95% Confidence Interval
EC <sub>50</sub> : 0.012 lbs ai/A	0.0083-0.018 lbs ai/A
EC <sub>25</sub> : 0.0048 lbs ai/A	0.0028-0.0084 lbs ai/A
EC <sub>05</sub> : 0.0013 lbs ai/A	0.00055-0.0030 lbs ai/A
NOAEC: 0.00169 lbs ai/A	
Probit slope and std error: 1.69±0.195	

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}

EPA MRID Number 465789-42

**Dicot**

Most sensitive dicot: Carrot

Most sensitive parameter: Dry Weight

Value	95% Confidence Interval
EC <sub>50</sub> : 0.00033 lbs ai/A	0.00024-0.00045 lbs ai/A
EC <sub>25</sub> : 0.00012 lbs ai/A	0.000074-0.00019 lbs ai/A
EC <sub>05</sub> : <0.0000664 lbs ai/A	N/A
NOAEC: <0.0000664 lbs ai/A	
Probit slope and std error: 1.52±0.123	

This toxicity study is classified as SUPPLEMENTAL since a NOAEC could not be determined for several species, particularly leguminous species.

**Table 1. Endpoint summary by species, in lbs ai/A**

Species	Endpoint	NOAEC	EC <sub>25</sub>	EC <sub>50</sub>
Corn	Plant Height	0.00170	0.0057	0.037
Oat	None	0.115	>0.115	>0.115
Onion	Dry Weight	0.0143	0.0048	0.012
Rice	Dry Weight	0.00527	0.032	0.071
Carrot	Dry Weight	<0.0000664*	0.00012	0.00033
Mung Bean	Dry Weight	0.00514	<0.00169	<0.00169
Oilseed Rape	None	0.115	>0.115	>0.115
Pea	Plant Height	0.00169	<0.00169	0.0098
Radish	Dry Weight	<0.0000664	0.00022	0.0012
Soybean	Plant Height	0.00527	<0.00170	0.0079

\* Both the NOAEC and EC<sub>05</sub> values could not be determined.

**I. MATERIALS AND METHODS**

**GUIDELINE FOLLOWED:** Study procedures followed guidelines outlined in U.S. EPA Series 850-Ecological Effects Test Guidelines (draft) OPPTS Number 850.4150 and 850.4250 and OECD Guideline for Testing of Chemicals, Proposal for Updated Guideline 208: Terrestrial (Non-Target) Plant Test.

The following items were not reported: the maximum label rate of the test material, the physiochemical properties of the test material, the historical % germination and storage of the seeds, and the size and material of the test pots.

A NOAEC/EC<sub>05</sub> value could not be determined for carrot and radish. For soybean, pea, and mung bean, the lowest test concentration exceeded the EC<sub>25</sub> values. As a result, they could not be determined for these leguminous species. These deviations affected the study classification.

**COMPLIANCE:** This study was conducted in compliance with Good Laboratory Standards as published by the U.S. EPA, 40 CFR Part 160, 17 August 1989; OECD Principles of Good Laboratory Practice (ENV/MC/CHEM (98) 17); and Japan MAFF, 11 NohSan, Notification No. 6283, Agricultural Production Bureau, 1 October 1999. Signed and dated GLP, Quality Assurance and No Data Confidentiality statements were provided.

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}

EPA MRID Number 465789-42

**A. MATERIALS:**

- 1. Test Material** IR5878 50WG (containing the active ingredient Orthosulfamuron)
- Description:** Brown granular solid
- Lot No./Batch No. :** G038/02 (batch no.)
- Purity:** 49.96%
- Stability of compound under test conditions:** Mean-measured concentrations ranged from 77-110% of nominal. (OECD recommends chemical stability in water and light)
- Storage conditions of test chemicals:** Test material and adjuvant were stored at ambient conditions.

**Table 2. Physical/chemical properties of Orthosulfamuron.**

Parameter	Values	Comments
Water solubility at 20EC	Not Reported	
Vapor pressure	Not Reported	
UV absorption	Not Reported	
pKa	Not Reported	
Kow	Not Reported	

**2. Test organism:**

**Monocotyledonous species:** Corn (*Zea mays*, Family Poaceae, Mandan Bride), Oat (*Avena sativa*, Family Poaceae, Rodea), Onion (*Allium cepa*, Family Liliaceae, Texas Grano) and Rice (*Oryza sativa*, Family Poaceae, M202; EPA recommends four monocots in two families, including corn.

**Dicotyledonous species:** Carrot (*Daucus carota*, Family Apiaceae, Nantes), Mung Bean (*Phaseolus aureus*, Family Fabaceae, none provided), Oilseed rape (*Brassica napus*, Family Brassicaceae, Canola), Pea (*Pisum sativum*, Family Fabaceae, Laxton Progress #9), Radish (*Raphanus sativus*, Family Brassicaceae, Cherry Bell) and Soybean (*Glycine max*, Family Fabaceae, Green Envy); EPA recommends six dicots in four families, including soybean and a root crop.

OECD recommends a minimum of three species selected for testing, at least one from each of the following categories: Category 1: ryegrass, rice, oat, wheat, and sorghum; Category 2: mustard, rape, radish, turnip, and Chinese cabbage; Category 3: vetch, mung bean, red clover, fenugreek, lettuce, and cress.

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}

EPA MRID Number 465789-42

Seed source: Onion, Territorial Seed Co., Cottage Grove, OR; Oat, Corn, Oilseed Rape and Soybean, Johnny's Selected Seeds, Albion, ME; Rice, California Cooperative Rice Research Foundation, USA; Carrot, Pea and Radish, The Meyer Seed Co., Baltimore, MD; Mung Bean, Railway Market, Easton, MD  
 Prior seed treatment/sterilization: None  
 Historical % germination of seed: Not reported  
 Seed storage, if any: Not reported

**B. STUDY DESIGN:**

**1. Experimental Conditions**

- a. Limit test: N/A
- b. Range-finding study: A range-finding study was not reported.
- c. Definitive Study

**Table 3: Experimental Parameters - Vegetative Vigor**

Parameters	Vegetative Vigor	
	Details	Remarks <i>Criteria</i>
Duration of the test	21 Days	<i>Recommended test duration is 14-21 days.</i>
Number of seeds/plants/species/replicate	5 plants per replicate	In the mean-measured 0.00527 lbs ai/A treatment group of rice, three replicates were accidentally planted with one seed of grass weeds. These plants were removed from the test and were not included in the analyses.  <i>Five plants per replicate are recommended.</i>
Number of plants retained after thinning	5 plants per replicate	
<u>Number of replicates</u> Control: Solvent control: Treated:	6 6 6	An adjuvant control was used in lieu of a solvent control.  <i>Four replicates per dose are recommended</i>

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}

EPA MRID Number 465789-42

Parameters	Vegetative Vigor	
	Details	Remarks
		Criteria
<u>Test concentrations (mg ai/kg soil and g ai/ha)</u> Nominal:  Measured:  Nominal:  Measured:  Nominal:  Measured:	<u>Rice, Corn, Oat, Oilseed Rape and Soybean:</u> 0 (negative and adjuvant controls), 0.00163, 0.00489, 0.0147, 0.0440 and 0.132 lbs ai/A  <1.00 ppb ai (negative and adjuvant controls), 0.00170, 0.00527, 0.0150, 0.0366 and 0.115 lbs ai/A  <u>Onion, Pea and Mung Bean:</u> 0 (negative and adjuvant controls), 0.00163, 0.00489, 0.0147, 0.0440 and 0.132 lbs ai/A  <1.00 ppb ai (negative and adjuvant controls), 0.00169, 0.00514, 0.0143, 0.0337 and 0.125 lbs ai/A  <u>Carrot and Radish:</u> 0 (negative and adjuvant controls), 0.0000604, 0.000181, 0.000543, 0.00163 and 0.00489 lbs ai/A  <1.00 ppb ai (negative and adjuvant controls), 0.0000664, 0.000198, 0.000587, 0.00169 and 0.00488 lbs ai/A	Conversion of the concentrations to lbs ai/A was calculated by the reviewer and the file with these data accompanies the electronic version of this DER as "465789-42_123-2_conversion of application rates.xls"  <hr/> Five test concentrations should be used with a dose range of 2X or 3X progression
<u>Method and interval of analytical verification</u>          LOQ: LOD:	Analyses of the stock solutions were conducted on the day of application by high performance liquid chromatography using a Waters Alliance High Performance Liquid Chromatograph equipped with a Waters 486 variable wavelength detector (VWD). HPLC separations were achieved using an Intersil ODS analytical column (250 mm x 4.6 mm I.D., 5 µm particle size).  Not reported 1.00 ppb ai	Triplicate samples were collected from the highest and lowest treatment groups and single samples were collected for the intermediate treatment groups and controls.

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}

EPA MRID Number 465789-42

Parameters	Vegetative Vigor	
	Details	Remarks
	<i>Criteria</i>	
Solvent (type, percentage, if used)	The adjuvant ADJ1012 was used in lieu of a solvent. A mixture of water and 0.2% adjuvant was used for the adjuvant control.	
<u>Test container (pot)</u> Size/Volume: Material: (glass/polystyrene)	Not reported Not reported	<i>Non-porous containers should be used. OECD recommends that non-porous plastic or glazed pots be used.</i>
Growth facility	On-site controlled environment facilities. Soybean, oilseed rape, oat, corn and rice were tested in GEM Room/Location 3 and pea, mung bean, onion, radish and carrot were tested in GEM Room/Location 4.	
Method/depth of seeding	Carrot, oilseed rape, radish and onion were planted at an approximate depth of 6 mm and mung bean, pea, soybean, oat, corn and rice were planted at an approximate depth of 20 mm.	
<u>Test material application</u> Application time including the plant growth stage	All species were sprayed when they reached the 1-5 leaf stage, with the exception of mung bean and pea, which were sprayed at the 1 trifoliate stage and the 16-18 leaflets stage, respectively.	Application of the test material to rice, corn, oat, oilseed rape and soybean occurred on March 27, 2003. Application of the test material to onion, carrot, pea, radish and mung bean occurred on April 9, 2003.
Number of application(s)	1	
Application interval	N/A; single application	
Method of application	DeVries Research Track Sprayer	
<u>Details of soil used</u> Geographic location Depth of soil collection Soil texture % sand	Not reported Not reported Loamy sand soil 55%	Crushed limestone was added to buffer the pH and a slow-release fertilizer was added to the soil to provide nutrients. The soil sample used for analysis was representative of the soil used in the definitive study, but not actually used.

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}

EPA MRID Number 465789-42

Parameters	Vegetative Vigor	
	Details	Remarks
		Criteria
% silt % clay pH: % organic carbon CEC Moisture at 1/3 atm (%)	26% 19% 7.3 2.0% Not reported Not reported	EPA prefers soil mixes containing sandy loam, loam, or clay loam soil with no greater than 2% organic matter. Glass beads, rock wool, and 100% acid washed sand are not preferred.  OECD prefers the soil to be sieved (0.5 cm) to remove coarse fragments. Carbon content should not exceed 1.5% (3% organic matter). Fine particles (under 20um) makeup should be between 10 and 20%. The recommended pH is between 5.0 and 7.5.
Details of nutrient medium, if used	N/A	
<u>Watering regime and schedules</u> Water source/type: Volume applied: Interval of application: Method of application:	On-site well water Not reported Water was added as needed Sub-irrigation	The study authors reported that the sub-irrigation trays were filled to a predetermined depth to help standardize the amount of water given to each tray.  EPA prefers that under foliage watering or bottom watering be utilized for vegetative vigor studies so that the chemical is not washed out of the soil during the test.
Any pest control method/fertilization, if used	Nutrients essential for growth were added via a slow-release fertilizer. Seeds used in the test were not treated with fungicides, insecticides or repellents prior to, or during, testing.	
<u>Test conditions</u> Temperature: Photoperiod: Light intensity and quality: Relative humidity:	<u>Soybean, Oilseed rape, Oat, Corn and Rice:</u> 16.83-35.91°C 14L:10D 10.5-26.2 moles of PAR 13.10-77.20%  <u>Pea, Mung Bean, Onion, Radish and Carrot:</u> 15.08-30.73°C 14L:10D 16.6-26.7 moles of PAR 13.73-87.30%	EPA prefers that the cold vs warm loving plants be tested in two separate groups to optimize plant growth.  OECD prefers that the temperature, humidity and light conditions be suitable for maintaining normal growth of each species for the test period.



