

STUDY TITLE

Magnitude of Glyphosate Residues in Glyphosate Tolerant Canola Raw Agricultural
Commodities Following Applications of a Glyphosate-Based Formulation.
2009 U.S. Trials.

DATA REQUIREMENT

U.S. Environmental Protection Agency Residue Chemistry Test Guidelines, OPPTS
860.1500, Crop Field Trials

SPONSOR

Monsanto Company
800 N. Lindbergh Blvd.
St. Louis, MO 63167

AUTHORS



STUDY COMPLETION DATE

February 4, 2011

PERFORMING LABORATORY

Monsanto Company
Environmental Sciences Technology Center
800 N. Lindbergh Blvd.
St. Louis, MO 63167

STUDY NUMBER

REG-09-091

REPORT NUMBER

MSL0022984

Page 1 of 278

© 2011 MONSANTO COMPANY. ALL RIGHTS RESERVED.

This document is protected under copyright law. This document is for use only by the regulatory authority to which it has been submitted by Monsanto Company and only in support of actions by Monsanto Company. Any other use of this material, without prior written consent of Monsanto, is strictly prohibited. By submitting this document, Monsanto does not grant any party or entity any right to use or license the information or intellectual property described in this document.

PROPRIETARY INFORMATION OF MONSANTO COMPANY

STATEMENT OF NO DATA CONFIDENTIALITY CLAIM

The text below applies only to use of the data by the United States Environmental Protection Agency (U.S. EPA) in connection with the provisions of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

The inclusion of this page in all studies is for quality assurance purposes and does not necessarily indicate that this study has been submitted to the U.S. EPA.

No claim of confidentiality is made for any information contained in this study on the basis of its falling within the scope of FIFRA 10 (d) (1) (A), (B), or (C).

We submit this material to the U.S. EPA specifically under the requirements set forth in FIFRA as amended, and consent to the use and disclosure of this material by the EPA strictly in accordance with FIFRA. By submitting this material to the EPA in accordance with the method and format requirements contained in PR Notice 86-5, we reserve and do not waive any rights involving this material that are or can be claimed by the company notwithstanding this submission to the EPA.

COMPANY: Monsanto Company

COMPANY AGENT: _____

DATE: _____

COMPLIANCE STATEMENT

This study meets the U.S. EPA Good Laboratory Practice requirements as specified in 40 CFR Part 160 with the following exceptions:

- Soil characterizations were not always determined under GLP standards.
- Off-site climatological data were not collected under GLP standards.
- Field histories for the test area, including crop and pesticide histories and cultural practices prior to trial initiations, were not collected under GLP standards.
- Maintenance pesticides were not applied according to GLP standards.
- Percent slope of the test sites was not determined under GLP standards.
- GPS coordinates were not collected under GLP standards.
- Field sample weights were not always determined under GLP standards.
- At Site ND-3, there was a correction on Page 8 of the field notebook which was not made according to GLP standards.
- At Site ID-6, some entries in the field notebook were not initialed and dated at the time of entry.

Submitter
Monsanto Company

Date



Sponsor Representative
Monsanto Company



Study Director
Monsanto Company

QUALITY ASSURANCE STATEMENT

Study Title: Magnitude of Glyphosate Residues in Glyphosate Tolerant Canola Raw Agricultural Commodities Following Applications of a Glyphosate-Based Formulation. 2009 U.S. Trials.

Study Number: REG-09-091

Reviews conducted by the Monsanto Quality Assurance Unit confirm that the final report reflects the raw data for the portion of the study conducted by Monsanto Company.

Reviews which have been conducted by field site Quality Assurance are specified on the QA statement within the field sub-report.

Following is a list of reviews conducted by the Monsanto Regulatory Quality Assurance Unit on the study reported herein.

Dates of Inspection/Audit	Phase	Date Reported to Study Director	Date Reported to Management
2/12/10	Chromatographic Analysis	2/12/10	2/12/10
11/5/10	Statistics Data and Report Audit	11/16/10	11/16/10
11/5/10	Report and Data Audit	11/17/10	11/17/10
1/12/11	Final Report Audit	1/12/11	1/12/11



Quality Assurance Unit
Monsanto Regulatory, Monsanto Company

CERTIFICATION OF AUTHENTICITY

This report is an accurate and complete representation of the study activities.



Monsanto Company
800 N. Lindbergh Boulevard
St. Louis, MO 63167

ABBREVIATIONS AND ACRONYMS

a:	acre
a.e.:	acid equivalent
AMPA:	aminomethylphosphonic acid
EPA:	Environmental Protection Agency
fl oz:	fluid ounce
FRMC	Field Research Management Contractor
g:	gram
GLP:	Good Laboratory Practice
GPA:	Gallons per Acre
ha	hectare
kg:	kilogram
L:	liter
lb:	pound
LC/MS/MS	HPLC/Tandem Mass Spectrometer
LLMV:	Lower Limit of Method Validation
mL:	milliliter
na:	not analyzed or not applicable
PFI:	Principal Field Investigator
PHI:	preharvest interval
PMRA:	Canada Pest Management Regulatory Agency
ppm:	parts per million
qt:	quart
RAC:	Raw Agricultural Commodity
RBD:	refined, bleached, deodorized canola oil
RIMS:	Residue Information Management System, a system developed within Monsanto to track samples and perform calculations within residue studies
SOP:	Standard operating procedure
U.S.:	United States

TABLE OF CONTENTS

Study Title.....	1
Statement of No Data Confidentiality Claim.....	2
Compliance Statement	3
Quality Assurance Statement.....	4
Certification of Authenticity	5
Abbreviations and Acronyms	6
Table of Contents	7
Study Information	9
1 Summary	11
2 Introduction.....	13
3 Purpose.....	13
4 Materials	13
4.1 Test and Reference Substances	13
4.1.1 Test Substance	13
4.1.2 Reference Substances	14
5 Methods.....	15
5.1 Field Procedures.....	15
5.1.1 Trial Management.....	15
5.1.2 Trial Locations.....	15
5.1.3 Test System.....	15
5.1.4 Site Preparation and Layout, and General Site Data	16
5.1.5 Test Substance Application	17
5.1.6 Sampling Procedures	18
5.1.7 Storage and Transport of Samples from the Field, and Crop Destruct	18
5.1.8 Sample Receipt and Storage	19
5.1.9 Field Deviations	19
5.2 Processing Procedures	19
5.2.1 Processing Summary	19
5.2.2 Sample Transport and Storage.....	20
5.2.3 Processing Deviations.....	20
5.3 Analytical Procedures	20
5.3.1 Sample Preparation and Storage	20
5.3.2 Sample Analysis	20
5.3.3 Lower Limit of Method Validation (LLMV)	21
5.3.4 Storage Intervals of Samples Before Analysis	21
5.3.5 Analytical Deviations	21
5.4 Statistical Methods.....	22
6 Results.....	22
6.1 Glyphosate and AMPA Residues in Canola Seed	22
6.2 Glyphosate and AMPA Residues in Canola Seed Decline Samples	23
6.3 Glyphosate and AMPA Residues in Canola Processed Fractions	23
6.4 Mass Balance of Glyphosate and AMPA Residues During Processing ...	24
7 Conclusions.....	24

8	Retention of Records and Samples	25
9	References	26
10	Tables	27
	Table 1. Field Conditions.....	27
	Table 2. Study Use Pattern for MON 79380.....	28
	Table 3. Glyphosate and AMPA Residues in Canola Seed - Treatment 2.....	32
	Table 4. Glyphosate and AMPA Residues in Canola Seed – Treatment 3	33
	Table 5. Glyphosate and AMPA Residues in Canola Seed – Treatment 4	34
	Table 6. Residue Decline Samples.....	35
	Table 7. Glyphosate and AMPA Residues in Processed Canola Fractions	36
	Table 8. Mass Balance Accountability of Glyphosate and AMPA Residues During Processing	37
	Table 9. Recovery of Glyphosate from Fortified Canola Samples	38
	Table 10. Recovery of AMPA from Fortified Canola Samples.....	39
11	Figures.....	40
	Figure 1. Structures	40
12	Appendices.....	41
	Appendix A. Study Protocol and Amendments	41
	Appendix B. Field Report	64
	Appendix C. Processing Report.....	155
	Appendix D. Analytical Method.....	176
	Appendix E. Master Summary, Recovery and Raw Data Tables	190
	1. Master Summary	191
	2. Raw Data Tables	201
	3. Recovery Data Tables	227
	Appendix F. Representative Chromatograms	240

STUDY INFORMATION

Study Title: Magnitude of Glyphosate Residues in Glyphosate Tolerant Canola Raw Agricultural Commodities Following Applications of a Glyphosate-Based Formulation. 2009 U.S. Trials.

Study Number: REG-09-091

Report Number: MSL0022984

Performing Laboratory: Monsanto Company
Environmental Sciences Technology Center
800 N. Lindbergh Blvd.
St. Louis, Missouri 63167

Authors:

Study Director:

Environmental Sciences
Technology Center Lead:


Field Research
Management Contractor:

Principal Field Investigators:

Field Principal Investigator	Site ID Code County/State EPA Region	Field Principal Investigator	Site ID Code County/State EPA Region
[REDACTED]	NJ-1 Hunterdon, NJ Region 2	[REDACTED]	ND-5 McHenry, ND Region 7
[REDACTED]	MN-2 Norman, MN Region 5	[REDACTED]	ID-6 Blaine, ID Region 11
[REDACTED]	ND-3 Cass, ND Region 5	[REDACTED]	ID-7 Jerome, ID Region 11
[REDACTED]	ND-4 Ward, ND Region 7	[REDACTED]	ID-8 Power, ID Region 11

Sample Preparation:

Contributing Scientists:

Supervisory personnel: 

Study Initiation Date: April 24, 2009

Study Completion Date: February 4, 2011

Archiving of Records: The protocol, all amendments and deviations thereto, all field and analytical raw data, associated documents, and the original field and final reports are retained in the Monsanto Regulatory Archives.

Sample Retention: Samples of the test and reference substances are retained at Monsanto Company according to the requirements of Good Laboratory Practice standards. Study specimens will be retained frozen until a time when the Study Director or team representative determines they no longer afford evaluation on or after Quality Assurance verification that specimen retention is no longer necessary.

© 2011 Monsanto Company. All Rights Reserved.

This document is protected under copyright law. This document is for use only by the regulatory authority to which this has been submitted by Monsanto Company, and only in support of actions requested by Monsanto Company. Any other use of this material, without prior written consent of Monsanto, is strictly prohibited. By submitting this document, Monsanto does not grant any party or entity any right to license or to use the information of intellectual property described in this document.

1 SUMMARY

Monsanto Company has developed a second generation glyphosate tolerant canola product that will tolerate glyphosate application from emergence through the first-flower stage of plant development at a rate up to 1800 g acid equivalents (a.e.) per hectare. The increased window of application and higher application rates tolerated by second generation glyphosate tolerant canola will allow for superior weed control using glyphosate containing herbicides compared to the first generation of glyphosate tolerant and conventional (non-glyphosate-tolerant) canola.

Glyphosate tolerant canola contains the 5-enolpyruvylshikimate-3-phosphate synthase gene derived from *Agrobacterium sp.* strain CP4 (*cp4 epsps*). Expression of the gene product (CP4 EPSPS) renders the plant tolerant to glyphosate, the active ingredient in the Roundup[®] family of agricultural herbicides.

This study was conducted in typical canola growing regions of the U.S. in 2009 to determine the levels of glyphosate and aminomethylphosphonic acid (AMPA) residues in the raw agricultural commodities (RACs) and processed fractions of glyphosate tolerant canola. Applications were made using the glyphosate herbicide MON 79380, which is sold in Canada under the trade name Roundup WeatherMAX[®] with Transorb 2 Technology Liquid Herbicide (Reg No. 27487). This product has the same nominal glyphosate concentration and is similar to Roundup WeatherMAX Herbicide (EPA Reg. No. 524-537), which is sold in the U.S. Two related studies were conducted in Canada in 2009 and 2010 and are described in separate reports [1, 2].

The field portion of the study was conducted in the United States in 2009 at eight sites in the following states: New Jersey, Minnesota, North Dakota, and Idaho. One Idaho site was later removed from the study by amendment because the quality of the canola seed produced was determined to be not commercially acceptable. These sites represent major canola growing areas in the U.S. All sites contain three treated plots and one untreated plot. Each location was planted with a single glyphosate-tolerant canola transformation event; either MON 88301, MON 88302, or MON 88303. At all sites, the untreated and treated plots measured a minimum of 500 and 800 square feet, respectively. The untreated plot was a minimum distance of 50 feet from the treated plots. Duplicate samples of canola seed were taken from the treated plots at all locations. A single sample of canola seed was obtained from the untreated plots at normal harvest.

The target application rates and timings selected for this study are summarized in the following table. Each of the three treatments receiving glyphosate applications consisted of a preemergence application of 4250 grams of glyphosate acid equivalents per hectare (g a.e./ha), followed by two sequential in-crop applications of either 900 or 1800 g a.e./ha.

[®] Roundup is a registered trademark of Monsanto Technology LLC.

[®] Roundup WeatherMAX is a registered trademark of Monsanto Technology LLC.

Applications of MON 79380 to Canola

Treatment	Growth Stages/Target Application Rates (g a.e./ha)			
	Pre-emergence	4-6 leaf	Late bolting	1 st flower
1	0	0	0	0
2	4250	900	0	900
3	4250	900	0	1800
4	4250	900	900	0

Conversion Factors: 900 g a.e./ha = 0.80 lb a.e./A = 22.8 fl.oz. product/A;
1800 g a.e./ha = 1.61 lb a.e./A = 45.6 fl.oz. product/A;
4250 g a.e./ha = 3.79 lb a.e./A = 108 fl.oz. product/A

The residue levels for glyphosate and AMPA in the canola seed from treatment 2, 3 and 4 plots are summarized in the table below. Included in the table are the median values across sites, and the range of site-averaged residue levels.

Glyphosate and AMPA Residues in Canola Seed

Treatment	PHI, ¹ days	Glyphosate, ppm		AMPA, ppm		Total, ppm ⁴	
		Median	Range ^{2,3}	Median	Range ^{2,3}	Median	Range ^{2,3}
2	58-70	1.6	0.24-6.3	<0.05	<0.05 -0.16	1.7	0.24-6.5
3	58-70	3.7	1.5-11.2	0.11	<0.05-0.20	3.8	1.6-11.5
4	65-77	1.5	0.08-2.4	<0.05	<0.05-0.06	1.5	0.08-2.5

¹PHI = Preharvest Interval, days between last application and sampling

²Range of site-averaged residues in canola seed sample analyses across all seven sites.

³LLMV of glyphosate and AMPA is 0.05 ppm.

⁴Total ppm = [Glyphosate ppm] + [AMPA ppm x 1.523]

Residue decline sampling at one site in North Dakota and one site in Idaho showed that the residues of glyphosate and AMPA do not significantly change over the 10-day period following normal harvest.

In addition to the RAC samples collected from all seven sites, one site in North Dakota was designated as a processing site and had larger dimensions to accommodate the extra sampling requirements. Canola seed from the untreated control plot and the treatment 3 plot were collected for processing into toasted meal, crude oil, refined oil, and refined, bleached and deodorized oil. The residue levels and processing factors for glyphosate and AMPA in processed commodities of canola are summarized in the table below.

Glyphosate and AMPA both concentrate in the toasted meal relative to the whole seed, with concentration factors of 2.4 and 2.6, respectively. The residues in the oil fractions were below the LLMV. The glyphosate processing factor of <0.03 indicates a significant reduction in residues in processing to oil.

Glyphosate and AMPA Residues in Processed Fractions of Canola

Canola Fraction	Glyphosate (ppm)	AMPA (ppm)	Processing Factors
Seed	1.65	0.05	NA
Toasted Meal	3.96	0.13	2.40 (Glyphosate) 2.60 (AMPA)
Crude Oil	<0.05	<0.05	<0.03 (Glyphosate)
Refined Oil	<0.05	<0.05	<0.03 (Glyphosate)
Refined, Bleached, Deodorized Oil	<0.05	<0.05	<0.03 (Glyphosate)

The Lower Limit of Method Validation (LLMV) is 0.05 ppm for both glyphosate and AMPA. Residues below the LLMV are listed as <0.05. All results are reported as an average of 3 analyses. NA = Not Applicable

2 INTRODUCTION

Glyphosate (N-phosphonomethylglycine) is the active ingredient in glyphosate-based herbicide products, which are used for postemergence control of a variety of annual and perennial weeds. Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide (MON 79380, PMRA Reg. No. 27487) is a water-soluble glyphosate formulation sold in Canada that contains 540 g/L of glyphosate acid, formulated as its potassium salt, plus a surfactant system, and is similar to Roundup WeatherMAX Herbicide (EPA Reg. No. 524-537) sold in the U.S. MON 79380 was used as the test substance in this study and in two related studies conducted in Canada in 2009 and 2010 [1, 2].

This study provides data on the glyphosate and AMPA residue levels in canola seed and processed fractions following applications of MON 79380. The study followed U.S. EPA OPPTS Residue Chemistry Test Guidelines, Section 860.1500. Field and analytical work was conducted under the U.S. EPA FIFRA Good Laboratory Practice Standards.

3 PURPOSE

The purpose of this study was to determine the magnitude and decline of residues of glyphosate and AMPA in canola raw agricultural commodities and processed fractions following one pre-emergence and two postemergence (in-crop) foliar broadcast applications of MON 79380.

4 MATERIALS

4.1 Test and Reference Substances

4.1.1 Test Substance

The test substance is MON 79380, a water-soluble concentrate formulation of glyphosate that is registered and sold in Canada under the trade name Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide (Reg. No. 27487). The active ingredient is glyphosate, formulated as the potassium salt. The nominal concentration of glyphosate acid is 540 g glyphosate acid/L or 4.5 lb glyphosate acid/gal, equivalent to 5.5 lb

glyphosate K-salt/gal, which is the same nominal concentration as in the similar formulation, Roundup WeatherMAX Herbicide (EPA Reg. No. 524-537), that is registered and sold in the U.S.

The stability of a closely related formulation of the test substance, MON 78270, has been demonstrated in a one-year storage stability test under heated warehouse conditions[3], and a two week accelerated aging study at 55°C[4]. The referenced stability studies support the stability of MON 79380 under the same conditions. The stability of the active ingredient (glyphosate) has been demonstrated by analysis of QC samples shipped to the field and returned to the Sponsor [5, 6]. The test substance has no known stability problems.

Test Substance (formulated product)

Trade name:	Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide
Monsanto Code Number:	MON 79380
Lot Number:	GLP-0904-19776-F
PMRA Registration Number:	27487

Active Ingredient (as the free acid)

Common Name:	Glyphosate
Chemical Name:	N-phosphonomethylglycine
CAS Registry Number:	70901-12-1
Molecular Weight:	169.1

MON 79380 herbicide, lot GLP-0904-19776-F, was provided to each field site for all the applications in this study. The lot was analyzed on April 10, 2009. The analysis indicated a concentration of 39.4% (w/w) glyphosate acid, which is 99.0% of the nominal w/w concentration. For conversion of test substance volume to active ingredient weight in this report, the nominal concentration of 4.51 lb glyphosate a.e./gal (equivalent to 540 g glyphosate a.e./liter) was used.

4.1.2 Reference Substances

The analytical reference standards used in this study were glyphosate and aminomethylphosphonic acid, AMPA. The glyphosate reference substance (lot GLP-0810-19515-A) had an assayed purity of 99.8% and the AMPA reference substance lot (GLP-0907-19961-A) had an assayed purity of 99.0%. The internal standards ($^{13}\text{C}_3$, ^{15}N , glyphosate and (d2) ^{13}C , ^{15}N AMPA) had assayed purities of 95% and 96%, respectively. Stock solutions of glyphosate and AMPA were used to prepare the chromatographic calibration standards and fortification solutions. The amount of reference substance weighed out for each stock solution was corrected for the purity of the reference substance.

Standard solutions of glyphosate and AMPA have been demonstrated to be stable at room temperature for seven days and under refrigerated conditions for 23 months. A summary of the stability data is archived in the Monsanto archives.

5 METHODS

The methods used in the study are described in detail in the study protocol and amendments in Appendix A.

5.1 Field Procedures

Details regarding the field phase of this study can be found in the Field Report in Appendix B.

5.1.1 Trial Management

The field phase of this study was conducted under the supervision of The Carringers, Inc. which contracted the field work to individual cooperators. The Principal Field Investigators (PFIs) were responsible for ensuring that all aspects of the field study were conducted using normal agronomic practices and were chosen based on their experience in conducting regulatory field trials.

5.1.2 Trial Locations

The field phase of this study was initiated at the eight test site locations shown in the table below. In all cases, the sites were representative of commercial canola production for the area including soil types and pesticide use. The conditions at each test site are summarized in Table 1. A map with the location of the trials is shown in Figure 1 of the field report in Appendix B. The number and distribution of trials across regions followed the EPA suggested trial distribution. However, since site ID-8 was eliminated due to the poor quality of the canola seed produced, the data generated for the related Canadian studies [1, 2] in Region 14 may be included to augment the data from this study.

Distribution of Canola Field Trial Locations

EPA Region	Suggested No. of Trials	No. of Trials Planted	Site Code	Location (county, state)
2	1	1	NJ-1	Hunterdon, NJ
5	2	2	MN-2	Norman, MN
			ND-3	Cass, ND
7	2	2	ND-4	Ward, ND
			ND-5	McHenry, ND
11	3	3	ID-6	Blaine, ID
			ID-7	Jerome, ID
			ID-8	Power, ID

5.1.3 Test System

Monsanto Company has developed a second generation glyphosate-tolerant canola product that will tolerate glyphosate application from emergence through the first-flower stage of plant development at a rate up to 1800 g acid equivalents (a.e.) per hectare. With an increased window of application and higher spray rates, second generation glyphosate tolerant canola will allow for superior weed control using glyphosate containing

herbicides compared to the first generation of glyphosate tolerant and conventional (non-glyphosate-tolerant) canola.

Glyphosate tolerant canola contains the 5-enolpyruvylshikimate-3-phosphate synthase gene derived from *Agrobacterium sp.* strain CP4 (*cp4 epsps*). Expression of the gene product (CP4 EPSPS) renders the plant tolerant to glyphosate, the active ingredient in the Roundup[®] family of agricultural herbicides. For this report, glyphosate tolerant canola will refer to the second generation product unless otherwise noted.

Crop: Canola (Latin Name: *Brassica napus*)

Variety: Three different transformation events were used in this study, identified as follows. All three express CP4, and were being evaluated for commercialization. One of the three events (MON 88302) has now been selected as the lead event for registration and commercialization. Only a single event was used for a particular trial as shown in the study protocol (Appendix A).

MON 88301 (Event 1)

MON 88302 (Event 2)

MON 88303 (Event 3)

The test system provided crop samples to generate data to support the requirements for registration under EPA Residue Chemistry Test Guidelines OPPTS 860.1500 (Crop Field Trials), OPPTS 860.1520 (Processed Food/Feed), and EPA 40 CFR 158 on oilseed crops.

5.1.4 Site Preparation and Layout, and General Site Data

The field histories, including crops grown and pesticides used, were obtained for the previous two years (2007 and 2008) at each test site. No maintenance chemicals with chemistries related to the test substance were used during this time. Field history information is provided in Appendices 1-8 of the field report (Appendix B). Soil data for each site are also given in Appendices 1-8 of the field report.

The size of the treated plots ranged from 800 to 9600 square feet. The minimum distance between the control plot and the nearest treated plot was 50 feet. All plots were staked and labeled. Plot information and plot diagrams are in Appendices 1-8 of the field report. All plot sizes met the minimum size requirements specified by the protocol.

Test site preparation and maintenance data, including pesticides used, agronomic cultural practices employed and fertilizers applied, were recorded in the field notebooks. In all cases, these practices were normal agronomic practices for the test site areas, and are summarized in Appendices 1-8 of the field report. The sites were maintained in a healthy, weed-free state for the duration of the study.

Canola was planted in the spring of 2009. The canola at all sites developed and matured normally, except for the ID-8 trial site which did not mature completely as a result of late planting due to wet weather. Information specific to each site, such as application rates, planting dates and application dates are summarized in Tables 1 and 2 of the field report.

[®] Roundup is a registered trademark of Monsanto Technology LLC.

5.1.5 Test Substance Application

One untreated and three treated plots were established at each site. Test substance application information can be found in Appendices 1-8 of the field report. These tables include details of the test substance mixture, calibrated spray rate, treated area, application rate, and application date. The use pattern for application at each site is summarized in Table 2. Actual application rates were within $\pm 5\%$ of the target rates for all applications at all sites, except for the treatment 4 late bolting application at the NJ-1 site, which was over the target rate by 5.5%; the treatment 2 first flower application at the MN-2 site, which was over the target rate by 5.2%; the treatment 2 first flower application at the ID-6 site, which was over the target rate by 5.1%; and the treatment 2 preemergence application at the ID-8 site, which was over the target rate by 8%. Spray volumes ranged from 72 to 185 L/ha (7.7 to 19.8 gallons per acre) and were within $\pm 5\%$ of the target spray volumes for all applications at all sites, except for the preemergence applications at the ID-7 site, which exceeded the target spray volume by approximately 80%. This should not impact the study results because the spray volume in a preemergence spray to the soil surface should not impact the residues of glyphosate in the seed.

There were no environmental problems that would affect the rate, distribution or application of the test substance. Environmental conditions at application are in Appendices 1-8 of the field report.

Included in the table below are the treatment number, the growth stage, and the target rate of MON 79380 for each application event. There was one preemergence application and two postemergence applications per treated plot at each site.

Applications of MON 79380 to Canola

Treatment	Control/Test	Growth Stages/Target Application Rates (g a.e./ha) ^{1,2}			
		Pre-emergence	4-6 leaf	Late bolting	1 st flower
1	Control	0	0	0	0
2	Test	4250	900	0	900
3	Test	4250	900	0	1800
4	Test	4250	900	900	0

¹ The application rate may vary $\pm 5\%$.

² Tank mix includes Non-ionic Surfactant (NIS) and ammonium sulfate (AMS)

The following table provides the equivalent application rates in both metric and English units, based both on weight of active ingredient and volume of formulated product:

Application Rate Unit Conversions

As glyphosate acid equivalents		As volume of MON 79380	
g a.e./ha	lb a.e./a	L/ha	fl. oz./a
900	0.80	1.67	22.8
1800	1.61	3.33	45.6
4250	3.79	7.87	108

The preemergence application was a soil applied broadcast spray application that was made after planting, but prior to crop emergence.

The 4-6 leaf postemergence application was a foliar broadcast spray application that was made at the 4 to 6 leaf development stage, not counting the cotyledons.

The late bolting postemergence application was a foliar broadcast spray application made when the main stem has elongated, but prior to any flower formation.

The first flower postemergence application was a foliar broadcast spray application that was made when 50% of the canola plants have at least one flower on the main stem.

A nonionic surfactant was added to the spray solutions at a concentration of 0.5% (0.5 liters surfactant per 100 liters spray solution, or 2 quarts per 100 gallons) In addition, spray grade ammonium sulfate (AMS) was added at a concentration of 2% (2 kg AMS per 100 liters spray solution, or 17 lb per 100 gallons) for all postemergence applications. The equipment used was typical of small plot research equipment that closely simulated commercial equipment. Backpack, hand-held, and tractor-mounted sprayers were used to make all applications. Application equipment information is in Appendices 1-8 of the field report. In all cases, the application equipment was calibrated before the application of the test substance.

Daily rainfall data were recorded for the trial period from on-site weather stations or permanent weather stations located near the test sites. Unusually wet weather at the ID-8 site in the spring resulted in delayed planting at this site. As a result, the canola seed at this site did not fully mature before harvest.

5.1.6 Sampling Procedures

At all sites, canola seed raw agricultural commodity (RAC) samples were successfully collected at a typical commercial harvest stage, except for the ID-8 site where harvest was significantly delayed due to weather as noted in section 5.1.5. In addition, at the ND-3 and ID-7 sites, additional seed samples were taken at 1, 3, 7, and 10 days after normal harvest maturity to provide samples for analysis to determine decline in residues.

A single composite RAC sample was collected from each untreated (control) plot and two composite RAC samples were collected from each treated plot. The untreated plot was sampled first, followed by the treated plots. Each sample was composited from at least twelve separate sub-samples collected from different locations in the plot. Sampling equipment was cleaned prior to and after sampling each plot. Sample collection information is in Appendices 1-8 of the field report. Both the cutting date and sampling date are listed in Table 2 of the field report in Appendix B. In some cases the canola was cut and allowed to dry in the field before the samples were bagged and placed in the freezer. In the Master Summary and Raw Data Tables in Appendix E, the cutting date is used when calculating the days after last application or preharvest interval.

In addition, at the ND-5 and ID-8 sites, bulk samples (14.4 – 26.0 kg) of canola seed were collected from the treatment 1 and treatment 3 plots for processing.

5.1.7 Storage and Transport of Samples from the Field, and Crop Destruct

RAC samples were shipped from each field site to Monsanto (St. Louis, MO) by ACDS freezer truck. RAC samples were stored frozen at the field sites from 3 to 46 days prior

to shipment. Samples for processing were shipped to GLP Technologies, Inc. by ACDS freezer truck from the ND-5 site and by overnight courier from the ID-8 site. Samples for processing were stored frozen at the ND-5 site for 36 days. Samples for processing were stored at ambient temperature at the ID-8 site for 1 or 2 days. Sample storage and shipping information is in Appendices 1-8.

The unused crop was destroyed by tillage, mowing, or burning.

5.1.8 Sample Receipt and Storage

All samples for all sites were shipped by ACDS freezer truck, which maintained the samples frozen until their receipt at Monsanto. All samples were placed into frozen storage at Monsanto after receipt and inventory, where they were transferred to a -20°C freezer until analysis.

5.1.9 Field Deviations

Protocol field deviations are listed in Section 3.4 of the field report in Appendix B. At site ID-7, the spray volumes during the preemergence applications were 183-185 L/ha (19.6 - 19.8 GPA) rather than 47-103 L/ha (5-11 GPA) as specified in the protocol. However, because preemergence glyphosate applications do not result in any significant residues, this deviation did not have a significant impact on the study. None of the other protocol deviations had an adverse impact on the study.

5.2 Processing Procedures

Canola seed from both the ND-5 and ID-8 sites were visually examined at GLP Technologies for suitability for processing. Due to weather issues, the seed from the ID-8 site did not mature properly (canola froze in the field before the plants had time for seeds to fill). A protocol amendment was written stating that the ID-8 seed was not representative of commercial canola seed and those samples were not processed.

The canola seed samples from the ND-5 site were removed from frozen storage at the processing site; the untreated control and the field treated samples were separately processed in a manner that simulated commercial processing. Because of compliance monitoring requirements and sample size, the samples were processed by batch rather than continuously, as in commercial operation. Refer to Appendix C for a processing flow diagram and detailed processing procedures.

5.2.1 Processing Summary

A sub-sample from each bulk sample was taken as the starting canola RAC sample for analysis. For processing, moisture content of incoming canola seed is required to be less than 10% according to the processing SOP (see Processing Report, Appendix C). After determining the moisture content of the canola RAC (24-28%), the canola was dried in an industrial oven at 130-160 °F until the moisture content was less than 10%. After drying, the light impurities were separated using a Kice aspirator. After aspiration, the samples were screened in a Hance Corporation screen cleaner. Large and small foreign particles (screenings) were removed from the cleaned canola.

Cleaned canola seed was then flaked and pressed in a Komet expeller to mechanically remove a portion of the crude oil. Residual crude oil remaining in the solid material (presscake) exiting the expeller was removed during solvent extraction. The presscake

was placed in stainless steel batch extractors and submerged in 120-140 °F hexane. After 30 minutes, the miscella (hexane and crude oil) was drained and fresh hexane added to repeat the cycle two more times. After the final draining, the extracted presscake (meal) was toasted to remove residual hexane. The toasted meal was placed in frozen storage.

The crude oil was separated from the hexane in a laboratory vacuum evaporator, and a sample was placed in frozen storage. The bulk crude oil was refined according to the procedures in Appendix C and the soapstock separated from the refined oil by centrifugation. A sample of the refined oil was placed in frozen storage. The refined oil was then bleached and deodorized, and separated from the deodorizer distillates. The refined, bleached, deodorized oil (RBD oil) was placed in frozen storage.

5.2.2 Sample Transport and Storage

Fractions of whole canola RAC, toasted meal, crude oil, alkali-refined oil, and RBD oil were shipped frozen to Monsanto via Federal Express priority overnight service. All samples were placed into frozen storage at Monsanto after receipt and inventory, where they were transferred to a -20°C freezer until analysis.

5.2.3 Processing Deviations

There were no protocol deviations during the processing phase of the study, however, there were a few SOP deviations listed in the processing report in Appendix C. None of these deviations had an adverse impact on the study.

5.3 Analytical Procedures

5.3.1 Sample Preparation and Storage

All canola samples were prepared for analysts at Monsanto following the current versions of standard operating procedures BR-PO-0064 and BR-EQ-0286. Each RAC sample was ground with dry ice in a vertical cutter/mixer. Samples were then stored in a continuously monitored walk-in freezer set at or below -20°C until checked out by the analyst. Upon checkout, samples were stored frozen in lab freezers until analysis.

5.3.2 Sample Analysis

Metabolism studies in various non-glyphosate-tolerant crops [7] and in glyphosate-tolerant crops including soybeans [8] and cotton [9] have demonstrated that the principal metabolic pathway of glyphosate in plants is the gradual conversion of glyphosate to aminomethylphosphonic acid (AMPA). Thus, this study focused on the determination of glyphosate and AMPA residues in or on canola raw agricultural commodities and processed fractions.

Samples were extracted and analyzed in early 2010 using the analytical method for glyphosate and AMPA found in Appendix D. A brief summary of the analysis of plant samples is included here. Glyphosate and AMPA were isolated from crop matrices by high speed blender extraction using 0.1% formic acid in water and methylene chloride. Following centrifugation, an aliquot of aqueous phase extract was mixed with isotopically labeled glyphosate and AMPA internal standards then passed through solid phase extraction media for final cleanup. The samples were analyzed by LC-MS/MS using a cation exchange column and quantitated using one specific precursor/product ion transition for each analyte. The working range of the method without sample dilution is

from 0.05 ppm (LLMV) to 6.0 ppm of glyphosate and AMPA. The method has been validated for the analysis of the raw agricultural commodities of corn, soybeans, canola, cotton, sugar beets, alfalfa, citrus and cotton oil.

The protocol specified that each control and treated sample would be analyzed at least once. Some samples were outside the working range of the method and were diluted and reanalyzed in a later sample set. A few samples were re-analyzed if the relative standard deviation between replicate samples for glyphosate residue was high (>30%). If the reanalysis verified the original results, the reanalysis data was not reported.

All the raw data and dates of sample extraction and analysis for each sample are listed in Appendix E. Residue results are summarized in Table 3-5 for the canola seed and in Table 7 for the processed fractions. Representative chromatograms from each matrix are shown in Appendix F.

Quality control samples were analyzed along with each analytical set of samples to demonstrate acceptable method performance. For the QC samples, control sample matrix from treatment 1 at each location was fortified with a mixed standard of glyphosate and AMPA at the time of the extraction and analyzed concurrently with the field samples. The recoveries for the canola samples are summarized in Tables 9 and 10. Full details regarding the recoveries of glyphosate and AMPA from laboratory-fortified control samples, including all raw data of individual samples, are located in Appendix E.

5.3.3 Lower Limit of Method Validation (LLMV)

The glyphosate analytical method states that the method has been validated to 0.05 ppm in various crop matrices. Prior to analysis of any samples from this study, the method performance was verified in canola seed RAC down to a level of 0.05 ppm. The performance of the method for glyphosate and AMPA was verified during the study by fortifying untreated RAC samples with the respective analytes before extraction at levels from the lower limit of method validation (LLMV) of 0.05 ppm up to 50 ppm. Processed fractions were fortified at levels from 0.05 – 0.50 ppm. Average recoveries of glyphosate and AMPA in all matrices were within 70% - 120%. An LOD/LOQ was determined after sample analysis based on statistical analysis of fortified sample recoveries.

5.3.4 Storage Intervals of Samples Before Analysis

The interval between cutting and extraction for the samples ranged from 104 to 157 days. The stability of glyphosate in or on frozen crop samples has been previously determined to be at least 2.5 years [10].

The maximum interval from extraction to analysis for the samples was 34 days. Stability of the residues during analysis (from extraction to instrumental analysis) was demonstrated by the recovery of the analytes in the fortified samples run concurrently with each set of samples.

See Appendix E for last application, cutting, extraction and analysis dates for all samples.

5.3.5 Analytical Deviations

There were no protocol deviations during the analytical phase of the study.

5.4 Statistical Methods

Statistical analyses of the data included regression analysis of calibration standards and calculation of average residue levels from appropriate samples. Microsoft Excel was used for the calculation of averages, medians, minima and maxima. Statistical analysis of control and spiked control samples showed that the LOD/LOQ in canola seed was <0.05 ppm for both glyphosate and AMPA.

6 RESULTS

The results from the analyses of the treated samples for glyphosate and AMPA residues are presented in the Tables section. Residue data for canola seed samples collected at normal harvest are presented in Tables 3-5. Both the individual and site-averaged residue values for treatments 2-4 are shown. Table 6 contains the canola seed residue decline values, and Table 7 has the residue data for the processed fractions of canola. Individual sample results for each analysis in Tables 3 through 7 can also be found in the Master Summary tables (organized by trial site) and in the Raw Data tables in Appendix E. The glyphosate and AMPA residue levels are not corrected for the background level in the corresponding control samples, the recovery of the laboratory fortified control samples or the moisture content of the samples. Fortification recoveries are summarized in Tables 9 and 10 for glyphosate and AMPA, respectively, and the recovery data tables are located in Appendix E. Good recoveries were obtained from all samples in all matrices. Glyphosate recoveries ranged from 73-103% in canola seed and from 66-111% in processed fractions. AMPA recoveries ranged from 81-104% in seed and from 68-107% in processed fractions. Sample chromatograms are shown in Appendix F.

Rejected data (such as unacceptable chromatography data) were not reported as part of the study data, but will be kept with the study data in the Monsanto archives. One site (ID-8) was removed from the study by amendment because the quality of the canola seed produced was determined to be not commercially acceptable.

6.1 Glyphosate and AMPA Residues in Canola Seed

The range and median residue levels for glyphosate and AMPA in the canola seed across sites are summarized in the table below.

Glyphosate and AMPA Residues in Canola Seed

Treatment	PHI, ¹ days	Glyphosate, ppm		AMPA, ppm		Total, ppm ⁴	
		Median	Range ^{2,3}	Median	Range ^{2,3}	Median	Range ^{2,3}
2	58-70	1.6	0.24-6.3	<0.05	<0.05-0.16	1.7	0.24-6.5
3	58-70	3.7	1.5-11.2	0.11	<0.05-0.20	3.8	1.6-11.5
4	65-77	1.5	0.08-2.4	[<0.05	<0.05-0.06	1.5	0.08-2.5

¹PHI = Preharvest Interval, days between last application and sampling

²Range of site-averaged residues in canola seed sample analyses across all seven sites.

³Lower limit of method validation of glyphosate and AMPA is 0.05 ppm.

⁴Total ppm = [Glyphosate ppm] + [AMPA ppm x 1.523]

The glyphosate residue levels in seed from treatment 2 were determined as an average of two field replicate samples and ranged from 0.24 to 6.3 ppm with a median value of 1.6 ppm. AMPA was detected at levels above 0.05 ppm in only two of seven sites with a maximum residue of 0.16 ppm. Total residue [defined as glyphosate + (1.523 x AMPA)] ranged from 0.24 to 6.5 ppm in treatment 2. The highest individual sample residues were 6.7 ppm and 0.16 ppm for glyphosate and AMPA, respectively.

The glyphosate residue levels in seed from treatment 3 were determined as an average of two field replicate samples and ranged from 1.5 to 11.2 ppm with a median value of 3.7 ppm. AMPA was detected at levels ≥ 0.05 ppm in six of the seven sites with a maximum of 0.20 ppm. Total residue ranged from 1.6 to 11.5 ppm in treatment 3.

The glyphosate residue levels in seed from treatment 4 were also determined as an average of two field replicate samples and ranged from 0.08 to 2.4 ppm with a median value of 1.5 ppm. AMPA was detected at levels above 0.05 ppm in only one of seven sites with a maximum of 0.06 ppm. Total residue ranged from 0.08 to 2.5 ppm in treatment 4. The highest individual sample residues from treatment 4 were 2.5 ppm and 0.06 ppm for glyphosate and AMPA, respectively.

6.2 Glyphosate and AMPA Residues in Canola Seed Decline Samples

At the ND-3 and ID-7 sites, additional seed samples were taken from the untreated control plot (treatment 1) and treatment 3 at 1, 3, 7, and 10 days after normal harvest maturity to provide samples for analysis to determine decline in residues. Table 6 shows that the residues of glyphosate and AMPA in canola seed remain constant over 10 days after normal harvest in the treatment 3 samples. Glyphosate and AMPA residues in the untreated controls were <0.05 ppm in all decline samples from both locations.

6.3 Glyphosate and AMPA Residues in Canola Processed Fractions

The processing portion of the study utilized field-treated canola seed samples collected from two typical canola growing regions of the United States (North Dakota and Idaho). Bulk canola seed was harvested from a control plot and from the treatment 3 plot (see Section 5.2), and sent to the processor. Due to weather issues, the seed from the Idaho site did not mature properly and those samples were not processed (see protocol amendment #3, Appendix A). Canola seed samples from the North Dakota site were processed into oil products (crude oil, refined oil, and RBD oil), and defatted toasted meal in a manner that simulated normal commercial practices.

The results from analyses of the treated processed samples for glyphosate and AMPA residues are given in Table 7. The glyphosate and AMPA residue levels reported are not corrected for the background level in the corresponding control samples, the recovery of the laboratory fortified control samples or the moisture content of the samples.

Glyphosate and AMPA residues in the initial unprocessed canola seed were 1.65 and 0.05 ppm, respectively. A total of four processed fractions were generated from processing of the whole seed. Only the defatted toasted meal had measurable levels of glyphosate and AMPA. The glyphosate and AMPA residues in toasted meal were 3.96 and 0.13 ppm, respectively. Concentration factors are defined as the ratio of analyte concentration in the meal divided by the analyte concentration in the unprocessed canola seed. The concentration factor for glyphosate residues in toasted meal was determined to be 2.4 and

the concentration factor for AMPA in toasted meal was 2.6. For the three oil fractions, the concentration factors are reported as <0.03. Concentration factors for the processed fractions for both glyphosate and AMPA are summarized in Table 7.

For the treated sample, 50.4 lbs of unprocessed canola seed was used to provide 17.1 lbs of toasted meal, a ratio of 2.95:1 that is very similar to the concentration factor calculated for toasted meal. Defatting of canola seed with hexane did not extract significant amounts of glyphosate and AMPA residues, consistent with the lack of solubility of glyphosate and AMPA in hexane. The levels of glyphosate and AMPA in all oil fractions (crude oil, refined oil, and RBD oil) were below the LLMV. This suggests that nearly all of the glyphosate and AMPA found in canola seed is present in the meal rather than in the oil. Glyphosate and AMPA residues do not concentrate in the processed oil fractions commonly used for food.

6.4 Mass Balance of Glyphosate and AMPA Residues During Processing

A mass balance study was conducted to determine quantitative distribution of glyphosate and AMPA residues in toasted meal, providing information on concentration or reduction in total residues. Glyphosate and AMPA residue mass balances are summarized in Table 8. Mass balances were calculated by multiplying the concentration of glyphosate and AMPA by the total weight of the processing fraction collected. The mass balance accountabilities of glyphosate and AMPA residues for toasted meal were 81% and 89%, respectively. For crude oil, the mass balance accountabilities of glyphosate and AMPA are reported in Table 8 because the level of glyphosate in this fraction was very close to the LLMV. For glyphosate, the mass balance accountability was <0.6% in crude oil.

7 CONCLUSIONS

This study determined the magnitude of glyphosate and AMPA residues in canola seed following applications of MON 79380 to glyphosate tolerant canola. Treatments 2-4 included a preemergence application (4250 g a.e./ha), and two sequential postemergence (in-crop) applications. The first in-crop application (900 g a.e./ha) was at the 4-6 leaf growth stage, and the second was at either the late bolting or first-flower growth stage, at either 900 or 1800 g a.e./ha, as described in section 5.1.5.

The site-averaged residues in canola seed in treatment 2 ranged between 0.24 and 6.3 ppm for glyphosate and <0.05 to 0.16 ppm for AMPA. Total residues [defined as glyphosate + (1.523 × AMPA)] ranged from 0.24 to 6.5 ppm.

The site-averaged residues in canola seed in treatment 4 ranged between 0.08 and 2.4 ppm for glyphosate and <0.05 to 0.06 ppm for AMPA. Total residues range from 0.08 to 2.5 ppm. While treatments 2 and 4 both had the same application rates, the lower residues in treatment 4 compared to treatment 2 are consistent with the earlier in-crop application for the last application in treatment 4 (late bolting vs. first flower).

Residue levels in treatment 3 are approximately two times the level observed in treatment 2, consistent with the 2-fold increase in application rate at the first flower growth stage.

Residue decline sampling at one site in North Dakota and one site in Idaho show that the residues of glyphosate and AMPA do not significantly change over the 10-day period following normal harvest.

Processing of canola resulted in concentration factors of 2.4 for glyphosate and 2.6 for AMPA in toasted meal, consistent with the mass balance data in Table 8. Glyphosate and AMPA were <LLMV in all of the oil fractions (crude, refined, and RBD). This is expected due to the lack of solubility of glyphosate and AMPA in hexane, which is used to extract the oil from the canola meal. Glyphosate and AMPA do not concentrate in the processed oil fractions commonly used for food.

8 RETENTION OF RECORDS AND SAMPLES

All raw data, associated documents, and the original final report are retained in the Monsanto Regulatory Archives. Samples of reference substances have been retained at Monsanto Company according to the requirements of Good Laboratory Practice standards. Study specimens will be retained until quality assurance verification is performed.

Some analytical data generated during this study were not used because they did not fit the study criteria, e.g., the calibration curve fit was poor, or the recoveries for the lab fortified samples were below the minimum acceptable level. These data were archived in the study file, and the reasons for the rejection of the data were provided with the data.

9 REFERENCES

1. Mueth, M.G. and Allan, J.M., " Magnitude of Glyphosate Residues in Glyphosate Tolerant Canola Raw Agricultural Commodities Following Applications of a Glyphosate-Based Formulation. 2009 Canadian Trials.", in Monsanto Report, MSL0022985, 2011.
2. Mueth, M.G. and Allan, J.M., " Magnitude of Glyphosate Residues in Glyphosate Tolerant Canola Raw Agricultural Commodities Following Applications of a Glyphosate-Based Formulation. 2010 Canadian Trials", in Monsanto Report, MSL0022986, 2011.
3. Gunter, C.A., "Product Chemistry Data for MON 78270. Storage Stability and Corrosion Characteristics", in Monsanto Report, MSL-18211, MRID 45800001. 2002.
4. Gunter, C.A., "Product Chemistry Data to Support the Registration of MON 78270 Herbicide", in Monsanto Report MSL-17415, MRID 45504801. 2001.
5. Oppenhuizen, M.E., "Magnitude of Glyphosate Residues in Glyphosate-Tolerant Corn Raw Agricultural Commodities, in Monsanto Report, MSL-13882, MRID 43712702. 1995.
6. Oppenhuizen, M.E., "Magnitude of Glyphosate Residues in Glyphosate-Tolerant Cotton Raw Agricultural and Processed Commodities", in Monsanto Report, MSL-13884, MRID 43571801. 1995.
7. Rueppel, M.L. and Suba, L.A., "CP 67573, Residue and Metabolism Part 10: The Metabolism of CP67573 in Soybeans, Cotton, Rice, and Corn", Monsanto Report FR 304, MRID 108097, 1973.
8. Goure, W.F., Bleeke, M.S., Nadeau, R.G., George, C. and Lee, T.C., "Nature of Glyphosate Residues in Soybeans Tolerant to Roundup ® Herbicide", Monsanto Report MSL-13520, MRID 43330601, 1994.
9. Bleeke, M.S., "Nature of Glyphosate Residues in Cotton Plants (Genotype Line #1445) Tolerant to Roundup® Herbicide", Monsanto Report MSL-14113, MRID 44279301, 1997.
10. Mueth, M.G., "Storage Stability of Glyphosate Residues in Crop Commodities", Monsanto Report MSL-8826, MRID 41472002, 1989.

10 TABLES

Table 1. Field Conditions

Trial Identification (City, Province/Year)	Soil Characteristics				Meteorological Data	
	Type	%OM*	pH*	CEC* (meq/100 g)	Overall (monthly) Rainfall + Irrigation Range (in)	Overall Temp Range (monthly mean Min/Max) (° F)
REG-09-091-1 (Baptistown, NJ/2009)	Loam	1.8	7.1	9.6	4.41-10.1	50-82
REG-09-091-2 (Perly, MN/2009)	Silty Clay	7.0	7.2	45.0	0.65-5.12	33-77
REG-09-091-3 (Erie, ND/2009)	Loam	-	-	-	0.71-4.33	33-78
REG-09-091-4 (Velva, ND/2009)	Loam	2.7	5.7	13.7	1.45-1.88	40-77
REG-09-091-5 (Norwich, ND/2009)	Loam	4.0	6.8	23.6	1.45-3.94	40-77
REG-09-091-6 (Manidoka, ID/2009)	Silt Loam	1.5	8.1	29.5	0.00-5.20	40-88
REG-09-091-7 (Jerome, ID/2009)	Loam	1.4	7.4	24.2	0.07-5.77	42-91

*These parameters are optional except in cases where their value affects the use pattern for the chemical.

Table 2. Study Use Pattern for MON 79380.

Trial Identification (City, State/Year)	Application						
	Trt No.	Timing (growth stage)	Rate (g ae/ha)	Volume (l/ha)	Method	Total Rate (g ae/ha)	Tank Mix Adjuvants ^b
REG-09-091-1 (Baptistown, NJ/2009)	2	Pre-emergence	4428	97	Broadcast	6265	Induce @ 0.5% v/v AMS @ 17 lb/100 gal
		4-6 leaf	916	95			Induce @ 0.5% v/v AMS @ 17 lb/100 gal
		First flower	921	95			Induce @ 0.5% v/v AMS @ 17 lb/100 gal
	3	Pre-emergence	4347	95	Broadcast	7113	Induce @ 0.5% v/v AMS @ 17 lb/100 gal
		4-6 leaf	908	94			Induce @ 0.5% v/v AMS @ 17 lb/100 gal
		First flower	1858	96			Induce @ 0.5% v/v AMS @ 17 lb/100 gal
	4	Pre-emergence	4400	97	Broadcast	6270	Induce @ 0.5% v/v AMS @ 17 lb/100 gal
		4-6 leaf	920	96			Induce @ 0.5% v/v AMS @ 17 lb/100 gal
		Late bolting	950	99			Induce @ 0.5% v/v AMS @ 17 lb/100 gal
REG-09-091-2 (Perly, MN/2009)	2	Pre-emergence	4222	93	Broadcast	6075	Liberate@ 0.5% v/v
		4-6 leaf	906	96			Liberate @ 0.5% v/v AMS @ 17 lb/100 gal
		First flower	947	98			Liberate @ 0.5% v/v AMS @ 17 lb/100 gal
	3	Pre-emergence	4240	94	Broadcast	6962	Liberate@ 0.5% v/v
		4-6 leaf	924	98			Liberate @ 0.5% v/v AMS @ 17 lb/100 gal
		First flower	1798	94			Liberate @ 0.5% v/v AMS @ 17 lb/100 gal
	4	Pre-emergence	4307	94	Broadcast	6169	Liberate@ 0.5% v/v
		4-6 leaf	928	98			Liberate @ 0.5% v/v AMS @ 17 lb/100 gal
		Late bolting	934	97			Liberate @ 0.5% v/v AMS @ 17 lb/100 gal

End-use Product = Roundup WeatherMAX® with Transorb 2 Technology Liquid Herbicide (MON 79380)

^aL/ha = 0.1069 GPA

^bAMS= Ammonium Sulfate.

Trial Identification (City, State/Year)	Application						
	Trt No.	Timing (growth stage)	Rate (g ae/ha)	Volume (l/ha) ^a	Method	Total Rate (g ae/ha)	Tank Mix Adjuvants ^b
REG-09-091-3 (Erie, ND/2009)	2	Pre-emergence	4338	95	Broadcast	6206	Liberate@ 0.5% v/v
		4-6 leaf	924	96			Liberate @ 0.5% v/v AMS @ 17 lb/100 gal
		First flower	944	98			Liberate @ 0.5% v/v AMS @ 17 lb/100 gal
	3	Pre-emergence	4224	93	Broadcast	7022	Liberate@ 0.5% v/v
		4-6 leaf	937	97			Liberate @ 0.5% v/v AMS @ 17 lb/100 gal
		First flower	1861	96			Liberate @ 0.5% v/v AMS @ 17 lb/100 gal
	4	Pre-emergence	4269	94	Broadcast	6107	Liberate@ 0.5% v/v
		4-6 leaf	922	95			Liberate @ 0.5% v/v AMS @ 17 lb/100 gal
		Late bolting	916	95			Liberate @ 0.5% v/v AMS @ 17 lb/100 gal
REG-09-091-4 (Velva, ND/2009)	2	Pre-emergence	4344	95	Broadcast	6174	Cornbelt Premier 90 @ 0.5% v/v
		4-6 leaf	921	95			Cornbelt Premier 90 @ 0.5% v/v AMS @ 17 lb/100 gal
		First flower	909	94			Cornbelt Premier 90 @ 0.5% v/v AMS @ 17 lb/100 gal
	3	Pre-emergence	4376	96	Broadcast	7123	Cornbelt Premier 90 @ 0.5% v/v
		4-6 leaf	926	95			Cornbelt Premier 90 @ 0.5% v/v AMS @ 17 lb/100 gal
		First flower	1821	94			Cornbelt Premier 90 @ 0.5% v/v AMS @ 17 lb/100 gal
	4	Pre-emergence	4386	96	Broadcast	6233	Cornbelt Premier 90 @ 0.5% v/v
		4-6 leaf	921	94			Cornbelt Premier 90 @ 0.5% v/v AMS @ 17 lb/100 gal
		Late bolting	926	95			Cornbelt Premier 90 @ 0.5% v/v AMS @ 17 lb/100 gal

End-use Product = Roundup WeatherMAX® with Transorb 2 Technology Liquid Herbicide (MON 79380)

^aL/ha = 0.1069 GPA

^bAMS= Ammonium Sulfate.

Trial Identification (City, State/Year)	Application						
	Trt No.	Timing (growth stage)	Rate (g ae/ha)	Volume (l/ha) ^a	Method	Total Rate (g ae/ha)	Tank Mix Adjuvants ^b
REG-09-091-5 (Norwich, ND/2009)	2	Pre-emergence	4313	94	Broadcast	6147	Cornbelt Premier 90 @ 0.5% v/v
		4-6 leaf	931	96			Cornbelt Premier 90 @ 0.5% v/v AMS @ 17 lb/100 gal
		First flower	903	94			Cornbelt Premier 90 @ 0.5% v/v AMS @ 17 lb/100 gal
	3	Pre-emergence	4340	95	Broadcast	7116	Cornbelt Premier 90 @ 0.5% v/v
		4-6 leaf	932	97			Cornbelt Premier 90 @ 0.5% v/v AMS @ 17 lb/100 gal
		First flower	1844	95			Cornbelt Premier 90 @ 0.5% v/v AMS @ 17 lb/100 gal
	4	Pre-emergence	4352	95	Broadcast	6180	Cornbelt Premier 90 @ 0.5% v/v
		4-6 leaf	914	94			Cornbelt Premier 90 @ 0.5% v/v AMS @ 17 lb/100 gal
		Late bolting	914	95			Cornbelt Premier 90 @ 0.5% v/v AMS @ 17 lb/100 gal
REG-09-091-6 (Manidoka, ID/2009)	2	Pre-emergence	4271	72	Broadcast	6143	Preference @ 0.5% v/v
		4-6 leaf	926	96			Preference @ 0.5% v/v AMS @ 17 lb/100 gal
		First flower	946	107			Preference @ 0.5% v/v AMS @ 17 lb/100 gal
	3	Pre-emergence	4351	74	Broadcast	7108	Preference @ 0.5% v/v
		4-6 leaf	918	95			Preference @ 0.5% v/v AMS @ 17 lb/100 gal
		First flower	1839	104			Preference @ 0.5% v/v AMS @ 17 lb/100 gal
	4	Pre-emergence	4369	74	Broadcast	6166	Preference @ 0.5% v/v
		4-6 leaf	916	95			Preference @ 0.5% v/v AMS @ 17 lb/100 gal
		Late bolting	881	103			Preference @ 0.5% v/v AMS @ 17 lb/100 gal

End-use Product = Roundup WeatherMAX® with Transorb 2 Technology Liquid Herbicide (MON 79380)

^aL/ha = 0.1069 GPA

^bAMS= Ammonium Sulfate.

Trial Identification (City, State/Year)	Application						
	Trt No.	Timing (growth stage)	Rate (g ae/ha)	Volume (l/ha) ^a	Method	Total Rate (g ae/ha)	Tank Mix Adjuvants ^b
REG-09-091-7 (Jerome, ID/2009)	2	Pre-emergence	4295	185	Broadcast	6085	Activator 90 @ 0.5% v/v
		4-6 leaf	890	101			Activator 90 @ 0.5% v/v AMS @ 17 lb/100 gal
		First flower	900	96			Activator 90 @ 0.5% v/v AMS @ 17 lb/100 gal
	3	Pre-emergence	4258	183	Broadcast	6985	Activator 90 @ 0.5% v/v
		4-6 leaf	893	101			Activator 90 @ 0.5% v/v AMS @ 17 lb/100 gal
		First flower	1834	98			Activator 90 @ 0.5% v/v AMS @ 17 lb/100 gal
	4	Pre-emergence	4254	183	Broadcast	6041	Activator 90 @ 0.5% v/v
		4-6 leaf	887	100			Activator 90 @ 0.5% v/v AMS @ 17 lb/100 gal
		Late bolting	900	97			Activator 90 @ 0.5% v/v AMS @ 17 lb/100 gal

End-use Product = Roundup WeatherMAX® with Transorb 2 Technology Liquid Herbicide (MON 79380)

^aL/ha = 0.1069 GPA

^bAMS= Ammonium Sulfate

Table 3. Glyphosate and AMPA Residues in Canola Seed - Treatment 2

Treatment 2 Target Application Rates: 4250 g a.e./ha at preemergence; 900 g a.e./ha at the 4-6 leaf stage; 900 g a.e./ha at the first flower stage

Site / Event	Applied Rate (g ae/ha)	Dates of Application	PHI ¹ (days)	Glyphosate ^{2,3} (ppm)		AMPA ^{2,3} (ppm)		Total ⁴ (ppm)
				Individual	Site Average	Individual	Site Average	Site Average
ID-6 88303	4271, 926, 946	5/19, 6/20, 7/10	70	1.25 1.47	1.36	[0.02] [0.03]	[0.03]	1.40
ID-7 88301	4295, 890, 900	5/25, 6/22, 7/15	66	6.71 5.86	6.28	0.15 0.16	0.16	6.52
MN-2 88303	4222, 906, 947	6/6, 7/2, 7/23	64	3.30 2.73	3.02	0.10 0.10	0.10	3.16
ND-3 88302	4338, 924, 944	6/6, 7/2, 7/24	68	1.46 1.79	1.62	[0.04] [0.04]	[0.04]	1.67
ND-4 88303	4344, 921, 909	5/22, 6/17, 7/2	60	0.23 0.26	0.24	[0.00] [0.00]	[0.00]	0.24
ND-5 88301	4313, 931, 903	5/22, 6/17, 7/2	70	1.03 1.11	1.07	[0.04] [0.04]	[0.04]	1.13
NJ-1 88301	4428, 916, 921	5/22, 6/25, 7/9	58	1.94 2.15	2.05	[0.03] [0.04]	[0.03]	2.10

For Canola Samples (Trt 2):

	<u>Glyphosate</u>		<u>AMPA</u>		<u>Total</u>
Maximum value	6.71	6.28	0.16	0.16	6.52
Minimum value	0.23	0.24	[0.00]	[0.00]	0.24
Average of all sites	2.23	2.23	0.06	0.06	2.32
Median of all sites	1.63	1.62	[0.04]	[0.04]	1.67

Min PHI 58

Max PHI 70

¹PHI = Preharvest Interval, days between last application and sampling (following field dry down)

²Range of residues in individual canola sample analyses across all seven sites.

³Lower limit of method validation of glyphosate and AMPA in canola is 0.05 ppm. Numbers below LLMV are shown in brackets.

⁴Total ppm = [Glyphosate ppm] + [AMPA ppm x 1.523]

Glyphosate in untreated canola samples was <0.05 ppm at six of seven sites. At MN-2, glyphosate was 0.5 ppm. AMPA was <0.05 at all seven sites.

Table 4. Glyphosate and AMPA Residues in Canola Seed – Treatment 3

Treatment 3 Target Application Rates: 4250 g a.e./ha at preemergence; 900 g a.e./ha at the 4-6 leaf stage; 1800 g a.e./ha at the first flower stage

Site / Event	Applied Rate (g ae/ha)	Dates of Application	PHI ¹ (days)	Glyphosate ^{2,3} (ppm)		AMPA ^{2,3} (ppm)		Total ⁴ (ppm)
				Individual	Site Average	Individual	Site Average	Site Average
ID-6 88303	4351, 918, 1839	5/19, 6/20, 7/10	70	3.61 3.14	3.38	0.08 0.29	0.19	3.66
ID-7 88301	4258, 893, 1834	5/25, 6/22, 7/15	66	11.3 11.1	11.2	0.21 0.19	0.20	11.5
MN-2 88303	4240, 924, 1798	6/6, 7/2, 7/23	64	5.83 5.02	5.43	0.14 0.12	0.13	5.63
ND-3 88302	4224, 937, 1861	6/6, 7/2, 7/24	68	3.91 3.52	3.72	0.09 0.09	0.09	3.85
ND-4 88303	4376, 926, 1821	5/22, 6/17, 7/2	60	1.66 1.41	1.53	[0.04] [0.03]	[0.03]	1.58
ND-5 88301	4340, 932, 1844	5/22, 6/17, 7/2	70	1.66 1.65	1.66	0.05 0.05	0.05	1.74
NJ-1 88301	4347, 908, 1858	5/22, 6/25, 7/9	58	6.88 6.61	6.75	0.11 0.11	0.11	6.91

For Canola Samples (Trt 3):

	<u>Glyphosate</u>		<u>AMPA</u>		<u>Total</u>
Maximum value	11.3	11.2	0.29	0.20	11.5
Minimum value	1.41	1.53	[0.03]	[0.03]	1.58
Average of all sites	4.81	4.81	0.11	0.11	4.99
Median of all sites	3.76	3.72	0.10	0.11	3.85

Min PHI 58

Max PHI 70

¹PHI = Preharvest Interval, days between last application and sampling (following field dry down)

²Range of residues in individual canola sample analyses across all seven sites.

³Lower limit of method validation of glyphosate and AMPA in canola is 0.05 ppm. Numbers below LLMV are shown in brackets.

⁴Total ppm = [Glyphosate ppm] + [AMPA ppm x 1.523]

Glyphosate in untreated canola samples was <0.05 ppm at six of seven sites. At MN-2, glyphosate was 0.5 ppm. AMPA was <0.05 at all seven sites.

Table 5. Glyphosate and AMPA Residues in Canola Seed – Treatment 4

Treatment 4 Target Application Rates: 4250 g a.e./ha at preemergence; 900 g a.e./ha at the 4-6 leaf stage; 900 g a.e./ha at the late bolting stage

Site / Event	Applied Rate (g ae/ha)	Dates of Application	PHI ¹ (days)	Glyphosate ^{2,3} (ppm)		AMPA ^{2,3} (ppm)		Total ⁴ (ppm)
				Individual	Site Average	Individual	Site Average	Site Average
ID-6 88303	4369, 916, 881	5/19, 6/20, 7/6	74	1.46 1.40	1.43	[0.03] [0.03]	[0.03]	1.48
ID-7 88301	4254, 887, 900	5/25, 6/22, 7/8	73	2.51 2.28	2.39	[0.04] [0.04]	[0.04]	2.46
MN-2 88303	4307, 928, 934	6/6, 7/2, 7/17	70	2.07 1.90	1.98	0.06 0.06	0.06	2.08
ND-3 88302	4269, 922, 916	6/6, 7/2, 7/17	75	1.45 1.46	1.45	[0.04] [0.04]	[0.04]	1.51
ND-4 88303	4386, 921, 926	5/22, 6/17, 6/25	67	0.15 0.15	0.15	[0.00] [0.00]	[0.00]	0.15
ND-5 88301	4352, 914, 914	5/22, 6/17, 6/25	77	0.09 0.08	0.08	[0.00] [0.00]	[0.00]	0.08
NJ-1 88301	4400, 920, 950	5/22, 6/25, 7/2	65	1.41 1.48	1.45	[0.02] [0.02]	[0.02]	1.48

For Canola Samples (Trt 4):

	<u>Glyphosate</u>		<u>AMPA</u>		<u>Total</u>
Maximum value	2.51	2.39	0.06	0.06	2.46
Minimum value	0.08	0.08	[0.00]	[0.00]	0.08
Average of all sites	1.28	1.28	[0.03]	[0.03]	1.32
Median of all sites	1.45	1.45	[0.03]	[0.03]	1.48
Min PHI	65				
Max PHI	77				

¹PHI = Preharvest Interval, days between last application and sampling (following field dry down)

²Range of residues in individual canola sample analyses across all seven sites.

³Lower limit of method validation of glyphosate and AMPA in canola is 0.05 ppm. Numbers below LLMV are shown in brackets.

⁴Total ppm = [Glyphosate ppm] + [AMPA ppm x 1.523]

Glyphosate in untreated canola samples was <0.05 ppm at six of seven sites. At MN-2, glyphosate was 0.5 ppm. AMPA was <0.05 at all seven sites.

Table 6. Residue Decline Samples

Site	Days after normal harvest ¹	Glyphosate ^{2,3} (ppm)		AMPA ^{2,3} (ppm)		Total ⁴ (ppm)
		Individual	Site Average	Individual	Site Average	Site Average
ND-3	0	3.91 3.52	3.72	0.09 0.09	0.09	3.85
	1	3.95 5.20	4.58	0.10 0.11	0.11	4.74
	3	4.01 5.03	4.52	0.08 0.12	0.10	4.68
	7	2.89 3.52	3.21	0.07 0.09	0.08	3.33
	10	4.12 4.34	4.23	0.08 0.09	0.08	4.36
ID-7	0	11.3 11.1	11.2	0.21 0.20	0.20	11.5
	1	9.48 9.75	9.61	0.20 0.19	0.19	9.91
	3	8.91 9.11	9.01	0.19 0.18	0.18	9.28
	7	9.52 8.69	9.10	0.20 0.20	0.20	9.41
	10	9.73 10.3	10.0	0.19 0.19	0.19	10.3

¹ Based on cutting dates as shown in Table 2 of Field Report. Samples were taken from treatments 1 and 3 only.

² Range of residues in individual canola sample analyses across decline timepoints (0-10 days).

³ Lower limit of method validation of glyphosate and AMPA in canola is 0.05 ppm.

⁴ Total ppm = [Glyphosate ppm] + [AMPA ppm x 1.523]

Glyphosate and AMPA residues in treatment 1 are <0.05 ppm at all timepoints.

Table 7. Glyphosate and AMPA Residues in Processed Canola Fractions

Treatment 3 Target Application Rates: 4250 g a.e./ha at preemergence; 900 g a.e./ha at the 4-6 leaf stage; 1800 g a.e./ha at the first flower stage

Processed Fraction	Glyphosate (ppm)		AMPA (ppm)		Total ² (ppm)	Concentration Factor ³
	Individual ¹	Site Average	Individual ¹	Site Average	Site Average	
Canola Seed	1.66 1.65 1.64	1.65	0.05 0.05 0.05	0.05	1.73	1.0
Toasted Meal	3.96 3.95 3.97	3.96	0.13 0.13 0.13	0.13	4.16	2.4 (glyphosate) 2.6 (AMPA)
Crude Oil	0.05 [0.04] 0.05	<0.05	ND ND [0.00]	<0.05	<0.05	<0.03
Refined Oil	[0.00] [0.00] [0.01]	<0.05	ND ND ND	ND	<0.05	<0.03
RBD Oil	ND ND ND	ND	ND ND ND	ND	<0.05	<0.03

¹Lower limit of method validation of glyphosate and AMPA is 0.05 ppm. Numbers below LLMV are shown in brackets.

²Total ppm = [Glyphosate ppm] + [AMPA ppm x 1.523]

Glyphosate and AMPA in untreated canola processed samples were <0.05 ppm in all fractions.

ND = not detected

³Concentration factor = [Concentration in processed fraction]/[Concentration in canola seed]

Concentration factor for fractions containing <0.05 ppm glyphosate and AMPA was calculated as
Concentration factor = <0.05/[Concentration in canola seed].

Table 8. Mass Balance Accountability of Glyphosate and AMPA Residues During Processing

Fraction	Fraction Wt (g)	Glyphosate Mass Balance¹		
		Conc. (µg/g)	Total Mass (mg)	% Initial Fraction
Canola RAC	22868	1.65	37.7	-
Toasted Meal	7759	3.96	30.7	81.4
Crude Oil	4748	<0.05	0.2	<0.6

Fraction	Fraction Wt (g)	AMPA Mass Balance¹		
		Conc. (µg/g)	Total Mass (mg)	% Initial Fraction
Canola RAC	22868	0.05	1.14	-
Toasted Meal	7759	0.13	1.01	88.6
Crude Oil	4748	<0.05	<0.2	<20

¹Mass balances were calculated by multiplying the concentration of glyphosate and AMPA by the total weight of the processing fraction collected.
Due to mathematical rounding the mass balance values shown may differ slightly from hand-calculated values.

Table 9. Recovery of Glyphosate from Fortified Canola Samples

Analyte	Matrix	Number of Fortified Samples	Fortification Level (ppm)	Average Percent Recovery ¹	%RSD ²	Range (%)	
						Min	Max
Glyphosate	Seed	3	0.05	85.2	10.2	78.5	97.0
		4	0.10	81.9	4.90	77.2	88.2
		4	0.25	81.8	5.80	73.2	85.8
		5	0.50	86.4	6.15	75.5	89.7
		2	50	97.4	7.94	91.8	103
Glyphosate	Seed from Processor	3	0.05	88.7	2.19	86.3	90.5
		3	0.50	91.9	0.89	91.1	92.8
Glyphosate	Toasted Meal	3	0.05	92.5	1.07	91.8	93.7
		3	0.50	89.3	4.93	85.0	94.6
Glyphosate	Crude Oil	6	0.05	73.8	5.83	69.0	81.7
		7	0.50	81.2	9.26	66.3	93.8
Glyphosate	Refined Oil	3	0.05	99.3	10.0	92.8	111
		3	0.50	92.9	0.95	92.0	93.9
Glyphosate	RBD Oil	5	0.05	88.6	2.97	84.1	92.3
		5	0.50	94.5	1.12	93.2	95.9

¹ Recovery values corrected for background levels in controls.

² RSD = Relative Standard Deviation

Table 10. Recovery of AMPA from Fortified Canola Samples

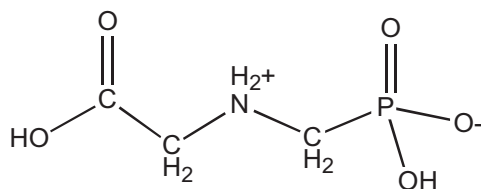
Analyte	Matrix	Number of Fortified Samples	Fortification Level (ppm)	Percent Average Recovery ¹	%RSD ²	Range (%)	
						Min	Max
AMPA	Seed	4	0.05	98.7	8.06	92.2	104
		4	0.1	85.8	5.08	81.2	90.3
		4	0.25	86.5	6.88	80.9	96.3
		5	0.5	89.0	4.26	84.8	94.8
		2	50	97.0	8.27	91.1	103
AMPA	Seed from Processor	3	0.05	86.4	0.58	85.9	87.0
		3	0.50	88.9	0.68	88.1	89.4
AMPA	Toasted Meal	3	0.05	87.4	3.53	83.8	90.9
		3	0.50	84.2	2.57	82.5	87.1
AMPA	Crude Oil	6	0.05	73.7	5.71	68.1	82.3
		7	0.50	80.8	8.36	69.6	92.5
AMPA	Refined Oil	3	0.05	94.6	11.7	83.6	107
		3	0.50	91.2	2.23	88.8	93.1
AMPA	RBD Oil	5	0.05	89.4	2.00	87.3	92.2
		5	0.50	93.9	0.96	92.6	94.8

¹ Recovery values corrected for background levels in controls.

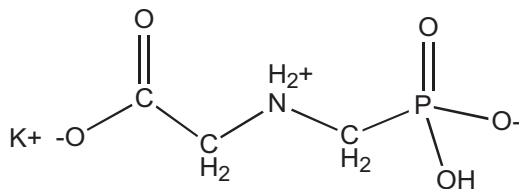
² RSD = Relative Standard Deviation

11 FIGURES

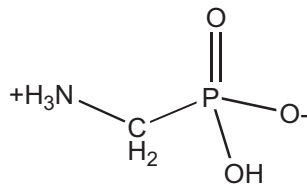
Figure 1. Structures



Glyphosate Acid
Molecular Weight = 169.07



Glyphosate Potassium Salt
Molecular Weight = 208.16



Aminomethylphosphonic Acid (AMPA)
Molecular Weight = 111.04

12 APPENDICES

Appendix A. Study Protocol and Amendments

Residue Chemistry Protocol

Study Number: REG-09-091

Study Title

Magnitude of Glyphosate Residues in Roundup Ready Canola Raw Agricultural Commodities
Following Applications of a Glyphosate-Based Formulation. 2009 U.S. Trials.

Study Director and Testing Facility

[REDACTED]
Monsanto Company
800 North Lindbergh Blvd.
St. Louis, Missouri 63167
Phone: [REDACTED] Fax: 314 694-8774
E-mail: [REDACTED]

Sponsor

Monsanto Company
800 North Lindbergh Blvd.
St. Louis, Missouri 63167

Approved by:

[REDACTED]

Study Director, Monsanto Co.

[REDACTED]

Sponsor's Representative, Monsanto Co.

Reviewed by:

[REDACTED]

Registration Manager, Monsanto Co.

[REDACTED]

Quality Assurance Unit, Monsanto Co.

Accepted by:

Field Research Management Contractor

A. Background Information

1.0 Study Purpose

This study is being conducted to determine the magnitude and decline of residues of glyphosate and AMPA in canola raw agricultural commodities following one pre-emergence and two foliar broadcast applications of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide. Applications will be made between the 4-6 leaf stage and up to first flower as shown in the table in section 5.0 of the Field Phase. The magnitude of residues of glyphosate and AMPA in canola processed commodities will also be determined using samples taken from exaggerated rate applications.

2.0 Test System

Monsanto Company has developed a second generation glyphosate-tolerant canola product, MON 88301, MON 88302, and MON 88303 that will tolerate glyphosate application from emergence to first flowering at a rate up to 1.8 kg acid equivalents (a.e.) per hectare. With an increased window of application and higher spray rates, MON 88301, MON 88302, and MON 88303 will provide superior weed control compared to the first generation RR Canola.

MON 88301, MON 88302 and MON 88303 contains the 5-enolpyruvylshikimate-3-phosphate synthase gene derived from *Agrobacterium sp.* strain CP4 (*cp4 epsps*). Expression of the gene product (CP4 EPSPS) renders the plant tolerant to glyphosate, the active ingredient in the Roundup® family of agricultural herbicides.

Crop: Canola (Latin Name: *Brassica napus*) Variety: Three different events will be used in this study, identified as follows. Only a single event will be used for a particular trial as shown in section 1.0 of the Field Phase.

MON 88301 (Event 1)
MON 88302 (Event 2)
MON 88303 (Event 3)

Shipment and Handling of Seed – APHIS Requirements

All MON 88301, MON 88302, and MON 88303 seed used in the study is regulated under the Animal and Plant Health Inspection Service (APHIS) and will be provided to the Principal Field Investigators (PFIs) by the Sponsor. An overview of APHIS requirements is provided in this protocol; see the compliance packet for a complete listing of

® Roundup and Roundup Ready are registered trademarks of Monsanto Technology LLC.

requirements and for instructions on documentation. Seed will be shipped under double containment to prevent accidental release. Store regulated seed in a secured facility (e.g. locked file or storage cabinet) separate from non-regulated seed until planting. At least one sign must be posted on the secured facility stating that a regulated genetically modified organism (transgenic seed) is being stored and that unauthorized access is denied. **Any regulated seed remaining after establishment of the plots must be devitalized on site after approval by the FRMC.** All seed containers will be incinerated or otherwise properly disposed of after approval by the FRMC.

For emphasis, the protocol includes key APHIS requirements, but study participants must refer to the separate Compliance packet for the full detailed handling and documentation requirements. Data collected solely to meet APHIS requirements will be retained separately from the study file and will not be included in the final report.

3.0 Test System Justification

The test system will provide crop samples to generate data to support the requirements for registration under EPA Residue Chemistry Test Guidelines OPPTS 860.1500 (Crop Field Trials), OPPTS 860.1520 (Processed Food/Feed), and EPA 40 CFR 158 on oilseed crops.

4.0 Test Substance

The test substance is MON 79380, a water-soluble concentrate formulation of glyphosate. The active ingredient is glyphosate, formulated as the potassium salt.

Test Compound Nomenclature	
Common Name	Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide
Company Experimental Name	MON 79380
CAS Name	N-(phosphonomethyl)glycine monopotassium salt
CAS Registry No.	70901-12-1
Canada PCPA Registration No.	27487
End-use Product	Herbicide
Formulation Type	Water soluble concentrate
Nominal a.e. Content (a.e.= acid equivalent)	540 g glyphosate acid/l or 4.5 lb glyphosate acid/gal
Lot Number	GLP-0904-19776-F

The test substance will be characterized under GLP prior to its shipment for use in this study. The test substance is a water-soluble liquid formulation and must be stored under the conditions stated on the container label. The stability of a closely related formulation, MON 78270, has been demonstrated in a one-year storage stability test (heated warehouse conditions; Monsanto Report No. MSL-18211, MRID 45800001) and a two-week accelerated aging protocol (55° C; Monsanto Report No. MSL-17415, MRID 45504801). The stability of the active ingredient

(glyphosate, formulated as Roundup® herbicide) has been demonstrated (Monsanto Report No. MSL-13882, MRID 43712702) and there are no known stability problems.

5.0 Study Timetable

Proposed Experimental Start Date: May 2009

Proposed Experimental Termination Date: February 2010

Study Phases

<u>Phase</u>	<u>Phase ID</u>	<u>Comments</u>
Field	B09-091	-----
Analytical	C09-091	By Amendment
Processing	D09-091	By Amendment

6.0 GLP Compliance

This study will be conducted in accordance with EPA Good Laboratory Practice (GLP) Standards for FIFRA (Federal Insecticide, Fungicide and Rodenticide Act) as defined in 40 CFR Part 160. The Standard Operating Procedures (SOPs) for specific study procedures must meet the requirements of 40 CFR, Part 160, FIFRA GLP Standards.

Monsanto Quality Assurance Unit (QAU) will have overall responsibility for ensuring management that the study is conducted in conformance with the specified regulations. Each field test site will provide QA oversight for the field phase of the study, either as a part of their staff or under contract. The protocol and any amendments must be read and understood by all applicable QA personnel before performing QA activities. The field site QAU will conduct inspections/audits of the field phase and prepare written reports of its findings. FRMC QAU will review the field report. Monsanto QAU will conduct inspections/audits for the analytical phase and review the final report. The Testing Facility, each field test site, and any other subcontractors used for the conduct of this study will provide a Quality Assurance statement for their respective portion of the study. A minimum of one critical event and the field notebook data will be audited at each field site. Written reports of audit findings will be reported to the FRMC, the Study Director, and Monsanto Testing Facility Management.

Any amendments to the protocol will be promptly documented by the Study Director and sent to study participants affected by the change. Any deviations from the protocol or SOPs should be reported to the Study Director as soon as possible.

Weather data collection, soil characterization, general land preparation (i.e., tillage, mowing, irrigation, etc.), application of maintenance chemicals during the test, and documentation of chemical history do not require generation under GLPs as long as it is clearly stated as such.

7.0 Data Reporting and Data Retention

For the field trials, the Principal Field Investigators (PFI) will complete a field trial notebook. The processing and analytical facilities will prepare reports that summarize the processing and

analytical phases of the study, respectively. The FRMC will prepare a field report with a QA statement and Compliance Statement. The final report will be prepared in accordance with PR Notice 86-5, and will contain all information required by, and will be handled per, 40 CFR § 160.185.

After the study is completed, all study records (except facility records) and raw data, will be transferred to the archives of the Sponsor.

8.0 Statistical Methods

No statistical analysis of data will be required for the field portion of the study. Statistical analyses of the data will include regression analysis of calibration standards and calculation of average residue levels from appropriate samples. A statistical analysis of the control and recovery data will be conducted to determine the LOD and LOQ of the method for the analysis of the raw agricultural commodities in this study.

9.0 Confidentiality

All information regarding the identity of the glyphosate-tolerant canola plants, test substance, samples, test plots, and data must be kept strictly confidential.

Test plots are to be considered as restricted access areas with measures taken to exclude unauthorized persons from the test area. No plot designations in or around the test area will be made that identify the test substance or the Sponsor.

No raw data, worksheets, data or information summaries, reports, or other information related to this protocol may be revealed or released to any third party without prior notification and authorization of Monsanto.

B. Field Phase

1.0 Principal Field Investigators

Principal Investigator	Trial No.	Region/ State	Trial Type	Seed ID
[REDACTED]	1	2/ New Jersey	RAC	1
[REDACTED]	2	5/ Minnesota	RAC	3
[REDACTED]	3	5/ North Dakota	RAC/ Decline	2
[REDACTED]	4	7/ North Dakota	RAC	3
[REDACTED]	5	7/ North Dakota	RAC/ Processing	1
[REDACTED]	6	11/ Idaho	RAC	3
[REDACTED]	7	11/ Idaho	RAC/ Decline	1

Monsanto Company
Study Number REG-09-091

Page 7 of 14

Principal Investigator	Trial No.	Region/ State	Trial Type	Seed ID
E-mail: timvargas@hotmail.com				
[REDACTED]	8	11/ Idaho	RAC/ Processing	2

Seed ID: #1 = MON 88301, #2 = MON 88302, #3 = MON 88303

2.0 Test Substance Storage and Container Handling

The test substance will be shipped to the test sites from Monsanto. The test substance will be stored under label conditions in a monitored pesticide storage area adequate to preserve the identity, strength, purity, and stability of the test substance.

It is not necessary to return remaining test substance. The remaining test substance may be disposed of according to state and local regulations at trial completion. Retain the test substance containers until notified by the Study Director that you may discard the containers. The empty test substance containers do not need to be stored in an environmentally controlled area.

3.0 Test Site Criteria and Cultural Practices

- 3.1 Site Selection:** Each test site will be typical for the intended use of glyphosate on canola and will be representative of commercial canola producing areas for each region of the United States with respect to crop variety, cultural practices, soil type, and climatic conditions. Preferably, trials in the same state will be located in different counties. If this is not practical, trials should be a minimum of 20 miles apart if possible. The untreated and treated plots should be in fields with the same previous 12-month field history if possible.
- 3.2 Pesticide Use History:** For each test site, chemical data will be made available for the previous two years. Locating trials in areas which have received chemicals containing glyphosate in the previous growing season is not recommended.
- 3.3 Soil characterization data:** At a minimum the soil type and soil series name will be recorded in the field notebook. The pH, cation exchange capacity, and the percent organic matter should be reported in cases where their value affects the use pattern for the chemical.
- 3.4 Cultural Practices:** The canola will be grown per typical agronomic practices. Adequate and timely irrigation for normal plant growth and development should be maintained throughout the trial period. All cultural practices, e.g. cultivation

Monsanto Company
Study Number REG-09-091

Page 8 of 14

operations, irrigation (methods, dates, source of water, and approximate amounts), and fertilization, will be documented.

3.5 Maintenance Pesticide Application: During the current growing season, test plots will not be treated with any maintenance pesticides that contain glyphosate or glufosinate. All plots at a test site should be treated uniformly in regard to product, rate and timing. The maintenance pesticides should be approved in advance by the FRMC. The date, pesticide used and rate of application must be recorded in the field notebook.

3.6 Weather: A summary of the trial period and historical weather data should be provided for the months associated with the trial period (first application to final sampling). Data should be provided from the nearest reliable weather station within 25 miles of the trial site. The source of the data, the distance from the test site, and the units of measurement must be clearly identified.

4.0 Study Design

4.1 Plot Number and Size: There will be four plots (Treatments 1, 2, 3 & 4) for this study. Treatment 1 is the untreated control plot. Treatments 2-4 are the treated RAC plots. Choose a plot size that is adequate to provide the required samples, minimum 800 square feet for treated plots and 500 square feet for control plots. The plot size must be recorded in the raw data.

Two test sites (Trial No. 5 and 8) will collect samples for a processing study. Samples will be taken from Treatments 1 and 3 for the processing study. The plot size for Treatments 1 and 3 at the processing sites should be about 4000 square feet.

Two other test sites (Trial No. 3 and 7) will collect residue decline samples in addition to the seed collected at normal harvest. Decline samples will be collected only from the control plot (Treatment 1) and one test plot (Treatment 3). At these sites, the plot size for Treatment 1 should be about 1500 square feet and the plot size for Treatment 3 should be about 3000 square feet.

4.2 Test site restrictions: No use of glyphosate-containing products for one year prior to planting is recommended. The regulated canola trial should be planted at a density of approximately 5 lb/A. Monsanto requires both a pollen trap and 660 feet isolation. The regulated canola trial area must be surrounded by a 30 foot wide perimeter of non-regulated canola (flowering border rows) to act as pollen sinks for insect pollinators. During the trial season, a windbreak of corn (supplied by FPI) approximately 10 feet wide and completely surrounding the trial area should be planted to clearly identify the regulated area and prevent plant and/or seed movement outside the release area. The windbreak should be seeded on the perimeter of the regulated trial area and outside the synchronously flowering border with a space of 30 feet between the corn and flowering border. The windbreak must not be removed for the duration of the trial and also must remain intact post harvest and up to spring field activities.

Monsanto Company
Study Number REG-09-091

The test site must be monitored for three years after crop destruction. Areas to be monitored include the regulated transgenic plot areas, plus the 30 foot perimeter around the plot area. Monitored areas cannot be planted in canola during the monitoring period, unless it is part of a regulated trial.

- 4.3 Plot Separation:** Treated and control plots should be separated by a distance of at least 15 meters (50 feet), and, where possible, the control plot should be upslope and upwind of the treated plot. Treated plots must be adequately separated to avoid drift or run-off.
- 4.4 Test Site Diagram:** A plot diagram will include: plot location, dimensions, control plot location relative to treated plot, distance between plots, slope (direction and percent), direction of prevailing wind, north arrow, and permanent markers. Provide GPS coordinates if available.
- 4.5 Plot Identification:** Each corner of the test plots must be properly staked to completely identify its geometry, and at least one corner will be labeled to indicate coded study number, treatment number, and other parameters required to uniquely identify the plot. Labeling information may be coded on the plot stakes or labels and a complete cross-reference list of the codes to the unique plot identity maintained with the raw data.
- 4.6 Planting:** Document in the field notebook a detailed description of planting. The planting description should include, but is not limited to: planting density, number of rows per plot, length of row and row spacing. The identity of the canola seed provided by the Sponsor and planted in each plot must be documented in the field notebook. Any seed remaining after planting should be devitalized by burying, grinding, disking, or burning in the field.

All planting equipment that may retain seeds must be inspected and any remnant seed removed prior to moving equipment from the test area, in order to avoid inadvertent release of regulated seed. All handling, packaging, and planting must be done in a way that avoids inadvertent release.

5.0 Application of Test Substance

Treatment	No. Sites	Growth Stages/Target Application Rates (g a.e./ha) ^{1,2}			
		Pre-emergence	4-6 leaf	Late bolting	1 st flower
1	All	0	0	0	0
2	All	4250	900	0	900
3	All	4250	900	0	1800
4	All	4250	900	900	0

¹ The application rate may vary \pm 5%.

² Tank mix includes Non-ionic Surfactant (NIS) and ammonium sulfate (AMS) per section 5.3.

Conversion Factors:

900 g a.e./ha = 0.8 lb a.e./A = 22 fl.oz. product/A;
1800 g a.e./ha = 1.6 lb a.e./A = 44 fl.oz. product/A;
4250 g a.e./ha = 3.8 lb a.e./A = 104 fl.oz. product/A

Types of Application:

The preemergence application is a soil applied broadcast spray application that will be made after planting but prior to crop emergence.

The 4-6 leaf postemergence application is a foliar broadcast spray application that will be made at the 4 to 6 leaf development stage, not counting the cotyledons.

The late bolting postemergence application is a foliar broadcast spray application that will be made when the main stem has elongated, but prior to any flower formation.

The first flower postemergence application is a foliar broadcast spray application that will be made when 50% of the canola plants have at least one flower on the main stem.

- 5.1 Number and Timing of Applications:** The treated plots will receive one (1) pre-emergence and two (2) foliar broadcast applications of glyphosate. Applications will be made between the 4-6 leaf stage and first flower as shown in the table in section 5.0. A record of test material usage will be recorded and provided in the raw data.
- 5.2 Phytotoxicity:** Phytotoxicity that occurs during the study must be documented and reported to the Study Director as soon as possible.
- 5.3 Spray Composition:** The test substance must be mixed with water to give a targeted total spray volume between 5 and 11 gallons per acre. The actual applied volume must be within $\pm 5\%$ of the target volume range (4.7 - 11.6 gal/acre). Mix the test substance as close to the application time as practical, but not to exceed 12 hours prior to application.

A nonionic surfactant labeled for use with herbicides must be added to the spray solution. Use 0.5 percent surfactant concentration (2 quarts per 100 gallons of spray solution), using a surfactant that contains at least 70 percent active ingredient. Read and observe surfactant cautionary statements carefully and other information on the surfactant label. Document in the field notebook the trade name of the surfactant used in the trial. Use this surfactant product consistently for all test substance applications in the study.