**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}

EPA MRID Number 465789-42

Parameters	Vegetative Vigor	
	Details	Remarks
	Criteria	
Reference chemical (if used) Name: Concentrations:	N/A N/A	
Other parameters, if any	None	

**2. Observations:**

**Table 4: Observation Parameters - Vegetative Vigor**

Parameters	Vegetative Vigor	
	Details	Remarks
	Criteria	
Parameters measured (i.e., plant height, dry weight or other endpoints)	Survival, plant height, dry weight and phytotoxicity	
Measurement technique for each parameter	Survival and phytotoxicity were determined by visual inspection of each seedling. Plant height was determined by measuring to the nearest whole centimeter from the soil surface to the tip of the longest leaf for rice, onion, oat, corn, radish, oilseed rape, carrot and pea. For soybean and mung bean, plant height was determined by measuring to the nearest whole centimeter from the soil surface to the tip of the apical meristem. The mean height for each replicate and treatment group was calculated for each day of observation. Dry weight was determined by clipping live plants at the soil level, placing them in labeled bags and then oven-dried at 80°C for approximately 24 hours. The total shoot dry weight for each replicate was divided by the number of plants weighed in	

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}

EPA MRID Number 465789-42

Parameters	Vegetative Vigor	
	Details	Remarks
	order to determine the mean dry weight per plant for each treatment group.	
Observation intervals	Survival, plant height and phytotoxicity were determined on Days 7, 14 and 21. Dry weight was determined at test termination because the process is destructive.	
Other observations, if any	None	
Were raw data included?	Yes	
Phytotoxicity rating system, if used	0, no effect; 10-30 slight effect (10- barely noticeable, 20- not apparently detrimental, 30- effect more pronounced); 40-60, moderate effect (40- moderate, recovery possible, 50-more lasting effect and recovery doubtful, 60- lasting effect and recovery doubtful); 70-90 severe effect (70- heavy injury w/ loss of leaves, 80- plant nearly destroyed w/ few surviving leaves, 90-occasional surviving leaves); 100, complete effect	Rating scale adapted from: Frans, Robert E and Ronald E. Talbert. 1977. Design of Field Experiments and the Measurement and Analysis of Plant Responses. Pages 15-23 in B. Truelove, ed. Research Methods in Weed Science. Southern Weed Science Society, Auburn University, Alabama.

**II. RESULTS and DISCUSSION:**

**A. INHIBITORY EFFECTS:**

**Vegetative Vigor:**

Oat and oilseed rape were the only species that did not exhibit any significant reductions in percent survival, dry weight and plant height. Soybean, rice, pea and carrot did not exhibit significant reductions in percent survival, while radish, onion, mung bean and corn did. The significant reductions in percent survival appeared to be dose-dependent, with the lower application rates having little to no effect and the higher application rates having very high percent reductions. Every species, with the exception of oat and oilseed rape, exhibited significant dose-dependent reductions relative to the pooled controls for both dry weight and plant height.

All species exhibited phytotoxic effects throughout the study and all effects appeared to be dose-related. These effects included chlorosis, necrosis and leaf curl. Corn, mung bean, pea, radish and soybean showed

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

**PMRA Submission Number {.....}**

**EPA MRID Number 465789-42**

---

signs of increased incidence and severity with increasing application rate. All other species had lower incidence and severity of observed effects.

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....} EPA MRID Number 465789-42

**Table 5: Effect of IR5878 50WG on Vegetative Vigor**

Species	NOAEC	EC <sub>05</sub>	EC <sub>25</sub>	EC <sub>50</sub>	95% C.I.	95% C.I.	95% C.I.	r <sup>2</sup> **
Survival (%)								
%*	NOAEC	EC <sub>05</sub>	EC <sub>25</sub>	EC <sub>50</sub>	95% C.I.	95% C.I.	95% C.I.	r <sup>2</sup> **
Corn	67-100	0.0147	0.0211	0.0894	0.0716-0.111	>0.132	N/A	0.99025
Oat	97-100	0.132	>0.132	>0.132	N/A	>0.132	N/A	N/A
Onion	83-100	0.0440	ND	>0.132	N/A	>0.132	N/A	ND
Rice	97-100	0.132	>0.132	>0.132	N/A	>0.132	N/A	N/A
Carrot	97-100	0.00489	>0.00489	>0.00489	N/A	>0.00489	N/A	N/A
Mung Bean	63-100	0.00489	ND	ND	ND	ND	ND	ND
Oilseed Rape	100	0.132	>0.132	>0.132	N/A	>0.132	N/A	N/A
Pea	93-100	0.132	ND	>0.132	N/A	>0.132	N/A	N/A
Radish	67-100	0.000543	ND	ND	ND	>0.00489	N/A	ND
Soybean	100	0.132	>0.132	>0.132	N/A	>0.132	N/A	N/A

\* provide the range  
 \*\* The study author did not report the Slope, so the squared correlation coefficient is provided from their analyses.  
 The range for survival, dry weight and plant length represent the range of treatment means on Day 21  
 NR- Not reported

Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....} EPA MRID Number 465789-42  
 Table 5 (cont): Effect of IR5878 50WG on Vegetative Vigor

Species	NOAEC	EC <sub>05</sub>	EC <sub>25</sub>	EC <sub>50</sub>	95% C.I.	95% C.I.	EC <sub>50</sub>	95% C.I.	r <sup>2</sup>
Dry Weight (g)									
g*	NOAEC	EC <sub>05</sub>	EC <sub>25</sub>	EC <sub>50</sub>	95% C.I.	95% C.I.	EC <sub>50</sub>	95% C.I.	r <sup>2</sup>
Corn	0.60-2.72	0.00489	9.54E <sup>-04</sup>	3.79E <sup>-05</sup> -0.0240	0.00603	8.17E <sup>-04</sup> -0.0445	0.0217	0.00618-0.0765	0.94070
Oat	10.9-12.4	0.132	>0.132	N/A	>0.132	N/A	>0.132	N/A	N/A
Onion	0.012-0.189	0.00489	0.00167	0.000447-0.00620	0.00608	0.00254-0.0145	0.0149	0.00823-0.0271	0.97941
Rice	0.22-0.70	0.00489	0.0135	0.00224-0.0807	0.0398	0.0153-0.104	0.0846	0.0498-0.144	0.94772
Carrot	0.06-1.22	<0.0000604	2.38E <sup>-05</sup>	2.18E <sup>-06</sup> -2.60E <sup>-04</sup>	1.08E <sup>-04</sup>	2.15E <sup>-05</sup> -5.39E <sup>-04</sup>	3.07E <sup>-04</sup>	9.94E <sup>-05</sup> -9.48E <sup>-04</sup>	0.96584
Mung Bean	0.15-1.56	<0.00163	1.69E <sup>-05</sup>	1.05E <sup>-06</sup> -0.271	2.39E <sup>-04</sup>	4.19E <sup>-07</sup> -0.136	6.25E <sup>-04</sup>	2.22E <sup>-05</sup> -0.102	0.87613
Oilseed Rape	15.2-17.4	0.132	>0.132	N/A	>0.132	N/A	>0.132	N/A	N/A
Pea	0.59-3.16	0.00163	1.79E <sup>-04</sup>	2.82E <sup>-07</sup> -0.113	1.69E <sup>-05</sup>	2.67E <sup>-05</sup> -0.107	8.04E <sup>-05</sup>	5.18E <sup>-04</sup> -0.125	0.86202
Radish	0.46-1.51	<0.0000604	1.52E <sup>-05</sup>	5.01E <sup>-07</sup> -4.59E <sup>-04</sup>	1.94E <sup>-04</sup>	2.72E <sup>-05</sup> -1.38E <sup>-03</sup>	1.14E <sup>-03</sup>	3.58E <sup>-04</sup> -3.60E <sup>-03</sup>	0.96823
Soybean	0.63-2.95	<0.00163	0.000410	2.62E <sup>-06</sup> -0.0639	0.00350	0.000150-0.0818	0.0155	0.00208-0.116	0.90261

\* provide the range  
 The range for survival, dry weight and plant length represent the range of treatment means on Day 21  
 NR- Not reported

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....} EPA MRID Number 465789-42  
 Table 5 (cont): Effect of IR5878 50WG on Vegetative Vigor

Species	NOAEC	EC <sub>05</sub>	EC <sub>25</sub>	EC <sub>50</sub>	95% C.I.	95% C.I.	95% C.I.	r <sup>2</sup>	
<b>Plant Height (cm)</b>									
cm*	NOAEC	EC <sub>05</sub>	EC <sub>25</sub>	EC <sub>50</sub>	95% C.I.	95% C.I.	95% C.I.	r <sup>2</sup>	
Corn	25.4-68.6	0.00163	0.000522	6.08E <sup>-06</sup> -0.0448	0.00643	0.000517-0.0800	0.0368	0.00857-0.158	0.92913
Oat	54.8-57.5	0.132	>0.132	N/A	>0.132	N/A	>0.132	N/A	N/A
Onion	7.8-25.4	0.00489	0.00193	0.000219-0.0170	0.0120	0.00344-0.0419	0.0428	0.0208-0.0878	0.96910
Rice	33.3-44.4	0.0440	ND	ND	>0.132	N/A	>0.132	N/A	N/A
Carrot	5.9-25.3	0.000181	7.48E <sup>-05</sup>	1.01E <sup>-05</sup> -5.53E <sup>-04</sup>	3.89E <sup>-04</sup>	1.17E <sup>-04</sup> -1.29E <sup>-03</sup>	1.22E <sup>-01</sup>	5.90E <sup>-04</sup> -2.53E <sup>-03</sup>	0.96939
Mung Bean	6.7-12.4	0.00163	2.79E <sup>-05</sup>	7.54E <sup>-12</sup> -103	3.32E <sup>-03</sup>	2.65E <sup>-06</sup> -4.15	0.0920	1.18E <sup>-03</sup> -7.21	0.75544
Oilseed Rape	24.9-27.2	0.132	>0.132	N/A	>0.132	N/A	>0.132	N/A	N/A
Pea	8.9-31.4	0.00163	7.21E <sup>-05</sup>	4.74E <sup>-09</sup> -1.09	1.36E <sup>-03</sup>	4.02E <sup>-02</sup> -0.457	0.0104	2.90E <sup>-04</sup> -0.375	0.81046
Radish	3.6-17.9	<0.000604	2.70E <sup>-04</sup>	7.37E <sup>-05</sup> -9.86E <sup>-04</sup>	8.70E <sup>-04</sup>	4.07E <sup>-04</sup> -1.86E <sup>-03</sup>	1.96E <sup>-05</sup>	1.25E <sup>-03</sup> -3.09E <sup>-03</sup>	0.97475
Soybean	9.4-35.7	<0.00163	2.34E <sup>-05</sup>	1.33E <sup>-08</sup> -0.0410	0.000735	8.90E <sup>-06</sup> -0.0607	0.00806	0.000585-0.111	0.92787

\* provide the range  
 The range for survival, dry weight and plant length represent the range of treatment means on Day 21  
 NR- Not reported

<b>Plant Injury Index*</b>									
Corn	Oat	Onion	Rice	Carrot	Mung Bean	Oilseed Rape	Pea	Radish	Soybean
0-100	0-30	0-100	0-20	0-100	0-100	0-40	0-100	0-100	0-90

\*\*0, no effect; 10-30 slight effect; 40-60, moderate effect; 70-90 severe effect; 100, complete effect

# Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 465789-42

## B. REPORTED STATISTICS:

The reviewer had one objection to the study authors' analyses; the study author based analysis on comparison to the pooled negative and adjuvant controls (p. 17). Treatments should be compared to the negative control. Pages 17-18 of the study report are appended to this DER to describe the methods of analysis.

## C. VERIFICATION OF STATISTICAL RESULTS BY THE REVIEWER:

Any species exhibiting a  $\geq 5\%$  reduction in percent survival, dry weight or plant height when compared to the control was statistically analyzed for significance. All analyzed data were tested for normality and homogeneity and if these assumptions of ANOVA were met, the NOAEC values were determined using Dunnett's Test or Bonferoni's Test and William's Test (parametric) or Kruskal-Wallis Test (non-parametric) via Toxstat Statistical Software. Treatments were compared to the negative control only and not the pooled negative and adjuvant controls. The ECx values (with 95% C.I.) and probit slopes were determined using Nuthatch Statistical Software. All analyses were conducted using the mean-measured treatment concentrations. Phytotoxicity was not statistically analyzed as this endpoint is a qualitative value. Due to the non-linear responses of several species and endpoints, in some cases a treatment level was associated with a high percent inhibition that was not determined as significant by the statistical test. In these cases, the NOAEC as determined by the test was still presented despite the uncertainty. When necessary, dry weight was converted to mg to avoid mean values of zero within Toxstat. For all species and endpoints, the reviewer determined if the negative and adjuvant controls were statistically different using a t-test for paired means via Microsoft Excel. See Reviewer's Comments section for further discussion of these determinations.