Ammonium sulfate also must be added to the spray solution for the postemergence applications. Add 17 lb of "spray grade" ammonium sulfate (or the equivalent amount

of ammonium sulfate in an aqueous solution) per 100 gallons of spray solution. Ensure that dry ammonium sulfate is completely dissolved in the spray tank before adding MON 79380 to the spray solution. No other additives besides the surfactant and ammonium sulfate may be added to the spray solutions.

Test substance treatment information must be recorded in the field notebook. The calculation of the composition and amount of spray solution and the calibrated spray-rate must be explicitly documented. The total area to which the spray volume is applied must be recorded. Submit test substance treatment information to the FRMC in a timely manner (within 1-2 weeks; typically by Fax) after each application of test substance.

- 5.4 Calibration:** The applications will be made using commercial or research foliar broadcast spray equipment. Equipment will be cleaned and calibrated prior to the application (within one calendar day). Calibration will be based on the speed and distance traveled and the total spray output at a given operating speed and pressure over a measured amount of time (i.e., seconds or minutes). A complete description of the calibration methods, application methods, equipment, and application dates will be included in the raw data.
- 5.5 Application Verification:** To verify the application rate, the direction and time of each sprayer pass over the treated area will be documented. It is intended that the application be within $\pm 5\%$ of the rate. If the application variance exceeds 5% of the target rate, the Study Director or his designee will decide on the acceptability of the rate at the time of application.
- 5.6 Environmental and Crop Data at Application:** Avoid spray drift to all other crops and non-target areas. Preferably, do not make applications when the wind direction would place the untreated control plot downwind of the treated plot or when the wind speed is in excess of 5 mph. At the time of application, air temperature, relative humidity, wind speed and direction, and soil temperature (2 inches) at the test site will be measured and recorded. The environmental conditions and crop growth stage will be documented at the time of application.

Plant growth stage and the height of the plants at each application must be documented in the notebook. Any signs of phytotoxicity, crop damage, injury, or disease incidence, particularly related to any application, must be documented and communicated immediately to the FRMC. The extent of damage must be indicated and a comparison to untreated (or undamaged, if possible) plots must be made. Photographs are necessary in the event of extreme and severe crop damage.

6.0 Sampling

Trt. No.	No. of Samples	Matrix	Timing	Minimum Sample Size
<i>RAC Samples</i>				
1	1	Seed	Normal harvest	From 12 areas of plot / 0.5 kg (1.1 lb)
2	2	Seed	Normal harvest	From 12 areas of plot / 0.5 kg (1.1 lb)
3	2	Seed	Normal harvest	From 12 areas of plot / 0.5 kg (1.1 lb)
4	2	Seed	Normal harvest	From 12 areas of plot / 0.5 kg (1.1 lb)
<i>Decline Samples*</i>				
1	1	Seed	1 day after normal harvest	From 12 areas of plot / 0.5 kg (1.1 lb)
1	1	Seed	3 days after normal harvest	From 12 areas of plot / 0.5 kg (1.1 lb)
1	1	Seed	7 days after normal harvest	From 12 areas of plot / 0.5 kg (1.1 lb)
1	1	Seed	10 days after normal harvest	From 12 areas of plot / 0.5 kg (1.1 lb)
3	2	Seed	1 day after normal harvest	From 12 areas of plot / 0.5 kg (1.1 lb)
3	2	Seed	3 days after normal harvest	From 12 areas of plot / 0.5 kg (1.1 lb)
3	2	Seed	7 days after normal harvest	From 12 areas of plot / 0.5 kg (1.1 lb)
3	2	Seed	10 days after normal harvest	From 12 areas of plot / 0.5 kg (1.1 lb)
<i>Processing Samples**</i>				
1	1	Seed	Normal harvest	23 kg (50 lb)
3	1	Seed	Normal harvest	23 kg (50 lb)

*Residue decline sites only (Trials 3 and 7)

**Processing sites only (Trials 5 and 8)

6.1 Schedule: RAC samples will be collected from the untreated and treated plots at normal crop maturity.

6.2 Decline Trial Sample Schedule: For trial sites 3 and 7, in addition to the normal harvest sample interval, collect two samples from the Treatment 3 plot at 1, 3 (± 1), 7 (± 1) and 10 (± 1) days after normal harvest.

- 6.3 Sample Size:** For the RAC and decline samples, collect at least 12 samples and composite them (section 6.5) for a total samples weight of at least 0.5 kg (1.1 lb). At the processing sites (5 and 8), collect at least 23 kg (50 lb) of seed from each of the untreated (Trt 1) and exaggerated rate treated plots (Trt 3).
- 6.4 Number of Samples:** Collect one sample from the untreated control plot and two samples from the treated plots at all RAC and decline sites. The processing trials (5 and 8) will collect one bulk sample each from the Trt 1 and Trt 3 plots.
- 6.5 Sampling Procedures:** All samples should be collected without bias and should be commercially acceptable. All equipment used for sampling will be cleaned prior to its use. Record moisture levels from representative seed samples from each plot in the field notebook at the time of harvest. The canola may be swathed to hasten dry down for harvest. The untreated control plot will be sampled first followed by the treated plots. At the processing site, collect samples from the untreated plot and then the exaggerated rate treated plot. Duplicate treated samples must be collected from at least 12 different areas from each plot. The duplicate samples must be collected independently from each other and be representative of the entire plot area, with the exception of borders and edges. Samples shall be taken from the interior of the plots. Do not sample plants from the outer rows, or from within one foot of the end of any row without prior FRMC approval. No washing, stripping, brushing, or trimming should be performed unless it is normal practice.
- 6.6 Post-harvest Sample Handling:** Collect, transport, and store control and treated samples using all necessary precautions to prevent contamination. RAC samples will be placed into labeled plastic-lined cloth residue sample bags (or other approved bag) with the preprinted sample labels provided. Keep the samples cool until they can be transferred to a freezer. Put the samples into frozen storage within 4 hours after they are collected. Once frozen, the samples must not be allowed to thaw at any time prior to preparation for analysis. Sample maintenance, storage, and chain of custody records will be retained with the raw data.
- The storage stability of glyphosate residues has been demonstrated in a number of different frozen plant matrices, with stability determined to be at least 2.5 years under frozen conditions (internal EPA memo dated 11/17/94 from C. Eiden to W. Waldrop, DP Barcode D206278, CBRS No. 14165).
- 6.7 Processing Sample Shipment:** The processing samples will be shipped or delivered frozen to the processing facility within 48 hours of sample collection.
- 6.8 Sample Shipment:** Samples from all RAC sites must be shipped frozen by ACDS, or by Study Director-approved alternatives to:

Monsanto Company
Attn: [REDACTED]
V-Dock Receiving
800 N. Lindbergh Blvd.
St. Louis, MO 63141
Tel: [REDACTED]

The shipment containers must be clearly marked:

USDA Number:
Canola Residue Test Samples
Monsanto Study Number: REG-09-091
Site Code:

It is acceptable to pack control and treated samples in the same box(es), as long as there is adequate separation to avoid contamination. Field personnel will notify the laboratory by telephone, fax, or e-mail when samples are shipped. An exact copy of the sample shipping pages will also be faxed or e-mailed to the Study Director when samples are shipped. Documentation of sample shipment will be retained with the raw data.

7.0 Crop Destruction

Crop destruction is required for this study and must be approved by the FRMC. Canola remaining after collection of all samples is to be destroyed to prevent its potential consumption by humans or livestock. Post harvest equipment cleaning after sampling and crop destruct is required and must be properly documented.

All canola plants or plant parts in the trial plots remaining after sampling and shipping is complete must be chopped, disked or plowed in at the trial site as part of crop destruct. Document the method used and date of crop destruction in the field notebook. Refer to APHIS requirements and the Compliance packet for the requirement that test plots must be monitored for volunteers within the plots for 36 months after crop destruction.

PROTOCOL AMENDMENT

TITLE: Magnitude of Glyphosate Residues in Roundup Ready Canola Raw Agricultural Commodities Following Applications of a Glyphosate-Based Formulation. 2009 U.S. Trials.

STUDY NUMBER: REG-09-091

AMENDMENT NUMBER: 1

EFFECTIVE DATE: August 14, 2009

REASON FOR AMENDMENT:

To add Phase D09-091 (Processing) to the protocol.

CHANGES TO PROTOCOL:

Add the following as Part D. Processing Phase

Two (2) 50-pound RAC seed samples (treatment 1 and treatment 3) will be shipped frozen from each of two field sites (as listed in the protocol) to the processor at the following address:

GLP Technologies
22723 State Highway 6 South
Navasota, TX 77868
Attn: [REDACTED]
Tel [REDACTED]

Processing will include seed cleaning, conditioning/flaking of seed, pressing of flaked material in expeller, solvent extraction of crude oil from expelled presscake, desolventization/toasting (with steam & heat) of defatted material, recovery of crude oil from hexane, combining crude oil from expeller and solvent steps, and alkali refining, bleaching, and deodorization (RBD) of crude oil.

Any excess byproducts will be composted and not used as food or feed. It will be the responsibility of GLP Technologies to ensure that waste is transported to and deposited at local public landfill. Any regulated whole bean waste (to include floor waste) will be contained and ground to devitalize prior to disposal. Appropriate signage with USDA permit number will be displayed at facility.

Proposed fractions per sample to be collected are (approximate amounts)

- RAC (2 lbs.)
- Toasted meal (2 lbs.)
- RBD oil (1 to 2 pints)
- Crude and alkali refined oil (1 to 2 pints)

Receipt and handling of four (4) 50-pound RAC seed samples, equipment prep/cleaning, calibration of recording devices, processing notebook prep, QA activities, sample processing, raw data submittal with report, hexane purchase/disposal, and process fraction packaging (including regulated seed) will be done according to applicable GLP Technologies SOPs.

APPROVED BY:

Sponsor Representative: _____

Study Director: _____

REVIEWED BY:

QAU: _____

ACCEPTED BY:

GLP Technologies: _____

Protocol Amendment

Title: Magnitude of Glyphosate Residues in Roundup Ready Canola Raw
Agricultural Commodities Following Applications of a Glyphosate-
Based Formulation. 2009 U. S. Trials.

Study Number: REG-09-091

Amendment Number: 2

Effective Date: January 11, 2010

Reason for the Amendment:

To add the analytical phase to the protocol.

Changes to the Protocol:

Phase C09-091, Analytical Phase was added as an attachment to this amendment.

Approved By:

Sponsor Representative:

Study Director:

Reviewed

QAU: _____

PHASE C09-091: ANALYSIS PHASE

Magnitude of Glyphosate Residues in Roundup Ready Canola Raw Agricultural
Commodities Following Applications of a Glyphosate-Based Formulation.
2009 U. S. Trials.

1 PERFORMING LABORATORY:

Monsanto Company
Environmental Sciences Technology Center
800 North Lindbergh Blvd.
St. Louis, Missouri 63167
[REDACTED]

2 PRINCIPAL INVESTIGATOR:

Mark Allan

3 ANALYSTS:

4 REFERENCE SUBSTANCES:

4.1 Identification:

Common Name:	Glyphosate
Chemical Name:	<i>N</i> -phosphonomethylglycine
CAS Registry Number:	1071-83-6
Monsanto Code Number:	CP-67573

Common Name:	AMPA
Chemical Name:	Aminomethylphosphonic acid
CAS Registry Number:	1066-51-9
Monsanto Code Number:	CP-50435

Lot numbers for the reference substances will be documented in the study data package.

4.2 Characterization:

The Sponsor will characterize the reference substances under GLP prior to their use in the study. A sample of the reference substances will be archived by the Sponsor. All reference substance analysis raw data and a retain of the reference substances will be archived by the Sponsor.

4.3 Stability

There are no known stability problems for either glyphosate or AMPA in the neat state. Both have been found to be stable for a minimum of two years.

The stabilities of glyphosate and AMPA in aqueous solution have been determined in many studies and the data demonstrates a minimum of 23 months stability. The stability data package is archived in the Monsanto Regulatory Archives.

5 PROPOSED ANALYSIS START DATE:

December 2009

6 PROPOSED ANALYSIS TERMINATION DATE:

February 2010

7 EXPERIMENTAL DESIGN:

7.1 Standard Operating Procedures:

Standard Operating Procedures shall govern the analysis of the samples. Particular emphasis must be placed on strict compliance with these procedures, except where superseded by the protocol. All deviations from these procedures must be documented in writing and signed by the Study Director.

7.2 Sample Identification:

Each sample to be analyzed will have a unique sample code assigned to it by the Residue Information Management System. The encrypting/encoding key will be included in the raw data package.

7.3 Chemical Residue Analysis:

The samples will be analyzed according to analytical method AG-ME-1294, using the version current at the time of initiation of sample analysis.

7.4 Analysis of Treated Samples:

Requirements for the sample analyses include, but are not limited to:

1. Each individual control and treated sample will be analyzed at least once.
2. Each extraction set must contain at least one control and one fortified sample. The only exception will be for sets that consist entirely of diluted samples, which were analyzed in a different set(s). The fortification levels will vary across the chromatography sets. For each matrix and analyte, the range of fortification levels in all the sets must bracket the range of concentrations from the LLMV to the highest concentration in the treated samples.
3. The average background-corrected analytical recovery of fortified samples for each matrix and analyte in each extraction set must be 70 - 120% of the amount fortified.
4. Instrument calibration must be performed on each chromatographic set using a multi-point calibration curve with a minimum of five (5) calibration levels. The lowest standard must be below the response corresponding to the LLMV. The range of calibration standards will be described in each analytical set.
5. The minimum acceptable r value for the fit of the calibration curve is 0.99. The data will generally be fitted to a linear curve, although other curve types may also be acceptable. In addition, x - and y -transformations (e.g., natural log) may be used for data optimization. Only one type of curve will be used for the calculation of results for all analyses within the study.
6. The complete chromatographic set containing calibration standards, control, treated, and fortified samples should be arranged such that:

- a. The set begins and ends with a calibration standard (i.e., treated, control, and fortified samples are bracketed by calibration standards). No more than seven (7) control, treated, or fortified samples are analyzed between calibration standards.
 - b. The concentrations of the calibration standards are arranged in a non-systematic order throughout the chromatographic set.
7. Analyte responses of treated and fortified samples must be less than the highest standard. When the analyte detector response of any sample extract is above the acceptable range, the extract must be diluted and re-analyzed. The diluted extract may be added to any chromatographic set that meets the other requirements. If the response for a fortified sample is expected to be above the highest standard then the sample extract should first be brought to the same final volume as the other samples, with the final extract then diluted to an appropriate level prior to analysis.
8. If the measured glyphosate residues of the two replicate samples from a treated plot are greater than 0.5 ppm and have a relative standard deviation of >30%, the samples will be re-analyzed. Data from both analyses will be reported.
9. If the glyphosate or AMPA residues in an untreated control sample are greater than the LLMV, then the sample may be re-analyzed, as decided by the Study Director.

8 RECORDS REQUIREMENTS:

All raw data must be accurately and uniquely identified by study number. Chromatograms must indicate peak identification, sample identification, and be signed (or initialed) and dated. Chromatographic conditions must be included in the data set. For all analyses, raw data for sample weights, dilutions, manipulations, and measurements must be recorded, signed (or initialed), and dated. Computer-generated reports must be accurately and uniquely identified, signed (or initialed), and dated. Reference to the written analytical method shall be made in the raw data. The source, identification and purity of the reference substances and preparation of reference substance solutions shall be documented in the raw data.

9 REGULATORY COMPLIANCE AND QUALITY ASSURANCE:

All analyses will be performed in compliance with the Good Laboratory Practice Standards as specified in 40 CFR 160.

The Monsanto Regulatory Quality Assurance Unit (QAU) will conduct at least one (1) inspection of the sample analysis phase and prepare written reports of its findings [per 40 CFR 160.35(b)(3)]. The findings of these inspections will be reported to the Study Director and Testing Facility Management in a timely manner.

PROTOCOL AMENDMENT

TITLE: Magnitude of Glyphosate Residues in Roundup Ready Canola Raw Agricultural Commodities Following Applications of a Glyphosate-Based Formulation. 2009 U.S. Trials.

STUDY NUMBER: REG-09-091

AMENDMENT NUMBER: 3

EFFECTIVE DATE: February 11, 2010

REASON FOR AMENDMENT:

To remove the ID-8 samples from processing.

CHANGES TO PROTOCOL:

Canola seed from the ID-8 site was of very poor quality. Samples from this site have been removed from the processing phase of the study because it was decided that they would not be representative of commercial canola seed. These samples will be discarded by the processor, GLP Technologies.

APPROVED BY:

Sponsor Representative:



Study Director:



REVIEWED BY:

QAU:



PROTOCOL AMENDMENT

TITLE: Magnitude of Glyphosate Residues in Roundup Ready Canola Raw Agricultural Commodities Following Applications of a Glyphosate-Based Formulation. 2009 U.S. Trials.

STUDY NUMBER: REG-09-091

AMENDMENT NUMBER: 4

EFFECTIVE DATE: February 11, 2010

REASON FOR AMENDMENT:

To remove the ID-8 samples from the study.

CHANGES TO PROTOCOL:

By Amendment #3, the canola seed from the ID-8 site was removed from the processing phase of the study due to the very poor quality of the seed. Because the seed from this site was not commercially acceptable, a decision has been made to remove all samples from this site from the study.

APPROVED BY:

Sponsor Representative:

[REDACTED]

Study Director: _____

[REDACTED]

REVIEWED BY:

QAU: _____

[REDACTED]

Appendix B. Field Report

FIELD REPORT

STUDY TITLE

Magnitude of Glyphosate Residues in Roundup Ready Canola Raw Agricultural Commodities Following Applications of a Glyphosate-Based Formulation. 2009 U.S. Trials.

DATA REQUIREMENT

Environmental Protection Agency Residue Chemistry Test Guidelines,
OPPTS 860.1500, Crop Field Trials

FIELD RESEARCH MANAGEMENT CONTRACTOR AND REPORT AUTHOR

[REDACTED]

FIELD PHASE COMPLETION DATE

December 16, 2009

PERFORMING LABORATORY

The Carringers, Inc.
1003 Palace Ct.
Apex, NC 27502

SPONSOR

Monsanto Company
800 North Lindbergh Blvd.
St. Louis, Missouri 63167

STUDY DIRECTOR

[REDACTED]
Monsanto Company
800 North Lindbergh Blvd.
St. Louis, Missouri 63167

STUDY NUMBER

Study No. REG-09-091

Page 1 of 90

GOOD LABORATORY PRACTICE STATEMENT

The field phase reported herein, "Magnitude of Glyphosate Residues in Roundup Ready Canola Raw Agricultural Commodities Following Applications of a Glyphosate-Based Formulation. 2009 U.S. Trials." was conducted and reported in compliance with EPA FIFRA Good Laboratory Practice Standards (GLP) as defined in 40 CFR Part 160, except for the items indicated below:

- Soil characterizations were not always determined under GLP standards.
- Off-site climatological data were not collected under GLP standards.
- Field histories for the test area, including crop and pesticide histories and cultural practices prior to trial initiations, were not collected under GLP standards.
- Maintenance pesticides were not applied according to GLP standards.
- Percent slope of the test sites was not determined under GLP standards.
- GPS coordinates were not collected under GLP standards.
- Sample weights were not always determined under GLP standards.
- At Site ND-3, there was a correction on Page 8 of the field notebook which was not made according to GLP standards.
- At Site ID-6, some entries on pages 24, 25, and 26 were not initialed and dated at the time of entry.

Field Research
Management
Contractor and
Report Author

The Carringers, Inc.
1003 Palace Ct.
Apex, NC 27502

QUALITY ASSURANCE STATEMENT

Reviews conducted by the Quality Assurance Units confirm that the field summary report reflects the raw data for the field phase of the study.

The Quality Assurance Unit of The Carringers, Inc. conducted inspections and reported to the Study Director and the Testing Facility Management as indicated below:

Trial Site	Type of Inspection	Date of Inspection	Date Reported To Study Director	Date Reported To Management
All	Field Notebooks and Raw Data	03/10-12/10	03/18/10	03/18/10
All	Field Summary Report	04/01-03/10	04/05/10	04/05/10

The Quality Assurance Unit of each field test site conducted inspections and reported to the Study Director and the Testing Facility Management as indicated below.

Trial Site	Type of Inspection	Date of Inspection	Date Reported To Study Director	Date Reported To Management
REG-09-091-1	Application	06/25/09	06/25/09	06/25/09
	Field Notebook and Raw Data	10/07/09	10/08/09	10/08/09
REG-09-091-2	Application	06/06/09	07/14/09	07/14/09
	Field Notebook and Raw Data	11/18/09	11/25/09	11/25/09
REG-09-091-3	Sampling	09/30/09	10/19/09	10/19/09
	Field Notebook and Raw Data	11/18/09	11/25/09	11/25/09
REG-09-091-4	Sampling	08/31/09	09/03/09	09/03/09
	Field Notebook and Raw Data	11/03/09	11/04/09	11/04/09
REG-09-091-5	Application/Calibration	07/02/09	07/15/09	07/15/09
	Field Notebook and Raw Data	11/03/09	11/04/09	11/04/09
REG-09-091-6	Sampling	09/18/09	09/23/09	09/23/09
	Field Notebook and Raw Data	12/17/09	12/18/09	12/18/09
REG-09-091-7	Application/Calibration	06/22/09	06/30/09	06/30/09
	Field Notebook and Raw Data	11/10/09	11/11/09	11/11/09
REG-09-091-8	Sampling	11/30/09-12/01/09	12/02/09	12/02/09
	Field Notebook and Raw Data	01/14/10	01/15/10	01/15/10

Quality Assurance
The Carringers, Inc.

CERTIFICATION OF AUTHENTICITY

This report is an accurate and authentic representation of the conditions and results of the field phase of this study.

Field Research
Management
Contractor and
Report Author

The Carringers, Inc.
1003 Palace Ct.
Apex, NC 27502

TABLE OF CONTENTS

STUDY TITLE	1
GOOD LABORATORY PRACTICE STATEMENT	2
QUALITY ASSURANCE STATEMENT	3
CERTIFICATION OF AUTHENTICITY	4
TABLE OF CONTENTS	5
STUDY IDENTIFICATION	6
FIELD STUDY PERSONNEL	8
1 SUMMARY	9
2 INTRODUCTION	9
3 FIELD PROCEDURES	11
3.1 Test Substance Description	11
3.2 Test System	11
3.3 Field Test Sites	11
3.3.1 Overview of Field Test Sites	11
3.3.2 Plot Size, Site Descriptions, Crop Growth and Development	11
3.3.3 Application Procedures	12
3.3.4 Test Substance Treatment Rate and Percentage of Target Rate	13
3.3.5 Weather Data	13
3.3.6 Sampling and Sample Handling	13
3.4 Deviations	14
3.5 Quality Control	15
3.6 Storage of Raw Data	15
4 FIGURES AND TABLES	16
Figure 1 Field Test Site Locations	17
Table 1 Application Rate and Percent of Target	18
Table 2 Planting, Application, Cutting, and Sampling Dates	19
Table 3 Rainfall/Irrigation Dates and Amounts After Application	20
APPENDICES (STUDY SITE DETAILS)	21
Appendix 1 Trial No. NJ-1	21
Appendix 2 Trial No. MN-2	30
Appendix 3 Trial No. ND-3	38
Appendix 4 Trial No. ND-4	47
Appendix 5 Trial No. ND-5	55
Appendix 6 Trial No. ID-6	64
Appendix 7 Trial No. ID-7	73
Appendix 8 Trial No. ID-8	82

STUDY IDENTIFICATION

Study Title: Magnitude of Glyphosate Residues in Roundup Ready Canola Raw Agricultural Commodities Following Applications of a Glyphosate-Based Formulation. 2009 U.S. Trials.

Purpose: The purpose of this study was to determine the magnitude and decline of glyphosate and AMPA residue levels in canola raw agricultural and processed commodities following one pre-emergence and two foliar broadcast applications of Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide. These data will be used to support the pesticide label registration under the U.S. Environmental Protection Agency Residue Chemistry Test Guidelines, OPPTS 860.1500, Crop Field Trials.

Test Substance: Roundup WeatherMAX with Transorb 2 Technology Liquid Herbicide (Lot Number: GLP-0904-19776-F)

Test System Justification: The test system will provide crop samples to generate data to support the requirements for registration for applications of glyphosate-based herbicides for weed control in glyphosate-tolerant canola.

Study Number: REG-09-091

Study Sponsor: Monsanto Company
800 North Lindbergh Blvd.
St. Louis, Missouri 63167

Testing Facility: Monsanto Company
800 North Lindbergh Blvd.
St. Louis, Missouri 63167

Study Director: [REDACTED]
Monsanto Company
800 North Lindbergh Blvd
St. Louis, Missouri 63167

Field Research Management Contractor: [REDACTED]
The Carringers, Inc.
1003 Palace Ct.
Apex, NC 27502

Study Chronology:

Study Initiation Date:	April 24, 2009
First Application of Test Substance:	May 19, 2009
Last Sample Collected:	December 1, 2009
Last Sample Shipped:	December 16, 2009
Last Sample Received at Laboratory:	December 21, 2009
Last Crop Destroyed:	December 29, 2009

FIELD STUDY PERSONNEL

The following personnel were involved in the study at the Field Test Sites:

Trial No. REG-09-091-1:

[REDACTED]

Trial No. REG-09-091-2:

[REDACTED]

Trial No. REG-09-091-3:

[REDACTED]

Trial No. REG-09-091-4:

[REDACTED]

Trial No. REG-09-091-5:

[REDACTED]

Trial No. REG-09-091-6:

[REDACTED]

Trial No. REG-09-091-7:

[REDACTED]

Trial No. REG-09-091-8:

[REDACTED]

The following personnel were involved in the study at the Field Research Management Contractor facility:

[REDACTED]

1 SUMMARY

This study was conducted to determine the magnitude and decline of glyphosate and AMPA residue levels in canola raw agricultural and processed commodities following one pre-emergence and two foliar broadcast applications of Roundup WeatherMAX® with Transorb 2 Technology Liquid Herbicide. Applications were made between preemergence and up to first flower as shown in Table 1. These data will be used to support the pesticide label registration under the U.S. Environmental Protection Agency Residue chemistry Test Guidelines, OPPTS 860.1500 – Crop Field Trials.

2 INTRODUCTION

The field phase of this study was conducted from May 19, 2009 to December 16, 2009 corresponding to the first application through the last date of sample shipment. This study was conducted at 8 sites located in New Jersey (Region II), Minnesota (Region V), North Dakota (Region V and two in Region VII), and Idaho (three in Region XI). In all cases, the sites were typical of major canola producing regions, including previous crops, pesticides used, and soil types.

Daily precipitation amounts were collected and compared to the historical 10-year norm for each of the sites. Rainfall and irrigation were adequate for normal growth and development at most sites. Agronomic practices, which included irrigation practices, fertilizers, and maintenance practices, were typical for canola production at each site.

Four plots were established at each test site. One plot was untreated (Treatment 1) and provided control samples. The second plot (Treatment 2) and third plot (Treatment 3) received three test substance applications at pre-emergence, 4-6 leaf stage, and at first flower. The fourth plot (Treatment 4) received test substance applications at pre-emergence, 4-6 leaf stage, and at late bolting. At trial numbers 1 (NJ), 5 (ND), and 7 (ID), the glyphosate-tolerant event was MON 88301. At trial numbers 3 (ND) and 8 (ID), the glyphosate-tolerant event was MON 88302. At trial numbers 2 (MN), 4 (ND), and 6 (ID), the glyphosate-tolerant event was MON 88303.

Planting dates and application dates at each site are provided in Table 2.

At each test site, Treatment 2 received one preemergence broadcast application of Roundup WeatherMAX® herbicide at the nominal rate of 4,250 g ae/Ha and two postemergence broadcast applications of Roundup WeatherMAX® herbicide at the nominal rate of 900 g ae/Ha. At each test site, Treatment 3 received one preemergence broadcast application of Roundup WeatherMAX® herbicide at the nominal rate of 4,250 g ae/Ha, one postemergence broadcast applications of Roundup WeatherMAX® herbicide at the nominal rate of 900 g ae/Ha, and one postemergence broadcast application of Roundup WeatherMAX® herbicide at the nominal rate of 1,800 g ae/Ha. At each test site, Treatment 4 received one preemergence broadcast application of Roundup WeatherMAX® herbicide at the nominal rate of 4,250 g ae/Ha, and two postemergence broadcast applications of Roundup WeatherMAX® herbicide at the nominal rate of 900 g ae/Ha.

The Treatment 2 postemergence applications at 900 g ae/Ha were made when the canola was at the 4-6 leaf stage and at first flower (50% of the plants had at least one flower in the main stem). The Treatment 3 postemergence application at 900 g ae/Ha was made when the canola was at the 4-6 leaf stage. The Treatment 3 postemergence application at 1,800 g ae/Ha was made at first flower (50% of the plants had at least one flower in the main stem). The Treatment 4 postemergence applications at 900 g ae/Ha were made when the canola was at the 4-6 leaf stage and at late bolting (when the main stem had elongated, but prior to any flower formation).

Canola seed raw agricultural commodity (RAC) samples were successfully collected at a typical commercial harvest stage at all sites except for Trial No. 8 (ID), where the canola seed did not mature normally as a result of late planting due to wet weather in the spring.

Samples were collected first from the untreated control plots and then from the treated plots. Samples were labeled with unique sample codes in the field and placed in the freezer or onto dry ice within four hours of sampling.

In addition, at the Trial 3 (ND) and Trial 7 (ID) sites, additional seed samples were collected at 1, 3, 7, and 10 days after normal harvest maturity to provide samples for analysis to determine decline in residues.

Bulk samples of canola seed for processing were collected at the Trial 5 (ND) and Trial 8 (ID) sites.

RAC samples were stored frozen at the field sites from 3 to 46 days and were shipped by freezer truck to Monsanto facilities at St. Louis, Missouri. All samples were received frozen and in good condition at the Sponsor facility.

Bulk samples for processing were stored at ambient temperature for 1 to 2 days at the Trial 8 (ID) site and frozen for 36 days at the Trial 5 (ND) site and were shipped frozen by overnight courier or freezer truck to GLP Technologies in Navasota, TX for processing.

3 FIELD PROCEDURES

3.1 Test Substance Description

Formulation

Monsanto Code Number: MON 79380

PMRA Registration Number: 27487

Trade Name: Roundup WeatherMAX® with Transorb 2
Technology Liquid Herbicide

Lot Number: GLP-0904-19776-F

Active Ingredient

Common Name: Glyphosate

Chemical Name: N-(phosphonomethyl)glycine monopotassium salt

CAS Registry Number: 70901-12-1

Molecular Weight: 207.2

The receipt of the test substance by each Field Principal Investigator was recorded in the field data notebook.

3.2 Test System

The test system was canola grown in areas typical for the production of canola. Canola seed starting materials used at each site are provided in Appendices 1-8.

3.3 Field Test Sites

3.3.1 Overview of Field Test Sites

The field phase of this study was conducted at eight (8) sites in EPA regions 2, 5, 7, and 11. Trials were located in canola producing areas in New Jersey, Minnesota, North Dakota, and Idaho.

Field cooperators for each site were chosen for their capabilities in conducting regulatory field trials and for their ability to obtain a trial site in a canola growing region. The site codes, locations and Field Principal Investigators are in Appendices 1-8. A map with the test site locations is in Figure 1.

All required samples were successfully collected at all 8 test sites.

3.3.2 Plot Size, Site Descriptions, Crop Growth and Development

Field histories, including crops grown and pesticides used, were obtained for the previous two years (2007 and 2008) at each test site. Field history information is in Appendices 1-8.

The soil types ranged from loam, silt loam to silty clay and were typical of the soil in the major canola growing regions of the United States. Soil type information is in Appendices 1-8.

The size of the treated plots ranged from 800 to 9600 square feet. The minimum distance between the control plot and the nearest treated plot was 50 feet. All plots were staked and labeled. Plot information and plot diagrams are in Appendices 1-8.

Test site preparation and maintenance were recorded, including pesticides used, agronomic practices employed, and fertilizers applied. In all cases, these practices were normal and expected for the test site areas. Test site maintenance chemicals information is in Appendices 1-8. No maintenance pesticides with chemistries related to the test substance were used during this time.

The canola at all sites developed and matured normally, except for the ID-8 trial site which did not mature completely as a result of late planting due to wet weather, resulting in commercially unacceptable canola seed.

The following application timings were used:

Preemergence application: Conventional broadcast soil application made after planting and before crop emergence.

4-6 Leaf Postemergence application: Conventional foliar broadcast postemergence spray application made at the 4 to 6 leaf stage, not counting the cotyledons.

Late Bolting Postemergence application: Conventional foliar broadcast postemergence spray application made when the main stem has elongated, but prior to any flower formation.

First Flower Postemergence application: Conventional foliar broadcast postemergence spray application made when 50% of the plants have at least one flower on the main stem.

3.3.3 Application Procedures

The equipment used was typical of small plot research equipment that closely simulated commercial equipment. Backpack, hand-held, and tractor-mounted sprayers were used to make all applications. Application equipment information is in Appendices 1-8. In all cases, the application equipment was calibrated before the application of the test substance. All applications were verified by the time/volume technique, which is based on the output per time and travel speed. At all sites, calibration was conducted within one calendar day of the application. Equipment calibration information is in Appendices 1-8.

Test substance application information is in Appendices 1-8. These tables include details of the test substance mixture, calibrated spray rate, treated area, application rate, and application date. Actual application rates were within $\pm 5\%$ of the target rates for all applications at all sites except for the Treatment 4 late bolting application at the Trial 1 (NJ) site, which was over the target rate by 5.5%, the Treatment 2 first flower application at the Trial 2 (MN) site, which was over the target rate by 5.2%, the Treatment 2 first flower application at the Trail 6 (ID) site, which was over the target rate by 5.1%, and the Treatment 2 preemergence application at the Trial 8 (ID) site, which was over the target rate by 8%. Spray volumes ranged from 7.7 to 19.8 gallons per acre and were within \pm

5% of the target spray volumes for all applications at all sites, except for the preemergence applications at the Trial 7 (ID) site which exceeded the target spray volume by approximately 80%.

There were no environmental problems that would affect the rate, distribution or application of the test substance. Environmental conditions at application are in Appendices 1-8 and are summarized below.

Preemergence application: Dates for the preemergence applications ranged from May 19 to July 03, 2009. Air temperatures at application ranged from 46 to 80 °F. Soil temperatures at a two-inch depth ranged from 52 to 85 °F. Relative humidity ranged from 42 to 85%. Maximum wind speeds ranged from 0 to 5 mph.

4-6 Leaf Postemergence application: Dates for the 4-6 Leaf postemergence applications ranged from June 17 to July 28, 2009. Air temperatures at application ranged from 55 to 89 °F. Soil temperatures at a two-inch depth ranged from 56 to 86 °F. Relative humidity ranged from 30 to 94%. Maximum wind speeds ranged from 0 to 4.1 mph.

Late Bolting Postemergence application: Dates for the Late Bolting postemergence applications ranged from June 25 to August 17, 2009. Air temperatures at application ranged from 52 to 79 °F. Soil temperatures at a two-inch depth ranged from 60 to 78 °F. Relative humidity ranged from 40 to 74%. Maximum wind speeds ranged from 0 to 5 mph.

First Flower Postemergence application: Dates for the First Flower postemergence applications ranged from July 2 to August 26, 2009. Air temperatures at application ranged from 59 to 87 °F. Soil temperatures at a two-inch depth ranged from 55 to 77 °F. Relative humidity ranged from 25 to 80%. Maximum wind speeds ranged from 0 to 5 mph.

3.3.4 Test Substance Treatment Rate and Percentage of Target Rate

Rates of each application and percentage of the target rate at each test site are listed in Table 1.

3.3.5 Weather Data

Daily rainfall and daily air temperatures were recorded for the trial period from on-site weather stations or permanent weather stations located near the test sites.

Unusually wet weather at the Trial 8 (ID) site in the spring resulted in delayed planting at this site. As a result, the canola seed at this site did not fully mature before harvest.

3.3.6 Sampling and Sample Handling

At all sites, canola seed raw agricultural commodity (RAC) samples were successfully collected at a typical commercial harvest stage, except for the Trial 8 (ID) site where harvest was significantly delayed due to weather as noted in Section 3.3.5.

In addition, at the ND-3 and ID-7 sites, additional seed samples were collected at 1, 3, 7, and 10 days after normal harvest maturity to provide samples for analysis to determine decline in residues.

A single composite RAC sample was collected from each untreated (control) plot and two composite RAC samples were collected from each treated plot. The untreated plot was sampled first, followed by the treated plots. Each sample was composited from at least twelve separate sub-samples collected from different locations in the plot. Sampling equipment was cleaned prior to and after sampling each plot.

In addition, at the Trial 5 (ND) and Trial 8 (ID) sites, bulk samples (14.4 – 26.0 kg) of canola seed were collected from the Treatment 1 and Treatment 3 plots for processing.

Sample collection information is in Appendices 1-8.

RAC samples were shipped from each field site to Monsanto by ACDS freezer truck. RAC samples were stored frozen at the field sites from 3 to 46 days prior to shipment. Samples for processing were shipped to GLP Technologies, Inc. by ACDS freezer truck from the Trial 5 (ND) site and by overnight courier from the Trial 8 (ID) site. Samples for processing were stored frozen at the Trial 5 (ND) site for 36 days. Samples for processing were stored at ambient temperature at the Trial 8 (ID) site for 1 or 2 days. Sample storage and shipping information is in Appendices 1-8.

The unused crop was destroyed by tillage, mowing, or burning.

3.4 Deviations

Protocol deviations that occurred during the field phase of this study were documented and reported to the Study Director. Deviations are listed according to location and had no impact on the results of the study unless noted.

Site NJ-1: Some of the seed envelopes were kept in the field trial notebook instead of being destroyed as specified in the protocol.

Site NJ-1: Ammonium sulfate was added to the spray mix for each pre-emergence application although the protocol specified that ammonium sulfate should be added for postemergence applications.

Site NJ-1: The application rate for the late bolting application of Treatment 3 was 105.5% of the target rate and exceeded the 5% allowance specified in the protocol.

Site MN-2: The application rate for the first flower application of Treatment 2 was 105.2% of the target rate and exceeded the 5% allowance specified in the protocol.

Site MN-2: The soil temperature at planting was not recorded as specified in the protocol.

Site ID-6: The application rate for the first flower application of Treatment 2 was 105.1% of the target rate and exceeded the 5% allowance specified in the protocol.

Site ID-6: The Field Research Management Contractor did not approve seed devitalization prior to devitalization as specified in the protocol.

Site ID-7: The application rate of Ammonium sulfate was 18.1 lb/100 gal rather than 17 lb/100 gal as specified in the protocol.

Site ID-7: The spray volume was 19.6 GPA rather than 5-11 GPA as specified in the protocol.

Site ID-7: The Field Research Management Contractor did not approve seed devitalization prior to devitalization as specified in the protocol.

Site ID-8: The application rate for the preemergence application of Treatment 2 was 108% of the target rate and exceeded the 5% allowance specified in the protocol.

Site ID-8: The seed samples for processing were not frozen immediately after collection as specified in the protocol. The sample from the control plot was placed into the freezer approximately 48 hours after sampling. The sample from the Treatment 3 plot was placed into the freezer approximately 24 hours after collection.

3.5 Quality Control

Quality control measures taken to maintain sample integrity and to avoid contamination at the field test sites were recorded in the field data notebooks and include the following:

- Plots were laid out with adequate buffer zones and situated in a manner designed to minimize contamination due to drift and run-off of the test substance. Untreated plots were sampled before the treated plots.
- All samples were labeled according to protocol and SOP instructions. Samples were stored and shipped in a manner designed to prevent contamination and decomposition of the samples. Control and treated samples were boxed separately for shipment and were accompanied in transit with appropriate chain-of-custody forms.
- Access to the field plots, chemical storage, residue sample storage, trial records, etc., was restricted to authorized personnel.

3.6 Storage of Raw Data

Study specific raw data generated at the field test sites were transferred to the Study Director upon acceptance of the final field summary report. Non-study specific raw data generated at the field test sites will be maintained with each of the field investigators.

4 FIGURES AND TABLES

Figure 1 **Field Test Site Locations**

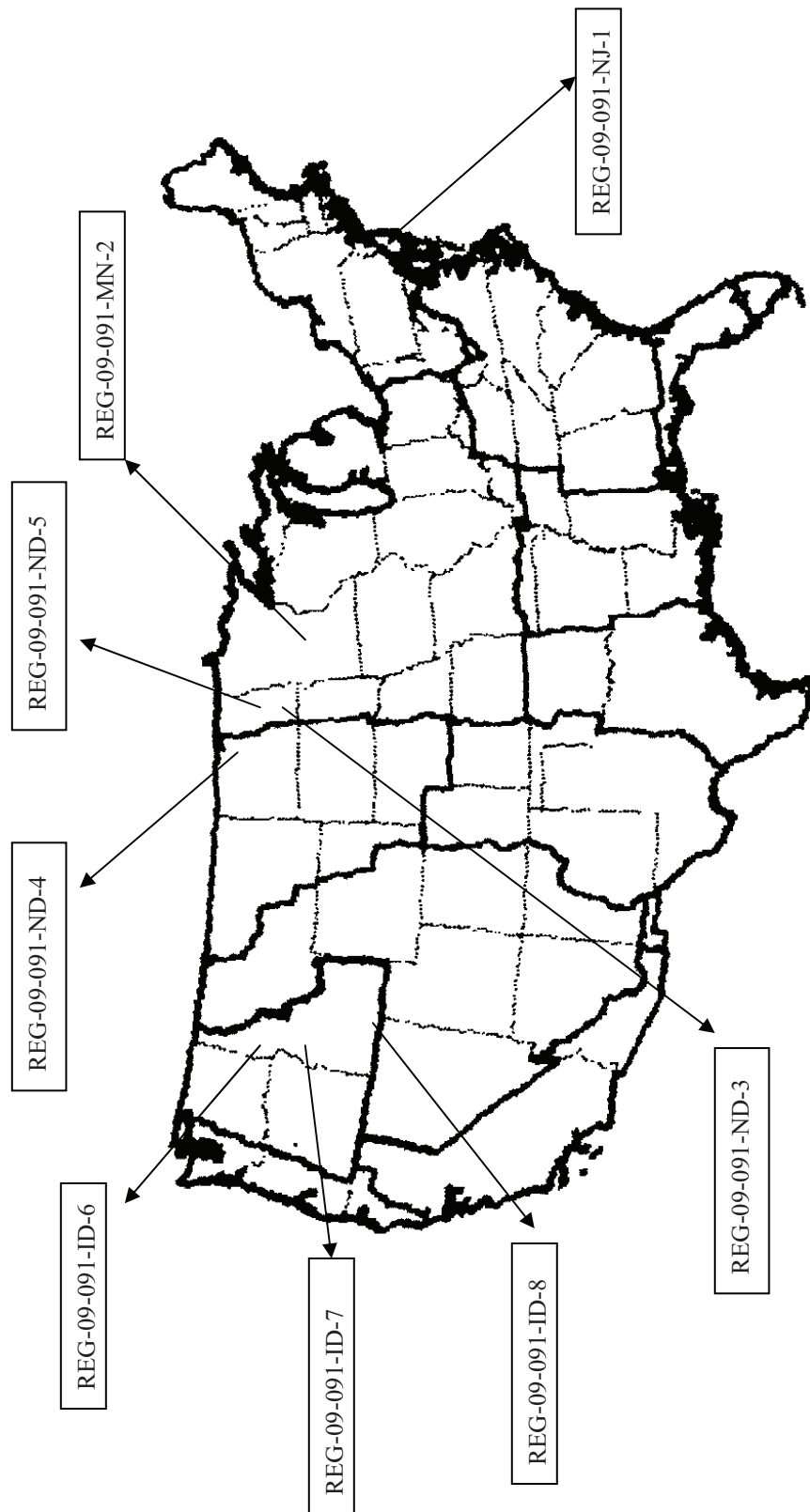


Table 1 Application Rate and Percent of Target

Test Site	Treatment	Application Rate and Percent of Target								
		Preemergence		4-6 leaf			Late bolting		First flower	
		Rate (g a.e./ha)	% of Target	Rate (g a.e./ha)	% of Target	Rate (g a.e./ha)	Rate (g a.e./ha)	% of Target	Rate (g a.e./ha)	% of Target
REG-09-091-NJ-1	2	4428	104.2	916	101.8	NA	NA	NA	921	102.3
	3	4347	102.3	908	100.9	NA	NA	NA	1858	103.2
	4	4400	103.5	920	102.2	950	950	105.6	NA	NA
REG-09-091-MN-2	2	4222	99.3	906	100.7	NA	NA	NA	947	105.2
	3	4240	99.8	924	102.7	NA	NA	NA	1798	99.9
	4	4307	101.3	928	103.1	934	934	103.8	NA	NA
REG-09-091-ND-3	2	4338	102.1	924	102.7	NA	NA	NA	944	104.9
	3	4224	99.4	937	104.1	NA	NA	NA	1861	103.4
	4	4269	100.4	922	102.4	916	916	101.8	NA	NA
REG-09-091-ND-4	2	4344	102.2	921	102.3	NA	NA	NA	909	101.0
	3	4376	103.0	926	102.9	NA	NA	NA	1821	101.2
	4	4386	103.2	921	102.3	926	926	102.9	NA	NA
REG-09-091-ND-5	2	4313	101.5	931	103.4	NA	NA	NA	903	100.3
	3	4340	102.1	932	103.5	NA	NA	NA	1844	102.4
	4	4352	102.4	914	101.6	914	914	101.6	NA	NA
REG-09-091-ID-6	2	4271	100.5	926	102.9	NA	NA	NA	946	105.1
	3	4351	102.4	918	102.0	NA	NA	NA	1839	102.2
	4	4369	102.8	916	101.8	881	881	97.9	NA	NA
REG-09-091-ID-7	2	4295	101.1	890	98.9	NA	NA	NA	900	100.0
	3	4258	100.2	893	99.2	NA	NA	NA	1834	101.9
	4	4254	100.1	887	98.6	900	900	100.0	NA	NA
REG-09-091-ID-8	2	4592	108.0	912	101.3	NA	NA	NA	910	101.1
	3	4354	102.4	912	101.3	NA	NA	NA	1782	99.0
	4	4450	104.7	906	100.7	930	930	103.3	NA	NA

Table 2 Planting, Application, Cutting, and Sampling Dates

Test Site	Planting Date	Application Dates				Cutting Date	Sampling Date
		Preemergence	4-6 leaf	Late bolting	First flower		
REG-09-091-NJ-1	05/21/09	05/22/09	06/25/09	07/02/09	07/09/09	09/01/09	09/05/09
REG-09-091-MN-2	06/01/09	06/06/09	07/02/09	07/17/09	07/23/09	09/24/09	09/25/09
REG-09-091-ND-3	06/03/09	06/06/09	07/02/09	07/17/09	07/24/09	09/25/09	09/30/09
						09/26/09	09/30/09
						09/28/09	09/30/09
						10/02/09	10/08/09
REG-09-091-ND-4	05/21/09	05/22/09	06/17/09	06/25/09	07/02/09	08/31/09	08/31/09
REG-09-091-ND-5	05/21/09	05/22/09	06/17/09	06/25/09	07/02/09	09/10/09	09/10/09
REG-09-091-ID-6	05/15/09	05/19/09	06/20/09	07/06/09	07/10/09	09/18/09	09/18/09
REG-09-091-ID-7	05/19/09	05/25/09	06/22/09	07/08/09	07/15/09	09/08/09	09/19/09
						09/09/09	09/19/09
						09/11/09	09/19/09
						09/15/09	09/21/09
REG-09-091-ID-8	06/27/09	07/03/09	07/28/09	08/17/09	08/26/09	10/29-30/09	11/30-12/01/09

Table 3 Rainfall/Irrigation Dates and Amounts After Application

Test Site	Pre-emergence Appl. Date	First Rainfall/Irrigation		4-6 leaf Appl. Date	First Rainfall/Irrigation		Late Bolting Appl. Date	First Rainfall/Irrigation		First Flower Appl. Date	First Rainfall/Irrigation	
		Date	Amount (in)		Date	Amount (in)		Date	Amount (in)		Date	Amount (in)
NJ-1	05/22/09	05/23/09	~0.75	06/25/09	06/26/09	~0.06	07/02/09	07/07/09	0.09	07/09/09	07/11/09	~1.16
MN-2	06/06/09	06/06/09	0.20	07/02/09	07/09/09	0.12	07/17/09	07/20/09	0.16	07/23/09	07/29/09	0.03
ND-3	06/06/09	06/06/09	0.11	07/02/09	07/09/09	0.18	07/17/09	07/29/09	0.02	07/24/09	07/29/09	0.02
ND-4	05/22/09	05/24/09	0.19	06/17/09	06/26/09	0.75	06/25/09	06/26/09	0.75	07/02/09	07/07/09	0.94
ND-5	05/22/09	05/24/09	0.19	06/17/09	06/26/09	0.75	06/25/09	06/26/09	0.75	07/02/09	07/07/09	0.94
ID-6	05/19/09	05/21/09	0.6	06/20/09	06/20/09	0.16	07/06/09	07/07/09	1.1	07/10/09	07/14/09	0.79
ID-7	05/25/09	05/27/09	0.40	06/22/09	06/24/09	0.51	07/08/09	07/09/09	0.50	07/15/09	07/16/09	0.50
ID-8	07/03/09	07/04/09	0.7	07/28/09	07/29/09	1.7	08/17/09	08/18/09	3.1	08/26/09	08/27/09	3.4

APPENDICES (STUDY SITE DETAILS)

Appendix 1 Trial No. NJ-1

Personnel

Principal Investigator:	██████████
Affiliation:	Crop Management Strategies, Inc.
Investigator Street Address:	P. O. Box 510
Investigator City, State, Country, Zip Code:	Hereford, PA, USA, 18056
Other Personnel Involved in the Trial:	██

Plot Information

EPA/PMRA Region Number:	2
Test Site Street Address:	114 Oak Summit Road
City, State, Country, Zip Code:	Baptistown, NJ, USA, 08825
County:	Hunterdon
EPA Crop Group:	Not Applicable
Test System:	Canola
Variety:	MON 88301
Planting Date of Crop:	05/21/09
Number Treated Plots (excluding controls):	3
Size of Treated Plot(s):	20 ft x 40 ft
Distance between UTC and Trt Plot:	50 ft
Row Spacing:	7.5 inches
Plant Spacing in Row:	Not Applicable
Rows per Treated Plot:	~32
Plot Slope:	0-2%
Soil Type:	Loam
Soil % Organic Matter:	1.8
Soil pH:	7.1
CEC (meq/100 g):	9.6

Appendix 1 Trial No. NJ-1 (continued)

Weather Information

Source of Test Site Temperature Data:	CMS, Inc. Weather Station, Baptistown, NJ (Trial Data) NOAA #3029, Flemington, NJ (Historical Data)
Distance of Temperature Data from the Test Site:	On-site (Trial Data) ~8 miles (Historical Data)
Source of Test Site Precipitation Data:	CMS, Inc. Weather Station, Baptistown, NJ (Trial Data) NOAA #3029, Flemington, NJ (Historical Data)
Distance of Precipitation Data from the Test Site:	On-site (Trial Data) ~8 miles (Historical Data)
Type of Irrigation Used:	None

WEATHER PERIOD	MEAN MIN TEMP (F)	MEAN MIN 10 YR AVERAGE TEMP (F)	MEAN MAX TEMP (F)	MEAN MAX 10 YR AVERAGE TEMP (F)	TOTAL RAINFALL TEMP (F)	TOTAL RAINFALL 10 YR AVERAGE (INCHES)	TOTAL IRRIGATION (INCHES)
May 2009	50	48	69	72	5.61	3.67	0.00
June 2009	57	59	74	81	6.89	5.67	0.00
July 2009	60	63	80	85	5.87	4.91	0.00
August 2009	64	62	82	84	10.07	4.06	0.00
September 2009	54	54	73	78	4.41	5.78	0.00

Appendix 1 Trial No. NJ-1 (continued)

Chemical History

OTHER CHEMICALS APPLIED DURING THE TEST YEAR:		
OTHER CHEMICALS APPLIED DURING THE TEST YEAR:	RATE / UNITS	DATE
Mustang	3 fl oz/A	06/10/09
Admire Pro	3 fl oz/A	06/10/09
Granular 15-11-17 Fertilizer	~300 lb/A	25-Jun-09
Poast	1.25 pt/A	25-Jun-09
Stinger	6 fl oz/A	25-Jun-09
Master	10 g prod/A	25-Jun-09
Warrior	3 fl oz/A	25-Jun-09

FIELD HISTORY FOR PREVIOUS 1 YEAR:

CROP	CHEMICALS	RATE / UNITS	DATE
Orchard Grass	None	Not Applicable	2008

Appendix 1 Trial No. NJ-1 (continued)

Application Information

APPLICATION TIMING	Preemergence
CALIBRATION DATE	05/22/09
APPLICATION DATE	05/22/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	800

PLOT ID	2	3	4
TEST SUBSTANCE	Glyphosate	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	126.3	126.3	126.3
FINAL SPRAY VOL. (ML)	1503.8	1503.8	1503.8
SURFACTANT	Induce	Induce	Induce
SURFACTANT RATE (%V/V)	0.5	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17	17	17
SPRAY VOLUME APPLIED (ML)	725.9	712.6	721.3
TIME IN PLOT (SEC)	47.63	46.76	47.33
TOTAL ML/SEC DELIVERY (CALIBRATED)	15.24	15.24	15.24
APPLICATION RATE (G A.E./HA)	4428	4347	4400
APPLICATION VOLUME GPA	10.4	10.2	10.4

CROP GROWTH STAGE	Post Plant (pre-emergence)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	1-3 / S
AIR TEMP (°F)	70
SOIL TEMP @ 2 INCHES (°F)	62
RELATIVE HUMIDITY (%)	52
% CLOUD COVER	85

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{}} \quad \text{_____}$$

Appendix 1 Trial No. NJ-1 (continued)

Application Information (continued)

APPLICATION TIMING	4-6 Leaf
CALIBRATION DATE	06/24/09
APPLICATION DATE	06/25/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	800

PLOT ID	2	3	4
TEST SUBSTANCE	Glyphosate	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	26.7	26.7	26.7
FINAL SPRAY VOL. (ML)	1504.2	1504.2	1504.2
SURFACTANT	Induce	Induce	Induce
SURFACTANT RATE (%V/V)	0.5	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17	17	17
SPRAY VOLUME APPLIED (ML)	710.2	704.4	713.8
TIME IN PLOT (SEC)	45.73	45.36	45.96
TOTAL ML/SEC DELIVERY (CALIBRATED)	15.53	15.53	15.53
APPLICATION RATE (G A.E./HA)	916	908	920
APPLICATION VOLUME GPA	10.2	10.1	10.3

CROP GROWTH STAGE	4-5 leaf stage
WIND SPEED AT APPLICATION (MPH) / DIRECTION	0-1 / NW
AIR TEMP (°F)	78
SOIL TEMP @ 2 INCHES (°F)	74
RELATIVE HUMIDITY (%)	63
% CLOUD COVER	100

$$\begin{aligned}
 &\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha} \\
 &\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{}}
 \end{aligned}$$

Appendix 1 Trial No. NJ-1 (continued)

Application Information (continued)

APPLICATION TIMING	Late Bolting
CALIBRATION DATE	07/02/09
APPLICATION DATE	07/02/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	800

PLOT ID	4
TEST SUBSTANCE	Glyphosate
FORMULATION	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	26.7
FINAL SPRAY VOL. (ML)	1504.2
SURFACTANT	Induce
SURFACTANT RATE (%v/v)	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17
SPRAY VOLUME APPLIED (ML)	736.87
TIME IN PLOT (SEC)	47.54
TOTAL ML/SEC DELIVERY (CALIBRATED)	15.5
APPLICATION RATE (G A.E./HA)	950
APPLICATION VOLUME GPA	10.6

CROP GROWTH STAGE	Late Bolting
WIND SPEED AT APPLICATION (MPH) / DIRECTION	0-2 / E
AIR TEMP (°F)	75
SOIL TEMP @ 2 INCHES (°F)	77
RELATIVE HUMIDITY (%)	73
% CLOUD COVER	100

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{Area Treated (ft}^2\text{)}}$$

Appendix 1 Trial No. NJ-1 (continued)

Application Information (continued)

APPLICATION TIMING	First Flower
CALIBRATION DATE	07/09/09
APPLICATION DATE	07/09/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	800

PLOT ID	2	3
TEST SUBSTANCE	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	26.7	53.5
FINAL SPRAY VOL. (ML)	1499.2	1501
SURFACTANT	Induce	Induce
SURFACTANT RATE (%v/v)	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17	17
SPRAY VOLUME APPLIED (ML)	711.8	717.7
TIME IN PLOT (SEC)	46.95	47.34
TOTAL ML/SEC DELIVERY (CALIBRATED)	15.16	15.16
APPLICATION RATE (G A.E./HA)	921	1858
APPLICATION VOLUME GPA	10.2	10.3

CROP GROWTH STAGE	1 st Flower
WIND SPEED AT APPLICATION (MPH) / DIRECTION	1-3 / SE
AIR TEMP (°F)	76
SOIL TEMP @ 2 INCHES (°F)	76
RELATIVE HUMIDITY (%)	52
% CLOUD COVER	50

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}$$

Appendix 1 Trial No. NJ-1 (continued)
Sample and Shipping Information

CUTTING DATE	SAMPLING DATE	FRACTION	GROWTH STAGE	TRT. No.	SAMPLE No.	SAMPLE SIZE (kg)	SHIPPING DATE	DATE RECEIVED AT LAB
09/01/09	09/05/09	Seed	Maturity	1	REG09091-00050	~0.8	09/08/09	09/21/09
09/01/09	09/05/09	Seed	Maturity	2	REG09091-00051	~0.8	09/08/09	09/21/09
09/01/09	09/05/09	Seed	Maturity	2	REG09091-00052	~0.8	09/08/09	09/21/09
09/01/09	09/05/09	Seed	Maturity	3	REG09091-00053	~0.8	09/08/09	09/21/09
09/01/09	09/05/09	Seed	Maturity	3	REG09091-00054	~0.8	09/08/09	09/21/09
09/01/09	09/05/09	Seed	Maturity	4	REG09091-00055	~0.8	09/08/09	09/21/09
09/01/09	09/05/09	Seed	Maturity	4	REG09091-00056	~0.8	09/08/09	09/21/09

Maximum Number of Hours from Sampling until Freezing: 3.5

Field Sample Storage Conditions (ambient, frozen): Frozen

Shipping Carrier:

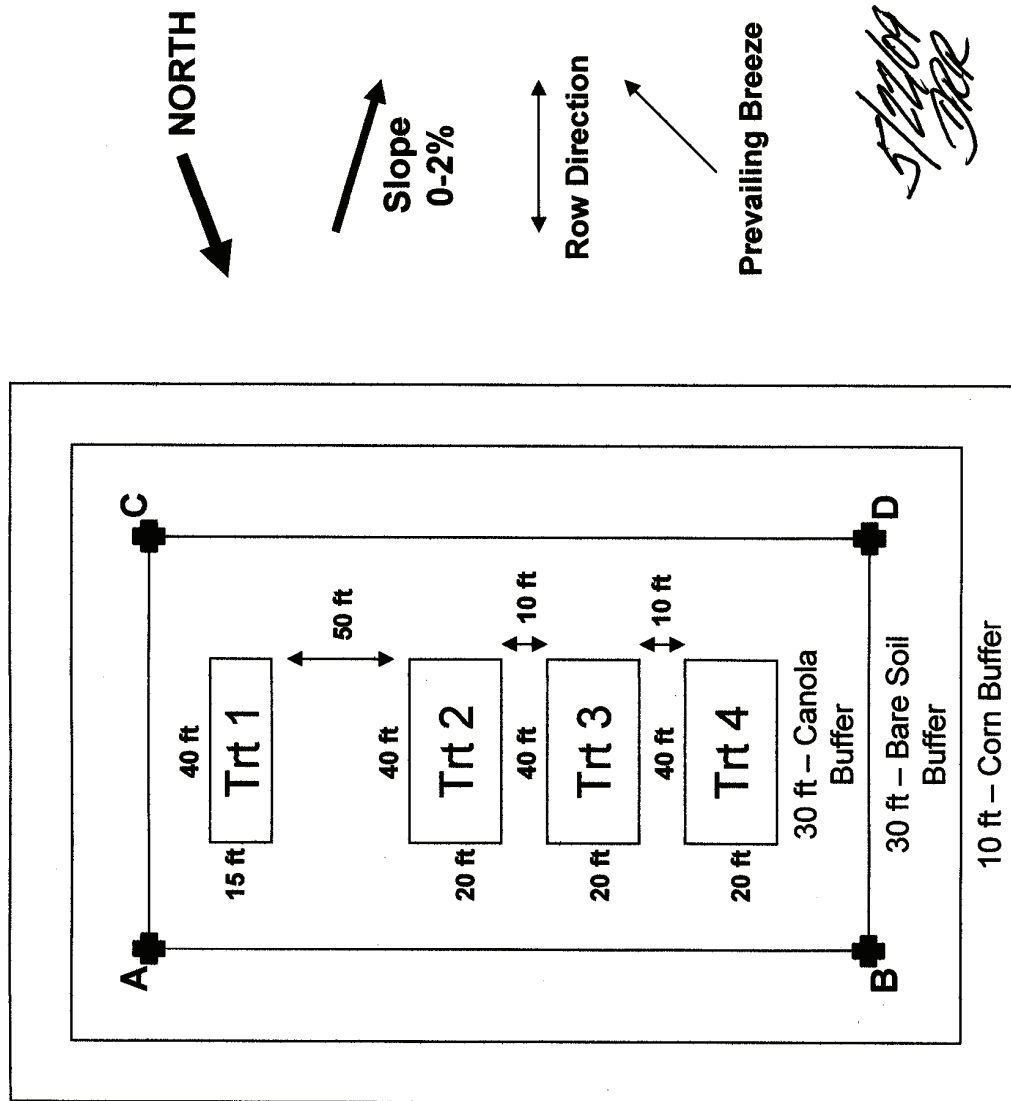
Shipping Destination:

ACDS #111333
Monsanto Company
Attn: [REDACTED]
V-Dock Receiving
800 N. Lindbergh Blvd.
St. Louis, MO 63141

Shipping Conditions (ambient, frozen): Frozen

Appendix 1 Trial No. NJ-1 (continued)

Plot Diagram



CMS, Inc. – Research Site
Baptistown, NJ
Field #2

GPS Coordinates

A 40.5445 / -74.9920

B 40.5435 / -74.9927

C 40.5432 / -74.9919

D 40.5430 / -74.9925

Appendix 2 Trial No. MN-2

Personnel

Principal Investigator:	[REDACTED]
Affiliation:	Northern Plains Ag Research
Investigator Street Address:	4244 54 th Street South
Investigator City, State, Country, Zip Code:	Fargo, ND, USA, 58104
Other Personnel Involved in the Trial:	[REDACTED]

Plot Information

EPA/PMRA Region Number:	5
Test Site Street Address:	1310 County Highway 4
City, State, Country, Zip Code:	Perly, MN, USA, 56574
County:	Norman
EPA Crop Group:	Not Applicable
Test System:	Canola
Variety:	88303
Planting Date of Crop:	06/01/09
Number Treated Plots (excluding controls):	3
Size of Treated Plot(s):	20 ft x 40 ft
Distance between UTC and Trt Plot:	50 ft
Row Spacing:	6.67 inches
Plant Spacing in Row:	2 inches
Rows per Treated Plot:	36
Plot Slope:	<1%
Soil Type:	Silty Clay
Soil % Organic Matter:	7
Soil pH:	7.2
CEC (meq/100 g):	45.0

Appendix 2 Trial No. MN-2 (continued)

Weather Information

Source of Test Site Temperature Data:	NDAWN Station 6E, Perley, MN (Trial and Historical Data)
Distance of Temperature Data from the Test Site:	6 miles (Trial and Historical Data)
Source of Test Site Precipitation Data:	NDAWN Station 6E, Perley, MN (Trial and Historical Data)
Distance of Precipitation Data from the Test Site:	6 miles (Trial and Historical Data)
Type of Irrigation Used:	None

WEATHER PERIOD	MEAN MIN TEMP (F)	MEAN MIN 10 YR AVERAGE TEMP (F)	MEAN MAX TEMP (F)	MEAN MAX 10 YR AVERAGE TEMP (F)	TOTAL RAINFALL (INCHES)	TOTAL RAINFALL 10 YR AVERAGE (INCHES)	TOTAL IRRIGATION (INCHES)
May 2009	39	44	65	69	1.20	2.63	0.00
June 2009	51	54	74	77	2.27	3.50	0.00
July 2009	52	58	77	81	0.65	3.11	0.00
August 2009	53	56	76	81	4.93	2.99	0.00
September 2009	52	46	75	70	2.71	2.27	0.00
October 2009	33	34	46	56	5.12	2.11	0.00

Chemical History

OTHER CHEMICALS APPLIED DURING THE TEST YEAR:	RATE / UNITS	DATE
Urea (46-0-01)	152 lb/A	05/29/09
MAP (11-52-0)	75 b/A	05/29/09
Trifluralin	0.5 b ai/A	05/29/09
Warrior	0.02 lb ai/A	06/25/09

FIELD HISTORY FOR PREVIOUS 1 YEAR:

CROP	CHEMICALS	RATE / UNITS	DATE
Spring Wheat	Wide Match	0.125 oz/A	06/15/08
Spring Wheat	Fluroxypyr	0.125 b ai/A	06/15/08
Spring Wheat	MCPA Ester	0.375 b ai/A	06/15/08

Appendix 2 Trial No. MN-2 (continued)

Application Information

APPLICATION TIMING	Preemergence
CALIBRATION DATE	06/06/09
APPLICATION DATE	06/06/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	800

PLOT ID	2	3	4
TEST SUBSTANCE	Glyphosate	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	84	84	84
FINAL SPRAY VOL. (ML)	1000	1000	1000
SURFACTANT	Liberate	Liberate	Liberate
SURFACTANT RATE (%V/V)	0.5	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	Not Applicable	Not Applicable	Not Applicable
SPRAY VOLUME APPLIED (ML)	692	695	706
TIME IN PLOT (SEC)	30.75	30.91	31.39
TOTAL ML/SEC DELIVERY (CALIBRATED)	22.5	22.5	22.5
APPLICATION RATE (G A.E./HA)	4222	4240	4307
APPLICATION VOLUME GPA	9.9	10.0	10.1

CROP GROWTH STAGE	BBCH 07 (Cotyledons emerged from seed)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	4-5 / NE
AIR TEMP (°F)	52
SOIL TEMP @ 2 INCHES (°F)	52
RELATIVE HUMIDITY (%)	46
% CLOUD COVER	0

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}$$

Appendix 2 Trial No. MN-2 (continued)

Application Information (continued)

APPLICATION TIMING	4-6 Leaf
CALIBRATION DATE	07/02/09
APPLICATION DATE	07/02/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	800

PLOT ID	2	3	4
TEST SUBSTANCE	Glyphosate	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	17.8	17.8	17.8
FINAL SPRAY VOL. (ML)	1000	1000	1000
SURFACTANT	Liberate	Liberate	Liberate
SURFACTANT RATE (%V/V)	0.5	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17	17	17
SPRAY VOLUME APPLIED (ML)	700.6	715	718
TIME IN PLOT (SEC)	30.07	30.7	30.8
TOTAL ML/SEC DELIVERY (CALIBRATED)	23.3	23.3	23.3
APPLICATION RATE (G A.E./HA)	906	924	928
APPLICATION VOLUME GPA	10.3	10.5	10.5

CROP GROWTH STAGE	BBCH 15 (5 leaves)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	1.8-4.1 / N
AIR TEMP (°F)	78
SOIL TEMP @ 2 INCHES (°F)	73
RELATIVE HUMIDITY (%)	66
% CLOUD COVER	5

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}$$

Appendix 2 Trial No. MN-2 (continued)

Application Information (continued)

APPLICATION TIMING	Late Bolting
CALIBRATION DATE	07/17/09
APPLICATION DATE	07/17/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	800

PLOT ID	4
TEST SUBSTANCE	Glyphosate
FORMULATION	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	21.4
FINAL SPRAY VOL. (ML)	1200
SURFACTANT	Liberate
SURFACTANT RATE (%v/v)	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17
SPRAY VOLUME APPLIED (ML)	721
TIME IN PLOT (SEC)	26.86
TOTAL ML/SEC DELIVERY (CALIBRATED)	26.83
APPLICATION RATE (G A.E./HA)	934
APPLICATION VOLUME GPA	10.4

CROP GROWTH STAGE	BBCH 50 (late bolting)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	3-4 / NW
AIR TEMP (°F)	52
SOIL TEMP @ 2 INCHES (°F)	60
RELATIVE HUMIDITY (%)	65
% CLOUD COVER	40

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{}}$$

Appendix 2 Trial No. MN-2 (continued)

Application Information (continued)

APPLICATION TIMING	First Flower
CALIBRATION DATE	07/23/09
APPLICATION DATE	07/23/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	800

PLOT ID	2	3
TEST SUBSTANCE	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	21.4	42.8
FINAL SPRAY VOL. (ML)	1200	1200
SURFACTANT	Liberate	Liberate
SURFACTANT RATE (%v/v)	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17	17
SPRAY VOLUME APPLIED (ML)	731.4	694
TIME IN PLOT (SEC)	27.81	26.37
TOTAL ML/SEC DELIVERY (CALIBRATED)	26.3	26.3
APPLICATION RATE (G A.E./HA)	947	1798
APPLICATION VOLUME GPA	10.5	10.0

CROP GROWTH STAGE	BBCH 61 (10% of flowers open)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	3-5 / SW
AIR TEMP (°F)	84
SOIL TEMP @ 2 INCHES (°F)	75
RELATIVE HUMIDITY (%)	44
% CLOUD COVER	25

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{Area Treated (ft}^2\text{)}}$$

Appendix 2 Trial No. MN-2 (continued)

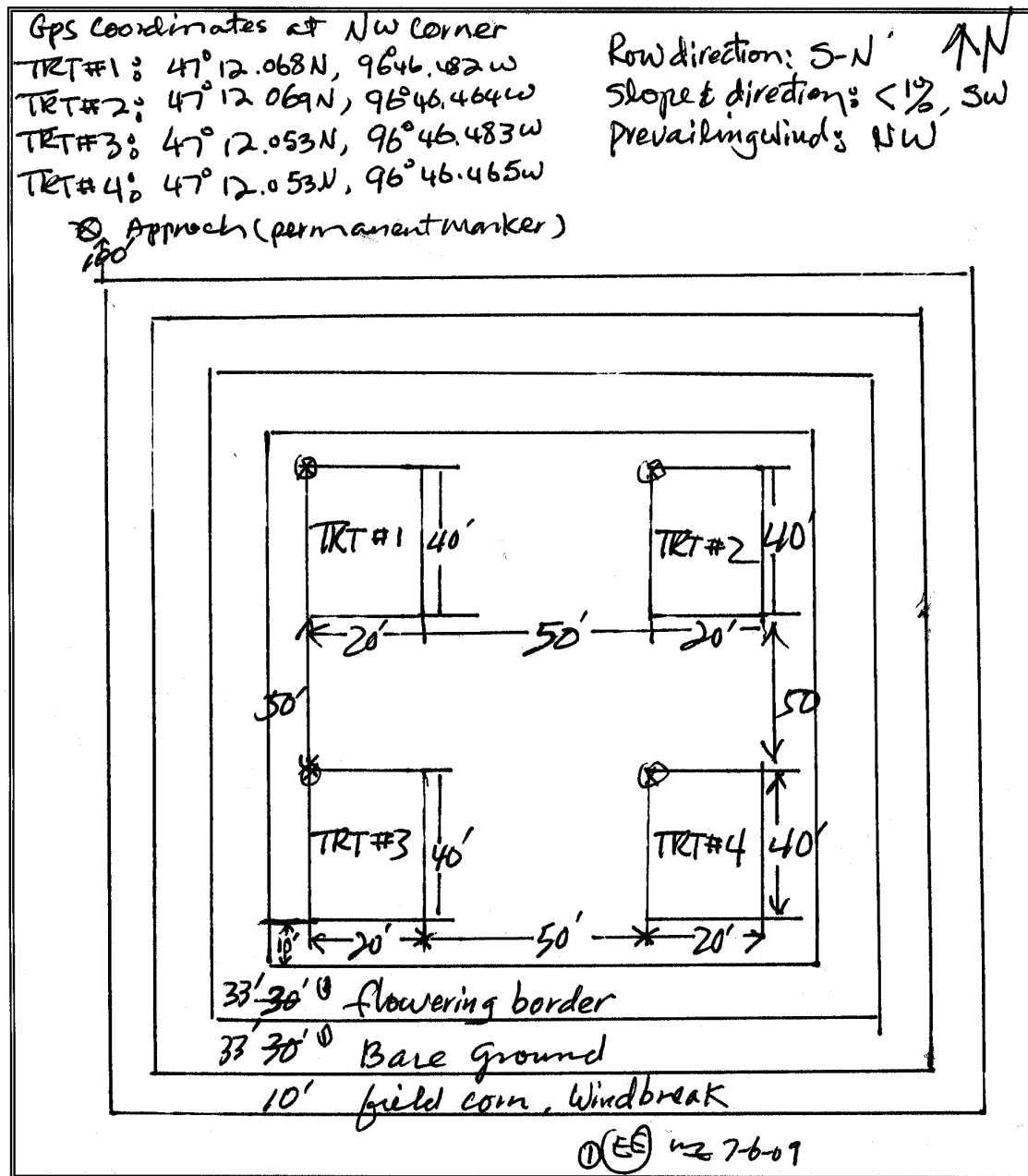
Sample and Shipping Information

CUTTING DATE	SAMPLING DATE	FRACTION	GROWTH STAGE	TRT. No.	SAMPLE No.	SAMPLE SIZE (kg)	SHIPPING DATE	DATE RECEIVED AT LAB
09/24/09	09/25/09	Seed	BBCH 90	1	REG09091-00022	1.5	10/17/09	10/29/09
09/24/09	09/25/09	Seed	BBCH 90	2	REG09091-00023	1.1	10/17/09	10/29/09
09/24/09	09/25/09	Seed	BBCH 90	2	REG09091-00024	1.1	10/17/09	10/29/09
09/24/09	09/25/09	Seed	BBCH 90	3	REG09091-00025	0.9	10/17/09	10/29/09
09/24/09	09/25/09	Seed	BBCH 90	3	REG09091-00026	0.8	10/17/09	10/29/09
09/24/09	09/25/09	Seed	BBCH 90	4	REG09091-00027	1.2	10/17/09	10/29/09
09/24/09	09/25/09	Seed	BBCH 90	4	REG09091-00028	0.9	10/17/09	10/29/09

Maximum Number of Hours from Sampling until Freezing:	2.17
Field Sample Storage Conditions (ambient, frozen):	Frozen
Shipping Carrier:	ACDS #116973
Shipping Destination:	Monsanto Company Attn: [REDACTED]
	V-Dock Receiving 800 N. Lindbergh Blvd. St. Louis, MO 63141
Shipping Conditions (ambient, frozen):	Frozen

Appendix 2 Trial No. MN-2 (continued)

Plot Diagram



Appendix 3 Trial No. ND-3

Personnel

Principal Investigator:	[REDACTED]
Affiliation:	Northern Plains Ag Research
Investigator Street Address:	4244 54 th Street South
Investigator City, State, Country, Zip Code:	Fargo, ND, USA, 58104
Other Personnel Involved in the Trial:	[REDACTED]

Plot Information

EPA/PMRA Region Number:	5
Test Site Street Address:	15009 24 th Street SE
City, State, Country, Zip Code:	Erie, ND, USA, 58029
County:	Cass
EPA Crop Group:	Not Applicable
Test System:	Canola
Variety:	88302
Planting Date of Crop:	06/03/09
Number Treated Plots (excluding controls):	3
Size of Treated Plot(s):	Trt 2 & 4: 20 ft x 50 ft; Trt 3: 60 ft x 50 ft
Distance between UTC and Trt Plot:	50 ft
Row Spacing:	6.67 inches
Plant Spacing in Row:	2 inches
Rows per Treated Plot:	Trt 2 & 4: 36; Trt 3: 108
Plot Slope:	2%
Soil Type:	Loam
Soil % Organic Matter:	Data Not Available
Soil pH:	Data Not Available
CEC (meq/100 g):	Data Not Available

Appendix 3 Trial No. ND-3 (continued)

Weather Information

Source of Test Site Temperature Data:	NDAWN Station 4SSW, Galesburg, ND (Trial and Historical Data)
Distance of Temperature Data from the Test Site:	11 miles (Trial and Historical Data)
Source of Test Site Precipitation Data:	NDAWN Station 4SSW, Galesburg, ND (Trial and Historical Data)
Distance of Precipitation Data from the Test Site:	11 miles (Trial and Historical Data)
Type of Irrigation Used:	None

WEATHER PERIOD	MEAN MIN TEMP (F)	MEAN MIN 10 YR AVERAGE TEMP (F)	MEAN MAX TEMP (F)	MEAN MAX 10 YR AVERAGE TEMP (F)	TOTAL RAINFALL (INCHES)	TOTAL RAINFALL 10 YR AVERAGE (INCHES)	TOTAL IRRIGATION (INCHES)
June 2009	50	51	75	77	1.54	3.08	0.00
July 2009	53	55	78	82	0.71	2.65	0.00
August 2009	52	53	77	82	1.47	2.42	0.00
September 2009	50	43	76	70	2.68	2.06	0.00
October 2009	33	31	46	56	4.33	1.69	0.00

Chemical History

OTHER CHEMICALS APPLIED DURING THE TEST YEAR:	RATE / UNITS	DATE
Urea (46-0-0)	152 b/A	05/30/09
MAP (11-52-0)	75 lb/A	05/30/09
Trifluralin	0.5 lb ai/A	05/30/09
Warrior	0.02 lb ai/A	06/25/09

FIELD HISTORY FOR PREVIOUS 1 YEAR:

CROP	CHEMICALS	RATE / UNITS	DATE
Wheat	Bromac	0.5	06/15/08
Wheat	Tilt	0.021	06/15/08
Wheat	Proline	0.128	07/10/08
Wheat	Folicur	0.113	07/10/08
Wheat	Pennncap-M	0.5	07/10/08

Appendix 3 Trial No. ND-3 (continued)

Application Information

APPLICATION TIMING	Preemergence
CALIBRATION DATE	06-Jun-09
APPLICATION DATE	06-Jun-09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	Trt 2 & 4: 1000; Trt 3: 3000

PLOT ID	2	3	4
TEST SUBSTANCE	Glyphosate	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	101	253	101
FINAL SPRAY VOL. (ML)	1200	3000	1200
SURFACTANT	Liberate	Liberate	Liberate
SURFACTANT RATE (%V/V)	0.5	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	Not Applicable	Not Applicable	Not Applicable
SPRAY VOLUME APPLIED (ML)	887	2586	873
TIME IN PLOT (SEC)	39.44	114.9	38.82
TOTAL ML/SEC DELIVERY (CALIBRATED)	22.5	22.5	22.5
APPLICATION RATE (G A.E./HA)	4338	4224	4269
APPLICATION VOLUME GPA	10.2	9.9	10.0

CROP GROWTH STAGE	BBCH 05 (Radicle emerged from seed)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	2-3 / N
AIR TEMP (°F)	46
SOIL TEMP @ 2 INCHES (°F)	52
RELATIVE HUMIDITY (%)	85
% CLOUD COVER	100

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}$$

Appendix 3 Trial No. ND-3 (continued)

Application Information (continued)

APPLICATION TIMING	4-6 Leaf
CALIBRATION DATE	07/02/09
APPLICATION DATE	07/02/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	Trt 2 & 4: 1000; Trt 3: 3000

PLOT ID	2	3	4
TEST SUBSTANCE	Glyphosate	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	21.4	53.5	21.4
FINAL SPRAY VOL. (ML)	1200	3000	1200
SURFACTANT	Liberate	Liberate	Liberate
SURFACTANT RATE (%V/V)	0.5	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17	17	17
SPRAY VOLUME APPLIED (ML)	892	2714	889.6
TIME IN PLOT (SEC)	38.29	116.5	38.18
TOTAL ML/SEC DELIVERY (CALIBRATED)	23.3	23.3	23.3
APPLICATION RATE (G A.E./HA)	924	937	922
APPLICATION VOLUME GPA	10.3	10.4	10.2

CROP GROWTH STAGE	BBCH 15 (5 leaves)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	1-2.3 / N
AIR TEMP (°F)	89
SOIL TEMP @ 2 INCHES (°F)	86
RELATIVE HUMIDITY (%)	30
% CLOUD COVER	5

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}$$

Appendix 3 Trial No. ND-3 (continued)

Application Information (continued)

APPLICATION TIMING	Late Bolting
CALIBRATION DATE	07/17/09
APPLICATION DATE	07/17/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	1000

PLOT ID	4
TEST SUBSTANCE	Glyphosate
FORMULATION	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	21.4
FINAL SPRAY VOL. (ML)	1200
SURFACTANT	Liberate
SURFACTANT RATE (%v/v)	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17
SPRAY VOLUME APPLIED (ML)	884
TIME IN PLOT (SEC)	32.96
TOTAL ML/SEC DELIVERY (CALIBRATED)	26.83
APPLICATION RATE (G A.E./HA)	916
APPLICATION VOLUME GPA	10.2

CROP GROWTH STAGE	BBCH 50 (late bolting)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	3-5 / NW
AIR TEMP (°F)	53
SOIL TEMP @ 2 INCHES (°F)	60
RELATIVE HUMIDITY (%)	70
% CLOUD COVER	15

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{1000 \text{ mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}}$$

Appendix 3 Trial No. ND-3 (continued)

Application Information (continued)

APPLICATION TIMING	First Flower
CALIBRATION DATE	07/24/09
APPLICATION DATE	07/24/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	Trt 2: 1000; Trt 3: 3000

PLOT ID	2	3
TEST SUBSTANCE	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	21.4	107.0
FINAL SPRAY VOL. (ML)	1200	3000
SURFACTANT	Liberate	Liberate
SURFACTANT RATE (%v/v)	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17	17
SPRAY VOLUME APPLIED (ML)	911	2694
TIME IN PLOT (SEC)	32.88	97.27
TOTAL ML/SEC DELIVERY (CALIBRATED)	27.7	27.7
APPLICATION RATE (G A.E./HA)	944	1861
APPLICATION VOLUME GPA	10.5	10.3

CROP GROWTH STAGE	BBCH 61 (10% of flowers open)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	3-5 / NW
AIR TEMP (°F)	68
SOIL TEMP @ 2 INCHES (°F)	65
RELATIVE HUMIDITY (%)	62
% CLOUD COVER	0

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{}}$$

Appendix 3 Trial No. ND-3 (continued) Sample and Shipping Information

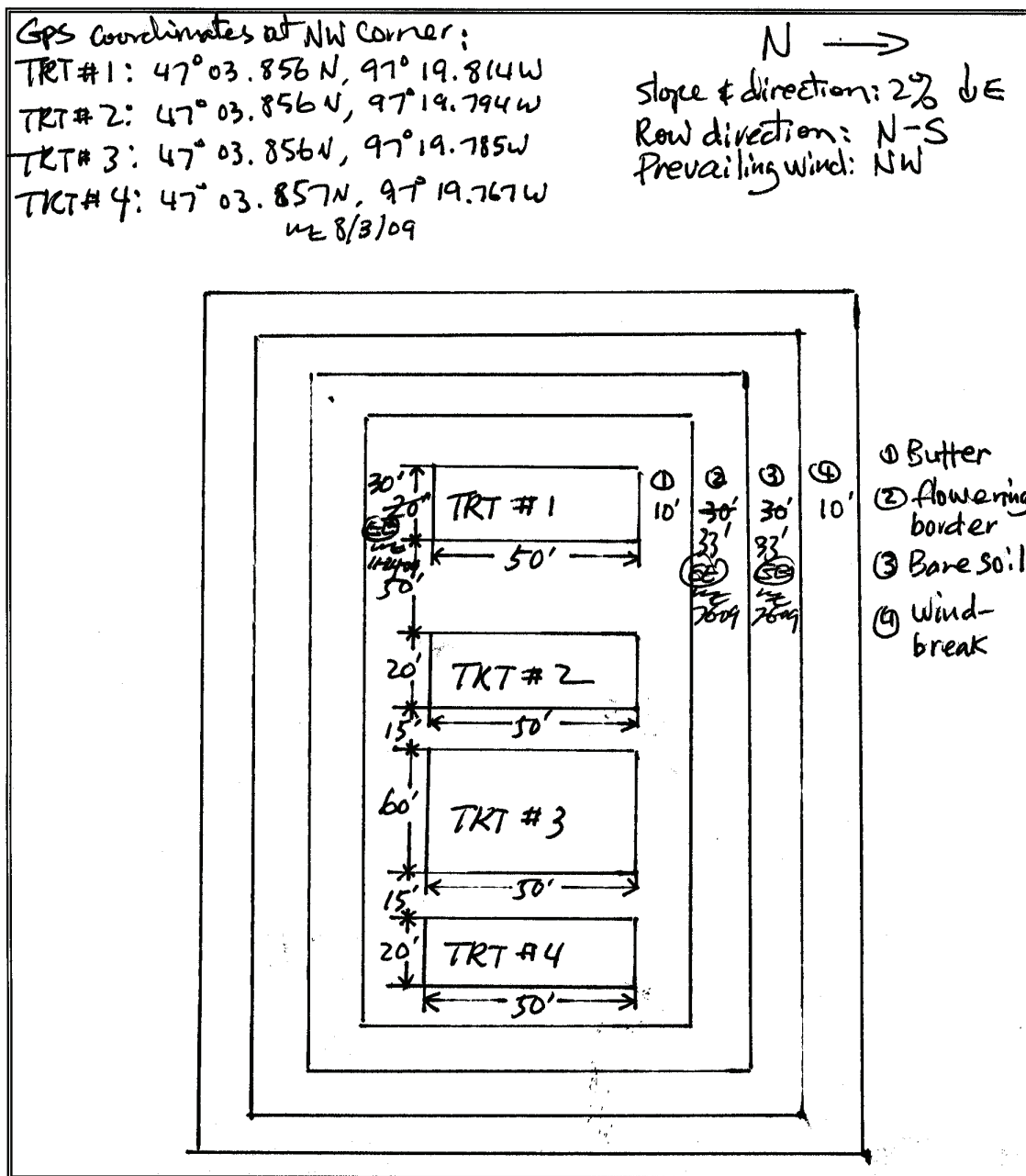
CUTTING DATE	SAMPLING DATE	FRACTION	GROWTH STAGE	TRT. No.	SAMPLE No.	SAMPLE SIZE (kg)	SHIPPING DATE	DATE RECEIVED AT LAB
09/25/09	09/30/09	Seed (Normal)	BBCH 89	1	REG09091-00029	1.5	10/17/09	10/29/09
09/26/09	09/30/09	Seed (+1 day)	BBCH 89	1	REG09091-00069	1.3	10/17/09	10/29/09
09/28/09	09/30/09	Seed (+3 days)	BBCH 90	1	REG09091-00070	1.4	10/17/09	10/29/09
10/02/09	10/08/09	Seed (+7 days)	BBCH 94	1	REG09091-00071	1.2	10/17/09	10/29/09
10/05/09	10/08/09	Seed (+10 days)	BBCH 95	1	REG09091-00072	1.2	10/17/09	10/29/09
09/25/09	09/30/09	Seed (Normal)	BBCH 89	2	REG09091-00030	1.3	10/17/09	10/29/09
09/25/09	09/30/09	Seed (Normal)	BBCH 89	2	REG09091-00031	1.1	10/17/09	10/29/09
09/25/09	09/30/09	Seed (Normal)	BBCH 89	3	REG09091-00032	1.1	10/17/09	10/29/09
09/25/09	09/30/09	Seed (Normal)	BBCH 89	3	REG09091-00033	0.9	10/17/09	10/29/09
09/26/09	09/30/09	Seed (+1 day)	BBCH 89	3	REG09091-00073	1.0	10/17/09	10/29/09
09/26/09	09/30/09	Seed (+1 day)	BBCH 89	3	REG09091-00074	0.9	10/17/09	10/29/09
09/28/09	09/30/09	Seed (+3 days)	BBCH 90	3	REG09091-00075	1.3	10/17/09	10/29/09
09/28/09	09/30/09	Seed (+3 days)	BBCH 90	3	REG09091-00076	0.8	10/17/09	10/29/09
10/02/09	10/08/09	Seed (+7 days)	BBCH 94	3	REG09091-00077	1.2	10/17/09	10/29/09
10/02/09	10/08/09	Seed (+7 days)	BBCH 94	3	REG09091-00078	1.1	10/17/09	10/29/09
10/05/09	10/08/09	Seed (+10 days)	BBCH 95	3	REG09091-00079	1.0	10/17/09	10/29/09
10/05/09	10/08/09	Seed (+10 days)	BBCH 95	3	REG09091-00080	1.6	10/17/09	10/29/09
09/25/09	09/30/09	Seed (Normal)	BBCH 89	4	REG09091-00034	1.1	10/17/09	10/29/09
09/25/09	09/30/09	Seed (Normal)	BBCH 89	4	REG09091-00035	1.2	10/17/09	10/29/09

Appendix 3 Trial No. ND-3 (continued)
Sample and Shipping Information (continued)

Maximum Number of Hours from Sampling until Freezing:	2.33
Field Sample Storage Conditions (ambient, frozen):	Frozen
Shipping Carrier:	ACDS #116960
Shipping Destination:	Monsanto Company Attn: [REDACTED]
	V-Dock Receiving 800 N. Lindbergh Blvd. St. Louis, MO 63141
Shipping Conditions (ambient, frozen):	Frozen

Appendix 3 Trial No. ND-3 (continued)

Plot Diagram



Appendix 4 Trial No. ND-4

Personnel

Principal Investigator:	██████████
Affiliation:	Agro-Tech, Inc.
Investigator Street Address:	4489 Highway 41 North
Investigator City, State, Country, Zip Code:	Velva, ND, USA, 58790
Other Personnel Involved in the Trial:	██████████