### Results Synopsis

#### Vegetative vigor

##### Monocot

Most sensitive monocot: Onion

Most sensitive parameter: Dry Weight

Value	95% Confidence Interval
EC <sub>50</sub> : 0.012 lbs ai/A	0.0083-0.018 lbs ai/A
EC <sub>25</sub> : 0.0048 lbs ai/A	0.0028-0.0084 lbs ai/A
EC <sub>05</sub> : 0.0013 lbs ai/A	0.00055-0.0030 lbs ai/A
NOAEC: 0.0143 lbs ai/A	
Probit slope and std error: 1.69±0.195	

##### Dicot

Most sensitive dicot: Carrot

Most sensitive parameter: Dry Weight

Value	95% Confidence Interval
EC <sub>50</sub> : 0.00033 lbs ai/A	0.00024-0.00045 lbs ai/A
EC <sub>25</sub> : 0.00012 lbs ai/A	0.000074-0.00019 lbs ai/A
EC <sub>05</sub> : <0.0000664 lbs ai/A	N/A
NOAEC: <0.0000664 lbs ai/A	
Probit slope and std error: 1.52±0.123	

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....} EPA MRID Number 465789-42

**Table 6: Effect of IR5878 50WG on Vegetative Vigor**

Species	NOAEC	EC <sub>05</sub>	EC <sub>25</sub>	EC <sub>50</sub>	95% C.I.	EC <sub>25</sub>	EC <sub>50</sub>	95% C.I.	Slope
<b>Survival (%)</b>									
%*	NOAEC	EC <sub>05</sub>	EC <sub>25</sub>	EC <sub>50</sub>	95% C.I.	EC <sub>25</sub>	EC <sub>50</sub>	95% C.I.	Slope
67-100	0.0366	0.018	0.077	0.21	0.0074-0.045	0.077	0.21	0.14-0.32	1.55±0.372
97-100	0.115	>0.115	>0.115	>0.115	N/A	>0.115	>0.115	N/A	N/A
83-100	0.125	0.037	>0.125	>0.125	0.0087-0.16	>0.125	>0.125	N/A	1.26±0.685
97-100	0.115	>0.115	>0.115	>0.115	N/A	>0.115	>0.115	N/A	N/A
97-100	0.00488	0.00488	>0.00488	>0.00488	N/A	>0.00488	>0.00488	N/A	N/A
Mung Bean	63-100	0.00514	ND	ND	ND	ND	>0.125	N/A	ND
Oilseed Rape	100	0.115	>0.115	>0.115	N/A	>0.115	>0.115	N/A	N/A
Pea	93-100	0.125	ND	>0.125	ND	>0.125	>0.125	N/A	ND
Radish	67-100	0.000587	0.00011	0.0035	3.6E <sup>-06</sup> -3.6E <sup>-03</sup>	0.0035	>0.00488	N/A	0.649±0.275
Soybean	100	0.115	>0.115	>0.115	N/A	>0.115	>0.115	N/A	N/A

provide the range  
 The range for survival, dry weight and plant length represent the range of treatment means on Day 21  
 ND-. Not reported



**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....} EPA MRID Number 465789-42

**Table 6 (cont): Effect of IR5878 50WG on Vegetative Vigor**

Species	NOAEC	EC <sub>05</sub>	EC <sub>25</sub>	EC <sub>50</sub>	95% C.I.	95% C.I.	95% C.I.	Slope
<b>Dry Weight (g)</b>								
g*	NOAEC	EC <sub>05</sub>	EC <sub>25</sub>	EC <sub>50</sub>	95% C.I.	95% C.I.	95% C.I.	Slope
Corn	0.60-2.72	0.00527	0.0012	0.0040-0.0037	0.0066	0.0033-0.013	0.014-0.033	1.31±0.173
Oat	10.9-12.4	0.115	>0.115	>0.115	N/A	N/A	N/A	N/A
Onion	0.012-0.189	0.0143	0.0013	0.0055-0.0030	0.0048	0.0028-0.0084	0.0083-0.018	1.69±0.195
Rice	0.22-0.70	0.00527	0.010	0.0041-0.024	0.032	0.020-0.052	0.054-0.093	1.94±0.368
Carrot	0.06-1.22	<0.0000664	<0.0000664	N/A	0.00012	0.000074-0.00019	0.00024-0.00045	1.52±0.123
Mung Bean	0.15-1.56	0.00514	<0.00169	N/A	<0.00169	N/A	N/A	0.882±0.127
Oilseed Rape	15.2-17.4	0.115	0.026	0.0065-1.1	>0.115	N/A	N/A	0.556±0.519
Pea	0.59-3.16	0.0143	<0.00169	N/A	0.0017	0.00068-0.0042	0.0042-0.014	1.02±0.126
Radish	0.46-1.51	<0.0000664	<0.0000664	N/A	0.00022	0.000094-0.00050	0.00073-0.0020	0.908±0.121
Soybean	0.63-2.95	<0.00170	<0.00170	N/A	0.0035	0.0018-0.0067	0.0095-0.022	1.10±0.113

\* provide the range  
 The range for survival, dry weight and plant length represent the range of treatment means on Day 21  
 ND- Not reported

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....} EPA MRID Number 465789-42  
 Table 6 (cont): Effect of IR5878 50WG on Vegetative Vigor

Species	NOAEC, EC <sub>05</sub> EC <sub>25</sub> and EC <sub>50</sub> (lbs ai/A)									
	Plant Height (cm)									
cm*	NOAEC	EC <sub>05</sub>	95% C.I.	EC <sub>25</sub>	95% C.I.	EC <sub>50</sub>	95% C.I.	Slope		
Corn	25.4-68.6	0.00170	0.00039	0.00011-0.0015	0.0057	0.0027-0.012	0.037	0.024-0.058	0.833±0.0938	
Oat	54.8-57.5	0.115	>0.115	N/A	>0.115	N/A	>0.115	N/A	N/A	
Onion	7.8-25.4	0.00514	0.0015	0.00061-0.0037	0.0099	0.0059-0.017	0.037	0.027-0.050	1.18±0.125	
Rice	33.3-44.4	0.0366	ND	ND	>0.115	N/A	>0.115	N/A	ND	
Carrot	5.9-25.3	0.000198	0.000082	0.000047-0.00014	0.00041	0.00029-0.00057	0.0013	0.0010-0.0015	1.39±0.0999	
Mung Bean	6.7-12.4	0.00169	<0.00169	N/A	0.0028	0.00053-0.015	0.076	0.028-0.21	0.470±0.0999	
Oilseed Rape	24.9-27.2	0.115	ND	ND	>0.115	N/A	>0.115	N/A	ND	
Pea	8.9-31.4	0.00169	<0.00169	N/A	<0.00169	N/A	0.0098	0.0047-0.020	0.784±0.113	
Radish	3.6-17.9	<0.0000664	0.00030	0.00017-0.00051	0.00092	0.00067-0.0013	0.0020	0.0017-0.0025	1.97±0.205	
Soybean	9.4-35.7	0.00527	<0.00170	N/A	<0.00170	N/A	0.0079	0.0046-0.014	0.685±0.0707	

provide the range  
 The range for survival, dry weight and plant length represent the range of treatment means on Day 21  
 ND- Not reported

## Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 465789-42

### D. STUDY DEFICIENCIES:

A NOAEC/EC<sub>05</sub> value could not be determined for carrot, pea, mung bean, radish and soybean. For onion, soybean, pea, and mung bean, the lowest test concentration exceeded the EC<sub>25</sub> values. As a result, they could not be determined for these species.

### E. REVIEWER'S COMMENTS:

The reviewer's results were similar to the study authors'. Carrot was the most sensitive species, with an EC<sub>25</sub> of 0.00012 lbs ai/A based on dry weight; the study author reported an EC<sub>25</sub> of 0.00011 lbs ai/A. Any differences between the study authors' and reviewer's toxicity estimates are likely due to the fact that the reviewer based estimates on the mean measured concentrations, while the study authors based them on the nominal concentrations. Results of the reviewer's statistical output are reported in the Executive Summary and Conclusions sections of this DER because they are based on mean-measured concentrations and include EC<sub>05</sub> values and probit slopes.

An EC<sub>25</sub> value could not be determined for mung bean dry weight and soybean and pea height because the EC<sub>25</sub> estimate was lower than the lowest treatment level. Only EC<sub>50</sub> values could be determined for these species. These species were not tested at levels as low as those selected for carrot and radish. The reviewer suggests retesting mung bean and soybean at lower levels and pea at a narrower range of concentration intervals to determine if these species and endpoints are as sensitive as the most sensitive dicot in this study, carrot.

In the analyses for percent survival, the lowest EC<sub>25</sub> was 0.0035 lbs ai/A for radish. For all other species except corn, the EC<sub>25</sub> was greater than the highest tested exposure level.

In the analyses for dry weight, the lowest EC<sub>25</sub> was for carrot (0.00012 lbs ai/A). For onion, the analysis did not detect a significant difference in the mean-measured 0.00514 lbs ai/A treatment level, despite the 18% reduction in dry weight relative to the negative control; the NOAEC was 0.0143 lbs ai/A. Reliable dry weight NOAEC and EC<sub>05</sub> values could not be determined for carrot, mung bean, radish and soybean due to significant reductions at the lowest treatment level for each species. The reviewer suggests that these species be re-tested at lower application rates in order to obtain "no adverse effect" toxicity values.

In the analyses for plant height, the reviewer's statistical output indicated that the EC<sub>25</sub> value for carrot was 0.00041 lbs ai/A, which was the lowest among the tested species. Reliable plant height NOAEC, EC<sub>05</sub> and EC<sub>25</sub> values for soybean could not be determined by the reviewer due to the  $\geq 31\%$  at all treatment levels, relative to the negative control. The reviewer suggests that soybean be retested using lower application rates in order to determine valid and reliable toxicity values.

In the analyses comparing the negative and adjuvant controls, oat dry weight, oilseed rape dry weight and plant height and radish plant height were the only species' endpoints to exhibit significant differences ( $p \leq 0.05$ ); for radish plant height, response in the adjuvant control was significantly lower than that in the negative control, meaning that the adverse effect detected in the treatment groups, when compared to the negative control, may not have been due to treatment alone.

The study authors did not report the size of the test pots; however, because only one seedling was contained within each pot, the reviewer feels that crowding was not a confounding issue that would have simultaneously (and possibly synergistically) affected plant growth.

In the mean-measured 0.00527 lbs ai/A treatment group of rice, three replicates were accidentally planted with one seed of grass weeds. These plants were removed from the test and were not included in the analyses.

# Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 465789-42

The in-life portion of the vegetative vigor test with rice, corn, oat, oilseed rape and soybean was conducted from March 27 to April 17, 2003. The in-life portion of the vegetative vigor test with onion, carrot, pea, radish and mung bean was conducted from April 9 to 30, 2003. Dry weights were complete by May 6, 2003.

The adjuvant control was sprayed with a 0.2% mixture of adjuvant (ADJ1012) in water.

The analytical standard used to prepare the calibration standards for the study was received from Isagro on May 6, 2002. It was assigned Wildlife International, Ltd. identification number 5968 upon receipt and was stored under ambient conditions in the dark. The analytical standard, a white powder, was identified as: IR5878 Technical, Batch number G009/02, CAS number 213464-77-8. The analytical standard had an expiration date of April 2004 and a reported purity of 98.56%.

## F. CONCLUSIONS:

The most sensitive monocot endpoint was onion dry weight with a NOAEC and EC<sub>25</sub> of 0.0143 and 0.0048 lbs ai/A, respectively; the EC<sub>05</sub> is 0.0013 lbs ai/A. The most sensitive dicot endpoint was carrot dry weight with an EC<sub>05</sub> and EC<sub>25</sub> of <0.0000664 and 0.00012 lbs ai/A, respectively. This study is classified as SUPPLEMENTAL since a NOAEC could not be determined for all combinations of species and endpoint despite relatively large effect levels as a result of exposure.