Plot Information

EPA/PMRA Region Number:	7
Test Site Street Address:	20301 261 st Avenue SE
City, State, Country, Zip Code:	Velva, ND, USA, 58790
County:	Ward
EPA Crop Group:	Not Applicable
Test System:	Canola
Variety:	MON 88303
Planting Date of Crop:	05/21/09
Number Treated Plots (excluding controls):	3
Size of Treated Plot(s):	20 ft x 75 ft
Distance between UTC and Trt Plot:	50 ft
Row Spacing:	7.5 inches
Plant Spacing in Row:	2-3 inches
Rows per Treated Plot:	28
Plot Slope:	1%
Soil Type:	Loam
Soil % Organic Matter:	2.7
Soil pH:	5.7
CEC (meq/100 g):	13.7

Appendix 4 Trial No. ND-4 (continued)

Weather Information

Source of Test Site Temperature Data:	ND Ag Weather Network, Minot, ND (Trial and Historical Data)
Distance of Temperature Data from the Test Site:	20.2 miles (Trial and Historical Data)
Source of Test Site Precipitation Data:	ND Ag Weather Network, Minot, ND (Trial and Historical Data)
Distance of Precipitation Data from the Test Site:	20.2 miles (Trial and Historical Data)
Type of Irrigation Used:	None

WEATHER PERIOD	MEAN MIN TEMP (F)	MEAN MIN 10 YR AVERAGE TEMP (F)	MEAN MAX TEMP (F)	MEAN MAX 10 YR AVERAGE TEMP (F)	TOTAL RAINFALL (INCHES)	TOTAL RAINFALL 10 YR AVERAGE (INCHES)	TOTAL IRRIGATION (INCHES)
May 2009	40	42	65	65	1.50	3.36	0.00
June 2009	50	52	72	73	1.88	3.77	0.00
July 2009	53	58	75	82	1.68	1.98	0.00
August 2009	53	54	77	80	1.45	1.70	0.00

Chemical History

OTHER CHEMICALS APPLIED DURING THE TEST YEAR:	RATE / UNITS	DATE
Gramoxone Inteon	0.5 lb ai/A	05/20/09
Urea, 46-0-0	100 lb/A	05/21/09
Mustang Max EC	0.025 b ai/A	10-Jun-09
Select Max	1.50 oz ai/A	18-Jun-09
Mustang Max EC	0.025 b ai/A	18-Jun-09
Muster	0.2 oz ai/A	18-Jun-09
Stinger	0.3 oz ai/A	18-Jun-09

FIELD HISTORY FOR PREVIOUS 1 YEAR:

CROP	CHEMICALS	RATE / UNITS	DATE
Pea	Select Max	1.125 b ai/A	May-08
Pea	Glyphosate	0.5 lb ai/A	Jun-08

Appendix 4 Trial No. ND-4 (continued)

Application Information

APPLICATION TIMING	Preemergence
CALIBRATION DATE	22-May-09
APPLICATION DATE	22-May-09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	1500

PLOT ID	2	3	4
TEST SUBSTANCE	Glyphosate	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	168	168	168
FINAL SPRAY VOL. (ML)	1988	1988	1988
SURFACTANT	Cornbelt Premier 90	Cornbelt Premier 90	Cornbelt Premier 90
SURFACTANT RATE (%V/V)	0.5	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	Not Applicable	Not Applicable	Not Applicable
SPRAY VOLUME APPLIED (ML)	1327	1337	1340
TIME IN PLOT (SEC)	49.5	49.9	50
TOTAL ML/SEC DELIVERY (CALIBRATED)	26.8	26.8	26.8
APPLICATION RATE (G A.E./HA)	4344	4376	4386
APPLICATION VOLUME GPA	10.2	10.3	10.3

CROP GROWTH STAGE	BBCH 00
WIND SPEED AT APPLICATION (MPH) / DIRECTION	1-4 / NW
AIR TEMP (°F)	68
SOIL TEMP @ 2 INCHES (°F)	52
RELATIVE HUMIDITY (%)	45
% CLOUD COVER	10

$$\begin{aligned}
 &\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha} \\
 \text{g a.e./ha} = & \underline{\hspace{10cm}} \\
 &1000 \text{ mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}
 \end{aligned}$$

Appendix 4 Trial No. ND-4 (continued)

Application Information (continued)

APPLICATION TIMING	4-6 Leaf
CALIBRATION DATE	06/17/09
APPLICATION DATE	06/17/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	1500

PLOT ID	2	3	4
TEST SUBSTANCE	Glyphosate	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	36	36	36
FINAL SPRAY VOL. (ML)	2006	2006	2006
SURFACTANT	Cornbelt Premier 90	Cornbelt Premier 90	Cornbelt Premier 90
SURFACTANT RATE (%V/V)	0.5	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17	17	17
SPRAY VOLUME APPLIED (ML)	1325	1332	1311
TIME IN PLOT (SEC)	58.1	58.4	57.5
TOTAL ML/SEC DELIVERY (CALIBRATED)	22.8	22.8	22.8
APPLICATION RATE (G A.E./HA)	921	926	921
APPLICATION VOLUME GPA	10.2	10.2	10.1

CROP GROWTH STAGE	BBCH 14
WIND SPEED AT APPLICATION (MPH) / DIRECTION	1-3 / SE
AIR TEMP (°F)	74
SOIL TEMP @ 2 INCHES (°F)	68
RELATIVE HUMIDITY (%)	60
% CLOUD COVER	10

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}$$

Appendix 4 Trial No. ND-4 (continued)

Application Information (continued)

APPLICATION TIMING	Late Bolting
CALIBRATION DATE	06/25/09
APPLICATION DATE	06/25/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	1500

PLOT ID	4
TEST SUBSTANCE	Glyphosate
FORMULATION	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	36
FINAL SPRAY VOL. (ML)	2006
SURFACTANT	Cornbelt Premier 90
SURFACTANT RATE (%v/v)	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17
SPRAY VOLUME APPLIED (ML)	1332
TIME IN PLOT (SEC)	35.7
TOTAL ML/SEC DELIVERY (CALIBRATED)	37.3
APPLICATION RATE (G A.E./HA)	926
APPLICATION VOLUME GPA	10.2

CROP GROWTH STAGE	BBCH 51
WIND SPEED AT APPLICATION (MPH) / DIRECTION	0-1 / NE
AIR TEMP (°F)	78
SOIL TEMP @ 2 INCHES (°F)	71
RELATIVE HUMIDITY (%)	40
% CLOUD COVER	5

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}$$

Appendix 4 Trial No. ND-4 (continued)

Application Information (continued)

APPLICATION TIMING	First Flower
CALIBRATION DATE	07/02/09
APPLICATION DATE	07/02/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	1500

PLOT ID	2	3
TEST SUBSTANCE	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	36	72
FINAL SPRAY VOL. (ML)	2006	2002
SURFACTANT	Cornbelt Premier 90	Cornbelt Premier 90
SURFACTANT RATE (%v/v)	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17	17
SPRAY VOLUME APPLIED (ML)	1307	1307
TIME IN PLOT (SEC)	35.7	35.7
TOTAL ML/SEC DELIVERY (CALIBRATED)	36.6	36.6
APPLICATION RATE (G A.E./HA)	909	1821
APPLICATION VOLUME GPA	10.0	10.0

CROP GROWTH STAGE	BBCH 60
WIND SPEED AT APPLICATION (MPH) / DIRECTION	2-3 / NW
AIR TEMP (°F)	69
SOIL TEMP @ 2 INCHES (°F)	75
RELATIVE HUMIDITY (%)	60
% CLOUD COVER	0

mL product applied x 540 g a.e./L x Amount Applied (mL) x 43,560 ft²/A x 2.47 A/ha
g a.e./ha = _____

1000 mL/L x Mix Volume (mL) x Area Treated (ft²)

Appendix 4 Trial No. ND-4 (continued)

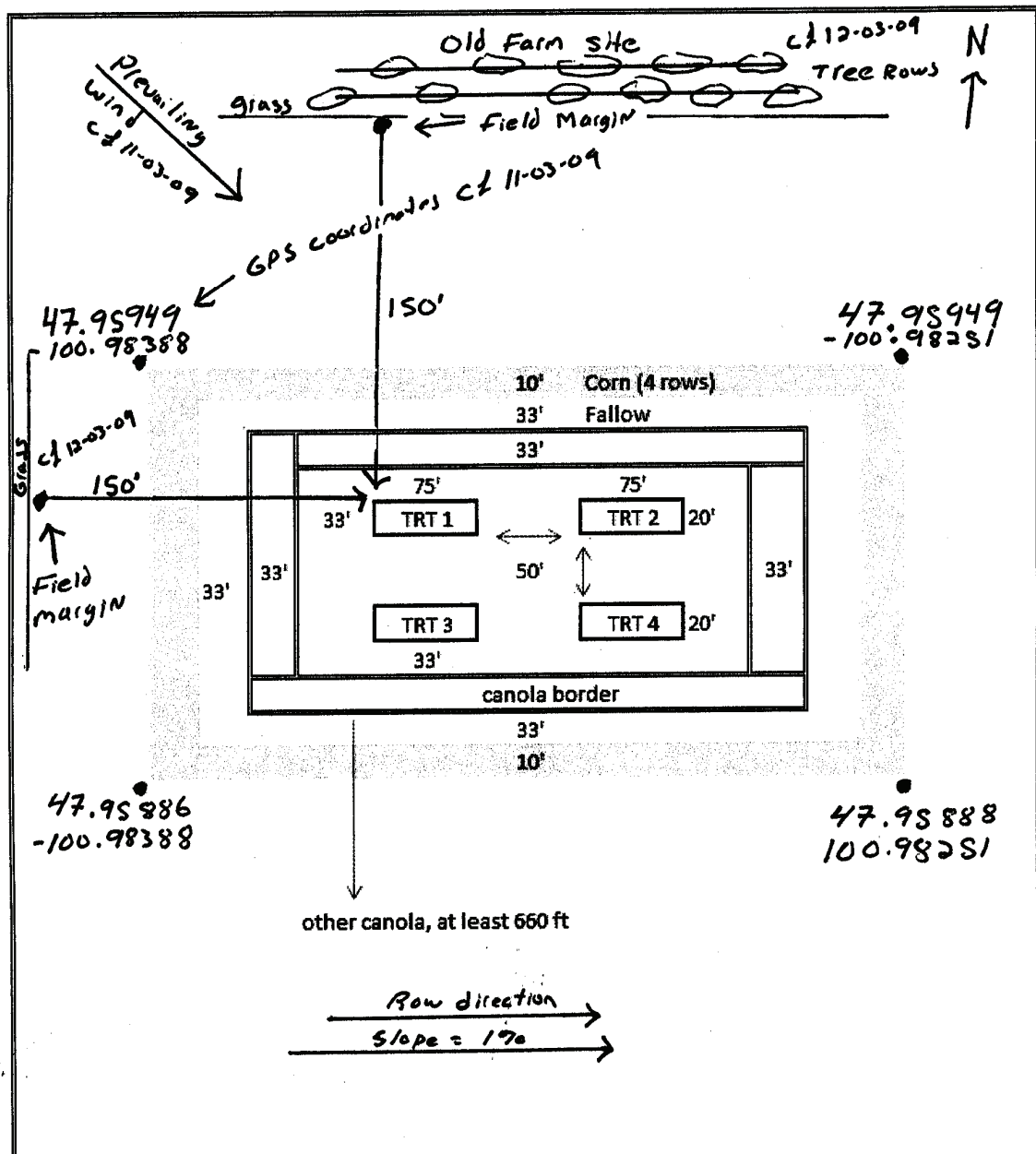
Sample and Shipping Information

CUTTING DATE	SAMPLING DATE	FRACTION	GROWTH STAGE	TRT. No.	SAMPLE No.	SAMPLE SIZE (kg)	SHIPPING DATE	DATE RECEIVED AT LAB
08/31/09	08/31/09	Seed	Maturity	1	REG09091-00036	1.0	10/16/09	10/29/09
08/31/09	08/31/09	Seed	Maturity	2	REG09091-00037	1.1	10/16/09	10/29/09
08/31/09	08/31/09	Seed	Maturity	2	REG09091-00038	1.1	10/16/09	10/29/09
08/31/09	08/31/09	Seed	Maturity	3	REG09091-00039	0.9	10/16/09	10/29/09
08/31/09	08/31/09	Seed	Maturity	3	REG09091-00040	1.0	10/16/09	10/29/09
08/31/09	08/31/09	Seed	Maturity	4	REG09091-00041	0.6	10/16/09	10/29/09
08/31/09	08/31/09	Seed	Maturity	4	REG09091-00042	1.0	10/16/09	10/29/09

Maximum Number of Hours from Sampling until Freezing:	2.58
Field Sample Storage Conditions (ambient, frozen):	Frozen
Shipping Carrier:	ACDS #116248
Shipping Destination:	Monsanto Company
	Attn: [REDACTED]
	V-Dock Receiving
	800 N. Lindbergh Blvd.
	St. Louis, MO 63141
Shipping Conditions (ambient, frozen):	Frozen

Appendix 4 Trial No. ND-4 (continued)

Plot Diagram



Appendix 5 Trial No. ND-5

Personnel

Principal Investigator:	██████████
Affiliation:	Agro-Tech, Inc.
Investigator Street Address:	4489 Highway 41 North
Investigator City, State, Country, Zip Code:	Velva, ND, USA, 58790
Other Personnel Involved in the Trial:	██████████

Plot Information

EPA/PMRA Region Number:	7
Test Site Street Address:	52 nd Street N and 19 th Avenue N
City, State, Country, Zip Code:	Norwich, ND, USA, 58790
County:	McHenry
EPA Crop Group:	Not Applicable
Test System:	Canola
Variety:	MON 88301
Planting Date of Crop:	05/21/09
Number Treated Plots (excluding controls):	3
Size of Treated Plot(s):	Trt 2 and 4: 30 ft x 75 ft Trt 3: 30 ft x 200 ft
Distance between UTC and Trt Plot:	50 ft
Row Spacing:	7.5 inches
Plant Spacing in Row:	2 inches
Rows per Treated Plot:	45
Plot Slope:	2%
Soil Type:	Loam
Soil % Organic Matter:	4.0
Soil pH:	6.8
CEC (meq/100 g):	23.6

Appendix 5 Trial No. ND-5 (continued)

Weather Information

Source of Test Site Temperature Data:	ND Ag Weather Network, Minot, ND (Trial and Historical Data)
Distance of Temperature Data from the Test Site:	15 miles (Trial and Historical Data)
Source of Test Site Precipitation Data:	ND Ag Weather Network, Minot, ND (Trial and Historical Data)
Distance of Precipitation Data from the Test Site:	15 miles (Trial and Historical Data)
Type of Irrigation Used:	None

WEATHER PERIOD	MEAN MIN TEMP (F)	MEAN MIN 10 YR AVERAGE TEMP (F)	MEAN MAX TEMP (F)	MEAN MAX 10 YR AVERAGE TEMP (F)	TOTAL RAINFALL (INCHES)	TOTAL RAINFALL 10 YR AVERAGE (INCHES)	TOTAL IRRIGATION (INCHES)
May 2009	40	42	65	65	1.50	3.36	0.00
June 2009	50	52	72	73	1.88	3.77	0.00
July 2009	53	58	75	82	1.68	1.98	0.00
August 2009	53	54	77	80	1.45	1.70	0.00
September 2009	52	45	77	70	3.94	1.00	0.00

Appendix 5 Trial No. ND-5 (continued)

Chemical History

OTHER CHEMICALS APPLIED DURING THE TEST YEAR:	RATE / UNITS	DATE
Gramoxone Inteon	0.5 lb ai/A	05/20/09
Urea, 46-0-0	124 lb/A	05/21/09
AMS, 21-0-0-24	62.5 lb/A	05/21/09
Mustang Max EC	0.025 b ai/A	06/10/09
Mustang Max EC	0.025 b ai/A	06/18/09
Select Max	1.50 oz ai/A	06/18/09
Muster	0.2 oz ai/A	06/18/09
Stinger	0.3 oz ai/A	06/18/09

FIELD HISTORY FOR PREVIOUS 1 YEAR:			
CROP	CHEMICALS	RATE / UNITS	DATE
Wheat	Clopyralid	0.09 lb ai/A	06/08
Wheat	MCPA	0.5 b ae/A	06/08
Wheat	Fluroxypyr	1.5 oz ae/A	06/08
Wheat	Pinoxaden & Cloquintocet (safener)	0.05 lb ai/A	06/08

Appendix 5 Trial No. ND-5 (continued)

Application Information

APPLICATION TIMING	Preemergence
CALIBRATION DATE	22-May-09
APPLICATION DATE	22-May-09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	Tractor-mounted 3-point Sprayer
TREATED AREA (FT ²)	Trt 2 and 4: 2250; Trt 3: 6000

PLOT ID	2	3	4
TEST SUBSTANCE	Glyphosate	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	320	640	320
FINAL SPRAY VOL. (ML)	3779	7578	3779
SURFACTANT	Cornbelt Premier 90	Cornbelt Premier 90	Cornbelt Premier 90
SURFACTANT RATE (%V/V)	0.5	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	Not Applicable	Not Applicable	Not Applicable
SPRAY VOLUME APPLIED (ML)	1972.3	5307	1990.2
TIME IN PLOT (SEC)	11	29.6	11.1
TOTAL ML/SEC DELIVERY (CALIBRATED)	179.3	179.3	179.3
APPLICATION RATE (G A.E./HA)	4313	4340	4352
APPLICATION VOLUME GPA	10.1	10.2	10.2

CROP GROWTH STAGE	BBCH 00
WIND SPEED AT APPLICATION (MPH) / DIRECTION	0-3 / NW
AIR TEMP (°F)	65
SOIL TEMP @ 2 INCHES (°F)	54
RELATIVE HUMIDITY (%)	50
% CLOUD COVER	5

$$\text{g a.e./ha} = \frac{\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}}{1000 \text{ mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}$$

Appendix 5 Trial No. ND-5 (continued)

Application Information (continued)

APPLICATION TIMING	4-6 Leaf
CALIBRATION DATE	06/17/09
APPLICATION DATE	06/17/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	Tractor-mounted 3-point Sprayer
TREATED AREA (FT ²)	Trt 2 and 4: 2250; Trt 3: 6000

PLOT ID	2	3	4
TEST SUBSTANCE	Glyphosate	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	68	135	68
FINAL SPRAY VOL. (ML)	3787	7575	3787
SURFACTANT	Cornbelt Premier 90	Cornbelt Premier 90	Cornbelt Premier 90
SURFACTANT RATE (%V/V)	0.5	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17	17	17
SPRAY VOLUME APPLIED (ML)	2007	5399	1971
TIME IN PLOT (SEC)	11.3	30.4	11.1
TOTAL ML/SEC DELIVERY (CALIBRATED)	177.6	177.6	177.6
APPLICATION RATE (G A.E./HA)	931	932	914
APPLICATION VOLUME GPA	10.3	10.4	10.1

CROP GROWTH STAGE	BBCH 14
WIND SPEED AT APPLICATION (MPH) / DIRECTION	0 / NA
AIR TEMP (°F)	60
SOIL TEMP @ 2 INCHES (°F)	63
RELATIVE HUMIDITY (%)	85
% CLOUD COVER	5

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{ }}$$

Appendix 5 Trial No. ND-5 (continued)

Application Information (continued)

APPLICATION TIMING	Late Bolting
CALIBRATION DATE	06/25/09
APPLICATION DATE	06/25/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	2250

PLOT ID	4
TEST SUBSTANCE	Glyphosate
FORMULATION	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	71
FINAL SPRAY VOL. (ML)	3991
SURFACTANT	Cornbelt Premier 90
SURFACTANT RATE (%v/v)	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17
SPRAY VOLUME APPLIED (ML)	2208
TIME IN PLOT (SEC)	59.2
TOTAL ML/SEC DELIVERY (CALIBRATED)	37.3
APPLICATION RATE (G A.E./HA)	914
APPLICATION VOLUME GPA	10.2

CROP GROWTH STAGE	BBCH 33
WIND SPEED AT APPLICATION (MPH) / DIRECTION	0-1 / NW
AIR TEMP (°F)	72
SOIL TEMP @ 2 INCHES (°F)	65
RELATIVE HUMIDITY (%)	50
% CLOUD COVER	10

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}$$

Appendix 5 Trial No. ND-5 (continued)

Application Information (continued)

APPLICATION TIMING	First Flower
CALIBRATION DATE	07/02/09
APPLICATION DATE	07/02/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	CO ₂ Backpack Sprayer
TREATED AREA (FT ²)	Trt 2 and 4: 2250; Trt 3: 6000

PLOT ID	2	3
TEST SUBSTANCE	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	71	214
FINAL SPRAY VOL. (ML)	3991	6004
SURFACTANT	Cornbelt Premier 90	Cornbelt Premier 90
SURFACTANT RATE (%v/v)	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17	17
SPRAY VOLUME APPLIED (ML)	2181	5929
TIME IN PLOT (SEC)	59.6	162
TOTAL ML/SEC DELIVERY (CALIBRATED)	36.6	36.6
APPLICATION RATE (G A.E./HA)	903	1844
APPLICATION VOLUME GPA	10.1	10.2

CROP GROWTH STAGE	BBCH 60
WIND SPEED AT APPLICATION (MPH) / DIRECTION	3-5 / NW
AIR TEMP (°F)	71
SOIL TEMP @ 2 INCHES (°F)	77
RELATIVE HUMIDITY (%)	65
% CLOUD COVER	10

mL product applied x 540 g a.e./L x Amount Applied (mL) x 43,560 ft²/A x 2.47 A/ha
g a.e./ha = _____

1000 mL/L x Mix Volume (mL) x Area Treated (ft²)

Appendix 5 Trial No. ND-5 (continued)

Sample and Shipping Information

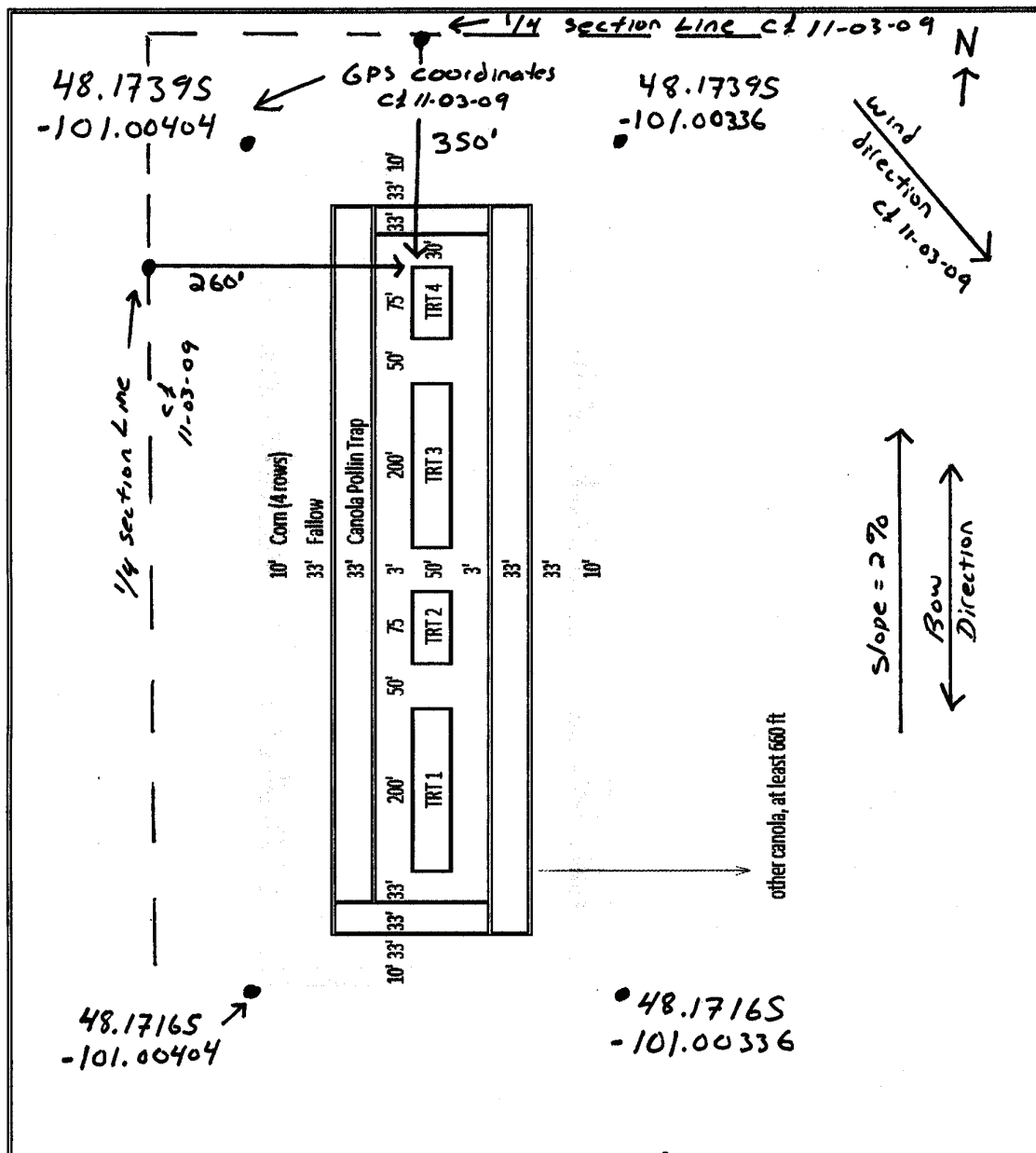
CUTTING DATE	SAMPLING DATE	FRACTION	GROWTH STAGE	TRT. NO.	SAMPLE NO.	SAMPLE SIZE (kg)	SHIPPING DATE	DATE RECEIVED AT LAB
09/10/09	09/10/09	Seed	Maturity	1	REG09091-00043	1.0	10/16/09	10/29/09
09/10/09	09/10/09	Seed	Maturity	1	REG09091-00083	26.0	10/16/09	11/09/09
09/10/09	09/10/09	Seed	Maturity	2	REG09091-00044	1.0	10/16/09	10/29/09
09/10/09	09/10/09	Seed	Maturity	2	REG09091-00045	1.0	10/16/09	10/29/09
09/10/09	09/10/09	Seed	Maturity	3	REG09091-00046	1.0	10/16/09	10/29/09
09/10/09	09/10/09	Seed	Maturity	3	REG09091-00047	1.0	10/16/09	10/29/09
09/10/09	09/10/09	Seed	Maturity	3	REG09091-00084	24.4	10/16/09	11/09/09
09/10/09	09/10/09	Seed	Maturity	4	REG09091-00048	1.0	10/16/09	10/29/09
09/10/09	09/10/09	Seed	Maturity	4	REG09091-00049	1.0	10/16/09	10/29/09

Maximum Number of Hours from Sampling until Freezing:	2.33
Field Sample Storage Conditions (ambient, frozen):	Frozen
Shipping Carrier (RAC Samples):	ACDS #116248
Shipping Destination:	Monsanto Company Attn: [REDACTED] V-Dock Receiving 800 N. Lindbergh Blvd. St. Louis, MO 63141
Shipping Conditions (ambient, frozen):	Frozen

Shipping Carrier (Processing Samples):	ACDS #116249
Shipping Destination:	GLP Technologies Attn: [REDACTED] 22723 State Highway 6 South Navasota, TX 77868
Shipping Conditions (ambient, frozen):	Frozen

Appendix 5 Trial No. ND-5 (continued)

Plot Diagram



Appendix 6 Trial No. ID-6

Personnel

Principal Investigator:	
Affiliation:	Miller Research
Investigator Street Address:	1175 E 800 N
Investigator City, State, Country, Zip Code:	Rupert, ID, USA, 83350
Other Personnel Involved in the Trial:	

Plot Information

EPA/PMRA Region Number:	11
Test Site Street Address:	1175 East 800 North
City, State, Country, Zip Code:	Minidoka, ID, USA, 83350
County:	Blaine
EPA Crop Group:	Not Applicable
Test System:	Canola
Variety:	MON 88303
Planting Date of Crop:	05/15/09
Number Treated Plots (excluding controls):	3
Size of Treated Plot(s):	20 ft x 50 ft
Distance between UTC and Trt Plot:	700 ft
Row Spacing:	6 inches
Plant Spacing in Row:	0.25-0.5 inches
Rows per Treated Plot:	40
Plot Slope:	2% (UTC Plot); 1% (TRT Plots)
Soil Type:	Silt Loam
Soil % Organic Matter:	1.5
Soil pH:	8.1
CEC (meq/100 g):	29.5

Appendix 6 Trial No. ID-6 (continued)

Weather Information

Source of Test Site Temperature Data:	Minidoka RTMS NOAA, Rupert, ID (Trial Data) #105980, Rupert, ID (Historical Data)	NOAA
Distance of Temperature Data from the Test Site:	9.3 miles (Trial Data) miles (Historical Data)	4.8
Source of Test Site Precipitation Data:	On-site, Minidoka, ID (Trial Data) #105980, Rupert, ID (Historical Data)	NOAA
Distance of Precipitation Data from the Test Site:	On-site (Trial Data) miles (Historical Data)	4.8
Type of Irrigation Used:	Solid set overhead sprinklers	

WEATHER PERIOD	MEAN MIN TEMP (F)	MEAN MIN 10 YR AVERAGE TEMP (F)	MEAN MAX TEMP (F)	MEAN MAX 10 YR AVERAGE TEMP (F)	TOTAL RAINFALL AVERAGE (INCHES)	TOTAL IRRIGATION UTC / TRT (INCHES)
May 2009	40	41	71	69	0.35	1.16
June 2009	48	49	75	78	0.75	0.85
July 2009	52	55	88	88	0.24	0.31
August 2009	50	54	84	87	0.47	0.44
September 2009	44	45	80	77	0.00	0.58

Chemical History

OTHER CHEMICALS APPLIED DURING THE TEST YEAR:	RATE / UNITS	DATE
Ethalfuralin (Sonalan HFP)	0.75 lb ai/A	05/15/09
UAN (24% Urea Ammonium Nitrate)	64 b/A	06/11/09

FIELD HISTORY FOR PREVIOUS 1 YEAR:

CROP	CHEMICALS	RATE / UNITS	DATE
Fallow	Trt 1: None	Not Applicable	2008
Tame Oat	Trt 2, 3, 4: Triallate (Far-Go)	1.25 to 1.5 b ai/A	04/26/08

Appendix 6 Trial No. ID-6 (continued)

Application Information

APPLICATION TIMING	Preemergence
CALIBRATION DATE	05/19/09
APPLICATION DATE	05/19/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	Tractor-mounted boom sprayer
TREATED AREA (FT ²)	1050

PLOT ID	2	3	4
TEST SUBSTANCE	Glyphosate	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	438.5*	438.5*	438.5*
FINAL SPRAY VOL. (ML)	4000	4000	4000
SURFACTANT	Preference	Preference	Preference
SURFACTANT RATE (%V/V)	0.5	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	Not Applicable	Not Applicable	Not Applicable
SPRAY VOLUME APPLIED (ML)	704.1	717.3	720.3
TIME IN PLOT (SEC)	21.29	21.69	21.78
TOTAL ML/SEC DELIVERY (CALIBRATED)	33.07	33.07	33.07
APPLICATION RATE (G A.E./HA)	4271	4351	4369
APPLICATION VOLUME GPA	7.7	7.9	7.9

*A single tank was prepared to spray treatments 2, 3, and 4.

CROP GROWTH STAGE	BBCH 01 (beginning of seed imbibition)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	1-4 / SWS
AIR TEMP (°F)	71
SOIL TEMP @ 2 INCHES (°F)	62
RELATIVE HUMIDITY (%)	52
% CLOUD COVER	100

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{Area Treated (ft}^2\text{)}}$$

Appendix 6 Trial No. ID-6 (continued)

Application Information (continued)

APPLICATION TIMING	4-6 Leaf
CALIBRATION DATE	06/19/09
APPLICATION DATE	06/20/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	Tractor-mounted Boom Sprayer
TREATED AREA (FT ²)	1050

PLOT ID	2	3	4
TEST SUBSTANCE	Glyphosate	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	35.7	35.7	35.7
FINAL SPRAY VOL. (ML)	2000	2000	2000
SURFACTANT	Preference	Preference	Preference
SURFACTANT RATE (%V/V)	0.5	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17	17	17
SPRAY VOLUME APPLIED (ML)	937.0	929.6	927.8
TIME IN PLOT (SEC)	15.31	15.19	15.16
TOTAL ML/SEC DELIVERY (CALIBRATED)	61.2	61.2	61.2
APPLICATION RATE (G A.E./HA)	926	918	916
APPLICATION VOLUME GPA	10.3	10.2	10.2

CROP GROWTH STAGE	BBCH 13-18 (3-8 leaves unfolded) Majority of plants were at 4-6 leaf stage
WIND SPEED AT APPLICATION (MPH) / DIRECTION	0.0 / NA
AIR TEMP (°F)	55
SOIL TEMP @ 2 INCHES (°F)	56
RELATIVE HUMIDITY (%)	94
% CLOUD COVER	100

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{Area Treated (ft}^2\text{)}}$$

Appendix 6 Trial No. ID-6 (continued)

Application Information (continued)

APPLICATION TIMING	Late Bolting
CALIBRATION DATE	07/06/09
APPLICATION DATE	07/06/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	Tractor-mounted Boom Sprayer
TREATED AREA (FT ²)	1050

PLOT ID	4
TEST SUBSTANCE	Glyphosate
FORMULATION	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	47.8
FINAL SPRAY VOL. (ML)	3000
SURFACTANT	Preference
SURFACTANT RATE (%v/v)	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17
SPRAY VOLUME APPLIED (ML)	999.3
TIME IN PLOT (SEC)	16.17
TOTAL ML/SEC DELIVERY (CALIBRATED)	61.8
APPLICATION RATE (G A.E./HA)	881
APPLICATION VOLUME GPA	11.0

CROP GROWTH STAGE	BBCH 34-50 (4 visibly extended internodes, flower buds present but still enclosed by leaves)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	1.5-2.9 / W
AIR TEMP (°F)	75
SOIL TEMP @ 2 INCHES (°F)	69
RELATIVE HUMIDITY (%)	74
% CLOUD COVER	10

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}$$

Appendix 6 Trial No. ID-6 (continued)

Application Information (continued)

APPLICATION TIMING	First Flower
CALIBRATION DATE	07/10/09
APPLICATION DATE	07/10/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	Tractor-mounted Boom Sprayer
TREATED AREA (FT ²)	1050

PLOT ID	2	3
TEST SUBSTANCE	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	49.1	98.1
FINAL SPRAY VOL. (ML)	3000	3000
SURFACTANT	Preference	Preference
SURFACTANT RATE (%v/v)	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17	17
SPRAY VOLUME APPLIED (ML)	1044.4	1016.6
TIME IN PLOT (SEC)	16.9	16.45
TOTAL ML/SEC DELIVERY (CALIBRATED)	61.8	61.8
APPLICATION RATE (G A.E./HA)	946	1839
APPLICATION VOLUME GPA	11.4	11.1

CROP GROWTH STAGE	BBCH 55-61 (flower buds visible but closed, 10% open)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	0 / Not Applicable
AIR TEMP (°F)	59
SOIL TEMP @ 2 INCHES (°F)	55
RELATIVE HUMIDITY (%)	80
% CLOUD COVER	0

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}$$

Appendix 6 Trial No. ID-6 (continued)

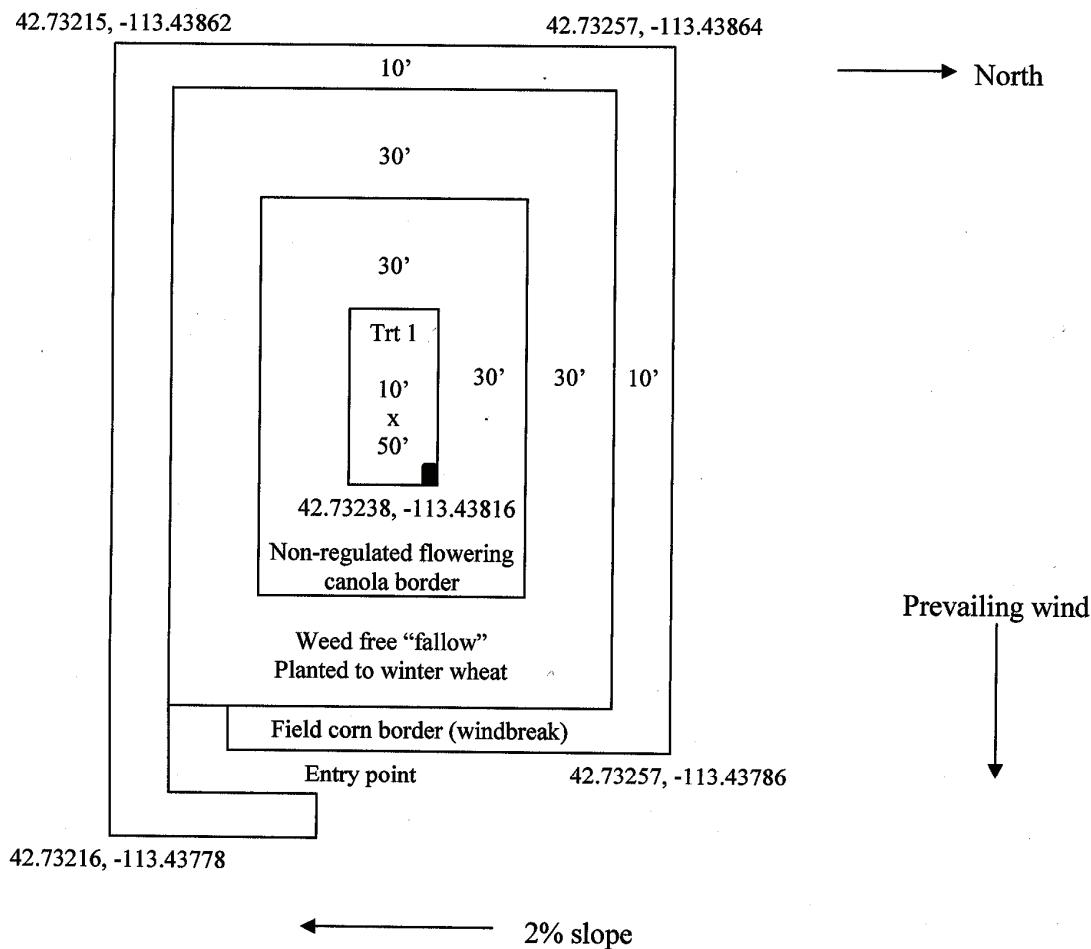
Sample and Shipping Information

CUTTING DATE	SAMPLING DATE	FRACTION	GROWTH STAGE	TRT. No.	SAMPLE No.	SAMPLE SIZE (kg)	SHIPPING DATE	DATE RECEIVED AT LAB
09/18/09	09/18/09	Seed	BBCH 97-99	1	REG09091-00001	0.6	10/21/09	10/30/09
09/18/09	09/18/09	Seed	BBCH 97-99	2	REG09091-00002	0.7	10/21/09	10/30/09
09/18/09	09/18/09	Seed	BBCH 97-99	2	REG09091-00003	0.8	10/21/09	10/30/09
09/18/09	09/18/09	Seed	BBCH 97-99	3	REG09091-00004	0.7	10/21/09	10/30/09
09/18/09	09/18/09	Seed	BBCH 97-99	3	REG09091-00005	0.7	10/21/09	10/30/09
09/18/09	09/18/09	Seed	BBCH 97-99	4	REG09091-00006	0.7	10/21/09	10/30/09
09/18/09	09/18/09	Seed	BBCH 97-99	4	REG09091-00007	0.8	10/21/09	10/30/09

Maximum Number of Hours from Sampling until Freezing:	1.4
Field Sample Storage Conditions (ambient, frozen):	Frozen
Shipping Carrier:	ACDS #114952
Shipping Destination:	Monsanto Company Attn: [REDACTED]
	V-Dock Receiving 800 N. Lindbergh Blvd. St. Louis, MO 63141
Shipping Conditions (ambient, frozen):	Frozen

Appendix 6 Trial No. ID-6 (continued) Plot Diagram (Control Plot)

Study: REG-09-091
Trial: 6



EE Jm 19 Dec 09
east
Rows run north and south.
west
EE Jm 19 Dec 09

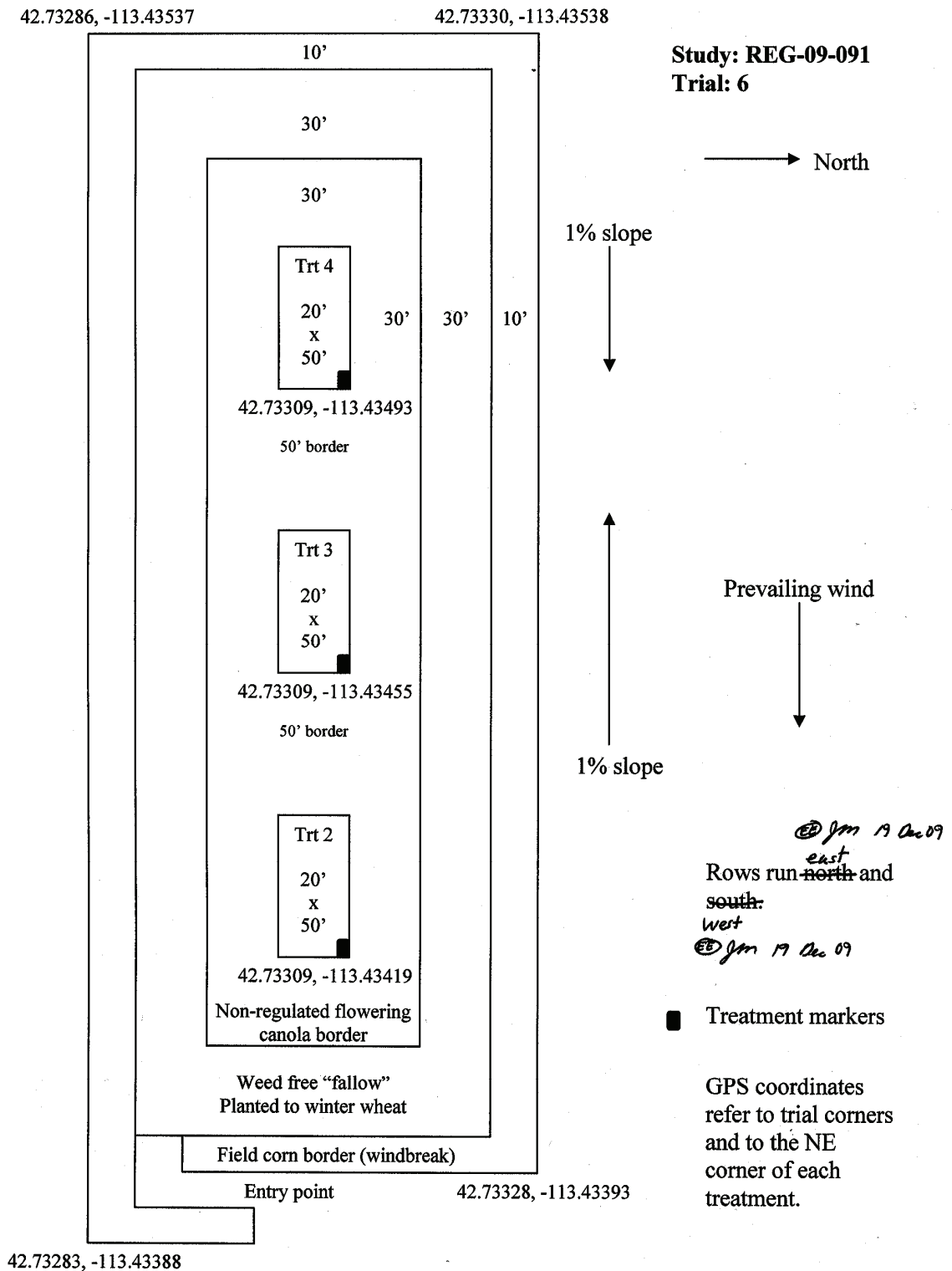
■ Treatment marker

GPS coordinates refer to trial corners and to the NE corner of treatment 1.

The untreated plot (treatment 1) is approximately 700 feet upwind from the treated plots (treatments 2, 3, and 4).