### Results Synopsis

#### Vegetative vigor

##### Monocot

Most sensitive monocot: Onion

Most sensitive parameter: Dry Weight

Value	95% Confidence Interval
EC <sub>50</sub> : 0.012 lbs ai/A	0.0083-0.018 lbs ai/A
EC <sub>25</sub> : 0.0048 lbs ai/A	0.0028-0.0084 lbs ai/A
EC <sub>05</sub> : 0.0013 lbs ai/A	0.00055-0.0030 lbs ai/A
NOAEC: 0.0143 lbs ai/A	
Probit slope and std error: 1.69±0.195	

##### Dicot

Most sensitive dicot: Carrot

Most sensitive parameter: Dry Weight

Value	95% Confidence Interval
EC <sub>50</sub> : 0.00033 lbs ai/A	0.00024-0.00045 lbs ai/A
EC <sub>25</sub> : 0.00012 lbs ai/A	0.000074-0.00019 lbs ai/A
EC <sub>05</sub> : <0.0000664 lbs ai/A	N/A
NOAEC: <0.0000664 lbs ai/A	
Probit slope and std error: 1.52±0.123	

## III. REFERENCES:

- U.S. Environmental Protection Agency. 1996. Series 850- Ecological Effects Test Guidelines (*draft*), OPPTS Number 850.4150: Terrestrial Plant Toxicity, Tier I, (Vegetative Vigor).
- U.S. Environmental Protection Agency. 1996. Series 850- Ecological Effects Test Guidelines (*draft*), OPPTS Number 850.4250: Terrestrial Plant Toxicity, Tier II (Vegetative Vigor).

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

**PMRA Submission Number {.....}**

**EPA MRID Number 465789-42**

---

OECD Guideline for Testing of Chemicals. 2000. Proposal for Updated Guideline 208. Terrestrial Non-Target Plant Test (Part B). Vegetative Vigor Test (Draft Document, July 2000).

Frans, Robert E. and Ronald E. Talbert. 1977. Design of Field Experiments and the Measurement and Analysis of Plant Responses. Pages 15-23 in B. Truelove, ed. Research Methods in Weed Science. Southern Weed Science Society, Auburn University, Alabama.

SAS Institute, Inc. 1999. SAS Proprietary Software Version 8, Cary, NC, SAS Institute, Inc.

Bruce, Robert D. and Donald J. Versteeg. 1992. A Statistical Procedure for Modeling Continuous Toxicity Data. *Environmental Toxicology and Chemistry*. 11: 1485-1494.

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....} EPA MRID Number 465789-42

**APPENDIX I. OUTPUT OF REVIEWER'S STATISTICAL VERIFICATION:**

Corn percent survival, lbs ai/A; Day 21  
File: 8942cs Transform: NO TRANSFORMATION

KRUSKAL-WALLIS ANOVA BY RANKS - TABLE 1 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	RANK SUM
1	neg control	100.000	100.000	141.000
2	0.00170	100.000	100.000	141.000
3	0.00527	100.000	100.000	141.000
4	0.0150	100.000	100.000	141.000
5	0.0366	86.667	86.667	75.000
6	0.115	66.667	66.667	27.000

Calculated H Value = 9.223 Critical H Value Table = 11.070  
Since Calc H < Crit H FAIL TO REJECT Ho:All groups are equal.

Corn percent survival, lbs ai/A; Day 21  
File: 8942cs Transform: NO TRANSFORMATION

DUNNS MULTIPLE COMPARISON - KRUSKAL-WALLIS - TABLE 2 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	ORIGINAL MEAN	GROUP						
				0	0	0	0	0	0	
6	0.115	66.667	66.667	\						
5	0.0366	86.667	86.667	.	\					
3	0.00527	100.000	100.000	*	.	\				
4	0.0150	100.000	100.000	*	.	.	\			
1	neg control	100.000	100.000	*	.	.	.	\		
2	0.00170	100.000	100.000	*	.	.	.	.	\	

\* = significant difference (p=0.05) . = no significant difference  
Table q value (0.05,6) = 2.936 SE = 4.775

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.018	0.0074	0.045	0.19	0.40
EC10	0.031	0.016	0.061	0.14	0.52
EC25	0.077	0.057	0.11	0.067	0.73
EC50	0.21	0.14	0.32	0.090	0.66

Slope = 1.55 Std.Err. = 0.372

Goodness of fit: p = 0.78 based on DF= 3.0 30.

8942CS : Corn percent survival, lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
------	--------	-----------	------------	-------------	----------------	---------

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}					EPA MRID Number 465789-42	
0.00	6.00	100.	101.	-0.706	100.	0.00
0.00170	6.00	100.	101.	-0.647	99.9	0.0586
0.00527	6.00	100.	100.	-0.0509	99.3	0.650
0.0150	6.00	100.	96.9	3.08	96.2	3.76
0.0366	6.00	86.7	88.7	-2.03	88.1	11.9
0.115	6.00	66.7	66.3	0.358	65.8	34.2

!!!Warning: EC50 not bracketed by doses evaluated.

Corn mean dry weight (g), lbs ai/A; Day 21  
 File: 8942cw Transform: NO TRANSFORMATION

ANOVA TABLE

---

SOURCE	DF	SS	MS	F
Between	5	26.572	5.314	58.396
Within (Error)	30	2.729	0.091	
Total	35	29.300		

---

Critical F value = 2.53 (0.05,5,30)  
 Since F > Critical F REJECT Ho:All groups equal

Corn mean dry weight (g), lbs ai/A; Day 21  
 File: 8942cw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

---

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	neg control	2.597	2.597		
2	0.00170	2.713	2.713	-0.670	
3	0.00527	2.523	2.523	0.421	
4	0.0150	1.523	1.523	6.163	*
5	0.0366	0.837	0.837	10.105	*
6	0.115	0.603	0.603	11.445	*

---

Dunnett table value = 2.33 (1 Tailed Value, P=0.05, df=30,5)

Corn mean dry weight (g), lbs ai/A; Day 21  
 File: 8942cw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

---

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	neg control	6			
2	0.00170	6	0.406	15.6	-0.117
3	0.00527	6	0.406	15.6	0.073
4	0.0150	6	0.406	15.6	1.073
5	0.0366	6	0.406	15.6	1.760
6	0.115	6	0.406	15.6	1.993

---

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}

EPA MRID Number 465789-42

Corn mean dry weight (g), lbs ai/A; Day 21  
File: 8942cw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	neg control	6	2.597	2.597	2.655
2	0.00170	6	2.713	2.713	2.655
3	0.00527	6	2.523	2.523	2.523
4	0.0150	6	1.523	1.523	1.523
5	0.0366	6	0.837	0.837	0.837
6	0.115	6	0.603	0.603	0.603

Corn mean dry weight (g), lbs ai/A; Day 21  
File: 8942cw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
neg control	2.655				
0.00170	2.655	0.335		1.70	k= 1, v=30
0.00527	2.523	0.421		1.78	k= 2, v=30
0.0150	1.523	6.164	*	1.80	k= 3, v=30
0.0366	0.837	10.108	*	1.81	k= 4, v=30
0.115	0.603	11.448	*	1.82	k= 5, v=30

s = 0.302

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.0012	0.00040	0.0037	0.24	0.33
EC10	0.0023	0.00088	0.0059	0.20	0.39
EC25	0.0066	0.0033	0.013	0.15	0.50
EC50	0.022	0.014	0.033	0.092	0.65

Slope = 1.31 Std.Err. = 0.173

!!!Poor fit: p = 0.0040 based on DF= 3.0 30.

8942CW : Corn mean dry weight (g), lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	6.00	2.60	2.80	-0.203	100.	0.00
0.00170	6.00	2.71	2.59	0.120	92.6	7.36
0.00527	6.00	2.52	2.21	0.312	79.0	21.0



# Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}	EPA MRID Number 465789-42					
0.0150	6.00	1.52	1.63	-0.111	58.4	41.6
0.0366	6.00	0.837	1.07	-0.238	38.4	61.6
0.115	6.00	0.603	0.482	0.122	17.2	82.8

!!!Warning: EC5 not bracketed by doses evaluated.

Corn mean plant height (cm), lbs ai/A; Day 21  
 File: 8942ch Transform: NO TRANSFORMATION

### ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	11056.661	2211.332	143.565
Within (Error)	30	462.082	15.403	
Total	35	11518.743		

Critical F value = 2.53 (0.05,5,30)  
 Since F > Critical F REJECT Ho:All groups equal

Corn mean plant height (cm), lbs ai/A; Day 21  
 File: 8942ch Transform: NO TRANSFORMATION

### DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	neg control	68.633	68.633		
2	0.00170	65.733	65.733	1.280	
3	0.00527	61.500	61.500	3.148	*
4	0.0150	41.233	41.233	12.092	*
5	0.0366	28.917	28.917	17.528	*
6	0.155	25.367	25.367	19.095	*

Dunnett table value = 2.33 (1 Tailed Value, P=0.05, df=30,5)

Corn mean plant height (cm), lbs ai/A; Day 21  
 File: 8942ch Transform: NO TRANSFORMATION

### DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	neg control	6			
2	0.00170	6	5.280	7.7	2.900
3	0.00527	6	5.280	7.7	7.133
4	0.0150	6	5.280	7.7	27.400
5	0.0366	6	5.280	7.7	39.717
6	0.155	6	5.280	7.7	43.267

# Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 465789-42

Corn mean plant height (cm), lbs ai/A; Day 21  
File: 8942ch Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	neg control	6	68.633	68.633	68.633
2	0.00170	6	65.733	65.733	65.733
3	0.00527	6	61.500	61.500	61.500
4	0.0150	6	41.233	41.233	41.233
5	0.0366	6	28.917	28.917	28.917
6	0.155	6	25.367	25.367	25.367

Corn mean plant height (cm), lbs ai/A; Day 21  
File: 8942ch Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
neg control	68.633				
0.00170	65.733	1.280		1.70	k= 1, v=30
0.00527	61.500	3.148	*	1.78	k= 2, v=30
0.0150	41.233	12.092	*	1.80	k= 3, v=30
0.0366	28.917	17.528	*	1.81	k= 4, v=30
0.155	25.367	19.095	*	1.82	k= 5, v=30

s = 3.925

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.00039	0.00011	0.0015	0.28	0.27
EC10	0.0011	0.00036	0.0032	0.23	0.34
EC25	0.0057	0.0027	0.012	0.16	0.48
EC50	0.037	0.024	0.058	0.094	0.64

Slope = 0.833 Std.Err. = 0.0938

!!!Poor fit: p < 0.001 based on DF= 3.00 30.0

8942CH : Corn mean plant height (cm), lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	6.00	68.6	71.8	-3.15	100.	0.00
0.00170	6.00	65.7	62.3	3.45	86.8	13.2
0.00527	6.00	61.5	54.5	6.96	76.0	24.0
0.0150	6.00	41.2	45.1	-3.86	62.8	37.2
0.0366	6.00	28.9	36.0	-7.09	50.2	49.8
0.155	6.00	25.4	21.7	3.68	30.2	69.8

# Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 465789-42

!!!Warning: EC5 not bracketed by doses evaluated.

!!!Warning: EC10 not bracketed by doses evaluated.

Onion percent survival, lbs ai/A; Day 21  
File: 8942ns Transform: NO TRANSFORMATION

KRUSKAL-WALLIS ANOVA BY RANKS - TABLE 1 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	RANK SUM
1	neg control	100.000	100.000	132.000
2	0.00169	96.667	96.667	114.500
3	0.00514	100.000	100.000	132.000
4	0.0143	100.000	100.000	132.000
5	0.0337	93.333	93.333	97.000
6	0.125	83.333	83.333	58.500

Calculated H Value = 2.800 Critical H Value Table = 11.070  
Since Calc H < Crit H FAIL TO REJECT Ho:All groups are equal.

Onion percent survival, lbs ai/A; Day 21  
File: 8942ns Transform: NO TRANSFORMATION

DUNNS MULTIPLE COMPARISON - KRUSKAL-WALLIS - TABLE 2 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	ORIGINAL MEAN	GROUP						
				0	0	0	0	0	0	
6	0.125	83.333	83.333	\						
5	0.0337	93.333	93.333	.	\					
2	0.00169	96.667	96.667	.	.	\				
4	0.0143	100.000	100.000	.	.	.	\			
1	neg control	100.000	100.000	.	.	.	.	\		
3	0.00514	100.000	100.000	.	.	.	.	.	\	

\* = significant difference (p=0.05) . = no significant difference  
Table q value (0.05,6) = 2.936 SE = 4.183

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.037	0.0087	0.16	0.31	0.23
EC10	0.072	0.032	0.16	0.18	0.44
EC25	0.22	0.097	0.50	0.17	0.44
EC50	0.75	0.098	5.8	0.44	0.13

Slope = 1.26 Std.Err. = 0.685

Goodness of fit: p = 0.74 based on DF= 3.0 30.

8942NS : Onion percent survival, lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

# Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 465789-42

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	6.00	100.	99.3	0.703	100.	0.00
0.00169	6.00	96.7	99.3	-2.59	100.	0.0423
0.00514	6.00	100.	99.0	1.02	99.7	0.318
0.0143	6.00	100.	97.8	2.20	98.5	1.50
0.0337	6.00	93.3	94.9	-1.54	95.5	4.46
0.125	6.00	83.3	83.1	0.206	83.7	16.3

!!!Warning: EC25 not bracketed by doses evaluated.

!!!Warning: EC50 not bracketed by doses evaluated.

Onion mean dry weight (mg), lbs ai/A; Day 21  
File: 8942nw Transform: NO TRANSFORMATION

KRUSKAL-WALLIS ANOVA BY RANKS - TABLE 1 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	RANK SUM
1	neg control	186.000	186.000	175.000
2	0.00169	175.167	175.167	169.000
3	0.00514	153.333	153.333	151.000
4	0.0143	88.667	88.667	93.000
5	0.0337	31.667	31.667	57.000
6	0.125	12.333	12.333	21.000

Calculated H Value = 30.563 Critical H Value Table = 11.070  
Since Calc H > Crit H REJECT Ho: All groups are equal.

Onion mean dry weight (mg), lbs ai/A; Day 21  
File: 8942nw Transform: NO TRANSFORMATION

DUNNS MULTIPLE COMPARISON - KRUSKAL-WALLIS - TABLE 2 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	ORIGINAL MEAN	GROUP
6	0.125	12.333	12.333	0 0 0 0 0 0
5	0.0337	31.667	31.667	6 5 4 3 2 1
4	0.0143	88.667	88.667	. . \
3	0.00514	153.333	153.333	* . . \
2	0.00169	175.167	175.167	* * . . \
1	neg control	186.000	186.000	* * . . . \

\* = significant difference (p=0.05) . = no significant difference  
Table q value (0.05, 6) = 2.936 SE = 6.080

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.0013	0.00055	0.0030	0.18	0.43
EC10	0.0021	0.0010	0.0044	0.16	0.48
EC25	0.0048	0.0028	0.0084	0.12	0.57

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....} EPA MRID Number 465789-42

EC50 0.012 0.0083 0.018 0.081 0.68

Slope = 1.69 Std.Err. = 0.195

Goodness of fit: p = 0.12 based on DF= 3.0 30.

8942NW : Onion mean dry weight (mg), lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	6.00	186.	191.	-5.23	100.	0.00
0.00169	6.00	175.	177.	-1.84	92.6	7.44
0.00514	6.00	153.	141.	12.7	73.5	26.5
0.0143	6.00	88.7	86.5	2.20	45.2	54.8
0.0337	6.00	31.7	43.4	-11.8	22.7	77.3
0.125	6.00	12.3	8.38	3.96	4.38	95.6

!!!Warning: EC5 not bracketed by doses evaluated.

Onion mean plant height (cm), lbs ai/A; Day 21  
File: 8942nh Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	1730.769	346.154	80.538
Within (Error)	30	128.927	4.298	
Total	35	1859.696		

Critical F value = 2.53 (0.05,5,30)  
Since F > Critical F REJECT Ho:All groups equal

Onion mean plant height (cm), lbs ai/A; Day 21  
File: 8942nh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	neg control	25.433	25.433		
2	0.00169	25.100	25.100	0.278	
3	0.00514	23.800	23.800	1.365	
4	0.0143	19.000	19.000	5.375	*
5	0.0337	11.133	11.133	11.947	*
6	0.125	7.800	7.800	14.732	*

Dunnett table value = 2.33 (1 Tailed Value, P=0.05, df=30,5)

Onion mean plant height (cm), lbs ai/A; Day 21

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....} EPA MRID Number 465789-42  
 File: 8942nh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	neg control	6			
2	0.00169	6	2.789	11.0	0.333
3	0.00514	6	2.789	11.0	1.633
4	0.0143	6	2.789	11.0	6.433
5	0.0337	6	2.789	11.0	14.300
6	0.125	6	2.789	11.0	17.633

Onion mean plant height (cm), lbs ai/A; Day 21  
 File: 8942nh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	neg control	6	25.433	25.433	25.433
2	0.00169	6	25.100	25.100	25.100
3	0.00514	6	23.800	23.800	23.800
4	0.0143	6	19.000	19.000	19.000
5	0.0337	6	11.133	11.133	11.133
6	0.125	6	7.800	7.800	7.800

Onion mean plant height (cm), lbs ai/A; Day 21  
 File: 8942nh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
neg control	25.433				
0.00169	25.100	0.279		1.70	k= 1, v=30
0.00514	23.800	1.365		1.78	k= 2, v=30
0.0143	19.000	5.375	*	1.80	k= 3, v=30
0.0337	11.133	11.948	*	1.81	k= 4, v=30
0.125	7.800	14.733	*	1.82	k= 5, v=30

s = 2.073

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.0015	0.00061	0.0037	0.19	0.41
EC10	0.0030	0.0014	0.0064	0.16	0.47
EC25	0.0099	0.0059	0.017	0.11	0.59
EC50	0.037	0.027	0.050	0.066	0.73

Slope = 1.18 Std.Err. = 0.125

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}

EPA MRID Number 465789-42

!!!Poor fit: p = 0.0012 based on DF= 3.0 30.

8942NH : Onion mean plant height (cm), lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	6.00	25.4	26.4	-0.957	100.	0.00
0.00169	6.00	25.1	24.9	0.218	94.3	5.71
0.00514	6.00	23.8	22.3	1.54	84.3	15.7
0.0143	6.00	19.0	18.1	0.905	68.6	31.4
0.0337	6.00	11.1	13.7	-2.52	51.7	48.3
0.125	6.00	7.80	6.99	0.814	26.5	73.5

!!!Warning: EC5 not bracketed by doses evaluated.

Rice dry weight (g), lbs ai/A; Day 21

File: 8942rw Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	0.922	0.184	16.727
Within (Error)	30	0.324	0.011	
Total	35	1.246		

Critical F value = 2.53 (0.05,5,30)

Since F > Critical F REJECT Ho:All groups equal

Rice dry weight (g), lbs ai/A; Day 21

File: 8942rw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	neg control	0.700	0.700		
2	0.00170	0.653	0.653	0.771	
3	0.00527	0.645	0.645	0.908	
4	0.0150	0.545	0.545	2.560	*
5	0.0366	0.510	0.510	3.138	*
6	0.115	0.218	0.218	7.954	*

Dunnnett table value = 2.33 (1 Tailed Value, P=0.05, df=30,5)

Rice dry weight (g), lbs ai/A; Day 21

File: 8942rw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

# Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 465789-42

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	neg control	6			
2	0.00170	6	0.141	20.2	0.047
3	0.00527	6	0.141	20.2	0.055
4	0.0150	6	0.141	20.2	0.155
5	0.0366	6	0.141	20.2	0.190
6	0.115	6	0.141	20.2	0.482

Rice dry weight (g), lbs ai/A; Day 21  
 File: 8942rw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	neg control	6	0.700	0.700	0.700
2	0.00170	6	0.653	0.653	0.653
3	0.00527	6	0.645	0.645	0.645
4	0.0150	6	0.545	0.545	0.545
5	0.0366	6	0.510	0.510	0.510
6	0.115	6	0.218	0.218	0.218

Rice dry weight (g), lbs ai/A; Day 21  
 File: 8942rw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
neg control	0.700				
0.00170	0.653	0.778		1.70	k= 1, v=30
0.00527	0.645	0.917		1.78	k= 2, v=30
0.0150	0.545	2.583	*	1.80	k= 3, v=30
0.0366	0.510	3.167	*	1.81	k= 4, v=30
0.115	0.218	8.028	*	1.82	k= 5, v=30

s = 0.104

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.010	0.0041	0.024	0.19	0.41
EC10	0.015	0.0075	0.032	0.16	0.48
EC25	0.032	0.020	0.052	0.10	0.62
EC50	0.071	0.054	0.093	0.059	0.76

Slope = 1.94 Std.Err. = 0.368

Goodness of fit: p = 0.35 based on DF= 3.0 30.



**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}

EPA MRID Number 465789-42

8942RW : Rice dry weight (g), lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. - Pred.	%Control	%Change
0.00	6.00	0.700	0.662	0.0381	100.	0.00
0.00170	6.00	0.653	0.661	-0.00805	99.9	0.0833
0.00527	6.00	0.645	0.653	-0.00751	98.6	1.42
0.0150	6.00	0.545	0.599	-0.0539	90.5	9.53
0.0366	6.00	0.510	0.471	0.0392	71.1	28.9
0.115	6.00	0.218	0.226	-0.00784	34.2	65.8

Rice mean plant height (cm), lbs ai/A; Day 21  
 File: 8942rh Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	456.699	91.340	14.267
Within (Error)	30	192.048	6.402	
Total	35	648.747		

Critical F value = 2.53 (0.05,5,30)  
 Since F > Critical F REJECT Ho:All groups equal

Rice mean plant height (cm), lbs ai/A; Day 21  
 File: 8942rh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	neg control	42.500	42.500		
2	0.00170	41.667	41.667	0.570	
3	0.00527	42.133	42.133	0.251	
4	0.0150	41.567	41.567	0.639	
5	0.366	44.433	44.433	-1.323	
6	0.115	33.250	33.250	6.332	*

Dunnett table value = 2.33 (1 Tailed Value, P=0.05, df=30,5)

Rice mean plant height (cm), lbs ai/A; Day 21  
 File: 8942rh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	neg control	6			

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}	EPA MRID Number 465789-42				
2	0.00170	6	3.404	8.0	0.833
3	0.00527	6	3.404	8.0	0.367
4	0.0150	6	3.404	8.0	0.933
5	0.366	6	3.404	8.0	-1.933
6	0.115	6	3.404	8.0	9.250

Rice mean plant height (cm), lbs ai/A; Day 21  
 File: 8942rh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	neg control	6	42.500	42.500	42.500
2	0.00170	6	41.667	41.667	42.450
3	0.00527	6	42.133	42.133	42.450
4	0.0150	6	41.567	41.567	42.450
5	0.366	6	44.433	44.433	42.450
6	0.115	6	33.250	33.250	33.250

Rice mean plant height (cm), lbs ai/A; Day 21  
 File: 8942rh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
neg control	42.500				
0.00170	42.450	0.034		1.70	k= 1, v=30
0.00527	42.450	0.034		1.78	k= 2, v=30
0.0150	42.450	0.034		1.80	k= 3, v=30
0.366	42.450	0.034		1.81	k= 4, v=30
0.115	33.250	6.332	*	1.82	k= 5, v=30

s = 2.530

Note: df used for table values are approximate when v > 20.