Appendix 6 Trial No. ID-6 (continued)

Plot Diagram (Treated Plots)



Appendix 7 Trial No. ID-7

Personnel

Principal Investigator:	
Affiliation:	Varco, Inc.
Investigator Street Address:	180W 100N
Investigator City, State, Country, Zip Code:	Jerome, ID, USA, 83338
Other Personnel Involved in the Trial:	

Plot Information

EPA/PMRA Region Number:	11
Test Site Street Address:	519 North Road
City, State, Country, Zip Code:	Jerome, ID, USA, 83338
County:	Jerome
EPA Crop Group:	Not Applicable
Test System:	Canola
Variety:	MON 88301
Planting Date of Crop:	05/19/09
Number Treated Plots (excluding controls):	3
Size of Treated Plot(s):	Trt 2 and 4: 24 ft x 50 ft Trt 3: 24 ft x 125 ft
Distance between UTC and Trt Plot:	50 ft
Row Spacing:	6 inches
Plant Spacing in Row:	~1.5 inch
Rows per Treated Plot:	48
Plot Slope:	1%
Soil Type:	Loam
Soil % Organic Matter:	1.4
Soil pH:	7.4
CEC (meq/100 g):	24.2

Appendix 7 Trial No. ID-7 (continued)

Weather Information

Source of Test Site Temperature Data:	NOAA #10 4670-7, Jerome, ID (Trial Data) Climatography of U.S. #81, Jerome, ID (Historical Data)
Distance of Temperature Data from the Test Site:	5.0 miles (Trial and Historical Data)
Source of Test Site Precipitation Data:	NOAA #10 4670-7, Jerome, ID (Trial Data) Climatography of U.S. #81, Jerome, ID (Historical Data)
Distance of Precipitation Data from the Test Site:	5.0 miles (Trial and Historical Data)
Type of Irrigation Used:	Center Pivot Sprinkler

WEATHER PERIOD	MEAN MIN TEMP (F)	MEAN MIN 10 YR AVERAGE TEMP (F)	MEAN MAX TEMP (F)	MEAN MAX 10 YR AVERAGE TEMP (F)	TOTAL RAINFALL (INCHES)	TOTAL RAINFALL 10 YR AVERAGE (INCHES)	TOTAL IRRIGATION (INCHES)
May 2009	42	41	75	71	0.86	1.14	1.36
June 2009	48	49	81	81	2.70	0.76	3.07
July 2009	56	55	91	90	0.07	0.22	4.55
August 2009	53	54	90	90	0.05	0.27	3.10
September 2009	48	45	87	78	0.07	0.49	0.00

Chemical History

OTHER CHEMICALS APPLIED DURING THE TEST YEAR:	RATE / UNITS	DATE
Dry (Urea)	108 lb/A	04-Apr-09
Sonalan	0.56 lb ai/A	18-May-09

FIELD HISTORY FOR PREVIOUS 1 YEAR:			
CROP	CHEMICALS	RATE / UNITS	DATE
Canola	Sequence (glyphosate + Dual)	0.84 + 1.13 lb ai/A	05/22/08
Canola	Sequence (glyphosate + Dual)	0.56 + 0.75 lb ai/A	06/20/08
Canola	Impact	0.011 b ai/A	06/20/08

Appendix 7 Trial No. ID-7 (continued)

Application Information

APPLICATION TIMING	Preemergence
CALIBRATION DATE	05/25/09
APPLICATION DATE	05/25/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	Tractor-mounted 3 pt sprayer with side boom
TREATED AREA (FT ²)	Trt 2 and 4: 1200; Trt 3: 3000

PLOT ID	2	3	4
TEST SUBSTANCE	Glyphosate	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	176	430	176
FINAL SPRAY VOL. (ML)	4090	10000	4090
SURFACTANT	Activator 90	Activator 90	Activator 90
SURFACTANT RATE (%V/V)	0.5	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	Not Applicable	Not Applicable	Not Applicable
SPRAY VOLUME APPLIED (ML)	2061.6	5113.1	2042.0
TIME IN PLOT (SEC)	28.37	70.36	28.10
TOTAL ML/SEC DELIVERY (CALIBRATED)	72.67	72.67	72.67
APPLICATION RATE (G A.E./HA)	4295	4258	4254
APPLICATION VOLUME GPA	19.8	19.6	19.6

CROP GROWTH STAGE	BBCH 08 (hypocotyl and cotyledons growing toward soil surface)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	Trt 2: 2-4/SE; Trt 3: 1.8-3.6/SE; Trt 4: 1-3/SE
AIR TEMP (°F)	68
SOIL TEMP @ 2 INCHES (°F)	62
RELATIVE HUMIDITY (%)	76
% CLOUD COVER	15

$$\begin{aligned}
 &\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha} \\
 &\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{}}
 \end{aligned}$$

Appendix 7 Trial No. ID-7 (continued)

Application Information (continued)

APPLICATION TIMING	4-6 Leaf
CALIBRATION DATE	06/22/09
APPLICATION DATE	06/22/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	Tractor-mounted 3 pt sprayer with side boom
TREATED AREA (FT ²)	Trt 2 and 4: 1200; Trt 3: 3000

PLOT ID	2	3	4
TEST SUBSTANCE	Glyphosate	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	38	90	38
FINAL SPRAY VOL. (ML)	2320	5490	2320
SURFACTANT	Activator 90	Activator 90	Activator 90
SURFACTANT RATE (%V/V)	0.5	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17	17	17
SPRAY VOLUME APPLIED (ML)	1121.6	2814	1118.4
TIME IN PLOT (SEC)	28.04	70.35	27.96
TOTAL ML/SEC DELIVERY (CALIBRATED)	40	40	40
APPLICATION RATE (G A.E./HA)	890	893	887
APPLICATION VOLUME GPA	10.8	10.8	10.7

CROP GROWTH STAGE	BBCH 14-16 (25% - 4 leaf stage, 75% - 6 leaf stage)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	Trt 2: 0.7-1.5 / W Trt 3: 0.3-0.9 / W Trt 4: 0.3-1.0 / W
AIR TEMP (°F)	57
SOIL TEMP @ 2 INCHES (°F)	65
RELATIVE HUMIDITY (%)	52
% CLOUD COVER	0

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{ }}$$

Appendix 7 Trial No. ID-7 (continued)

Application Information (continued)

APPLICATION TIMING	Late Bolting
CALIBRATION DATE	07/08/09
APPLICATION DATE	07/08/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	Tractor-mounted 3 pt sprayer with side boom
TREATED AREA (FT ²)	1200

PLOT ID	4
TEST SUBSTANCE	Glyphosate
FORMULATION	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	37
FINAL SPRAY VOL. (ML)	2150
SURFACTANT	Activator 90
SURFACTANT RATE (%v/v)	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17
SPRAY VOLUME APPLIED (ML)	1080.3
TIME IN PLOT (SEC)	28.01
TOTAL ML/SEC DELIVERY (CALIBRATED)	38.57
APPLICATION RATE (G A.E./HA)	900
APPLICATION VOLUME GPA	10.4

CROP GROWTH STAGE	BBCH 59 (first petals visible, flower buds still closed)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	3-5 / W
AIR TEMP (°F)	57
SOIL TEMP @ 2 INCHES (°F)	64
RELATIVE HUMIDITY (%)	58
% CLOUD COVER	0

mL product applied x 540 g a.e./L x Amount Applied (mL) x 43,560 ft²/A x 2.47 A/ha
g a.e./ha = _____

1000 mL/L x Mix Volume (mL) x Area Treated (ft²)

Appendix 7 Trial No. ID-7 (continued)

Application Information (continued)

APPLICATION TIMING	First Flower
CALIBRATION DATE	07/15/09
APPLICATION DATE	07/15/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	Tractor-mounted 3 pt sprayer with side boom
TREATED AREA (FT ²)	Trt 2 and 4: 1200; Trt3: 3000

PLOT ID	2	3
TEST SUBSTANCE	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	37	186
FINAL SPRAY VOL. (ML)	2140	5390
SURFACTANT	Activator 90	Activator 90
SURFACTANT RATE (%v/v)	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17	17
SPRAY VOLUME APPLIED (ML)	1075.41	2744.8
TIME IN PLOT (SEC)	27.81	70.98
TOTAL ML/SEC DELIVERY (CALIBRATED)	38.67	38.67
APPLICATION RATE (G A.E./HA)	900	1834
APPLICATION VOLUME GPA	10.3	10.5

CROP GROWTH STAGE	BBCH 60 (first flowers open)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	Trt 2: 0.8-1.8 / W Trt 3: 1.0-1.5 / W
AIR TEMP (°F)	87
SOIL TEMP @ 2 INCHES (°F)	71
RELATIVE HUMIDITY (%)	25
% CLOUD COVER	0

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}$$

Appendix 7 Trial No. ID-7 (continued)

Sample and Shipping Information

CUTTING DATE	SAMPLING DATE	FRACTION	GROWTH STAGE	TRT. No.	SAMPLE NO.	SAMPLE SIZE (kg)	SHIPPING DATE	DATE RECEIVED AT LAB
09/08/09	09/19/09	Seed (Normal)	BBCH 87	1	REG09091-00008	0.7	10/21/09	10/30/09
09/09/09	09/19/09	Seed (+1 day)	BBCH 87	1	REG09091-00057	0.7	10/21/09	10/30/09
09/11/09	09/19/09	Seed (+3 days)	BBCH 88	1	REG09091-00058	0.7	10/21/09	10/30/09
09/15/09	09/21/09	Seed (+7 days)	BBCH 88	1	REG09091-00059	0.7	10/21/09	10/30/09
09/18/09	09/21/09	Seed (+10 days)	BBCH 89	1	REG09091-00060	0.7	10/21/09	10/30/09
09/08/09	09/19/09	Seed (Normal)	BBCH 87	2	REG09091-00009	0.7	10/21/09	10/30/09
09/08/09	09/19/09	Seed (Normal)	BBCH 87	2	REG09091-00010	0.7	10/21/09	10/30/09
09/08/09	09/19/09	Seed (Normal)	BBCH 87	3	REG09091-00011	0.7	10/21/09	10/30/09
09/08/09	09/19/09	Seed (Normal)	BBCH 87	3	REG09091-00012	0.7	10/21/09	10/30/09
09/09/09	09/19/09	Seed (+1 day)	BBCH 87	3	REG09091-00061	0.7	10/21/09	10/30/09
09/09/09	09/19/09	Seed (+1 day)	BBCH 87	3	REG09091-00062	0.7	10/21/09	10/30/09
09/11/09	09/19/09	Seed (+3 days)	BBCH 88	3	REG09091-00063	0.7	10/21/09	10/30/09
09/11/09	09/19/09	Seed (+3 days)	BBCH 88	3	REG09091-00064	0.7	10/21/09	10/30/09
09/15/09	09/21/09	Seed (+7 days)	BBCH 88	3	REG09091-00065	0.7	10/21/09	10/30/09
09/15/09	09/21/09	Seed (+7 days)	BBCH 88	3	REG09091-00066	0.7	10/21/09	10/30/09
09/18/09	09/21/09	Seed (+10 days)	BBCH 89	3	REG09091-00067	0.7	10/21/09	10/30/09
09/18/09	09/21/09	Seed (+10 days)	BBCH 89	3	REG09091-00068	0.7	10/21/09	10/30/09
09/08/09	09/19/09	Seed (Normal)	BBCH 87	4	REG09091-00013	0.7	10/21/09	10/30/09
09/08/09	09/19/09	Seed (Normal)	BBCH 87	4	REG09091-00014	0.7	10/21/09	10/30/09

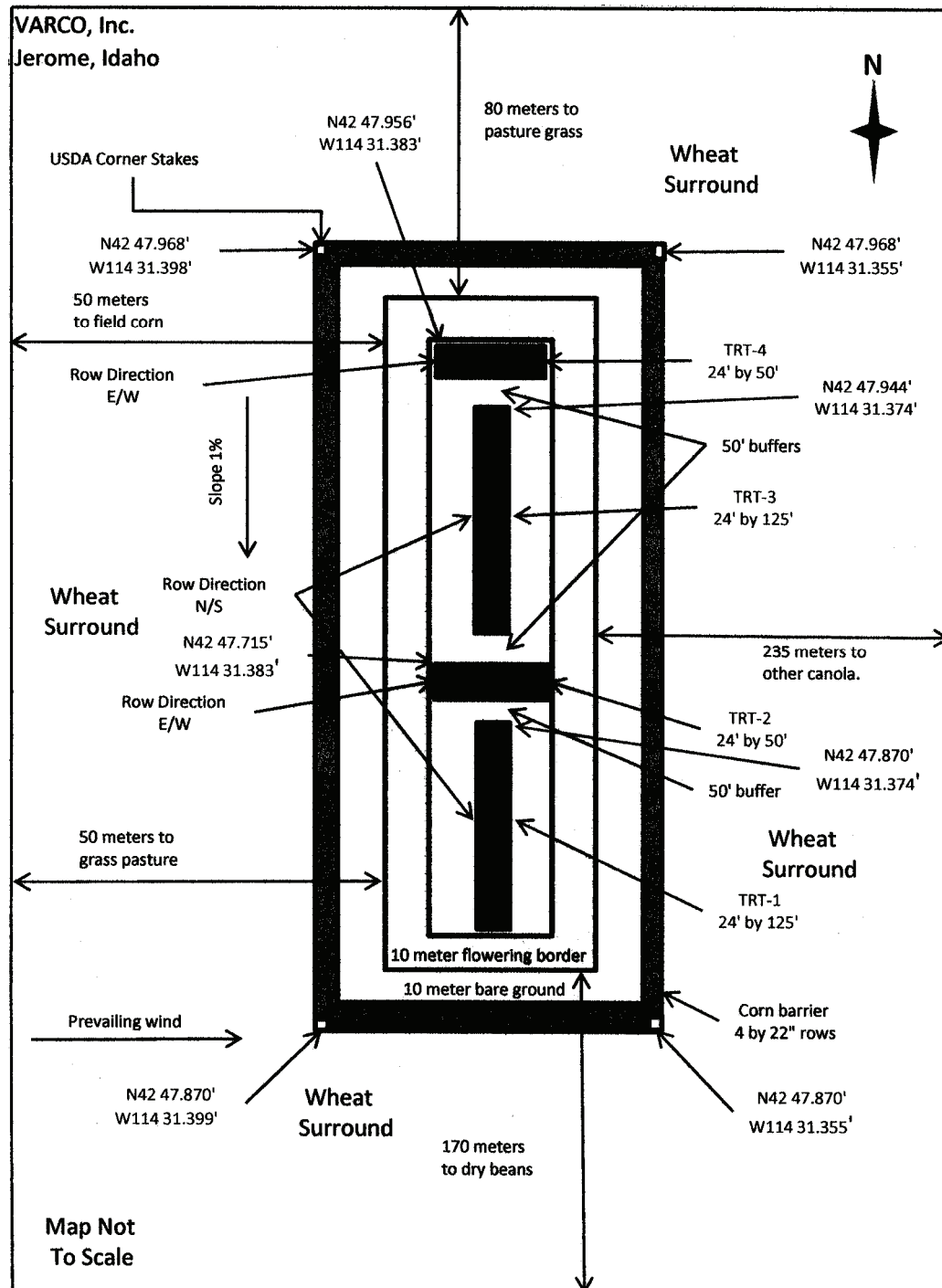
Appendix 7 Trial No. ID-7 (continued)

Sample and Shipping Information

Maximum Number of Hours from Sampling until Freezing:	2.67
Field Sample Storage Conditions (ambient, frozen):	Frozen
Shipping Carrier:	ACDS #116724
Shipping Destination:	Monsanto Company Attn: [REDACTED]
	V-Dock Receiving 800 N. Lindbergh Blvd. St. Louis, MO 63141
Shipping Conditions (ambient, frozen):	Frozen

Appendix 7 Trial No. ID-7 (continued)

Plot Diagram



Appendix 8 Trial No. ID-8

Personnel

Principal Investigator:	[REDACTED]
Affiliation:	AgraServ, Inc.
Investigator Street Address:	2565 Freedom Lane
Investigator City, State, Country, Zip Code:	American Falls, ID, USA, 83211
Other Personnel Involved in the Trial:	[REDACTED]

Plot Information

EPA/PMRA Region Number:	11
Test Site Street Address:	Southside of Neibaur Rd/1.2 miles east of Lakeview Rd.
City, State, Country, Zip Code:	American Falls, ID, USA, 83211
County:	Power
EPA Crop Group:	Not Applicable
Test System:	Canola
Variety:	MON 88302
Planting Date of Crop:	06/27/09
Number Treated Plots (excluding controls):	3
Size of Treated Plot(s):	Trt 2 and 4: 12 ft x 100 ft Trt 3: 48 ft x 200 ft planted
Distance between UTC and Trt Plot:	~64 ft
Row Spacing:	7 inches
Plant Spacing in Row:	Not recorded
Rows per Treated Plot:	Trt 2 and 4: 24 Trt 3: 96
Plot Slope:	0-0.5%
Soil Type:	Silt Loam
Soil % Organic Matter:	1.23
Soil pH:	8.0
CEC (meq/100 g):	13.9

Appendix 8 Trial No. ID-8 (continued)

Weather Information

Source of Test Site Temperature Data:	NOAA #10-0218-09, American Falls, ID (Trial Data) NOAA #10-0227 / #0218-09, American Falls, ID (Historical Data)	
Distance of Temperature Data from the Test Site:	0.9 miles (Trial Data) miles / 0.9 miles (Historical Data)	7.4
Source of Test Site Precipitation Data:	NOAA #10-0218-09, American Falls, ID (Trial Data) NOAA #10-0227 / #0218-09, American Falls, ID (Historical Data)	
Distance of Precipitation Data from the Test Site:	0.9 miles (Trial Data) miles / 0.9 miles (Historical Data)	7.4
Type of Irrigation Used:	Overhead Sprinkler	

WEATHER PERIOD	MEAN MIN TEMP (F)	MEAN MIN 10 YR AVERAGE TEMP (F)	MEAN MAX TEMP (F)	MEAN MAX 10 YR AVERAGE TEMP (F)	TOTAL RAINFALL (INCHES)	TOTAL RAINFALL 10 YR AVERAGE (INCHES)	TOTAL IRRIGATION (INCHES)
July 2009	54	55	89	86	0.18	0.19	5.37
August 2009	52	53	87	85	Trace	0.39	8.45
September 2009	48	44	83	74	0.6	0.61	3.38
October 2009	34	36	56	61	1.12	0.85	0.0
November 2009	24	26	47	46	0.03	0.84	0.0
December 2009	14	19	29	34	0.38	1.26	0.0

Chemical History

OTHER CHEMICALS APPLIED DURING THE TEST YEAR:	RATE / UNITS	DATE
MAP 11-52-00 Fertilizer	113 b/A	11/08
ESN 44-0-0 Fertilizer	200 b/A	11/08
Sonalon HFP	2 pt/A	06/26/09

FIELD HISTORY FOR PREVIOUS 1 YEAR:

CROP	CHEMICALS	RATE / UNITS	DATE
Potato	Sencor	0.5 lb prod/A	06/08
Potato	Prowl	2 pt prod/A	06/08
Potato	Asana XL	9 fl oz prod/A	06/08

Appendix 8 Trial No. ID-8 (continued)

Application Information

APPLICATION TIMING	Preemergence
CALIBRATION DATE	07/03/09
APPLICATION DATE	07/03/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	Hand held Boom Sprayer
TREATED AREA (FT ²)	Trt 2and 4: 1200, Trt 3: 9,480

PLOT ID	2	3	4
TEST SUBSTANCE	Glyphosate	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	129	945	129
FINAL SPRAY VOL. (ML)	1496.5	11000	1506.5
SURFACTANT	Adwet 90	Adwet 90	Adwet 90
SURFACTANT RATE (%V/V)	0.5	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	Not Applicable	Not Applicable	Not Applicable
SPRAY VOLUME APPLIED (ML)	1100.25	8268.75	1073.25
TIME IN PLOT (SEC)	16.3	122.5	15.9
TOTAL ML/SEC DELIVERY (CALIBRATED)	67.5	67.5	67.5
APPLICATION RATE (G A.E./HA)	4592	4354	4450
APPLICATION VOLUME GPA	10.6	10.0	10.3

CROP GROWTH STAGE	BBCH 08 (growing toward soil surface)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	Trt 2: 2-4/SW Trt 3: 1-3/SW Trt 4: 1-4/SW
AIR TEMP (°F)	80
SOIL TEMP @ 2 INCHES (°F)	85
RELATIVE HUMIDITY (%)	42
% CLOUD COVER	10

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{}}$$

Appendix 8 Trial No. ID-8 (continued)

Application Information (continued)

APPLICATION TIMING	4-6 Leaf
CALIBRATION DATE	07/27/09
APPLICATION DATE	07/28/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	Hand held Boom Sprayer
TREATED AREA (FT ²)	Trt 2and 4: 1200, Trt 3: 9,600

PLOT ID	2	3	4
TEST SUBSTANCE	Glyphosate	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	25.7	188.6	25.7
FINAL SPRAY VOL. (ML)	1500	11000	1500
SURFACTANT	Adwet 90	Adwet 90	Adwet 90
SURFACTANT RATE (%V/V)	0.5	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17	17	17
SPRAY VOLUME APPLIED (ML)	1099	8791.7	1091.7
TIME IN PLOT (SEC)	15.2	121.6	15.1
TOTAL ML/SEC DELIVERY (CALIBRATED)	72.3	72.3	72.3
APPLICATION RATE (G A.E./HA)	912	912	906
APPLICATION VOLUME GPA	10.6	10.6	10.5

CROP GROWTH STAGE	BBCH 14-16 (4-6 leaves)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	Trt 2: 0-4 / NE Trt 3: 0-3 / NE Trt 4: 0-4 / NE
AIR TEMP (°F)	63
SOIL TEMP @ 2 INCHES (°F)	68
RELATIVE HUMIDITY (%)	84
% CLOUD COVER	90

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}$$

Appendix 8 Trial No. ID-8 (continued)

Application Information (continued)

APPLICATION TIMING	Late Bolting
CALIBRATION DATE	08/17/09
APPLICATION DATE	08/17/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	Hand held Boom Sprayer
TREATED AREA (FT ²)	1200

PLOT ID	4
TEST SUBSTANCE	Glyphosate
FORMULATION	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	27.1
FINAL SPRAY VOL. (ML)	1499.6
SURFACTANT	Adwet 90
SURFACTANT RATE (%v/v)	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17
SPRAY VOLUME APPLIED (ML)	1063.4
TIME IN PLOT (SEC)	15.57
TOTAL ML/SEC DELIVERY (CALIBRATED)	68.3
APPLICATION RATE (G A.E./HA)	930
APPLICATION VOLUME GPA	10.2

CROP GROWTH STAGE	BBCH 38 (stem elongation, buds present, enclosed by leaves)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	0-1 / NW
AIR TEMP (°F)	79
SOIL TEMP @ 2 INCHES (°F)	78
RELATIVE HUMIDITY (%)	54
% CLOUD COVER	5

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}$$

Appendix 8 Trial No. ID-8 (continued)

Application Information (continued)

APPLICATION TIMING	First Flower
CALIBRATION DATE	08/26/09
APPLICATION DATE	08/26/09
APPLICATION TYPE	Broadcast
APPLICATION EQUIPMENT	Hand held Boom Sprayer
TREATED AREA (FT ²)	Trt 2: 1200, Trt 3: 9,600

PLOT ID	2	3
TEST SUBSTANCE	Glyphosate	Glyphosate
FORMULATION	Roundup WeatherMax	Roundup WeatherMax
TEST SUBSTANCE USED (ML)	26.4	387
FINAL SPRAY VOL. (ML)	1500	11000
SURFACTANT	Adwet 90	Adwet 90
SURFACTANT RATE (%v/v)	0.5	0.5
AMMONIUM SULFATE RATE (LB/100 GAL)	17	17
SPRAY VOLUME APPLIED (ML)	1067.7	8368
TIME IN PLOT (SEC)	15.4	120.7
TOTAL ML/SEC DELIVERY (CALIBRATED)	69.33	69.33
APPLICATION RATE (G A.E./HA)	910	1782
APPLICATION VOLUME GPA	10.3	10.1

CROP GROWTH STAGE	BBCH 60 (1 st flowers open)
WIND SPEED AT APPLICATION (MPH) / DIRECTION	1-2 / NW
AIR TEMP (°F)	68
SOIL TEMP @ 2 INCHES (°F)	60
RELATIVE HUMIDITY (%)	55
% CLOUD COVER	0

$$\text{mL product applied} \times 540 \text{ g a.e./L} \times \text{Amount Applied (mL)} \times 43,560 \text{ ft}^2/\text{A} \times 2.47 \text{ A/ha}$$

$$\text{g a.e./ha} = \frac{\text{1000 mL/L} \times \text{Mix Volume (mL)} \times \text{Area Treated (ft}^2\text{)}}{\text{}}$$

Appendix 8 Trial No. ID-8 (continued)

Sample and Shipping Information

CUTTING DATE	SAMPLING DATE	FRACTION	GROWTH STAGE	TRT. NO.	SAMPLE NO.	SAMPLE SIZE (kg)	SHIPPING DATE	DATE RECEIVED AT LAB
10/29-30/09	11/30/09	Seed	Maturity	1	REG09091-00015	1.2	12/16/09	12/21/09
10/29-30/09	11/30/09	Seed	Maturity	1	REG09091-00081	23.9	12/02/09	12/03/09
10/29-30/09	12/01/09	Seed	Maturity	2	REG09091-00016	0.6	12/16/09	12/21/09
10/29-30/09	12/01/09	Seed	Maturity	2	REG09091-00017	0.5	12/16/09	12/21/09
10/29-30/09	12/01/09	Seed	Maturity	3	REG09091-00018	1.0	12/16/09	12/21/09
10/29-30/09	12/01/09	Seed	Maturity	3	REG09091-00082	14.4	12/02/09	12/03/09
10/29-30/09	12/01/09	Seed	Maturity	3	REG09091-00019	1.0	12/16/09	12/21/09
10/29-30/09	12/01/09	Seed	Maturity	4	REG09091-00020	0.5	12/16/09	12/21/09
10/29-30/09	12/01/09	Seed	Maturity	4	REG09091-00021	0.7	12/16/09	12/21/09

RAC Samples	
Maximum Number of Hours from Sampling until Freezing:	3.65 (RAC Samples)
Field Sample Storage Conditions (ambient, frozen):	Frozen
Shipping Carrier:	ACDS #117381
Shipping Destination:	Monsanto Company Attn: [REDACTED]
	V-Dock Receiving 800 N. Lindbergh Blvd. St. Louis, MO 63141
Shipping Conditions (ambient, frozen):	Frozen

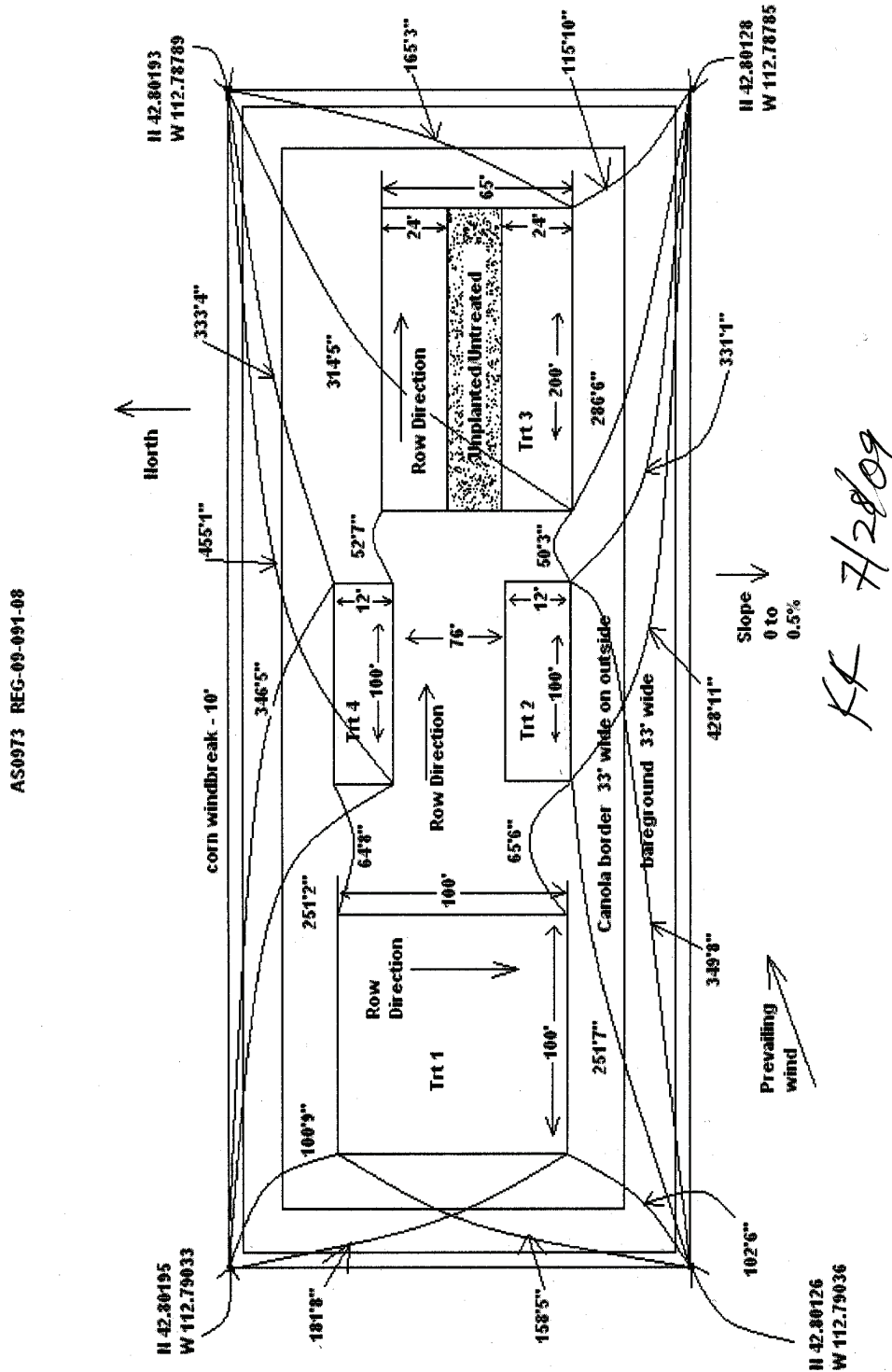
Appendix 8 Trial No. ID-8 (continued)

Sample and Shipping Information (continued)

Processing Samples	
Maximum Number of Hours from Sampling until Freezing:	Samples REG-09091-00081 and REG-09091-00082 for processing were stored at ambient temp for 1-2 days before placing into the freezer.
Field Sample Storage Conditions (ambient, frozen):	Ambient / Frozen
Shipping Carrier:	FedEx #7930 6510 5086
Shipping Destination:	GLP Technologies Attn: [REDACTED] 22723 State Highway 6 South Navasota, TX 77868
Shipping Conditions (ambient, frozen):	Frozen

Appendix 8 Trial No. ID-8 (continued)

Plot Diagram



Appendix C. Processing Report

STUDY SPONSOR:

**Monsanto Company
800 North Lindbergh Blvd.
St. Louis, Missouri 63167**

STUDY DIRECTOR:


**Monsanto Company
St. Louis, Missouri 63167**

PROCESSING REPORT:

Canola: Small-Scale Processing

TITLE:

**Magnitude of Glyphosate Residues in Roundup Ready Canola Raw Agricultural
Commodities Following Applications of a Glyphosate-Based Formulation. 2009
U.S. Trials**

PROCESSING COMPLETION DATE:

June 15, 2010

AUTHOR:



PROCESSING FACILITY:

**GLP Technologies
22723 State Highway 6 South
Navasota, Texas 77868**

STUDY IDENTIFICATION:

Study Number: REG-09-091

Study Number: REG-09-091
Page 1 of 20

GLP COMPLIANCE STATEMENT

TITLE: Magnitude of Glyphosate Residues in Roundup Ready Canola Raw Agricultural Commodities Following Applications of a Glyphosate-Based Formulation. 2009 U.S. Trials

This processing study was conducted and reported in accordance with the Environmental Protection Agency's Good Laboratory Practice Standards, 40 CFR 160, Federal Register, effective date October 16, 1989.



Processing Principal Investigator

QUALITY ASSURANCE STATEMENT

TITLE: Magnitude of Glyphosate Residues in Roundup Ready Canola Raw Agricultural Commodities Following Applications of a Glyphosate-Based Formulation. 2009 U.S. Trials

In compliance with the Good Laboratory Practice regulations an inspector with the Quality Assurance Unit has inspected at least one phase of this study. Inspection findings were reported to GLP Technologies management, the study director and the study director's management. The Quality Assurance Unit has reviewed the processing report and certifies that it accurately describes the methods and standard operating procedures used, and the reported results accurately reflect the raw data generated during this processing phase.

Signed: _____



Quality Assurance Coordinator
GLP Technologies

INSPECTION		DATES REPORTED TO:	
TYPE	DATE	GLP TECHNOLOGIES MANAGER	STUDY DIRECTOR & STUDY DIRECTOR'S MANAGEMENT
1) Process Phase SOP G.14 R03 Sec. 4: "Crude Oil Recovery "	03 Mar 2010	10 Mar 2010	15 Mar 2010
2) Process Report	08 and 09 Jun 2010	10 Jun 2010	15 Jun 2010

CERTIFICATION OF AUTHENTICITY

This report is an accurate and complete representation of the study/project activities.

A large black rectangular redaction box covering the signature of the Principal Investigator.

Processing Principal Investigator

TABLE OF CONTENTS

	PAGE
1. TITLE	1
2. GLP COMPLIANCE STATEMENT	2
3. QUALITY ASSURANCE STATEMENT	3
4. CERTIFICATE OF AUTHENTICITY	4
5. TABLE OF CONTENTS	5
6. STUDY INFORMATION PAGE	6
7. INTRODUCTION	7
8. TEST SUBSTANCE	7
9. OBJECTIVE	7
10. METHODS & MATERIALS	8-11
11. CONCLUSIONS	11
12. DATA ARCHIVAL	12
13. MATERIAL BALANCES	13, 14
14. Processing Procedures (SOP)	15-20

TITLE: Magnitude of Glyphosate Residues in Roundup Ready Canola Raw Agricultural Commodities Following Applications of a Glyphosate-Based Formulation. 2009 U.S. Trials

STUDY SPONSOR: Monsanto Company
St. Louis, Missouri

STUDY DIRECTOR: [REDACTED]
Monsanto Company

TESTING FACILITY: Monsanto Company
St. Louis, Missouri

TESTING FACILITY MANAGEMENT: [REDACTED]
Monsanto Company
St. Louis, Missouri

PROCESSING PRINCIPAL INVESTIGATOR: [REDACTED]
GLP Technologies
Navasota, Texas

**PROCESSING, DATA RECORDING
& SHIPPING TECHNICIANS:** [REDACTED]
Dusek, Joseph M. Gibson, and Luke Wagner.

SAMPLE RECEIPT DATE: November 9, 2009 (Trial No. 5)
December 3, 2009 (Trial No. 8)

PROCESSING START DATE: February 25, 2010 (Trial No. 5)

PROCESSING COMPLETION DATE: March 5, 2010 (Trial No. 5)

FRACTION SHIPMENT DATE: March 16, 2010 (Trial No. 5)

PROCESSING REPORT COMPLETION DATE: June 15, 2010

INTRODUCTION:

Canola samples received from two field sites (Agro-Tech in Velva, North Dakota and AgraServ, Inc. in American Falls, Idaho) were processed into commercially representative food/feed fractions. These fractions were shipped to Monsanto Company in St. Louis, Missouri.

TEST SUBSTANCE: [From protocol]

Common Name: Roundup WeatherMAX with Transorb 2 Technology Liquid
Herbicide
Company Experimental Name: MON 79380
CAS Registry No.: 70901-12-1

OBJECTIVE:

GLP Technologies objective was to produce and collect commercially representative processed food/feed fractions from canola samples grown in the field.

METHODS & MATERIALS:

Receipt of Test Commodities:

Trial No. : 5

Two frozen canola samples (RAC [Raw Agricultural Commodity]) were received from Agro-Tech in Velva, North Dakota. Agricultural Chemicals Development Services, Inc. (ACDS) delivered the samples on November 9, 2009. Samples were identified and processed in the following order: REG09091-00083 (Control, Trt. 1) and REG09091-00084 (Treated, Trt. 3).

Trial No. : 8

Two frozen canola samples (RAC) were received from AgraServ, Inc. in American Falls, Idaho. ACDS delivered the samples on December 3, 2009. Samples were identified in the following order: REG09091-00081 (Control, Trt. 1) and REG09091-00082 (Treated, Trt. 3). Due to poor seed quality, the samples were removed from the processing phase (amendment number 3). Samples were devitalized by flaking on June 9, 2010 and discarded per facility SOP.

After receipt and inventory, all samples were placed into frozen storage.

Storage Conditions:

GLP Technologies SOP E.2 "Storage of Samples in Freezers" requires that freezer temperatures be maintained at or below 10 degrees Fahrenheit with the exception of the defrost cycle and removal and placement of samples in the freezers. Recorded in the data are the times and dates for removal or placement of samples/fractions in freezers or coolers.

Sample/Fraction Handling:

Samples were handled in a manner that minimizes the possibility of contamination. It is this facility's policy to use only containers and utensils washed with detergent and rinsed with water.

Processing Methods:

Control and treated samples from trial no. 5 were processed according to the following procedure.

For processing, moisture content of incoming canola seed is required to be less than 10.0% according to the processing SOP (see Appendix). After determining the

moisture content of the incoming seed, the canola is dried (if necessary) in a Steelman Industries oven at 130-160°F until the moisture content is less than 10.0%. Both samples required drying. Following drying, the samples were cleaned by aspiration and screening. A Kice Industries aspirator was used to remove light impurities from the sample. Samples were then screened in a Hance Corporation screen cleaner. Large and small foreign particles (screenings) were removed from the cleaned canola.

Cleaned canola seed was flaked in an A. T. Ferrell flaking roll with a gap setting of 0.013". Flakes were heated in a Marion mixer to 180-210°F and held for 10 to 15 minutes in the temperature range. Flakes were pressed (expelled) in a Komet expeller to mechanically remove a portion of the crude oil. Resulting products were presscake and expelled crude oil. Residual crude oil remaining in the solid material (presscake) exiting the expeller was removed during solvent extraction.

Presscake was placed in stainless steel batch extractors and submerged in 120-140°F solvent (hexane). After 30 minutes, the miscella (hexane and crude oil) was drained and fresh hexane added to repeat the cycle two more times. Final two washes were for 15-30 minutes each. After the final draining, the extracted presscake (meal) was toasted to remove residual hexane.

For production of toasted meal, the extracted presscake was placed in a Reliance Industries steam heat paddle mixer. Steam was injected onto the product until the product temperature was 200-210°F. After stopping the steam injection, the product was heated to and held for 20 minutes at 210-220°F. Product was removed from the mixer. After cooling, the toasted meal was screen using a 10 mesh hand screen. Material passing through the screen was collected as toasted meal and placed in frozen storage.

Miscella was passed through a laboratory vacuum evaporator separate the crude oil and hexane. Crude oil was heated to 195-205°F for hexane removal.

Crude oil samples recovered from the expeller and solvent extraction were filtered and combined.

Percent free fatty acid (FFA) for the crude oil was determined. Oil was placed in a water bath and pretreated with 85% phosphoric acid. Oil was mixed for 29-31 minutes at 104-112°F. Based on the FFA, a calculated amount of 12° baumé sodium hydroxide was added to the oil after pretreatment. Samples were mixed for 19-21 minutes at 104-112°F and then for 9-11 minutes at 149-158°F. Neutralized oil was centrifuged to separate the refined oil and soapstock. Refined oil was decanted and filtered. Resulting fractions were refined oil and soapstock. Soapstock was discarded.

Refined oil was heated to 104-122°F, activated bleaching earth added (2.0% by weight of oil), and placed under vacuum. Temperature was increased to 185-212°F and held

for 10 to 15 minutes. After reducing the temperature, the bleached oil was filtered.

Bleached oil was steam bathed for 45-60 minutes under vacuum and temperature held between 454-482°F. During the cooling period a 0.5% citric acid solution was added (1 ml per 100 grams of oil deodorized). Resulting fractions were deodorized oil (RBD oil) and deodorizer distillates. Deodorized oil was collected and placed in frozen storage.

This processing procedure is outlined in form H.214 (Material Balance of Canola Seed) and is described in detail in SOP G.14 Revision 03, "Canola: Batch Processing Method."

Comparison to Industrial Practice:

Canola samples were processed in a way that simulates industrial practice as closely as possible. Because of compliance monitoring requirements and sample size, the samples were processed by batch rather than continuous, as in commercial operation.

Processing Results:

The following protocol requested fractions were produced and collected: toasted meal, crude oil, alkali-refined oil, and refined-bleached-deodorized (RBD) oil. Unprocessed fractions of whole canola (RAC) were collected prior to processing initiation.

Other Circumstances Pertaining to Study:

The following SOP deviations were reported to the Study Director:

1. (SOP G.14) For toasting samples, steam is injected on the meal until a vapor temperature of 200-210°F is obtained. Steam is stopped and the product is temperature is raised to 220-240°F for 30-60 minutes. For both samples, the steam was stopped when the product temperature reached 200-210°F. Samples were then toasted for 20 minutes at 210-220°F.
2. (SOP D.4) "The balance must be calibrated (standardized) on the day of use." Scale "B" was used to weigh material relating to this processing study on March 4, 2010. No calibration is documented on this day.
3. (SOP D.5) "The balance must be calibrated (standardized) on the day of use." Scale "C" was used to weigh material relating to this processing study on March 4, 2010. No calibration is documented on this day.
4. (SOP D.11) "Pre-Process Verification will be completed prior to processing samples. This ensures that a visual inspection of the machine was performed and that it is clean and operational. The processing personnel will record the

date, unique identifying number (test or protocol number pertinent to study and sample number [if applicable]), and commodity to be processed, and will initial the entries. Cleaning will be performed and documented prior to the next processing study." No pre-process verification or cleaning is documented for the Reliance Industries mixer used on March 3, 2010 to toast canola meal.

These deviations did not have an adverse affect on processing.

Fraction Shipment:

Frozen food/feed fractions were shipped to Andre Van Oyen with Monsanto Company in St. Louis, Missouri via Federal Express priority overnight service on March 16, 2010. "Shipment of Fractions (Chain of Custody)" and "Fraction Shipment and Packing List" forms accompanied the shipment.

Disposal of Material:

All intermediate fractions not requested by Monsanto and extra processing fractions were discarded per facility SOP E.11. Solid material is discarded by placing into a commercial waste container. Container is transported to local landfill by private company. All waste material from cleaning and spillage were flaked prior to disposal. All non requested oil samples were placed in a waste oil barrel.

CONCLUSIONS:

Commercially representative processed food/feed fractions were produced and collected from the canola samples received from the field.

DATA ARCHIVAL:

Record Transfer and Retention:

This processing report as listed in the table of contents has been sent to Michael G. Mueth at Monsanto Company in St. Louis, Missouri for archiving. In addition, original raw data including communication logs, calculations, processing personnel id, deviation forms, exact copies of freezer temperature records, and original receiving and shipping records (includes bill of lading(s), when applicable) were transferred to Monsanto Company.