Carrot mean dry weight (g), lbs ai/A; Day 21  
 File: 8942aw Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	6.809	1.362	136.200
Within (Error)	30	0.314	0.010	
Total	35	7.124		

Critical F value = 2.53 (0.05,5,30)

Since F > Critical F REJECT Ho:All groups equal

# Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 465789-42

Carrot mean dry weight (g), lbs ai/A; Day 21  
 File: 8942aw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	neg control	1.217	1.217		
2	0.0000664	0.935	0.935	4.879	*
3	0.000198	0.900	0.900	5.485	*
4	0.000587	0.370	0.370	14.665	*
5	0.00169	0.140	0.140	18.648	*
6	0.00488	0.063	0.063	19.976	*

Dunnett table value = 2.33 (1 Tailed Value, P=0.05, df=30,5)

Carrot mean dry weight (g), lbs ai/A; Day 21  
 File: 8942aw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	neg control	6			
2	0.0000664	6	0.135	11.1	0.282
3	0.000198	6	0.135	11.1	0.317
4	0.000587	6	0.135	11.1	0.847
5	0.00169	6	0.135	11.1	1.077
6	0.00488	6	0.135	11.1	1.153

Carrot mean dry weight (g), lbs ai/A; Day 21  
 File: 8942aw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	neg control	6	1.217	1.217	1.217
2	0.0000664	6	0.935	0.935	0.935
3	0.000198	6	0.900	0.900	0.900
4	0.000587	6	0.370	0.370	0.370
5	0.00169	6	0.140	0.140	0.140
6	0.00488	6	0.063	0.063	0.063

Carrot mean dry weight (g), lbs ai/A; Day 21  
 File: 8942aw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

ISOTONIZED	CALC.	SIG	TABLE	DEGREES OF
------------	-------	-----	-------	------------

# Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....} EPA MRID Number 465789-42

IDENTIFICATION	MEAN	WILLIAMS	P=.05	WILLIAMS	FREEDOM
neg control	1.217				
0.0000664	0.935	4.766	*	1.70	k= 1, v=30
0.000198	0.900	5.358	*	1.78	k= 2, v=30
0.000587	0.370	14.325	*	1.80	k= 3, v=30
0.00169	0.140	18.216	*	1.81	k= 4, v=30
0.00488	0.063	19.513	*	1.82	k= 5, v=30

s = 0.102

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	2.7E-05	1.4E-05	5.4E-05	0.15	0.50
EC10	4.7E-05	2.6E-05	8.6E-05	0.13	0.55
EC25	0.00012	7.4E-05	0.00019	0.099	0.63
EC50	0.00033	0.00024	0.00045	0.069	0.72

Slope = 1.52 Std.Err. = 0.123

!!!Poor fit: p = 0.0012 based on DF= 3.0 30.

8942AW : Carrot mean dry weight (g), lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	6.00	1.22	1.20	0.0136	100.	0.00
6.64e-05	6.00	0.935	1.03	-0.0925	85.4	14.6
0.000198	6.00	0.900	0.759	0.141	63.1	36.9
0.000587	6.00	0.370	0.422	-0.0520	35.1	64.9
0.00169	6.00	0.140	0.168	-0.0283	14.0	86.0
0.00488	6.00	0.0633	0.0452	0.0182	3.75	96.2

!!!Warning: EC5 not bracketed by doses evaluated.

!!!Warning: EC10 not bracketed by doses evaluated.

Carrot mean plant height (cm), lbs ai/A; Day 21  
File: 8942ah Transform: NO TRANSFORMATION

## ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	2064.649	412.930	240.215
Within (Error)	30	51.573	1.719	
Total	35	2116.222		

Critical F value = 2.53 (0.05,5,30)

Since F > Critical F REJECT Ho:All groups equal

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}

EPA MRID Number 465789-42

Carrot mean plant height (cm), lbs ai/A; Day 21  
File: 8942ah Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	neg control	25.300	25.300		
2	0.0000664	24.167	24.167	1.497	
3	0.000198	23.933	23.933	1.805	
4	0.000587	17.833	17.833	9.864	*
5	0.00169	9.500	9.500	20.873	*
6	0.00488	5.933	5.933	25.585	*

Dunnett table value = 2.33 (1 Tailed Value, P=0.05, df=30,5)

Carrot mean plant height (cm), lbs ai/A; Day 21  
File: 8942ah Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	neg control	6			
2	0.0000664	6	1.764	7.0	1.133
3	0.000198	6	1.764	7.0	1.367
4	0.000587	6	1.764	7.0	7.467
5	0.00169	6	1.764	7.0	15.800
6	0.00488	6	1.764	7.0	19.367

Carrot mean plant height (cm), lbs ai/A; Day 21  
File: 8942ah Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	neg control	6	25.300	25.300	25.300
2	0.0000664	6	24.167	24.167	24.167
3	0.000198	6	23.933	23.933	23.933
4	0.000587	6	17.833	17.833	17.833
5	0.00169	6	9.500	9.500	9.500
6	0.00488	6	5.933	5.933	5.933

Carrot mean plant height (cm), lbs ai/A; Day 21  
File: 8942ah Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
----------------	-----------------	----------------	-----------	----------------	--------------------

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}

EPA MRID Number 465789-42

neg control	25.300				
0.0000664	24.167	1.497		1.70	k= 1, v=30
0.000198	23.933	1.805	*	1.78	k= 2, v=30
0.000587	17.833	9.864	*	1.80	k= 3, v=30
0.00169	9.500	20.872	*	1.81	k= 4, v=30
0.00488	5.933	25.584	*	1.82	k= 5, v=30

s = 1.311

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	8.2E-05	4.7E-05	0.00014	0.12	0.58
EC10	0.00015	9.4E-05	0.00024	0.10	0.63
EC25	0.00041	0.00029	0.00057	0.071	0.72
EC50	0.0013	0.0010	0.0015	0.043	0.82

Slope = 1.39 Std.Err. = 0.0999

!!!Poor fit: p < 0.001 based on DF= 3.00 30.0

8942AH : Carrot mean plant height (cm), lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	6.00	25.3	25.8	-0.464	100.	0.00
6.64e-05	6.00	24.2	24.8	-0.612	96.2	3.83
0.000198	6.00	23.9	22.3	1.59	86.7	13.3
0.000587	6.00	17.8	17.4	0.408	67.6	32.4
0.00169	6.00	9.50	11.0	-1.54	42.9	57.1
0.00488	6.00	5.93	5.32	0.618	20.6	79.4

Mung bean percent survival, lbs ai/A; Day 21

File: 8942bs Transform: NO TRANSFORMATION

KRUSKAL-WALLIS ANOVA BY RANKS - TABLE 1 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	RANK SUM
1	neg control	100.000	100.000	159.000
2	0.00169	96.667	96.667	145.000
3	0.00514	100.000	100.000	159.000
4	0.0143	63.333	63.333	53.000
5	0.0337	76.667	76.667	75.000
6	0.125	76.667	76.667	75.000

Calculated H Value = 12.054 Critical H Value Table = 11.070

Since Calc H > Crit H REJECT Ho: All groups are equal.

Mung bean percent survival, lbs ai/A; Day 21

File: 8942bs Transform: NO TRANSFORMATION



**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}	EPA MRID Number 465789-42				
EC5	2.0E-05	2.7E-06	0.00015	0.43	0.13
EC10	5.3E-05	9.1E-06	0.00031	0.38	0.17
EC25	0.00026	6.8E-05	0.00097	0.28	0.27
EC50	0.0015	0.00062	0.0036	0.19	0.42

Slope = 0.882 Std.Err. = 0.127

!!!Poor fit: p < 0.001 based on DF= 3.00 30.0

8942BW : Mung bean mean dry weight (g), lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	6.00	1.56	1.61	-0.0545	100.	0.00
0.00169	6.00	1.09	0.776	0.316	48.1	51.9
0.00514	6.00	0.303	0.513	-0.209	31.8	68.2
0.0143	6.00	0.195	0.312	-0.117	19.4	80.6
0.0337	6.00	0.170	0.188	-0.0177	11.7	88.3
0.125	6.00	0.150	0.0727	0.0773	4.51	95.5

!!!Warning: EC5 not bracketed by doses evaluated.

!!!Warning: EC10 not bracketed by doses evaluated.

!!!Warning: EC25 not bracketed by doses evaluated.

!!!Warning: EC50 not bracketed by doses evaluated.

Mung bean mean plant height (cm), lbs ai/A; Day 21  
File: 8942bh Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	227.153	45.431	54.278
Within (Error)	30	25.117	0.837	
Total	35	252.270		

Critical F value = 2.53 (0.05,5,30)

Since F > Critical F REJECT Ho:All groups equal

Mung bean mean plant height (cm), lbs ai/A; Day 21  
File: 8942bh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	neg control	12.433	12.433		
2	0.00169	12.183	12.183	0.473	
3	0.00514	8.033	8.033	8.330	*



## Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}	EPA MRID Number 465789-42			
4	0.0143	6.850	6.850	10.570 *
5	0.0337	6.667	6.667	10.917 *
6	0.125	6.733	6.733	10.791 *

-----  
Dunnett table value = 2.33 (1 Tailed Value, P=0.05, df=30,5)

Mung bean mean plant height (cm), lbs ai/A; Day 21  
File: 8942bh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

---

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	neg control	6			
2	0.00169	6	1.231	9.9	0.250
3	0.00514	6	1.231	9.9	4.400
4	0.0143	6	1.231	9.9	5.583
5	0.0337	6	1.231	9.9	5.767
6	0.125	6	1.231	9.9	5.700

---

Mung bean mean plant height (cm), lbs ai/A; Day 21  
File: 8942bh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

---

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	neg control	6	12.433	12.433	12.433
2	0.00169	6	12.183	12.183	12.183
3	0.00514	6	8.033	8.033	8.033
4	0.0143	6	6.850	6.850	6.850
5	0.0337	6	6.667	6.667	6.700
6	0.125	6	6.733	6.733	6.700

---

Mung bean mean plant height (cm), lbs ai/A; Day 21  
File: 8942bh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

---

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
neg control	12.433				
0.00169	12.183	0.473		1.70	k= 1, v=30
0.00514	8.033	8.329	*	1.78	k= 2, v=30
0.0143	6.850	10.569	*	1.80	k= 3, v=30
0.0337	6.700	10.853	*	1.81	k= 4, v=30
0.125	6.700	10.853	*	1.82	k= 5, v=30

---

s = 0.915  
Note: df used for table values are approximate when v > 20.

Estimates of EC%

# Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 465789-42

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	2.4E-05	7.0E-07	0.00082	0.75	0.029
EC10	0.00014	8.6E-06	0.0023	0.60	0.061
EC25	0.0028	0.00053	0.015	0.36	0.19
EC50	0.076	0.028	0.21	0.22	0.36

Slope = 0.470 Std.Err. = 0.0999

!!!Poor fit:  $p < 0.001$  based on DF= 3.00 30.0

8942BH : Mung bean mean plant height (cm), lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	6.00	12.4	12.8	-0.319	100.	0.00
0.00169	6.00	12.2	9.96	2.22	78.1	21.9
0.00514	6.00	8.03	9.04	-1.00	70.9	29.1
0.0143	6.00	6.85	8.08	-1.23	63.3	36.7
0.0337	6.00	6.67	7.22	-0.549	56.6	43.4
0.125	6.00	6.73	5.86	0.874	46.0	54.0

!!!Warning: EC5 not bracketed by doses evaluated.

!!!Warning: EC10 not bracketed by doses evaluated.

Oilseed rape mean dry weight (g), lbs ai/A; Day 21  
File: 8942pw Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	18.042	3.608	1.509
Within (Error)	30	71.742	2.391	
Total	35	89.784		

Critical F value = 2.53 (0.05,5,30)

Since  $F < \text{Critical } F$  FAIL TO REJECT  $H_0$ : All groups equal

Oilseed rape mean dry weight (g), lbs ai/A; Day 21  
File: 8942pw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2

$H_0$ : Control < Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	neg control	16.370	16.370		
2	0.00170	17.442	17.442	-1.200	
3	0.00527	16.050	16.050	0.358	
4	0.0150	15.742	15.742	0.704	

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....} EPA MRID Number 465789-42

5	0.0366	15.767	15.767	0.676
6	0.115	15.155	15.155	1.361

Dunnett table value = 2.33 (1 Tailed Value, P=0.05, df=30,5)

Oilseed rape mean dry weight (g), lbs ai/A; Day 21  
File: 8942pw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	neg control	6			
2	0.00170	6	2.080	12.7	-1.072
3	0.00527	6	2.080	12.7	0.320
4	0.0150	6	2.080	12.7	0.628
5	0.0366	6	2.080	12.7	0.603
6	0.115	6	2.080	12.7	1.215

Oilseed rape mean dry weight (g), lbs ai/A; Day 21  
File: 8942pw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	neg control	6	16.370	16.370	16.906
2	0.00170	6	17.442	17.442	16.906
3	0.00527	6	16.050	16.050	16.050
4	0.0150	6	15.742	15.742	15.754
5	0.0366	6	15.767	15.767	15.754
6	0.115	6	15.155	15.155	15.155

Oilseed rape mean dry weight (g), lbs ai/A; Day 21  
File: 8942pw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
neg control	16.906				
0.00170	16.906	0.600		1.70	k= 1, v=30
0.00527	16.050	0.358		1.78	k= 2, v=30
0.0150	15.754	0.690		1.80	k= 3, v=30
0.0366	15.754	0.690		1.81	k= 4, v=30
0.115	15.155	1.361		1.82	k= 5, v=30

s = 1.546

Note: df used for table values are approximate when v > 20.

Estimates of EC%

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....} EPA MRID Number 465789-42

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.026	0.00065	1.1	0.79	0.025
EC10	0.12	0.014	1.0	0.46	0.12
EC25	1.5	0.0091	2.3E+02	1.1	0.0063
EC50	24.	0.00095	6.0E+05	2.2	4.0E-05

Slope = 0.556 Std.Err. = 0.519

Goodness of fit: p = 0.43 based on DF= 3.0 30.

8942PW : Oilseed rape mean dry weight (g), lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	6.00	16.4	16.7	-0.349	100.	0.00
0.00170	6.00	17.4	16.5	0.899	98.9	1.05
0.00527	6.00	16.0	16.4	-0.318	97.9	2.10
0.0150	6.00	15.7	16.1	-0.351	96.2	3.75
0.0366	6.00	15.8	15.7	0.0306	94.1	5.88
0.115	6.00	15.2	15.1	0.0879	90.1	9.88

!!!Warning: EC10 not bracketed by doses evaluated.

!!!Warning: EC25 not bracketed by doses evaluated.

!!!Warning: EC50 not bracketed by doses evaluated.

Oilseed rape mean plant height (cm), lbs ai/A; Day 21  
File: 8942ph Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	26.632	5.326	0.891
Within (Error)	30	179.353	5.978	
Total	35	205.986		

Critical F value = 2.53 (0.05,5,30)

Since F < Critical F FAIL TO REJECT Ho:All groups equal

Oilseed rape mean plant height (cm), lbs ai/A; Day 21  
File: 8942ph Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	neg control	26.967	26.967		
2	0.00170	26.767	26.767	0.142	
3	0.00527	24.867	24.867	1.488	

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....} EPA MRID Number 465789-42

4	0.0150	25.567	25.567	0.992
5	0.0366	25.600	25.600	0.968
6	0.115	27.200	27.200	-0.165

Dunnett table value = 2.33 (1 Tailed Value, P=0.05, df=30,5)

Oilseed rape mean plant height (cm), lbs ai/A; Day 21  
File: 8942ph Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	neg control	6			
2	0.00170	6	3.289	12.2	0.200
3	0.00527	6	3.289	12.2	2.100
4	0.0150	6	3.289	12.2	1.400
5	0.0366	6	3.289	12.2	1.367
6	0.115	6	3.289	12.2	-0.233

Oilseed rape mean plant height (cm), lbs ai/A; Day 21  
File: 8942ph Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	neg control	6	26.967	26.967	25.953
2	0.00170	6	26.767	26.767	25.953
3	0.00527	6	24.867	24.867	25.953
4	0.0150	6	25.567	25.567	25.953
5	0.0366	6	25.600	25.600	25.953
6	0.115	6	27.200	27.200	27.200

Oilseed rape mean plant height (cm), lbs ai/A; Day 21  
File: 8942ph Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
neg control	25.953				
0.00170	25.953	0.718		1.70	k= 1, v=30
0.00527	25.953	0.718		1.78	k= 2, v=30
0.0150	25.953	0.718		1.80	k= 3, v=30
0.0366	25.953	0.718		1.81	k= 4, v=30
0.115	27.200	0.165		1.82	k= 5, v=30

s = 2.445

Note: df used for table values are approximate when v > 20.

Pea percent survival, lbs ai/A; Day 21

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....} EPA MRID Number 465789-42  
 File: 8942es Transform: NO TRANSFORM

KRUSKAL-WALLIS ANOVA BY RANKS - TABLE 1 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	RANK SUM
1	neg control	100.000	100.000	114.000
2	0.00169	100.000	100.000	114.000
3	0.00514	100.000	100.000	114.000
4	0.0143	100.000	100.000	114.000
5	0.0337	100.000	100.000	114.000
6	0.125	93.333	93.333	96.000

Calculated H Value = -2.029 Critical H Value Table = 11.070  
 Since Calc H < Crit H FAIL TO REJECT Ho:All groups are equal.

Pea percent survival, lbs ai/A; Day 21  
 File: 8942es Transform: NO TRANSFORM

DUNNS MULTIPLE COMPARISON - KRUSKAL-WALLIS - TABLE 2 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	ORIGINAL MEAN	GROUP						
				0	0	0	0	0	0	
6	0.125	93.333	93.333	\						
2	0.00169	100.000	100.000	. \						
3	0.00514	100.000	100.000	. . \						
4	0.0143	100.000	100.000	. . . \						
5	0.0337	100.000	100.000	. . . . \						
1	neg control	100.000	100.000	. . . . . \						

\* = significant difference (p=0.05) . = no significant difference  
 Table q value (0.05,6) = 2.936 SE = 7.417

Pea mean dry weight (g), lbs ai/A; Day 21  
 File: 8942ew Transform: NO TRANSFORMATION

KRUSKAL-WALLIS ANOVA BY RANKS - TABLE 1 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	RANK SUM
1	neg control	3.050	3.050	182.500
2	0.00169	3.163	3.163	183.500
3	0.00514	1.908	1.908	129.000
4	0.0143	0.898	0.898	93.000
5	0.0337	0.623	0.623	47.500
6	0.125	0.587	0.587	30.500

Calculated H Value = 32.254 Critical H Value Table = 11.070  
 Since Calc H > Crit H REJECT Ho:All groups are equal.

Pea mean dry weight (g), lbs ai/A; Day 21  
 File: 8942ew Transform: NO TRANSFORMATION

# Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 465789-42

DUNNS MULTIPLE COMPARISON - KRUSKAL-WALLIS - TABLE 2 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	ORIGINAL MEAN	GROUP						
				0	0	0	0	0	0	
6	0.125	0.587	0.587	\						
5	0.0337	0.623	0.623	. \						
4	0.0143	0.898	0.898	. . \						
3	0.00514	1.908	1.908	. . . \						
1	neg control	3.050	3.050	* * . . \						
2	0.00169	3.163	3.163	* * . . . \						

\* = significant difference (p=0.05)  
Table q value (0.05, 6) = 2.936

. = no significant difference  
SE = 6.080

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.00019	4.6E-05	0.00078	0.30	0.24
EC10	0.00043	0.00013	0.0014	0.26	0.30
EC25	0.0017	0.00068	0.0042	0.19	0.40
EC50	0.0077	0.0042	0.014	0.13	0.55

Slope = 1.02 Std.Err. = 0.126

!!!Poor fit: p < 0.001 based on DF= 3.00 30.0

8942EW : Pea mean dry weight (g), lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	6.00	3.05	3.34	-0.288	100.	0.00
0.00169	6.00	3.16	2.50	0.662	74.9	25.1
0.00514	6.00	1.91	1.91	0.00229	57.1	42.9
0.0143	6.00	0.898	1.31	-0.409	39.2	60.8
0.0337	6.00	0.623	0.855	-0.232	25.6	74.4
0.125	6.00	0.587	0.361	0.226	10.8	89.2

!!!Warning: EC5 not bracketed by doses evaluated.

!!!Warning: EC10 not bracketed by doses evaluated.

!!!Warning: EC25 not bracketed by doses evaluated.

Pea mean plant height (cm), lbs ai/A; Day 21  
File: 8942eh Transform: NO TRANSFORMATION

## ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	3432.081	686.416	211.400
Within (Error)	30	97.408	3.247	

# Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 465789-42

Total 35 3529.490

Critical F value = 2.53 (0.05,5,30)  
 Since F > Critical F REJECT Ho:All groups equal

Pea mean plant height (cm), lbs ai/A; Day 21  
 File: 8942eh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	neg control	31.233	31.233		
2	0.00169	31.400	31.400	-0.160	
3	0.00514	18.067	18.067	12.656	*
4	0.0143	9.900	9.900	20.506	*
5	0.0337	9.667	9.667	20.730	*
6	0.125	8.917	8.917	21.451	*

Dunnett table value = 2.33 (1 Tailed Value, P=0.05, df=30,5)

Pea mean plant height (cm), lbs ai/A; Day 21  
 File: 8942eh Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	neg control	6			
2	0.00169	6	2.424	7.8	-0.167
3	0.00514	6	2.424	7.8	13.167
4	0.0143	6	2.424	7.8	21.333
5	0.0337	6	2.424	7.8	21.567
6	0.125	6	2.424	7.8	22.317

Pea mean plant height (cm), lbs ai/A; Day 21  
 File: 8942eh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	neg control	6	31.233	31.233	31.317
2	0.00169	6	31.400	31.400	31.317
3	0.00514	6	18.067	18.067	18.067
4	0.0143	6	9.900	9.900	9.900
5	0.0337	6	9.667	9.667	9.667
6	0.125	6	8.917	8.917	8.917



# Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}

EPA MRID Number 465789-42

Pea mean plant height (cm), lbs ai/A; Day 21  
File: 8942eh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
neg control	31.317				
0.00169	31.317	0.080		1.70	k= 1, v=30
0.00514	18.067	12.656	*	1.78	k= 2, v=30
0.0143	9.900	20.506	*	1.80	k= 3, v=30
0.0337	9.667	20.730	*	1.81	k= 4, v=30
0.125	8.917	21.451	*	1.82	k= 5, v=30

s = 1.802

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	7.8E-05	1.1E-05	0.00055	0.42	0.14
EC10	0.00023	4.3E-05	0.0012	0.35	0.19
EC25	0.0013	0.00042	0.0044	0.25	0.31
EC50	0.0098	0.0047	0.020	0.15	0.49

Slope = 0.784 Std.Err. = 0.113

!!!Poor fit: p < 0.001 based on DF= 3.00 30.0

8942EH : Pea mean plant height (cm), lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	6.00	31.2	33.2	-1.97	100.	0.00
0.00169	6.00	31.4	24.1	7.33	72.5	27.5
0.00514	6.00	18.1	19.5	-1.41	58.7	41.3
0.0143	6.00	9.90	14.9	-4.99	44.8	55.2
0.0337	6.00	9.67	11.2	-1.51	33.7	66.3
0.125	6.00	8.92	6.40	2.52	19.3	80.7

!!!Warning: EC5 not bracketed by doses evaluated.

!!!Warning: EC10 not bracketed by doses evaluated.

!!!Warning: EC25 not bracketed by doses evaluated.

Radish percent survival, lbs ai/A; Day 21  
File: 8942ds Transform: NO TRANSFORMATION

KRUSKAL-WALLIS ANOVA BY RANKS - TABLE 1 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	RANK SUM
1	neg control	100.000	100.000	147.000
2	0.0000664	100.000	100.000	147.000

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}	EPA MRID Number 465789-42			
3	0.000198	96.667	96.667	131.000
4	0.000587	100.000	100.000	147.000
5	0.00169	66.667	66.667	32.500
6	0.00488	80.000	80.000	61.500

Calculated H Value = 11.022      Critical H Value Table = 11.070  
 Since Calc H < Crit H FAIL TO REJECT Ho: All groups are equal.

Radish percent survival, lbs ai/A; Day 21  
 File: 8942ds      Transform: NO TRANSFORMATION

DUNNS MULTIPLE COMPARISON - KRUSKAL-WALLIS - TABLE 2 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	ORIGINAL MEAN	GROUP						
				0	0	0	0	0	0	
5	0.00169	66.667	66.667	\						
6	0.00488	80.000	80.000	.	\					
3	0.000198	96.667	96.667	*	.	\				
4	0.000587	100.000	100.000	*	.	.	\			
2	0.0000664	100.000	100.000	*	.	.	.	\		
1	neg control	100.000	100.000	*	.	.	.	.	\	

\* = significant difference (p=0.05)      . = no significant difference  
 Table q value (0.05, 6) = 2.936      SE = 5.062

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.00011	3.6E-06	0.0036	0.74	0.032
EC10	0.00041	3.6E-05	0.0047	0.52	0.088
EC25	0.0035	0.0011	0.011	0.25	0.31
EC50	0.039	0.0048	0.31	0.44	0.12

Slope = 0.649      Std.Err. = 0.275

!!!Poor fit: p < 0.001 based on DF= 3.00      30.0

8942DS : Radish percent survival, lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	6.00	100.	102.	-2.39	100.	0.00
6.64e-05	6.00	100.	98.7	1.33	96.4	3.64
0.000198	6.00	96.7	95.4	1.30	93.1	6.86
0.000587	6.00	100.	90.2	9.79	88.1	11.9
0.00169	6.00	66.7	83.0	-16.4	81.1	18.9
0.00488	6.00	80.0	73.7	6.28	72.0	28.0

!!!Warning: EC50 not bracketed by doses evaluated.