GLP Technologies will archive the following study specific data:

- copy of the sponsor processing protocol
- exact copy of the processing report (main body)
- exact copy of the compliance statement
- exact copy of the sample material balance
- exact copy of the original raw processing data (includes communication logs, calculations, and deviation forms, when applicable)
- exact copy of personnel records (names and initials of personnel with processing study duties)
- exact copy of receiving record(s)
- exact copy of shipping record(s)
- exact copy of shipping bill of lading(s)

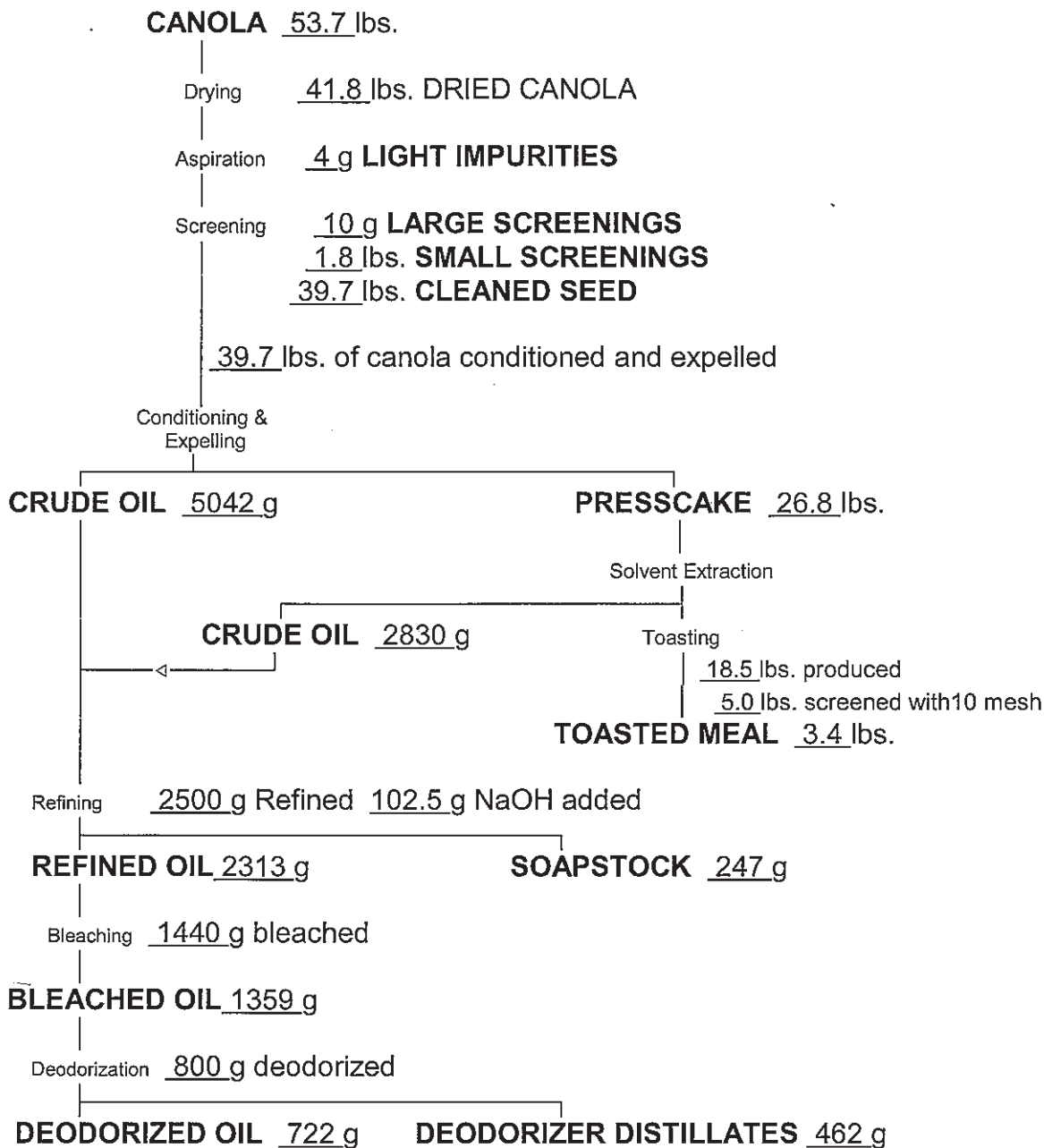
GLP Technologies will archive the following non-study specific data indefinitely:

- original freezer and cooler temperature records
- original equipment logs (includes scales, temperature recording devices, and processing equipment records)
- CVs of personnel and training records

FORM H.214 Revision 00

CANOLA PROCESSING MATERIAL BALANCE

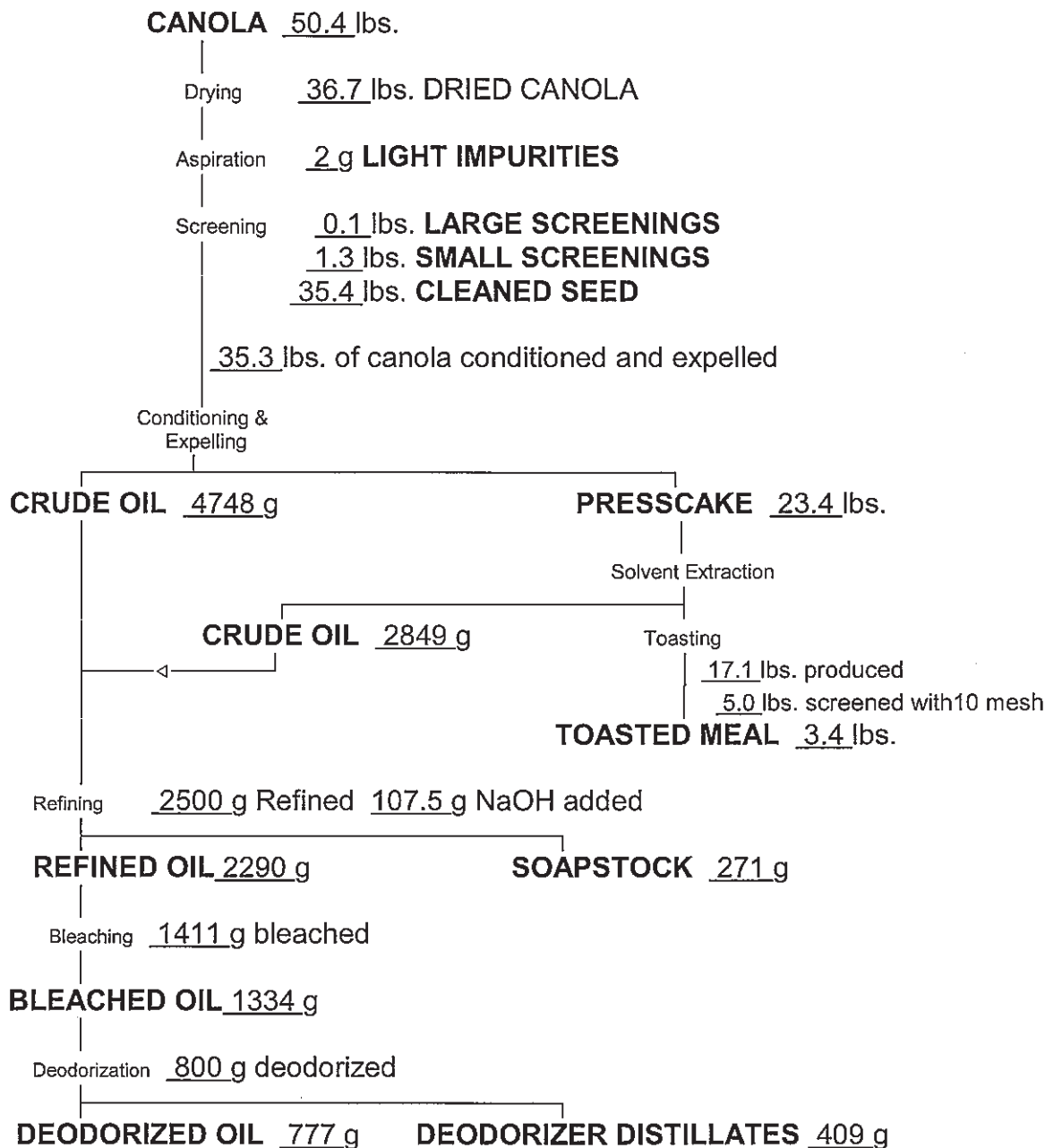
Sample # 1 (Control, Trt. No. 1) Sample No. REG09091-00083



FORM H.214 Revision 00

CANOLA PROCESSING MATERIAL BALANCE

Sample # 2 (Treated, Trt. No. 3) Sample No. REG09091-00084



Standard Operating Procedure
for
GLP Technologies
22723 State Highway 6 South
Navasota, Texas 77868

CANOLA: BATCH PROCESSING METHOD

SOP NUMBER: G.14 REVISION NUMBER: 03

Revised by: _____

Title: Processing Coordinator, GLP Technologies

QA REVIEW: _____

Reviewed by: _____

Title: Quality Assurance Coordinator, GLP Technologies

MANAGEMENT APPROVAL: _____

Title: Manager, GLP Technologies

ANNUAL REVIEW:

<u>Date</u>	<u>Reviewer's Signature</u>	<u>Date</u>	<u>Reviewer's Signature</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

CANOLA: BATCH PROCESSING METHOD
GLP Technologies
22723 State Highway 6 South
Navasota, Texas 77868

Note: For more efficient processing, it is recommended that RAC and/or fractions be allowed to come to room temperature before proceeding with processing steps. If a sample requires drying, the drying procedure may be initiated before the sample comes to ambient temperature.

1. **DRYING AND CLEANING.**

Drying. Moisture content of incoming seed (RAC) will be determined. Moisture content of whole seed will be 10.0% or less. If moisture is above 10.0%, dry at 130-160°F in a Steelman Industries oven or similar oven until the moisture range is 7.0 to 10.0%. After drying (if necessary), seed is cleaned by aspiration and screening.

Aspiration. Whole seed shall be aspirated with a Kice aspiration unit to remove light impurities (light plant particles, dust, soil, etc.).

Screening. A Hance seed cleaner or similar separator is used with screens sufficient in size to separate whole seed from extraneous material (small and large plant material, etc.). Due to varying sizes of incoming seed, Processing Specialist has discretion on screen sizes used. Screening will separate large and small screenings from cleaned seed.

Conventional processing order is drying (if necessary), aspiration, and then screening. Due to varying conditions of incoming samples, the order may be altered to obtain proper machine function. Drying and cleaning steps will produce four fractions: cleaned seed, light impurities, large screenings, and small screenings.

Exception. If sample appears to have been cleaned prior to arrival (operator discretion), aspiration and screening steps can be omitted.

2. **CONDITIONING AND PRESSING.** Cleaned seed is flaked in A. T. Ferrell flaking roll or similar roll with a roll gap setting of 0.011 to 0.015 inches. Flaked seed is cooked in a Marion mixer or other cooker (type of cooker must be identified) until a temperature of 180-210°F is achieved. Maintain this temperature range for 10 to 15 minutes. At the end of cooking period, feed flakes through a Komet expeller to mechanically remove oil. After pressing, the crude oil may be centrifuged prior to weighing. Centrifugation separates "foots" (small pieces of presscake) from the crude oil. The "foots" are added to the

CANOLA: BATCH PROCESSING METHOD

GLP Technologies
22723 State Highway 6 South
Navasota, Texas 77868

presscake prior to weighing. Presscake can be passed through the Glen Mills mill or similar mill to reduce particle size for better solvent extraction. Technician will record in the data if centrifugation and presscake reduction is performed. Resulting fractions from the conditioning and pressing step are presscake (with residual oil) and crude oil.

3. **SOLVENT EXTRACTION.** Crude oil in presscake is extracted with hexane in a stainless steel, batch extractor. Hexane at 120-140°F is added until material is covered. After 30 minutes, drain miscella (hexane and crude oil) and add fresh heated hexane. Cycle is repeated twice, but for 15-30 minutes during the last washes. Per visual inspection, additional washes may be added when the material still contains residual oil. Number of additional washes, time, and maximum temperature will be recorded. At end of the extraction period, the solvent extracted meal can be desolventized or toasted.

3A. **Desolventization.** Meal is desolventized by forcing warm air through the meal while in the batch extractor or by utilizing a preheated (20 to 60 psi), steam jacketed Reliance Industries paddle mixer. If paddle mixer is used, allow product temperature to reach 210-220°F and then remove product. Document desolventization method used in raw data. Resulting fractions from solvent extraction step are miscella (crude oil and hexane) and solvent extracted meal.

3B. **Toasting.** Oil spent presscake from the solvent extraction step are placed in the Reliance Industries paddle mixer. The solvent soaked material is placed in the preheated mixer (steam pressure to jacket will be 20 to 60 psi) after final miscella is drained. Turn mixer on and inject steam (5 to 15 psi) directly on material. Be sure condensate is absent from steam line and the condensate trap is functional prior to injecting steam on the product. With a temperature probe in the vapor vent of the mixer, vapor temperature is observed while steam is injected. When vapor temperature reaches 200-210°F (approximate occurrence in 4 to 10 minutes), stop direct steam injection. [Note: For large amounts of solvent extracted material, temperature range will not be reached. Processing Specialist will make a visual observation that no more hexane is being removed from the product and will then discontinue steam injection.] Continue mixing and heating until a product temperature of 220-240°F is achieved (hold in this temperature range for 30 to 60 minutes [actual toasting time is contingent on protocol requests]). Additional steam may be added during the 30-60 minute range if the product becomes dry (processor discretion). After the toasting-desolventization step, immediately remove the product from the mixer and allow

CANOLA: BATCH PROCESSING METHOD
GLP Technologies
22723 State Highway 6 South
Navasota, Texas 77868

to cool to room temperature.

The operator will record steam pressure to the mixer jacket, steam pressure of injection steam, time required for vapor temperature to reach 200-210°F (if applicable), maximum temperature, time in 220-240°F range, and the time product is removed from heat.

3C. Toasting of small sample sizes (less than 25 pounds prior to solvent extraction): Extracted presscake is desolventized with warm air. After desolventizing, the moisture content of the meal is determined and then adjusted to 12-15% (Record final moisture). Allow the moisture to equilibrate in the meal for 15-30 minutes. Meal is then placed into a steam or electric heated cooker (Processing Specialist will identify cooker in data) and heated to 220-240°F. Hold the meal in the temperature range for 30-60 minutes. (Operator shall use discretion on length of time based on appearance of toasted meal.)

Optional step: On occasion, the toasted meal will contain large particles that formed during steam or water addition. This material may not be sufficiently toasted. At the PPI's and processors discretion, this material may be removed using a 1/8 inch or similar size screen. Material passing through the screen will be collected as toasted meal. Additionally, the material on top of the screen may be chopped in a Glen Mills mill (or similar mill) and toasted again. Chopping and retoasting will be at the discretion of the PPI. If not chopped and retoasted, the material over the screen will be weighed and discarded. If toasted meal is screened, record all pertinent information (i.e., machines, screen sizes, etc.) in comments section of processing form. If material is chopped and retoasted, obtain a new toasting form to record data. Adjust moisture of meal to 12 to 15% and retoast the meal to a product temperature of 220-240°F for 10-30 minutes. Record mills and screens used to chop. Combine the two toasted meal fractions into a homogeneous sample.

4. **CRUDE OIL RECOVERY.** Miscella is passed through a laboratory vacuum evaporator for the purpose of separating the crude oil and hexane. During this procedure, crude oil reaches a temperature of 195-205°F. A Buchi Rotovapor water bath temperature of 195-205°F will be used, if miscella quantity is insufficient for operation of laboratory vacuum evaporator (operator discretion). Hexane reclaimed from residue samples is not reused; it is disposed of according to EPA regulations. Laboratory analysis of each sample is the option of the sponsor.

CANOLA: BATCH PROCESSING METHOD
GLP Technologies
22723 State Highway 6 South
Navasota, Texas 77868

Note: Crude oil from the expeller and solvent extraction steps is weighed, combined, and sampled unless the protocol specifically states to keep the two crude oil fractions separate. Crude oil from the expeller and solvent extraction steps will be filtered prior to combining.

5. **OIL DEGUMMING (Optional)**. A weighed crude oil sample is placed in a water bath or jacketed container. A weighed amount of water (2.0 to 3.0 % by weight of crude oil) is mixed with the crude oil for 30-60 minutes at slow RPM (Arrow 350 mixer with a # 2 setting) and a water bath or jacketed vessel solution temperature of 158-168°F. The solution is cooled to room temperature, centrifuged, and filtered. The fraction settling to the bottom of the container is crude lecithin. Resulting fractions from the oil degumming step are degummed oil and crude lecithin (gums).

6. **ALKALI REFINING** After the percent free fatty acid is determined in the crude oil (use SOP E.9), a weighed sample is placed in a jacketed container or water bath. Crude oil is pretreated with phosphoric acid (85% H_3PO_4) (add 0.01-0.05% by weight of crude oil - recommend 0.03%) for 30 minutes (± 1 minute) at 104-112°F and low rpm (Arrow 350 mixer with # 2 setting). A weighed amount of 12 degree Baume NaOH is added to the crude oil, as calculated on the basis of the amount of free fatty acids present (refer to table 1). After NaOH addition the solution is mixed for 20 minutes (± 1 minute) at high rpm (Arrow 350 mixer with # 8 setting) and 104-112°F, and then for an additional 10 minutes (± 1 minute) at low rpm (# 2 setting) and 149-158°F. The neutralized oil is allowed to settle for one hour at 140-149°F. The oil solution can be centrifuged or refrigerated overnight (minimum of 12 hours). If the solution is centrifuged, the one hour settling period can be bypassed. Refined oil is decanted and filtered. The fraction settling to the bottom of the centrifuge or refrigerated container is soapstock. Resulting fractions from the oil refining step are refined oil and soapstock.

Note: For refining temperatures, jacketed container or water bath temperature will be recorded. Air driven mixers may be used during the refining process provided that at least one sample is being stirred with an Arrow 350 mixer. The air driven mixer(s) will be adjusted to approximately match the speed(s) of the Arrow mixer.

CANOLA: BATCH PROCESSING METHOD
GLP Technologies
22723 State Highway 6 South
Navasota, Texas 77868

Table 1.

Weight of 12 Baume NaOH in Grams Per 100 Grams of Oil

FFA (%)	NaOH (g)	FFA (%)	NaOH (g)	FFA (%)	NaOH (g)
0.1	3.2	0.8	4.7	1.5	6.2
0.2	3.5	0.9	4.9	1.6	6.4
0.3	3.6	1.0	5.2	1.7	6.6
0.4	3.8	1.1	5.4	1.8	6.8
0.5	4.1	1.2	5.5	1.9	7.1
0.6	4.3	1.3	5.8	2.0	7.3
0.7	4.4	1.4	6.0		

7. **BLEACHING.** A weighed refined oil sample is mixed and heated to 104-122°F prior to adding 2.0% activated bleaching earth (by weight of oil). As the solution is mixed, a vacuum of 24-30" Hg is applied, and the temperature is increased to a range of 185-212°F. Maintain the agitation, vacuum, and temperature for 10 to 15 minutes. At end of this period, reduce temperature of solution to 136-154°F and break the vacuum. At the processor's discretion, an inert filter aid may be added (1.0% by weight of oil) prior to filtering. If filter aid is added, record lot number and amount added. Bleached oil is promptly filtered.
8. **DEODORIZATION.** A weighed oil sample is heated and steam bathed for 45-60 minutes under a vacuum of 26 to 30" Hg. Temperature of the oil is held between 454-482°F. After the 45-60 minute period, the oil sample is cooled to 276-302°F. At this time a citric acid solution (0.5%) is added to the oil sample at a rate of one milliliter per 100 grams of oil. The sample is allowed to cool, under vacuum, to 220-239°F. Vacuum is broken and at the processor's discretion the oil can be filtered. Record type of filtering and filter material. Oil sample is promptly transferred to a shipping container. Resulting fractions from the oil deodorization step are deodorized oil and distillates (small layer of product at the top of distillate container).

Appendix D. Analytical Method

Draft method **ES-ME-1294-01(v.12/07/09)** was used for this study and is reprinted here. Appendices A and B of this method contain the chemical structures of glyphosate and AMPA, and example chromatograms from method validation. These appendices are not included since structures and chromatograms specific to this study are included elsewhere in the report.

Overview

Purpose & Scope

This SOP describes the analytical method used by Environmental Sciences Technology Center personnel to determine trace quantities of glyphosate (N-phosphonomethyl glycine) and AMPA (aminomethylphosphonic acid) in RACs.

Method Summary

Glyphosate and AMPA are isolated from crop matrices by high speed blender extraction using 0.1% formic acid in water and methylene chloride. Following centrifugation, an aliquot of aqueous phase extract is treated with a solid phase extraction cleanup. The analytes are analyzed by LC-MS/MS and quantitated using internal standards. The working range of the method is from 0.05 ppm (LLMV) to 6.0 ppm of glyphosate and AMPA. The method has been validated for the analysis of the raw agricultural commodities of corn, soybeans, canola, cotton, sugar beets, alfalfa and citrus.

Safety Precautions

Follow current Monsanto safety policies. Important precautions include:

- Some solvents are volatile and flammable. Care must be taken to keep them away from any source of ignition.
- Ensure proper ventilation to avoid excessive exposure to solvent vapors.
- Read and follow all safety warnings on reagent containers.

Acronyms

The following abbreviations are used in this SOP:

Abbreviation	Definition
AMPA	aminomethylphosphonic acid
amu	atomic mass units
ARS	analytical reference standard
DI	Deionized water (Milli-Q water or equivalent)
ESI	electrospray ionization
g	gram
LC/MS/MS	high performance liquid chromatography/tandem mass spectrometry
LLMV	lower limit of method validation
MeCl ₂	Methylene Chloride
MeOH	methanol
µg	microgram
mL	milliliter
mm	millimeter
MRM	multiple reaction monitoring
ms	millisecond
MS	mass spectrometry
RAC	raw agricultural commodity
ppm	parts-per-million
SPE	solid phase extraction
SOP	standard operating procedure
V	volts

Contents

Section	Page
Overview	1
Purpose & Scope	1
Method Summary	1
Safety Precautions	1
Acronyms	1
Contents	2
Materials	3
Equipment	3
Chemicals & Reagents	4
Reagent/Solution Preparations	4
Standard Preparations	5
Overview and Stability	5
Glyphosate and AMPA Stock Solutions	5
Mixed Stock Standard Solution	5
Internal Standard Stock Solutions	5
Internal Standard Working Solution	5
Glyphosate/AMPA Standard Solutions	6
Fortification Solutions	6
Sample Preparation Procedure	7
Raw Sample Preparation	7
Sample Extraction and Cleanup	7
Working Standard Preparation	7
Extract Dilution	8
Instrumental Analysis	8
Overview	8
Instrument Setup	8
LC/MS/MS Conditions	9
Data Processing	10
Calculations	10
Linear Calibration Curve	11
Quadratic Calibration Curve	11
Analyte Concentration	12
Fortified Sample Recovery	12
Interferences	12
Column Maintenance	12
Documentation	13
References	13
Method Validation Results	13
TFM Authorization	13
Appendix 1: Chemical Structures	14
Appendix 2: Representative Chromatograms	15

Materials

Equipment

The following equipment is used in this procedure. Specific brands are listed to aid the analyst in finding items. In most cases, equivalent equipment from other vendors can be used.

Equipment	Number/Specification
Balances (electronic): • Analytical • Top loading	Mettler: • AE 240 • PM 4800
Plastic Solution Containers	Nalgene, 4 oz. HDPE, No. 2018 0125
Blender (motor / glass container)	Waring™ No. 7010G
Centrifuge Bottles (250 mL)	Nalgene, PPCO with sealing cap Nalgene No. 3141-0250
Centrifuge (superspeed automatic refrigerated)	Sorvall Instruments (DuPont Co.), Model RC6+
Multi-Channel SPE System	Cerex System 96-II, SPE/ware, Inc.
HPLC System	Agilent 1200 Components, Solvent Degasser, 2 Binary Pumps, Autosampler, Column Compartment
HPLC Column:	Bio-Rad Fast Acid Column Cat. No. 125-0100
Alternate HPLC Column:	Bio-Rad Cation H, Cat. No. 125-0129
Mass Spectrometer	Applied Biosystems PE Sciex API 5000™ with Turbo-V atmospheric pressure ionization source
Data Acquisition System	Windows XP based workstation with PE Sciex Analyst® software
Dispensers : 100 mL	Brinkmann :No. 22-22-050-1
Sample vials	20 mL glass with screw caps
Volumetric flasks:100 mL	Kimax Class A, No. 28014P 100
Pasteur pipettes: 5.75" and 9"	Fisher No.: 13-6678-6A and 13-6678-6B
Graduated cylinders (1 L)	suitable for procedure
Autopipettes: (500 µL, 1000 µL, 100 µL–1000 µL, 1-5 mL, 2-10 mL)	suitable for procedure
Solid phase extraction	Strata-X, 96 well, 60mg, Phenomenex No. 8E-S100-UGB
Sample collection plate	96 well, 1 mL, polypropylene Agilent No. 5042-1387
Sample collection plate closing mat	Agilent No. 5042-1389
Syringe (disposable with Luer-Lok tip, 10 mL)	Becton-Dickinson, VWR Cat. No. BD305462
Syringe filter (25 mm disposable filter device, 0.45 µm pore size)	Whatman® GD/XP No. 6994-2504

Transformer (variable, used to control blender speed)	VWR Cat. No. 62546-048
Water purification system	Millipore Compact Milli-Q Plus

Chemicals & Reagents

The following reagents are used in this method. **Note:** Specific brands are listed, but in most cases, equivalent reagents from other vendors can be used. It is important to use high quality reagents to avoid chromatographic interferences. It is recommended that the isotopic purities of the internal standard materials (^{13}C , ^{15}N -glyphosate and D_2 , ^{13}C , ^{15}N -AMPA) be verified prior to use.

Chemical/Reagent	Number/Specification
AMPA, (Aminomethylphosphonic acid)	Monsanto ARS Program (>95%)
Glyphosate (N-phosphonomethyl glycine)	Monsanto ARS Program (>95%)
$^{13}\text{C}_3$ ^{15}N -Glyphosate	Monsanto ARS Program
D_2 ^{13}C ^{15}N -AMPA	Cerilliant No. CDNLM-6786-1.2
Deionized water	Milli-Q water or equivalent
Formic Acid(98% min.)	EMD Cat. No. EM-FX0440-7
Acetonitrile, HPLC grade	Burdick & Jackson Cat. No. 015-4
Methylene Chloride, HPLC grade	JT Baker, VWR Cat. No. JT9315-3
Methanol, HPLC grade	Burdick & Jackson Cat. No. 230-4

Reagent/Solution Preparation

Procedure

Prepare the following reagent solutions for use in sample analysis. The absolute volume of the solutions may be varied at the discretion of the analyst, as long as the correct proportions of the components are maintained. Assign a six month expiration date to these solutions unless a shorter expiration is specified on the label.

Solution	Preparation
HPLC Mobile Phase A and Extraction Solvent:	0.1% Formic acid in water Add 1.0 mL Formic acid to 1 L of DI water.

Standards Preparation

Overview	All standard calibration and fortification solutions must be properly labeled and stored in polypropylene bottles with airtight lids at $<10^{\circ}\text{C}$.
Stability	Data in the Monsanto archives documents the stability of solutions from 0.05 to 1000 ppm of glyphosate and AMPA prepared in DI water for 23 months when stored at $<10^{\circ}\text{C}$. Solutions prepared in 0.1% formic acid/water demonstrated stability for 99 days.
Glyphosate and AMPA Stock Solutions (1000 $\mu\text{g/mL}$)	<p>Weigh and dissolve 0.1000 ± 0.0005 g (weight adjusted for purity) of glyphosate standard in 100 mL of DI water in a volumetric flask. This stock solution contains 1000 $\mu\text{g/mL}$ of glyphosate. The solution should be sonicated briefly to ensure complete dissolution.</p> <p>In a similar manner, dissolve 0.1000 ± 0.0005 g (weight adjusted for purity) of AMPA standard in 100 mL of DI water in a volumetric flask. This stock solution contains 1000 $\mu\text{g/mL}$ of AMPA. The solution should be sonicated briefly to ensure complete dissolution.</p>
Mixed Stock Standard Solutions	Prepare the following mixed standards by dilution of the appropriate stock or mixed solution with DI water in volumetric flasks. These solutions will be used for the preparation of working solutions and fortification solutions.

Mixed Standard Solution Prepared Conc. ($\mu\text{g/mL}$)	Volume to Dilute (mL)	Mixed Solution To Dilute ($\mu\text{g/mL}$)	Final Volume
100	10.0 of each	1000 Glyphosate 1000 AMPA	100
10.0	10.0	100.0	100
1.0	10.0	10.0	100

Internal Standard Stock Solutions	Weigh and dissolve 0.0100 ± 0.0005 g of $^{13}\text{C}_3^{15}\text{N}$ -Glyphosate standard in 100 mL of DI water in a volumetric flask. This stock solution contains 100 $\mu\text{g/mL}$ of $^{13}\text{C}_3^{15}\text{N}$ -Glyphosate. The solution should be sonicated briefly to ensure complete dissolution. Stock $\text{D}_2^{13}\text{C}^{15}\text{N}$ -AMPA is supplied as a 100 $\mu\text{g/mL}$ solution in DI water from the vendor.
Internal Standard Working Solution (Mixed)	Pipette 0.5 mL of each of the 100 $\mu\text{g/mL}$ stock solutions of $^{13}\text{C}_3^{15}\text{N}$ -glyphosate and $\text{D}_2^{13}\text{C}^{15}\text{N}$ -AMPA into a single 100 mL volumetric flask and dilute to the mark with DI water. This stock solution contains 0.5 $\mu\text{g/mL}$ each of $^{13}\text{C}_3^{15}\text{N}$ -glyphosate and $\text{D}_2^{13}\text{C}^{15}\text{N}$ -AMPA.

Glyphosate/ AMPA Standard Solutions

The preparation of working calibration solutions is given below. Add the volume of the appropriate mixed stock solution to a 100 mL volumetric flask and dilute to volume with 0.1 % formic acid in water. Additional standard levels may be prepared as necessary. These standard solutions will be mixed with internal standards for each analytical set (see Sample Preparation Procedure). Each standard level and sample will contain 0.05 µg/mL of the internal standards (¹³C₃, ¹⁵N-glyphosate and D₂, ¹³C, ¹⁵N-AMPA).

To Prepare Working Solution (µg/mL)*	Add (mL) Mixed Stock	Mixed Stock Conc. (µg/mL)	Final Volume (mL)
0.0025	0.25	1.0	100
0.005	0.50	1.0	100
0.010	1.0	1.0	100
0.030	3.0	1.0	100
0.060	6.0	1.0	100
0.10	1.0	10.0	100
0.30	3.0	10.0	100
0.60	6.0	10.0	100

*µg/mL of glyphosate and AMPA.

Fortification Solutions

The preparation of standard solutions used to fortify quality control samples is shown below. Aliquot the appropriate volume and concentration of the mixed or separate stock solution into a 100 mL volumetric flask. Dilute to volume with deionized water and mix well. Additional mixed or separate solutions may also be prepared as needed in a similar manner.

To Prepare Fortification Solution (µg/mL)	Add (mL) Stock Solution	Stock Solution Conc. (µg/mL)	Final Volume (mL)
0.5	5.0	10 (mixed)	100
5.0	5.0	100 (mixed)	100
50.0	5.0 of each	1000 Glyphosate 1000 AMPA	100

Example fortification: to prepare a 0.50 ppm QC sample, add 1.0 mL of 5.0 µg/mL fortification solution to 10.0 g of control sample material.

Sample Preparation Procedure

Raw Sample Preparation

Raw sample material must be thoroughly ground and homogenized prior to analysis. To process the raw samples, add dry ice (ca. 25% w/w) to the frozen sample and chop with a Hobart chopper, or equivalent high-speed homogenizer. Place the samples in a -20 °C freezer overnight to allow sublimation of the dry ice prior to weighing.

Sample Extraction and Cleanup

The following describes the preparation of samples for analysis by LC/MS/MS. A typical extraction set will include study samples, QC samples and standards.

Step	Action
1	Weigh 10.0 g \pm 0.1 g of sample into a blender jar.
2	If required, fortifications must be made at this stage by adding the correct volume of the appropriate fortification standard solution to the designated control samples.
3	Add 100 mL of methylene chloride and 100 mL of 0.1% formic acid in water. Blend using a Waring blender at high speed for about 2 minutes. The MeCl ₂ serves as a cleanup solvent. Analytes will reside in the aqueous layer.
4	Transfer the blended sample to a 250 mL centrifuge bottle. Do <u>not</u> rinse the blender jar. Balance pairs of centrifuge bottles by adding methylene chloride to the lighter bottle until its weight is within 0.5 g of the heavier bottle.
5	Centrifuge at 11,000 rpm for 20 minutes in a refrigerated centrifuge.
6	Filter and transfer about 10 mL of the aqueous layer of the sample into a 20 mL glass vial using a 10 mL syringe with 25mm x 0.45 μ M filter. The sample may be stored in a freezer at this point. Discard the remaining aqueous, MeCl ₂ layer and sample solids.
7	Pipette 0.2 mL of the internal standard into a 20 mL glass vial (fresh vial).
8	Pipette 1.8 mL of the aqueous layer collected above into the 20 mL glass vial containing the internal standard and mix well.
9	Place a 96 well SPE plate on a 96 well collection plate. Add about 0.45 mL of each sample/internal standard mixture or the working calibration standards as prepared below to each well.
10	Place the SPE plates on a "Multi-Channel SPE" processor and apply gas pressure to force the liquids through the sorbent bed into the collection plate. Remove the collection plate and apply the closing mat. The samples are ready for LC/MS analysis.

Working Standard Preparation

Prepare the working calibration standards and samples in the same manner.
Prepare a solution of 9 parts working standard and 1 part internal standard (e.g., combine 1.8 mL of each calibration solution with 0.2 mL of 0.50 ug/mL mixed internal standard solution and mix well). Process a set of standards for each extraction set as described in steps 9 and 10 above.

**Extract
Dilution**

High level samples producing a response ratio (or analyte response) greater than the highest standard of the calibration curve, must be diluted to within the standard range and reanalyzed.

Dilutions must be made prior to addition of the internal standards. Dilute an aliquot of the extract with 0.1% formic acid in water then add the internal standard as described in the sample preparation procedure (i.e., combine 1.8 mL of dilute sample plus 200 µL of internal standard). **Note:** The diluted sample may be analyzed in any chromatographic set, provided that the set contains control and fortified control samples and meets the other requirements.

Instrumental Analysis

Overview

The requirements for sample analyses include but are not limited to the following:

- An extraction set is a group of study samples, QC samples and calibration standards prepared together.
- QC samples are paired fortified/non-fortified samples. The non-fortified sample (control) will generally be a prescreened low background level study sample serving both as a study sample and a QC sample. At least one pair of fortified and non-fortified samples will be prepared for every extraction set.
- A chromatographic set is a group of unknown samples, the associated QC samples and calibration standards undergoing instrumental analysis together. Each chromatographic set will contain at least one pair of fortified and non-fortified samples.
- Analyte calibration must be performed for each chromatographic set using a calibration curve with a minimum of five calibration levels. The chromatographic set must begin and end with a calibration standard (i.e., control samples, fortified samples and field samples bracketed by calibration standards). The range of calibration standards will be determined for each chromatographic set, such that the response of the treated and fortified samples must be less than the response of the highest calibration standard. The concentrations of the calibration standards will be randomized throughout the chromatographic set. The average accuracy at each standard level must be within 70-120%.
- The average analytical recovery of fortified samples for each analyte in a set must range between 70-120% of the amount fortified.

**Instrument
Setup**

Instrument operation is controlled by acquisition methods containing all HPLC, source interface, and mass spectrometer operating parameters. The typical precursor and product ions for the analytes are shown below along with ions for possible use in confirmatory analyses. Alternate ions may be used if they provide better data (sensitivity and/or specificity). The following equipment and conditions are instrument dependent and may be modified to obtain optimal instrument performance and maximize sensitivity. Actual method parameters must be documented in the raw data.

The following equipment and conditions were used during method validation.

<u>LC-MS/MS System Conditions for Analysis of Glyphosate and AMPA</u>					
Agilent 1200 HPLC System and AB/Sciex API 5000 Extra HPLC Pump for Post Column Solvent Addition Column: Bio-Rad Fast Acid 100 mm x 7.8 mm, 9µ Guard Column: none Injection Volume: 40 µL Autosampler Temp.: 4 °C Column Temp.: 22 °C Split Ratio:~1:1 Mobile Phase A: 0.1% formic acid in H ₂ O Mobile Phase B: None Evaporation Solvent Tee'd Post Column : MeOH at 700 µL/min. Flow Rate: 1500 µL/minute Isocratic: <ul style="list-style-type: none"> • Initial: 100 % A • 16 minutes: 100 % A 					
Mass Spectrometer Conditions					
Scan Type: Negative Ion MRM Resolution Q1: Unit Resolution Q3: Unit Ion Source: ESI					
Duration : 16 min. Curtain Gas (CUR): 15 Collision Gas (CAD): 6 Gas 1: 40 Gas 2: 30			IonSpray Voltage (IS): -4500 V Entrance Potential: -10 Interface heater: On Temp: 600 °C Scan Time (ms): 200		
Analyte:	Precursor Ion Q1 (amu)	Product Ion Q3 (amu)	DP (V)	CE (V)	CXP (V)
Glyphosate	168	63	-70	-31	-25
Gly (IS)	172	63	-70	-31	-25
AMPA	110	63	-70	-30	-20
Ampa (IS)	114	63	-70	-30	-20
Confirmatory Ions					
Glyphosate	168	79	-70	-50	-31
Gly (IS)	172	79	-70	-50	-31
AMPA	110	79	-70	-40	-20
Ampa (IS)	114	79	-70	-40	-20

When confirmatory or alternate ions are used, they must be appropriately named in the acquisition method to preclude confusion in data reporting (e.g., Gly_C or Gly_79 for glyphosate confirmatory ion).

Alternate HPLC Column and Conditions

Certain matrices, especially canola seed and alfalfa hay provided more consistent results using a different HPLC column. The alternate column allows the use of an organic modifier in the mobile phase and requires no split or addition of evaporation solvent.

LC-MS/MS System Conditions for Analysis of Glyphosate and AMPA

Column: Bio-Rad Cation-H Guard Column 30 mm x 4.6 mm

Injection Volume: 10 µL

Autosampler Temp.: 4 °C

Column Temp.: 50 °C

Split Ratio: none

Mobile Phase A: 0.1% formic acid in H₂O

Mobile Phase B: Acetonitrile

Flow Rate: 500 µL/minute

Isocratic:

- Initial: 80 % A 20% B
- 16 minutes: 80 % A 20%B

Mass Spectrometer Conditions : Same as Above

Data Processing

Process the data using the Analyst™ quantitation wizard. A method may be created which processes the data for the MRM transition pairs established in the acquisition method. The method detects and integrates the analyte peaks based on retention time and MRM transition. Chromatograms may be smoothed prior to integration, as long as the smoothing is consistent throughout the entire sample set. Manual peak integration should be used when the automated procedure is not effective due to baseline noise. The sample weights and dilution factors required to complete the calculations must be added during data processing if not input prior to the start of the instrument run. The data processing parameters must be documented in the raw data.

Calculations

Analyte concentrations are calculated using the Analyst® software. The software calculates the standard curve and applies the dilution factor to account for sample weight and dilution volume. Linear or quadratic calibration curves may be used for quantitation. All the samples from a study must be analyzed with the same type of calibration curve for a given analyte.

Linear Calibration Curve

The Analyst® software automatically derives the calibration curve using the area response ratios (y) versus the concentration ratios (x) of the external and internal standards for all standards injected with the chromatographic set. A weighted linear regression (1/x) standard curve is used. The resulting equation defining the standard curve is shown below:

$$y = Ax + B \text{ where,}$$

x = concentration injected (µg/L)

y = detector response ratio (peak area ratio)

The values of coefficients A and B, the slope and the y intercept, respectively, are estimated using a linear least squares regression.

The calculation may be checked manually by rearranging the curve determined for the linear regression to the form shown below then applying correction for sample weight and final volume.

$$\frac{y - B}{A} = x \quad \text{or} \quad \frac{[\text{sample response} - y \text{ intercept}]}{\text{slope}} = \text{concentration injected}$$

Quadratic Calibration Curve

The Analyst® software automatically derives the calibration curve using the area response ratios (y) versus the concentration ratios (x) of the external and internal standards for all standards injected with the chromatographic set. A weighted quadratic curve (1/x) is used. The resulting equation defining the standard curve is shown below:

$$A (\mu\text{g/mL analyte})^2 + B (\mu\text{g/mL analyte}) + C = PKR_{\text{analyte}} \text{ where,}$$

PKR_{analyte} is the detector response ratio (peak area ratio)

A, B and C are curve constants

The calculation may be checked manually by applying the solution for quadratic equations as shown below then applying correction for sample weight and final volume. (**Note:** Subtract the response PKR_{analyte} from C first.)

$$\text{Injected Concentration X } (\mu\text{g/mL analyte}) = \frac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$$

Analyte Concentration

The Analyst™ system automatically calculates the raw concentration of the injected sample relative to the standard curve (*calculated concentration* (µg/mL)). This value is also automatically multiplied by any value entered in the *dilution factor* column.

The analyte concentration in the raw sample may be calculated using the following information for typical samples:

- A) Sample weight: 10.0 g
- B) Sample extract volume: 100 mL (initial 100 mL aqueous extraction solvent).

Therefore, to correct the *calculated concentration* for final volume and sample weight, enter the volume and weight as a single factor (v/wt) in the *dilution factor* column.

Example: Sample with an injected concentration of 0.05 µg/mL and dilution factor of 10 (100 mL/10.0 g) is displayed in the *calculated concentration* column as 0.50 ppm.

$$\begin{aligned}\text{ppm analyte found} &= [\text{calculated concentration (}\mu\text{g/mL)} \times (\text{B})] / (\text{A}) \\ &= [(0.05 \mu\text{g/mL})(100 \text{ mL})] / 10 \text{ g} = 0.50 \text{ ppm}\end{aligned}$$

Any additional dilutions due to responses out of standard curve range must also be incorporated into the *dilution factor* column. For a 10x dilution, the factor entered for the sample above would be 100.

Fortified Sample Recovery

Fortified sample recoveries must be determined after subtraction of any background analyte ppm found in the unfortified control sample.

$$\% \text{ recovery} = \frac{(100) (\text{ppm found} - \text{ppm in control})}{\text{ppm added}}$$

Interferences

Analyte response suppression due to the sample matrix has been minor, however the use of internal standards compensates for any difference in response between samples and standards. Sample carry over of 1-2% has been observed with some autosamplers and can be a problem for low level samples following injection of high level samples. Blank vials may be needed between samples to ensure no carryover.

Column Maintenance

The performance of the HPLC column may deteriorate over time as shown by poor peak shape or sensitivity. A regeneration/cleanup procedure provided by the manufacturer should be used to restore column performance.

Documentation

The analytical raw data packages will include (as a minimum): the sample worksheet, instrumental sample list, calibration curves, MRM chromatograms, result table, instrument acquisition and processing parameters. The data will be processed and printed following MS data acquisition.

Example Chromatograms

Sample LC/MS/MS chromatograms for analysis of standards, controls and fortified samples are provided in **Appendix B** for the quantitation of each analyte.

References

Glyphosate and AMPA Residue Determination in Crops
Glyphosate and AMPA / Crops / GW / 06 / 2.
Agrisearch UK Limited
(Independent Laboratory Validation , Monsanto Study 07-63-R3)

Method Validation Results

Author(s) / Prepared by: J. Mark Allan, Ronald K. Beasley

Management:

_____ Date: _____ / _____ / _____

(TFM, Monsanto Company)

Appendix E. Master Summary, Recovery and Raw Data Tables

This appendix contains all data relevant to this report. Data relating to sample history, analysis and results are presented in three sets of tables.

1. Master Summary

The Master Summary Tables contain data from which the Summary text tables were generated. A Master Summary Table is generated for each matrix and includes a summary of the raw data for all samples analyzed for that matrix. A description of each column is presented below.

A. Location

This provides the location and the site code for the samples analyzed.

B. Trt. No.

Identifies the treatment number associated with each sample.

C. No. of Appl.

Denotes the number of applications of the test substance.

D. Rate of Glyphosate (g a.e./A)

The target amount of test substance applied (g a.e./A) over the total number of applications. This target rate has not been changed to reflect actual rates applied.

E. Days after Last Application or Preharvest Interval (PHI)

The time interval in days between the last application of test substance and the cutting date.

F. Sample ID

Shows the RIMS I.D. for each sample analyzed.

G. Data Source Information

This provides sample tracking information by way of the Analyst Chromatography Data System ID, a chromatographic job number consisting of the year, month, day and time of the creation of the analytical job, an instrument number, the analyst's initials, the set number and sample number within the analysis set.

H. Glyphosate Analyte Amount

The amount of analyte found in parts per million or μg of analyte per gram of sample. Equations and calculations can be found in the explanation of the Raw Data Tables.

I. AMPA Analyte Amount

The amount of analyte found in parts per million or μg of analyte per gram of sample. Equations and calculations can be found in the explanation of the Raw Data Tables.