Radish mean dry weight (g), lbs ai/A; Day 21  
 File: 8942dw      Transform: NO TRANSFORM

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}

EPA MRID Number 465789-42

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	4.924	0.985	41.042
Within (Error)	30	0.712	0.024	
Total	35	5.635		

Critical F value = 2.53 (0.05,5,30)  
 Since F > Critical F REJECT Ho:All groups equal

Radish mean dry weight (g), lbs ai/A; Day 21  
 File: 8942dw Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	neg control	1.510	1.510		
2	0.0000664	1.227	1.227	3.168	*
3	0.000198	1.187	1.187	3.615	*
4	0.000587	0.992	0.992	5.795	*
5	0.00169	0.570	0.570	10.510	*
6	0.00488	0.462	0.462	11.721	*

Dunnett table value = 2.33 (1 Tailed Value, P=0.05, df=30,5)

Radish mean dry weight (g), lbs ai/A; Day 21  
 File: 8942dw Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	neg control	6			
2	0.0000664	6	0.208	13.8	0.283
3	0.000198	6	0.208	13.8	0.323
4	0.000587	6	0.208	13.8	0.518
5	0.00169	6	0.208	13.8	0.940
6	0.00488	6	0.208	13.8	1.048

Radish mean dry weight (g), lbs ai/A; Day 21  
 File: 8942dw Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....} EPA MRID Number 465789-42

1	neg control	6	1.510	1.510	1.510
2	0.0000664	6	1.227	1.227	1.227
3	0.000198	6	1.187	1.187	1.187
4	0.000587	6	0.992	0.992	0.992
5	0.00169	6	0.570	0.570	0.570
6	0.00488	6	0.462	0.462	0.462

Radish mean dry weight (g), lbs ai/A; Day 21  
File: 8942dw Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
neg control	1.510				
0.0000664	1.227	3.186	*	1.70	k= 1, v=30
0.000198	1.187	3.636	*	1.78	k= 2, v=30
0.000587	0.992	5.829	*	1.80	k= 3, v=30
0.00169	0.570	10.571	*	1.81	k= 4, v=30
0.00488	0.462	11.790	*	1.82	k= 5, v=30

s = 0.154  
Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	1.8E-05	4.3E-06	7.9E-05	0.31	0.23
EC10	4.6E-05	1.4E-05	0.00016	0.26	0.30
EC25	0.00022	9.4E-05	0.00050	0.18	0.43
EC50	0.0012	0.00073	0.0020	0.10	0.61

Slope = 0.908 Std.Err. = 0.121

Goodness of fit: p = 0.094 based on DF= 3.0 30.

8942DW : Radish mean dry weight (g), lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	6.00	1.51	1.49	0.0161	100.	0.00
6.64e-05	6.00	1.23	1.30	-0.0775	87.3	12.7
0.000198	6.00	1.19	1.14	0.0497	76.1	23.9
0.000587	6.00	0.992	0.912	0.0792	61.1	38.9
0.00169	6.00	0.570	0.666	-0.0964	44.6	55.4
0.00488	6.00	0.462	0.433	0.0285	29.0	71.0

!!!Warning: EC5 not bracketed by doses evaluated.

!!!Warning: EC10 not bracketed by doses evaluated.

Radish mean plant height (cm), lbs ai/A; Day 21  
File: 8942dh Transform: NO TRANSFORMATION

# Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....} EPA MRID Number 465789-42

## ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	811.556	162.311	87.736
Within (Error)	30	55.503	1.850	
Total	35	867.059		

Critical F value = 2.53 (0.05,5,30)  
 Since F > Critical F REJECT Ho:All groups equal

Radish mean plant height (cm), lbs ai/A; Day 21  
 File: 8942dh Transform: NO TRANSFORMATION

### DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	neg control	17.867	17.867		
2	0.0000664	15.567	15.567	2.929	*
3	0.000198	14.967	14.967	3.693	*
4	0.000587	14.167	14.167	4.712	*
5	0.00169	9.350	9.350	10.845	*
6	0.00488	3.650	3.650	18.104	*

Dunnett table value = 2.33 (1 Tailed Value, P=0.05, df=30,5)

Radish mean plant height (cm), lbs ai/A; Day 21  
 File: 8942dh Transform: NO TRANSFORMATION

### DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	neg control	6			
2	0.0000664	6	1.830	10.2	2.300
3	0.000198	6	1.830	10.2	2.900
4	0.000587	6	1.830	10.2	3.700
5	0.00169	6	1.830	10.2	8.517
6	0.00488	6	1.830	10.2	14.217

Radish mean plant height (cm), lbs ai/A; Day 21  
 File: 8942dh Transform: NO TRANSFORMATION

### WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	neg control	6	17.867	17.867	17.867

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}	EPA MRID Number 465789-42				
2	0.0000664	6	15.567	15.567	15.567
3	0.000198	6	14.967	14.967	14.967
4	0.000587	6	14.167	14.167	14.167
5	0.00169	6	9.350	9.350	9.350
6	0.00488	6	3.650	3.650	3.650

Radish mean plant height (cm), lbs ai/A; Day 21  
 File: 8942dh Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
neg control	17.867				
0.0000664	15.567	2.929	*	1.70	k= 1, v=30
0.000198	14.967	3.693	*	1.78	k= 2, v=30
0.000587	14.167	4.712	*	1.80	k= 3, v=30
0.00169	9.350	10.845	*	1.81	k= 4, v=30
0.00488	3.650	18.103	*	1.82	k= 5, v=30

s = 1.360

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.00030	0.00017	0.00051	0.12	0.58
EC10	0.00045	0.00029	0.00071	0.097	0.64
EC25	0.00092	0.00067	0.0013	0.067	0.73
EC50	0.0020	0.0017	0.0025	0.040	0.83

Slope = 1.97 Std.Err. = 0.205

Goodness of fit: p = 0.073 based on DF= 3.0 30.

8942DH : Radish mean plant height (cm), lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	6.00	17.9	16.4	1.51	100.	0.00
6.64e-05	6.00	15.6	16.3	-0.761	99.8	0.175
0.000198	6.00	15.0	16.0	-1.01	97.7	2.34
0.000587	6.00	14.2	14.0	0.175	85.5	14.5
0.00169	6.00	9.35	9.20	0.150	56.2	43.8
0.00488	6.00	3.65	3.72	-0.0668	22.7	77.3

Soybean mean dry weight (g), lbs ai/A; Day 21  
 File: 8942sw Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
--------	----	----	----	---

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}		EPA MRID Number 465789-42		
Between	5	31.338	6.268	250.720
Within (Error)	30	0.750	0.025	
Total	35	32.088		

Critical F value = 2.53 (0.05,5,30)  
 Since F > Critical F REJECT Ho:All groups equal

Soybean mean dry weight (g), lbs ai/A; Day 21  
 File: 8942sw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	neg control	2.950	2.950		
2	0.00170	2.585	2.585	3.998	*
3	0.00527	2.565	2.565	4.217	*
4	0.0150	1.175	1.175	19.444	*
5	0.0366	0.828	0.828	23.242	*
6	0.115	0.632	0.632	25.396	*

Dunnett table value = 2.33 (1 Tailed Value, P=0.05, df=30,5)

Soybean mean dry weight (g), lbs ai/A; Day 21  
 File: 8942sw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	neg control	6			
2	0.00170	6	0.213	7.2	0.365
3	0.00527	6	0.213	7.2	0.385
4	0.0150	6	0.213	7.2	1.775
5	0.0366	6	0.213	7.2	2.122
6	0.115	6	0.213	7.2	2.318

Soybean mean dry weight (g), lbs ai/A; Day 21  
 File: 8942sw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	neg control	6	2.950	2.950	2.950
2	0.00170	6	2.585	2.585	2.585
3	0.00527	6	2.565	2.565	2.565
4	0.0150	6	1.175	1.175	1.175
5	0.0366	6	0.828	0.828	0.828
6	0.115	6	0.632	0.632	0.632

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

PMRA Submission Number {.....}

EPA MRID Number 465789-42

Soybean mean dry weight (g), lbs ai/A; Day 21  
 File: 8942sw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
neg control	2.950				
0.00170	2.585	3.999	*	1.70	k= 1, v=30
0.00527	2.565	4.218	*	1.78	k= 2, v=30
0.0150	1.175	19.448	*	1.80	k= 3, v=30
0.0366	0.828	23.246	*	1.81	k= 4, v=30
0.115	0.632	25.401	*	1.82	k= 5, v=30

s = 0.158

Note: df used for table values are approximate when v > 20.

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	0.00046	0.00016	0.0013	0.22	0.35
EC10	0.00098	0.00040	0.0024	0.19	0.41
EC25	0.0035	0.0018	0.0067	0.14	0.52
EC50	0.014	0.0095	0.022	0.089	0.66

Slope = 1.10 Std.Err. = 0.113

!!!Poor fit: p < 0.001 based on DF= 3.00 30.0

8942SW : Soybean mean dry weight (g), lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	6.00	2.95	3.06	-0.109	100.	0.00
0.00170	6.00	2.58	2.59	-0.00110	84.6	15.4
0.00527	6.00	2.56	2.09	0.474	68.4	31.6
0.0150	6.00	1.18	1.50	-0.329	49.2	50.8
0.0366	6.00	0.828	1.00	-0.175	32.8	67.2
0.115	6.00	0.632	0.492	0.140	16.1	83.9

!!!Warning: EC5 not bracketed by doses evaluated.

!!!Warning: EC10 not bracketed by doses evaluated.

Soybean mean plant height (cm), lbs ai/A; Day 21  
 File: 8942sh Transform: NO TRANSFORMATION

KRUSKAL-WALLIS ANOVA BY RANKS - TABLE 1 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	RANK SUM
1	neg control	35.700	35.700	201.000



# Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor

PMRA Submission Number {.....}	EPA MRID Number 465789-42			
2	0.00170	24.633	24.633	155.000
3	0.00527	23.667	23.667	139.000
4	0.0150	11.633	11.633	90.500
5	0.0366	10.033	10.033	51.000
6	0.115	9.433	9.433	29.500

Calculated H Value = 32.144      Critical H Value Table = 11.070  
 Since Calc H > Crit H REJECT Ho: All groups are equal.

Soybean mean plant height (cm), lbs ai/A; Day 21  
 File: 8942sh      Transform: NO TRANSFORMATION

DUNNS MULTIPLE COMPARISON - KRUSKAL-WALLIS - TABLE 2 OF 2

GROUP	IDENTIFICATION	TRANSFORMED MEAN	ORIGINAL MEAN	GROUP						
				0	0	0	0	0	0	
6	0.115	9.433	9.433	\						
5	0.0366	10.033	10.033	. \						
4	0.0150	11.633	11.633	. . \						
3	0.00527	23.667	23.667	* . . \						
2	0.00170	24.633	24.633	* . . . \						
1	neg control	35.700	35.700	* * * . . . \						

\* = significant difference (p=0.05)      . = no significant difference  
 Table q value (0.05,6) = 2.936      SE = 6.078

Estimates of EC%

Parameter	Estimate	95% Bounds		Std.Err.	Lower Bound /Estimate
		Lower	Upper		
EC5	3.1E-05	6.6E-06	0.00015	0.33	0.21
EC10	0.00011	2.9E-05	0.00040	0.28	0.27
EC25	0.00082	0.00033	0.0021	0.20	0.40
EC50	0.0079	0.0046	0.014	0.12	0.58

Slope = 0.685      Std.Err. = 0.0707

!!!Poor fit: p < 0.001 based on DF= 3.00      30.0

8942SH : Soybean mean plant height (cm), lbs ai/A; Day 21

Observed vs. Predicted Treatment Group Means

Dose	#Reps.	Obs. Mean	Pred. Mean	Obs. -Pred.	Pred. %Control	%Change
0.00	6.00	35.7	36.1	-0.428	100.	0.00
0.00170	6.00	24.6	24.4	0.197	67.6	32.4
0.00527	6.00	23.7	19.8	3.86	54.8	45.2
0.0150	6.00	11.6	15.3	-3.70	42.5	57.5
0.0366	6.00	10.0	11.7	-1.68	32.4	67.6
0.115	6.00	9.43	7.69	1.74	21.3	78.7

!!!Warning: EC5 not bracketed by doses evaluated.

!!!Warning: EC10 not bracketed by doses evaluated.

**Data Evaluation Report on the Acute Toxicity of Orthosulfamuron to Terrestrial Vascular Plants: Vegetative Vigor**

**PMRA Submission Number {.....}**

**EPA MRID Number 465789-42**

---

!!!Warning: EC25 not bracketed by doses evaluated.