Master Summary Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE & AMPA IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE

Location	Trit No.	No. of Appl	Rate of Glyphosate (g a.e./ha)	Days After Last Appl	Sample ID	Data Source Information	Glyphosate		AMPA	
							Analyte Amount	Analyte Amount	Analyte Amount	Analyte Amount
ID-6	1	0	0	0	REG09091-00001	20100212_a2043_REG09091_Set2_nrs	0.020	0.020	0.000	0.000
ID-6	1	0	0	0	REG09091-00001	20100204_a2043_REG09091_Set1_nrs	0.028	0.028	0.000	0.000
ID-6	2	3	6050	70	REG09091-00002	20100204_a2043_REG09091_Set1_nrs	1.250	1.250	0.024	0.024
ID-6	2	3	6050	70	REG09091-00003	20100204_a2043_REG09091_Set1_nrs	1.467	1.467	0.027	0.027
ID-6	3	3	6950	70	REG09091-00004	20100204_a2043_REG09091_Set1_nrs	3.615	3.615	0.082	0.082
ID-6	3	3	6950	70	REG09091-00005	20100204_a2043_REG09091_Set1_nrs	3.141	3.141	0.289	0.289
ID-6	4	3	6050	74	REG09091-00006	20100204_a2043_REG09091_Set1_nrs	1.458	1.458	0.034	0.034
ID-6	4	3	6050	74	REG09091-00007	20100204_a2043_REG09091_Set1_nrs	1.401	1.401	0.029	0.029
ID-7	1	0	0	0	REG09091-00008	20100212_a2043_REG09091_Set2_nrs	0.035	0.035	0.000	0.000
ID-7	1	0	0	0	REG09091-00008	20100204_a2043_REG09091_Set1_nrs	0.037	0.037	0.000	0.000
ID-7	1	0	0	0	REG09091-00057	20100204_a2043_REG09091_Set1_nrs	0.042	0.042	0.000	0.000
ID-7	1	0	0	0	REG09091-00058	20100204_a2043_REG09091_Set1_nrs	0.049	0.049	0.000	0.000
ID-7	1	0	0	0	REG09091-00059	20100204_a2043_REG09091_Set1_nrs	0.022	0.022	0.000	0.000
ID-7	1	0	0	0	REG09091-00060	20100204_a2043_REG09091_Set1_nrs	0.020	0.020	0.000	0.000
ID-7	2	3	6050	55	REG09091-00009	20100308_a2043_REG09091_Set3_nrs	6.712	6.712	0.152	0.152
ID-7	2	3	6050	55	REG09091-00009	20100204_a2043_REG09091_Set1_nrs	5.857	5.857	0.163	0.163
ID-7	2	3	6050	55	REG09091-00010	20100308_a2043_REG09091_Set3_nrs	11.302	11.302	0.210	0.210
ID-7	3	3	6950	55	REG09091-00011	20100204_a2043_REG09091_Set1_nrs	11.144	11.144	0.195	0.195
ID-7	3	3	6950	55	REG09091-00011	20100308_a2043_REG09091_Set3_nrs	9.479	9.479	0.201	0.201
ID-7	3	3	6950	55	REG09091-00012	20100204_a2043_REG09091_Set1_nrs	9.751	9.751	0.188	0.188
ID-7	3	3	6950	56	REG09091-00061	20100308_a2043_REG09091_Set3_nrs				
ID-7	3	3	6950	56	REG09091-00061	20100204_a2043_REG09091_Set1_nrs				
ID-7	3	3	6950	56	REG09091-00062	20100308_a2043_REG09091_Set3_nrs				
ID-7	3	3	6950	56	REG09091-00062	20100204_a2043_REG09091_Set1_nrs				

Locked on 01/23/2011 22:05 by MGMUET

Master Summary Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE & AMPA IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE

Location	Trit No.	No. of Appl	Rate of Glyphosate (g a.e./ha)	Days After Last Appl	Sample ID	Data Source Information	Glyphosate		AMPA	
							Analyte Amount	Analyte Amount	Analyte Amount	Analyte Amount
ID-7	3	3	6950	58	REG09091-00063	20100308_a2043_REG09091_Set3_nrs	8.907			
ID-7	3	3	6950	58	REG09091-00063	20100204_a2043_REG09091_Set1_nrs			0.187	
ID-7	3	3	6950	58	REG09091-00064	20100308_a2043_REG09091_Set3_nrs	9.105			
ID-7	3	3	6950	58	REG09091-00064	20100204_a2043_REG09091_Set1_nrs			0.179	
ID-7	3	3	6950	62	REG09091-00065	20100308_a2043_REG09091_Set3_nrs	9.521			
ID-7	3	3	6950	62	REG09091-00065	20100204_a2043_REG09091_Set1_nrs			0.198	
ID-7	3	3	6950	62	REG09091-00066	20100308_a2043_REG09091_Set3_nrs	8.685			
ID-7	3	3	6950	62	REG09091-00066	20100204_a2043_REG09091_Set1_nrs			0.201	
ID-7	3	3	6950	65	REG09091-00067	20100308_a2043_REG09091_Set3_nrs	9.726			
ID-7	3	3	6950	65	REG09091-00067	20100204_a2043_REG09091_Set1_nrs			0.194	
ID-7	3	3	6950	65	REG09091-00068	20100308_a2043_REG09091_Set3_nrs	10.305			
ID-7	3	3	6950	65	REG09091-00068	20100204_a2043_REG09091_Set1_nrs			0.189	
ID-7	4	3	6050	62	REG09091-00013	20100204_a2043_REG09091_Set1_nrs	2.506		0.039	
ID-7	4	3	6050	62	REG09091-00014	20100204_a2043_REG09091_Set1_nrs	2.282		0.043	
MN-2	1	0	0	0	REG09091-00022	20100204_a2043_REG09091_Set1_nrs	0.500		0.000	
MN-2	1	0	0	0	REG09091-00022	20100212_a2043_REG09091_Set2_nrs	0.529		0.006	
MN-2	2	3	6050	63	REG09091-00023	20100204_a2043_REG09091_Set1_nrs	3.303		0.099	
MN-2	2	3	6050	63	REG09091-00024	20100204_a2043_REG09091_Set1_nrs	2.728		0.096	
MN-2	3	3	6950	63	REG09091-00025	20100308_a2043_REG09091_Set3_nrs	5.832			
MN-2	3	3	6950	63	REG09091-00025	20100204_a2043_REG09091_Set1_nrs			0.142	
MN-2	3	3	6950	63	REG09091-00026	20100204_a2043_REG09091_Set1_nrs	5.024		0.120	
MN-2	4	3	6050	69	REG09091-00027	20100204_a2043_REG09091_Set1_nrs	2.073		0.064	
MN-2	4	3	6050	69	REG09091-00028	20100204_a2043_REG09091_Set1_nrs	1.896		0.062	
ND-3	1	0	0	0	REG09091-00029	20100204_a2043_REG09091_Set1_nrs	0.021		0.000	
ND-3	1	0	0	0	REG09091-00069	20100204_a2043_REG09091_Set1_nrs	0.019		0.000	

Locked on 01/23/2011 22:05 by MGMUET

Master Summary Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE & AMPA IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE

Location	Trit No.	No. of Appl	Rate of		Days After Last Appl	Sample ID	Data Source Information	Glyphosate		AMPA	
			Glyphosate (g a.e./ha)	Appl				Analyte Amount	Analyte Amount		
ND-3	1	0	0	0	0	REG09091-00070	20100204_a2043_REG09091_Set1_nrs	0.018	0.018	0.000	0.000
ND-3	1	0	0	0	0	REG09091-00071	20100204_a2043_REG09091_Set1_nrs	0.018	0.018	0.000	0.000
ND-3	1	0	0	0	0	REG09091-00072	20100204_a2043_REG09091_Set1_nrs	0.019	0.019	0.000	0.000
ND-3	2	3	6050	63	63	REG09091-00030	20100204_a2043_REG09091_Set1_nrs	1.455	1.455	0.036	0.036
ND-3	2	3	6050	63	63	REG09091-00031	20100204_a2043_REG09091_Set1_nrs	1.785	1.785	0.036	0.036
ND-3	3	3	6950	63	63	REG09091-00032	20100204_a2043_REG09091_Set1_nrs	3.911	3.911	0.085	0.085
ND-3	3	3	6950	63	63	REG09091-00033	20100204_a2043_REG09091_Set1_nrs	3.525	3.525	0.086	0.086
ND-3	3	3	6950	64	64	REG09091-00073	20100204_a2043_REG09091_Set1_nrs	3.952	3.952	0.097	0.097
ND-3	3	3	6950	64	64	REG09091-00074	20100204_a2043_REG09091_Set1_nrs	5.201	5.201	0.115	0.115
ND-3	3	3	6950	66	66	REG09091-00075	20100204_a2043_REG09091_Set1_nrs	4.012	4.012	0.084	0.084
ND-3	3	3	6950	66	66	REG09091-00076	20100204_a2043_REG09091_Set1_nrs	5.034	5.034	0.118	0.118
ND-3	3	3	6950	70	70	REG09091-00077	20100204_a2043_REG09091_Set1_nrs	2.894	2.894	0.074	0.074
ND-3	3	3	6950	70	70	REG09091-00078	20100204_a2043_REG09091_Set1_nrs	3.522	3.522	0.087	0.087
ND-3	3	3	6950	73	73	REG09091-00079	20100204_a2043_REG09091_Set1_nrs	4.124	4.124	0.075	0.075
ND-3	3	3	6950	73	73	REG09091-00080	20100204_a2043_REG09091_Set1_nrs	4.337	4.337	0.090	0.090
ND-3	4	3	6050	70	70	REG09091-00034	20100204_a2043_REG09091_Set1_nrs	1.446	1.446	0.040	0.040
ND-3	4	3	6050	70	70	REG09091-00035	20100204_a2043_REG09091_Set1_nrs	1.458	1.458	0.042	0.042
ND-4	1	0	0	0	0	REG09091-00036	20100204_a2043_REG09091_Set1_nrs	0.014	0.014	0.000	0.000
ND-4	2	3	6050	60	60	REG09091-00037	20100204_a2043_REG09091_Set1_nrs	0.227	0.227	0.000	0.000
ND-4	2	3	6050	60	60	REG09091-00038	20100204_a2043_REG09091_Set1_nrs	0.256	0.256	0.000	0.000
ND-4	3	3	6950	60	60	REG09091-00039	20100204_a2043_REG09091_Set1_nrs	1.657	1.657	0.035	0.035
ND-4	3	3	6950	60	60	REG09091-00040	20100204_a2043_REG09091_Set1_nrs	1.410	1.410	0.029	0.029
ND-4	4	3	6050	67	67	REG09091-00041	20100204_a2043_REG09091_Set1_nrs	0.146	0.146	0.000	0.000
ND-4	4	3	6050	67	67	REG09091-00042	20100204_a2043_REG09091_Set1_nrs	0.151	0.151	0.000	0.000
ND-5	1	0	0	0	0	REG09091-00043	20100204_a2043_REG09091_Set1_nrs	0.003	0.003	0.000	0.000

Locked on 01/23/2011 22:05 by MGMUET

Master Summary Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE & AMPA IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE

Location	Trit No.	No. of Appl	Rate of Glyphosate (g a.e./ha)	Days After Last Appl	Sample ID	Data Source Information	Glyphosate		AMPA	
							Analyte Amount	Analyte Amount	Analyte Amount	Analyte Amount
ND-5	2	3	6050	70	REG09091-00044	20100204_a2043_REG09091_Set1_nrs	1.029	1.029	0.039	0.039
ND-5	2	3	6050	70	REG09091-00045	20100204_a2043_REG09091_Set1_nrs	1.113	1.113	0.038	0.038
ND-5	3	3	6950	70	REG09091-00046	20100204_a2043_REG09091_Set1_nrs	1.663	1.663	0.050	0.050
ND-5	3	3	6950	70	REG09091-00047	20100204_a2043_REG09091_Set1_nrs	1.652	1.652	0.054	0.054
ND-5	4	3	6050	77	REG09091-00048	20100204_a2043_REG09091_Set1_nrs	0.089	0.089	0.000	0.000
ND-5	4	3	6050	77	REG09091-00049	20100204_a2043_REG09091_Set1_nrs	0.075	0.075	0.000	0.000
NJ-1	1	0	0	0	REG09091-00050	20100204_a2043_REG09091_Set1_nrs	0.005	0.005	0.000	0.000
NJ-1	2	3	6050	54	REG09091-00051	20100204_a2043_REG09091_Set1_nrs	1.943	1.943	0.034	0.034
NJ-1	2	3	6050	54	REG09091-00052	20100204_a2043_REG09091_Set1_nrs	2.151	2.151	0.036	0.036
NJ-1	3	3	6950	54	REG09091-00053	20100308_a2043_REG09091_Set3_nrs	6.881	6.881	0.110	0.110
NJ-1	3	3	6950	54	REG09091-00053	20100204_a2043_REG09091_Set1_nrs	6.612	6.612	0.108	0.108
NJ-1	3	3	6950	54	REG09091-00054	20100308_a2043_REG09091_Set3_nrs	1.407	1.407	0.023	0.023
NJ-1	3	3	6950	54	REG09091-00054	20100204_a2043_REG09091_Set1_nrs	1.485	1.485	0.023	0.023
NJ-1	4	3	6050	61	REG09091-00055	20100204_a2043_REG09091_Set1_nrs	1.407	1.407	0.023	0.023
NJ-1	4	3	6050	61	REG09091-00056	20100204_a2043_REG09091_Set1_nrs	1.485	1.485	0.023	0.023

Locked on 01/23/2011 22:05 by MGMUET

Master Summary Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE & AMPA IN CANOLA SEED ALKALI REFINED OIL AFTER APPLICATION OF GLYPHOSATE

Location	Trit No.	No. of Appl	Rate of Glyphosate (g a.e./ha)	Days After Last Appl	Sample ID	Data Source Information	Glyphosate		AMPA	
							Analyte Amount	Analyte Amount	Analyte Amount	Analyte Amount
ND-5	1	0	0	0	REG09091-00089	20100624_a2043_REG09091_Set4_nrs	0.000	0.000	0.000	0.000
ND-5	1	0	0	0	REG09091-00089	20100624_a2043_REG09091_Set4_nrs	0.000	0.000	0.000	0.000
ND-5	1	0	0	0	REG09091-00089	20100624_a2043_REG09091_Set4_nrs	0.000	0.000	0.000	0.000
ND-5	3	3	6950	245	REG09091-00094	20100701_a2043_REG09091_Set5_nrs	0.003	0.003	0.000	0.000
ND-5	3	3	6950	245	REG09091-00094	20100701_a2043_REG09091_Set5_nrs	0.003	0.003	0.000	0.000
ND-5	3	3	6950	245	REG09091-00094	20100624_a2043_REG09091_Set4_nrs	0.005	0.005	0.000	0.000

Locked on 01/23/2011 22:05 by MGMUET

Master Summary Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE & AMPA IN CANOLA SEED CRUDE OIL AFTER APPLICATION OF GLYPHOSATE

Location	Trt No.	No. of Appl	Rate of Glyphosate (g a.e./ha)	Days After Last Appl	Sample ID	Data Source Information	Glyphosate		AMPA	
							Analyte Amount	Analyte Amount	Analyte Amount	Analyte Amount
ND-5	1	0	0	0	REG09091-00088	20100701_a2043_REG09091_Set5_nrs	0.000	0.000	0.000	0.000
ND-5	1	0	0	0	REG09091-00088	20100701_a2043_REG09091_Set5_nrs	0.000	0.000	0.000	0.000
ND-5	1	0	0	0	REG09091-00088	20100701_a2043_REG09091_Set5_nrs	0.000	0.000	0.000	0.000
ND-5	1	0	0	0	REG09091-00088	20100624_a2043_REG09091_Set4_nrs	0.000	0.000	0.000	0.000
ND-5	1	0	0	0	REG09091-00088	20100624_a2043_REG09091_Set4_nrs	0.000	0.000	0.000	0.000
ND-5	1	0	0	0	REG09091-00088	20100624_a2043_REG09091_Set4_nrs	0.000	0.000	0.000	0.000
ND-5	3	3	6950	245	REG09091-00093	20100624_a2043_REG09091_Set4_nrs	0.000	0.000	0.000	0.000
ND-5	3	3	6950	245	REG09091-00093	20100701_a2043_REG09091_Set5_nrs	0.045	0.045	0.000	0.000
ND-5	3	3	6950	245	REG09091-00093	20100701_a2043_REG09091_Set5_nrs	0.040	0.040	0.000	0.000
ND-5	3	3	6950	245	REG09091-00093	20100701_a2043_REG09091_Set5_nrs	0.046	0.046	0.001	0.001

Locked on 01/23/2011 22:05 by MGMUET

Master Summary Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE & AMPA IN CANOLA SEED RAC FROM PROCESSOR AFTER APPLICATION OF GLYPHOSATE

Location	Trit No.	No. of Appl	Rate of Glyphosate (g a.e./ha)	Days After Last Appl	Sample ID	Data Source Information	Glyphosate		AMPA	
							Analyte Amount	Analyte Amount	Analyte Amount	Analyte Amount
ND-5	1	0	0	0	REG09091-00085	20100624_a2043_REG09091_Set4_nrs	0.006	0.006	0.000	0.000
ND-5	1	0	0	0	REG09091-00085	20100624_a2043_REG09091_Set4_nrs	0.007	0.007	0.000	0.000
ND-5	1	0	0	0	REG09091-00085	20100624_a2043_REG09091_Set4_nrs	0.007	0.007	0.000	0.000
ND-5	3	3	6950	242	REG09091-00090	20100701_a2043_REG09091_Set5_nrs	1.655	1.655	0.050	0.050
ND-5	3	3	6950	242	REG09091-00090	20100624_a2043_REG09091_Set4_nrs	1.648	1.648	0.051	0.051
ND-5	3	3	6950	242	REG09091-00090	20100701_a2043_REG09091_Set5_nrs	1.640	1.640	0.054	0.054

Locked on 01/23/2011 22:05 by MGMUET

Master Summary Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE & AMPA IN CANOLA SEED RBD OIL AFTER APPLICATION OF GLYPHOSATE

Location	Trt No.	No. of Appl	Rate of Glyphosate (g a.e./ha)	Days After Last Appl	Sample ID	Data Source Information	Glyphosate		AMPA	
							Analyte Amount	Analyte Amount	Analyte Amount	Analyte Amount
ND-5	1	0	0	0	REG09091-00087	20100701_a2043_REG09091_Set5_nrs	0.000	0.000	0.000	0.000
ND-5	1	0	0	0	REG09091-00087	20100701_a2043_REG09091_Set5_nrs	0.000	0.000	0.000	0.000
ND-5	1	0	0	0	REG09091-00087	20100701_a2043_REG09091_Set5_nrs	0.000	0.000	0.000	0.000
ND-5	1	0	0	0	REG09091-00087	20100624_a2043_REG09091_Set4_nrs	0.000	0.000	0.000	0.000
ND-5	1	0	0	0	REG09091-00087	20100624_a2043_REG09091_Set4_nrs	0.000	0.000	0.000	0.000
ND-5	1	0	0	0	REG09091-00087	20100624_a2043_REG09091_Set4_nrs	0.000	0.000	0.000	0.000
ND-5	3	3	6950	246	REG09091-00092	20100701_a2043_REG09091_Set5_nrs	0.000	0.000	0.000	0.000
ND-5	3	3	6950	246	REG09091-00092	20100701_a2043_REG09091_Set5_nrs	0.000	0.000	0.000	0.000
ND-5	3	3	6950	246	REG09091-00092	20100624_a2043_REG09091_Set4_nrs	0.000	0.000	0.000	0.000

Locked on 01/23/2011 22:05 by MGMUET

Master Summary Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE & AMPA IN CANOLA SEED TOASTED DEFATTED MEAL AFTER APPLICATION OF GLYPHOSATE

Location	Trit No.	No. of Appl	Rate of Glyphosate (g a.e./ha)	Days After Last Appl	Sample ID	Data Source Information	Glyphosate		AMPA	
							Analyte Amount	Analyte Amount	Analyte Amount	Analyte Amount
ND-5	1	0	0	0	REG09091-00086	20100624_a2043_REG09091_Set4_nrs	0.016	0.016	0.000	0.000
ND-5	1	0	0	0	REG09091-00086	20100624_a2043_REG09091_Set4_nrs	0.016	0.016	0.000	0.000
ND-5	1	0	0	0	REG09091-00086	20100624_a2043_REG09091_Set4_nrs	0.018	0.018	0.000	0.000
ND-5	3	3	6950	246	REG09091-00091	20100701_a2043_REG09091_Set5_nrs	3.962	3.962	0.127	0.127
ND-5	3	3	6950	246	REG09091-00091	20100701_a2043_REG09091_Set5_nrs	3.949	3.949	0.128	0.128
ND-5	3	3	6950	246	REG09091-00091	20100624_a2043_REG09091_Set4_nrs	3.972	3.972	0.129	0.129

2. Raw Data Tables

The Raw Data Tables contain data from which the Summary Tables in the text were generated. A Raw Data Table is generated for each location, analyte and matrix and includes the raw data for all samples analyzed from that location. A description of each column is presented below.

A. Sample I.D.

Shows the RIMS I.D. for each sample analyzed.

B. Trt. No.

Identifies the treatment number associated with each sample.

C. Response Ratio: The ratio of response of the analyte peak to the internal standard peak for each sample.

D. Quantitation Factor or Final Volume: The product of sample extraction volume, sample weight and additional dilutions used to adjust the extract concentration to parts per million in the sample.

$$\text{Quant Factor} = \frac{\text{Extraction volume (mL)} \times \text{Add'l Dilution Volume (mL)}}{\text{Sample weight (g)}}$$

For example: Extraction volume = 100 mL
 Sample wt. = 10.0 g
 Quantitation Factor = 10.0

E. Curve Constants (A, B, and C): The Analyst® software automatically derives the calibration curve using the area response ratios (y) versus the concentration ratios (x) of the external and internal standards for all standards injected with the chromatographic set. A weighted quadratic curve (1/x) was used. The resulting equation defining the standard curve is shown below:

$$A (\mu\text{g/L analyte})^2 + B (\mu\text{g/L analyte}) + C = \text{PKR}_{\text{analyte}} \quad \text{where,}$$

$\text{PKR}_{\text{analyte}}$ is the detector response (as ratio of the analyte ion over the internal standard ion).

A, B and C are curve constants

F. Analyte ppm: The sample results are calculated automatically by the Analyst® software. The calculation may be checked manually by applying the solution for quadratic equations as shown below. (note: subtract the response $\text{PKR}_{\text{analyt}}$ from C first).

$$\text{Injected Extract Conc } (\mu\text{g/mL analyte}) = \frac{-b \pm \sqrt{(b^2 - 4a(c - \text{PKR}_{\text{analyt}}))}}{2a}$$

Additional corrections must be made for extraction solvent volume and sample weight. The volume and weight are shown as a single factor (v/wt) in the quantitation factor column. Any additional dilutions due to responses out of standard curve range must also be incorporated into the quantitation factor.

Analyte Amount ppm = Injected Extract Conc (µg/mL) x Quantitation factor

Example Calculation:

From the Raw Data Tables

Glyphosate in Canola seed: REG09091-00033 (Treatment #3)

Set 20100204_a2043_Reg09091_Set1_nrs

Curve constant A:-1.9

Curve Constant B: 18.6

Curve Constant C: 0.00268

Response Ratio (*PKR*): 6.31

Quantitation Factor: 100 mL/ 10 g = 10.0 mL/g

$$\text{Injected Extract Conc} = \frac{-18.6 + \sqrt{(18.6)^2 - 4(-1.9)(0.00268-6.31)}}{2(-1.9)}$$

(µg/mL analyte)

$$= 0.352 \text{ µg/mL}$$

$$\text{Analyte Amount ppm} = [(0.352 \text{ µg/mL})(10.0 \text{ mL/g})] = 3.52 \text{ µg/g (ppm)}$$

The curve constants are calculated by the computer system to a higher number of significant digits than is reported in the Raw Data Tables and the PPM value in the Raw Data Tables is calculated based on the higher number of significant digits. Hand calculations based on the values given in the Raw Data Tables, as was done in the above example calculation, may contain small rounding errors.

G. Sampling Date

The date on which the raw agricultural commodity samples were cut in the field.

H. Extraction Date

The date the samples were extracted in the laboratory.

I. Analysis Date

The date on which the instrumental analysis occurred.

J. Days betw. Sampl. and Extraction

The number of days between cutting in the field and extraction in the laboratory.

K. Days betw. Analysis and Extraction

The number of days between extraction and the acquisition of the analytical results on the mass spectrometer.

Raw Data Table *RIMS III V4.0* **RESIDUES OF GLYPHOSATE IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE**

Location: ID-6
Matrix: Canola Seed

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			Curve Constant	Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw.	
				Constant A	Constant B	Constant C						Sampl. and Extraction	Analysis and Extraction
REG09091-00001	1	0.06	10.00	-1.900E+0	1.860E+1	2.680E-3	0.028	0.028	09/18/2009	02/02/2010	02/05/2010	137	3
REG09091-00001	1	0.04	10.00	-1.760E+0	1.840E+1	2.360E-3	0.020	0.020	09/18/2009	02/12/2010	02/13/2010	147	1
REG09091-00002	2	2.29	10.00	-1.900E+0	1.860E+1	2.680E-3	1.250	1.250	09/18/2009	02/02/2010	02/05/2010	137	3
REG09091-00003	2	2.68	10.00	-1.900E+0	1.860E+1	2.680E-3	1.467	1.467	09/18/2009	02/02/2010	02/05/2010	137	3
REG09091-00004	3	6.46	10.00	-1.900E+0	1.860E+1	2.680E-3	3.615	3.615	09/18/2009	02/02/2010	02/05/2010	137	3
REG09091-00005	3	5.65	10.00	-1.900E+0	1.860E+1	2.680E-3	3.141	3.141	09/18/2009	02/02/2010	02/05/2010	137	3
REG09091-00006	4	2.67	10.00	-1.900E+0	1.860E+1	2.680E-3	1.458	1.458	09/18/2009	02/02/2010	02/05/2010	137	3
REG09091-00007	4	2.57	10.00	-1.900E+0	1.860E+1	2.680E-3	1.401	1.401	09/18/2009	02/02/2010	02/05/2010	137	3

Raw Data Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE

Location: ID-7
Matrix: Canola Seed

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			Curve Constant	Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw.	
				Constant	Constant	Constant						Sampl. and Extraction	Analysis and Extraction
REG09091-00008	1	0.07	10.00	-1.900E+0	1.860E+1	2.680E-3	0.037	0.037	09/08/2009	02/03/2010	02/05/2010	148	2
REG09091-00008	1	0.07	10.00	-1.760E+0	1.840E+1	2.360E-3	0.035	0.035	09/08/2009	02/12/2010	02/12/2010	157	0
REG09091-00057	1	0.08	10.00	-1.900E+0	1.860E+1	2.680E-3	0.042	0.042	09/09/2009	02/03/2010	02/05/2010	147	2
REG09091-00058	1	0.09	10.00	-1.900E+0	1.860E+1	2.680E-3	0.049	0.049	09/11/2009	02/03/2010	02/05/2010	145	2
REG09091-00059	1	0.04	10.00	-1.900E+0	1.860E+1	2.680E-3	0.022	0.022	09/15/2009	02/03/2010	02/05/2010	141	2
REG09091-00060	1	0.04	10.00	-1.900E+0	1.860E+1	2.680E-3	0.020	0.020	09/18/2009	02/03/2010	02/05/2010	138	2
REG09091-00009	2	2.39	50.00	-5.290E-1	1.790E+1	1.280E-3	6.712	6.712	09/08/2009	02/03/2010	03/08/2010	148	33
REG09091-00010	2	2.09	50.00	-5.290E-1	1.790E+1	1.280E-3	5.857	5.857	09/08/2009	02/03/2010	03/08/2010	148	33
REG09091-00011	3	4.01	50.00	-5.290E-1	1.790E+1	1.280E-3	11.302	11.302	09/08/2009	02/03/2010	03/08/2010	148	33
REG09091-00012	3	3.96	50.00	-5.290E-1	1.790E+1	1.280E-3	11.144	11.144	09/08/2009	02/03/2010	03/08/2010	148	33
REG09091-00061	3	3.37	50.00	-5.290E-1	1.790E+1	1.280E-3	9.479	9.479	09/09/2009	02/03/2010	03/08/2010	147	33
REG09091-00062	3	3.46	50.00	-5.290E-1	1.790E+1	1.280E-3	9.751	9.751	09/09/2009	02/03/2010	03/08/2010	147	33
REG09091-00063	3	3.17	50.00	-5.290E-1	1.790E+1	1.280E-3	8.907	8.907	09/11/2009	02/03/2010	03/08/2010	145	33
REG09091-00064	3	3.24	50.00	-5.290E-1	1.790E+1	1.280E-3	9.105	9.105	09/11/2009	02/03/2010	03/09/2010	145	34
REG09091-00065	3	3.38	50.00	-5.290E-1	1.790E+1	1.280E-3	9.521	9.521	09/15/2009	02/03/2010	03/09/2010	141	34
REG09091-00066	3	3.09	50.00	-5.290E-1	1.790E+1	1.280E-3	8.685	8.685	09/15/2009	02/03/2010	03/09/2010	141	34
REG09091-00067	3	3.46	50.00	-5.290E-1	1.790E+1	1.280E-3	9.726	9.726	09/18/2009	02/03/2010	03/09/2010	138	34
REG09091-00068	3	3.66	50.00	-5.290E-1	1.790E+1	1.280E-3	10.305	10.305	09/18/2009	02/03/2010	03/09/2010	138	34
REG09091-00013	4	4.53	10.00	-1.900E+0	1.860E+1	2.680E-3	2.506	2.506	09/08/2009	02/03/2010	02/05/2010	148	2
REG09091-00014	4	4.14	10.00	-1.900E+0	1.860E+1	2.680E-3	2.282	2.282	09/08/2009	02/03/2010	02/05/2010	148	2

Locked on 01/23/2011 22:05 by MGMUET

Raw Data Table *RIMS III V4.0*

RESIDUES OF GLYPHOSATE IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE

Location: MN-2
Matrix: Canola Seed

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			Curve Constant	Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw.	
				Constant A	Constant B	Constant C						Sampl. and Extraction	Analysis and Extraction
REG09091-00022	1	0.93	10.00	-1.900E+0	1.860E+1	2.680E-3	0.500	0.500	09/24/2009	02/02/2010	02/05/2010	131	3
REG09091-00022	1	0.97	10.00	-1.760E+0	1.840E+1	2.360E-3	0.529	0.529	09/24/2009	02/12/2010	02/13/2010	141	1
REG09091-00023	2	5.93	10.00	-1.900E+0	1.860E+1	2.680E-3	3.303	3.303	09/24/2009	02/02/2010	02/05/2010	131	3
REG09091-00024	2	4.93	10.00	-1.900E+0	1.860E+1	2.680E-3	2.728	2.728	09/24/2009	02/02/2010	02/05/2010	131	3
REG09091-00025	3	2.08	50.00	-5.290E-1	1.790E+1	1.280E-3	5.832	5.832	09/24/2009	02/02/2010	03/08/2010	131	34
REG09091-00026	3	8.85	10.00	-1.900E+0	1.860E+1	2.680E-3	5.024	5.024	09/24/2009	02/02/2010	02/05/2010	131	3
REG09091-00027	4	3.77	10.00	-1.900E+0	1.860E+1	2.680E-3	2.073	2.073	09/24/2009	02/02/2010	02/05/2010	131	3
REG09091-00028	4	3.45	10.00	-1.900E+0	1.860E+1	2.680E-3	1.896	1.896	09/24/2009	02/02/2010	02/05/2010	131	3

Locked on 01/23/2011 22:05 by MGMUET

Raw Data Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE

Location: ND-3
Matrix: Canola Seed

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			Constant C	Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw.	
				Constant A	Constant B	Constant						Sampl. and Extraction	Analysis and Extraction
REG09091-00029	1	0.04	10.00	-1.900E+0	1.860E+1	2.680E-3	0.021	0.021	09/25/2009	02/02/2010	02/04/2010	130	2
REG09091-00069	1	0.04	10.00	-1.900E+0	1.860E+1	2.680E-3	0.019	0.019	09/26/2009	02/02/2010	02/04/2010	129	2
REG09091-00070	1	0.04	10.00	-1.900E+0	1.860E+1	2.680E-3	0.018	0.018	09/28/2009	02/02/2010	02/04/2010	127	2
REG09091-00071	1	0.04	10.00	-1.900E+0	1.860E+1	2.680E-3	0.018	0.018	10/02/2009	02/02/2010	02/04/2010	123	2
REG09091-00072	1	0.04	10.00	-1.900E+0	1.860E+1	2.680E-3	0.019	0.019	10/05/2009	02/02/2010	02/04/2010	120	2
REG09091-00030	2	2.66	10.00	-1.900E+0	1.860E+1	2.680E-3	1.455	1.455	09/25/2009	02/02/2010	02/04/2010	130	2
REG09091-00031	2	3.26	10.00	-1.900E+0	1.860E+1	2.680E-3	1.785	1.785	09/25/2009	02/02/2010	02/04/2010	130	2
REG09091-00032	3	6.97	10.00	-1.900E+0	1.860E+1	2.680E-3	3.911	3.911	09/25/2009	02/02/2010	02/04/2010	130	2
REG09091-00033	3	6.31	10.00	-1.900E+0	1.860E+1	2.680E-3	3.525	3.525	09/25/2009	02/02/2010	02/04/2010	130	2
REG09091-00073	3	7.04	10.00	-1.900E+0	1.860E+1	2.680E-3	3.952	3.952	09/26/2009	02/02/2010	02/04/2010	129	2
REG09091-00074	3	9.14	10.00	-1.900E+0	1.860E+1	2.680E-3	5.201	5.201	09/26/2009	02/02/2010	02/04/2010	129	2
REG09091-00075	3	7.14	10.00	-1.900E+0	1.860E+1	2.680E-3	4.012	4.012	09/28/2009	02/02/2010	02/04/2010	127	2
REG09091-00076	3	8.87	10.00	-1.900E+0	1.860E+1	2.680E-3	5.034	5.034	09/28/2009	02/02/2010	02/04/2010	127	2
REG09091-00077	3	5.22	10.00	-1.900E+0	1.860E+1	2.680E-3	2.894	2.894	10/02/2009	02/02/2010	02/04/2010	123	2
REG09091-00078	3	6.30	10.00	-1.900E+0	1.860E+1	2.680E-3	3.522	3.522	10/02/2009	02/02/2010	02/04/2010	123	2
REG09091-00079	3	7.33	10.00	-1.900E+0	1.860E+1	2.680E-3	4.124	4.124	10/05/2009	02/02/2010	02/04/2010	120	2
REG09091-00080	3	7.70	10.00	-1.900E+0	1.860E+1	2.680E-3	4.337	4.337	10/05/2009	02/02/2010	02/04/2010	120	2
REG09091-00034	4	2.65	10.00	-1.900E+0	1.860E+1	2.680E-3	1.446	1.446	09/25/2009	02/02/2010	02/04/2010	130	2
REG09091-00035	4	2.67	10.00	-1.900E+0	1.860E+1	2.680E-3	1.458	1.458	09/25/2009	02/02/2010	02/04/2010	130	2

Locked on 01/23/2011 22:05 by MGMUET

Raw Data Table *RIMS III V4.0*

RESIDUES OF GLYPHOSATE IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE

Location: ND-4
Matrix: Canola Seed

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			Glyphosate Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw. Sampl. and Extraction	Days Betw. Analysis and Extraction
				Constant A	Constant B	Constant C						
REG09091-00036	1	0.03	10.00	-1.900E+0	1.860E+1	2.680E-3	0.014	08/31/2009	02/03/2010	02/05/2010	156	2
REG09091-00037	2	0.42	10.00	-1.900E+0	1.860E+1	2.680E-3	0.227	08/31/2009	02/03/2010	02/05/2010	156	2
REG09091-00038	2	0.48	10.00	-1.900E+0	1.860E+1	2.680E-3	0.256	08/31/2009	02/03/2010	02/05/2010	156	2
REG09091-00039	3	3.03	10.00	-1.900E+0	1.860E+1	2.680E-3	1.657	08/31/2009	02/03/2010	02/05/2010	156	2
REG09091-00040	3	2.58	10.00	-1.900E+0	1.860E+1	2.680E-3	1.410	08/31/2009	02/03/2010	02/05/2010	156	2
REG09091-00041	4	0.27	10.00	-1.900E+0	1.860E+1	2.680E-3	0.146	08/31/2009	02/03/2010	02/05/2010	156	2
REG09091-00042	4	0.28	10.00	-1.900E+0	1.860E+1	2.680E-3	0.151	08/31/2009	02/03/2010	02/05/2010	156	2

Raw Data Table *RIMS III V4.0* **RESIDUES OF GLYPHOSATE IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE**

Location: ND-5
Matrix: Canola Seed

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			Glyphosate Analyte Amount	Sampling Date	Extraction		Days Betw. Sampl. and Extraction		Days Betw. Analysis and Extraction	
				Constant A	Constant B	Constant C			Date	Date	Date	Date	Date	Date
REG09091-00043	1	0.01	10.00	-1.900E+0	1.860E+1	2.680E-3	0.003	09/10/2009	02/03/2010	02/05/2010	146	146	2	2
REG09091-00044	2	1.89	10.00	-1.900E+0	1.860E+1	2.680E-3	1.029	09/10/2009	02/03/2010	02/05/2010	146	146	2	2
REG09091-00045	2	2.04	10.00	-1.900E+0	1.860E+1	2.680E-3	1.113	09/10/2009	02/03/2010	02/05/2010	146	146	2	2
REG09091-00046	3	3.04	10.00	-1.900E+0	1.860E+1	2.680E-3	1.663	09/10/2009	02/03/2010	02/05/2010	146	146	2	2
REG09091-00047	3	3.02	10.00	-1.900E+0	1.860E+1	2.680E-3	1.652	09/10/2009	02/03/2010	02/05/2010	146	146	2	2
REG09091-00048	4	0.17	10.00	-1.900E+0	1.860E+1	2.680E-3	0.089	09/10/2009	02/03/2010	02/05/2010	146	146	2	2
REG09091-00049	4	0.14	10.00	-1.900E+0	1.860E+1	2.680E-3	0.075	09/10/2009	02/03/2010	02/05/2010	146	146	2	2

Raw Data Table *RIMS III V4.0*

RESIDUES OF GLYPHOSATE IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE

Location: NJ-1
Matrix: Canola Seed

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			Glyphosate Analyte Amount	Sampling Date	Extraction		Analysis Date		Days Betw. Sampl. and Extraction		Days Betw. Analysis and Extraction	
				Constant A	Constant B	Constant C			Date	Date	Date	Date	Extraction	Extraction	Analysis	Extraction
REG09091-00050	1	0.01	10.00	-1.900E+0	1.860E+1	2.680E-3	0.005	09/01/2009	02/03/2010	02/03/2010	02/05/2010	02/05/2010	155	2	155	2
REG09091-00051	2	3.54	10.00	-1.900E+0	1.860E+1	2.680E-3	1.943	09/01/2009	02/03/2010	02/03/2010	02/05/2010	02/05/2010	155	2	155	2
REG09091-00052	2	3.91	10.00	-1.900E+0	1.860E+1	2.680E-3	2.151	09/01/2009	02/03/2010	02/03/2010	02/05/2010	02/05/2010	155	2	155	2
REG09091-00053	3	2.45	50.00	-5.290E-1	1.790E+1	1.280E-3	6.881	09/01/2009	02/03/2010	02/03/2010	03/08/2010	03/08/2010	155	33	155	33
REG09091-00054	3	2.35	50.00	-5.290E-1	1.790E+1	1.280E-3	6.612	09/01/2009	02/03/2010	02/03/2010	03/08/2010	03/08/2010	155	33	155	33
REG09091-00055	4	2.58	10.00	-1.900E+0	1.860E+1	2.680E-3	1.407	09/01/2009	02/03/2010	02/03/2010	02/05/2010	02/05/2010	155	2	155	2
REG09091-00056	4	2.72	10.00	-1.900E+0	1.860E+1	2.680E-3	1.485	09/01/2009	02/03/2010	02/03/2010	02/05/2010	02/05/2010	155	2	155	2

Locked on 01/23/2011 22:05 by MGMUET

Raw Data Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE IN CANOLA SEED ALKALI REFINED OIL AFTER APPLICATION OF GLYPHOSATE

Location: ND-5

Matrix: Canola Seed Alkali Refined Oil

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			Curve Constant	Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw.	
				Constant A	Constant B	Constant C						Sampl. and Extraction	Analysis and Extraction
REG09091-00089	1	0.00	10.00	-7.040E-1	1.800E+1	9.660E-4	0.000	0.000	03/04/2010	06/17/2010	06/24/2010	105	7
REG09091-00089	1	0.00	10.00	-7.040E-1	1.800E+1	9.660E-4	0.000	0.000	03/04/2010	06/17/2010	06/24/2010	105	7
REG09091-00089	1	0.00	10.00	-7.040E-1	1.800E+1	9.660E-4	0.000	0.000	03/04/2010	06/17/2010	06/24/2010	105	7
REG09091-00094	3	0.01	10.00	-7.040E-1	1.800E+1	9.660E-4	0.005	0.005	03/04/2010	06/17/2010	06/25/2010	105	8
REG09091-00094	3	0.01	10.00	-1.470E+0	1.800E+1	4.000E-3	0.003	0.003	03/04/2010	07/01/2010	07/02/2010	119	1
REG09091-00094	3	0.01	10.00	-1.470E+0	1.800E+1	4.000E-3	0.003	0.003	03/04/2010	07/01/2010	07/02/2010	119	1

Locked on 01/23/2011 22:05 by MGMUET

Raw Data Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE IN CANOLA SEED CRUDE OIL AFTER APPLICATION OF GLYPHOSATE

Location: ND-5
Matrix: Canola Seed Crude Oil

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			Curve Constant	Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw.	
				Constant A	Constant B	Constant C						Sampl. and Extraction	Analysis and Extraction
REG09091-00088	1	0.00	10.00	-7.040E-1	1.800E+1	9.660E-4	0.000	0.000	03/04/2010	06/17/2010	06/24/2010	105	7
REG09091-00088	1	0.00	10.00	-7.040E-1	1.800E+1	9.660E-4	0.000	0.000	03/04/2010	06/17/2010	06/24/2010	105	7
REG09091-00088	1	0.00	10.00	-7.040E-1	1.800E+1	9.660E-4	0.000	0.000	03/04/2010	06/17/2010	06/24/2010	105	7
REG09091-00088	1	0.00	10.00	-1.470E+0	1.800E+1	4.000E-3	0.000	0.000	03/04/2010	07/01/2010	07/01/2010	119	0
REG09091-00088	1	0.00	10.00	-1.470E+0	1.800E+1	4.000E-3	0.000	0.000	03/04/2010	07/01/2010	07/01/2010	119	0
REG09091-00088	1	0.00	10.00	-1.470E+0	1.800E+1	4.000E-3	0.000	0.000	03/04/2010	07/01/2010	07/01/2010	119	0
REG09091-00093	3	0.08	10.00	-7.040E-1	1.800E+1	9.660E-4	0.045	0.045	03/04/2010	06/17/2010	06/25/2010	105	8
REG09091-00093	3	0.08	10.00	-1.470E+0	1.800E+1	4.000E-3	0.040	0.040	03/04/2010	07/01/2010	07/02/2010	119	1
REG09091-00093	3	0.09	10.00	-1.470E+0	1.800E+1	4.000E-3	0.046	0.046	03/04/2010	07/01/2010	07/02/2010	119	1

Raw Data Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE IN CANOLA SEED RAC FROM PROCESSOR AFTER APPLICATION OF GLYPHOSATE

Location: ND-5
Matrix: Canola Seed Rac From Processor

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			Glyphosate Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw.	
				Constant A	Constant B	Constant C					Sampl. and Extraction	Analysis and Extraction
REG09091-00085	1	0.01	10.00	-7.040E-1	1.800E+1	9.660E-4	0.007	03/01/2010	06/17/2010	06/24/2010	108	7
REG09091-00085	1	0.01	10.00	-7.040E-1	1.800E+1	9.660E-4	0.006	03/01/2010	06/17/2010	06/24/2010	108	7
REG09091-00085	1	0.01	10.00	-7.040E-1	1.800E+1	9.660E-4	0.007	03/01/2010	06/17/2010	06/24/2010	108	7
REG09091-00090	3	2.95	10.00	-7.040E-1	1.800E+1	9.660E-4	1.648	03/01/2010	06/17/2010	06/25/2010	108	8
REG09091-00090	3	2.92	10.00	-1.470E+0	1.800E+1	4.000E-3	1.640	03/01/2010	07/01/2010	07/02/2010	122	1
REG09091-00090	3	2.95	10.00	-1.470E+0	1.800E+1	4.000E-3	1.655	03/01/2010	07/01/2010	07/02/2010	122	1

Raw Data Table *RIMS III V4.0*

RESIDUES OF GLYPHOSATE IN CANOLA SEED RBD OIL AFTER APPLICATION OF GLYPHOSATE

Location: ND-5
Matrix: Canola Seed RBD Oil

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			Curve Constant	Glyphosate Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw.	
				Constant A	Constant B	Constant C						Sampl. and Extraction	Analysis and Extraction
REG09091-00087	1	0.00	10.00	-7.040E-1	1.800E+1	9.660E-4	0.000	0.000	03/05/2010	06/17/2010	06/24/2010	104	7
REG09091-00087	1	0.00	10.00	-7.040E-1	1.800E+1	9.660E-4	0.000	0.000	03/05/2010	06/17/2010	06/24/2010	104	7
REG09091-00087	1	0.00	10.00	-7.040E-1	1.800E+1	9.660E-4	0.000	0.000	03/05/2010	06/17/2010	06/24/2010	104	7
REG09091-00087	1	0.00	10.00	-1.470E+0	1.800E+1	4.000E-3	0.000	0.000	03/05/2010	07/01/2010	07/01/2010	118	0
REG09091-00087	1	0.00	10.00	-1.470E+0	1.800E+1	4.000E-3	0.000	0.000	03/05/2010	07/01/2010	07/01/2010	118	0
REG09091-00087	1	0.00	10.00	-1.470E+0	1.800E+1	4.000E-3	0.000	0.000	03/05/2010	07/01/2010	07/01/2010	118	0
REG09091-00092	3	0.00	10.00	-7.040E-1	1.800E+1	9.660E-4	0.000	0.000	03/05/2010	06/17/2010	06/25/2010	104	8
REG09091-00092	3	0.00	10.00	-1.470E+0	1.800E+1	4.000E-3	0.000	0.000	03/05/2010	07/01/2010	07/02/2010	118	1
REG09091-00092	3	0.00	10.00	-1.470E+0	1.800E+1	4.000E-3	0.000	0.000	03/05/2010	07/01/2010	07/02/2010	118	1

Raw Data Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE IN CANOLA SEED TOASTED DEFATTED MEAL AFTER APPLICATION OF GLYPHOSATE

Location: ND-5
Matrix: Canola Seed Toasted Defatted Meal

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			Curve Constant C	Glyphosate Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw.	
				Constant A	Constant B	Constant						Extraction	Analysis
REG09091-00086	1	0.03	10.00	-7.040E-1	1.800E+1	9.660E-4	0.018	03/05/2010	06/17/2010	06/24/2010		104	7
REG09091-00086	1	0.03	10.00	-7.040E-1	1.800E+1	9.660E-4	0.016	03/05/2010	06/17/2010	06/24/2010		104	7
REG09091-00086	1	0.03	10.00	-7.040E-1	1.800E+1	9.660E-4	0.016	03/05/2010	06/17/2010	06/24/2010		104	7
REG09091-00091	3	7.03	10.00	-7.040E-1	1.800E+1	9.660E-4	3.972	03/05/2010	06/17/2010	06/25/2010		104	8
REG09091-00091	3	6.89	10.00	-1.470E+0	1.800E+1	4.000E-3	3.949	03/05/2010	07/01/2010	07/02/2010		118	1
REG09091-00091	3	6.91	10.00	-1.470E+0	1.800E+1	4.000E-3	3.962	03/05/2010	07/01/2010	07/02/2010		118	1

Raw Data Table *RIMS III V4.0*

RESIDUES OF AMPA IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE

Location: ID-6
Matrix: Canola Seed

Sample ID	Trit No.	Response Ratio	Final Volume (mL)	Curve			AMPA Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw.	
				Constant A	Constant B	Constant C					Sampl. and Extraction	Analysis and Extraction
REG09091-00001	1	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	09/18/2009	02/02/2010	02/05/2010	137	3
REG09091-00001	1	0.00	10.00	7.690E-1	1.700E+1	5.240E-3	0.000	09/18/2009	02/12/2010	02/13/2010	147	1
REG09091-00002	2	0.04	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.024	09/18/2009	02/02/2010	02/05/2010	137	3
REG09091-00003	2	0.05	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.027	09/18/2009	02/02/2010	02/05/2010	137	3
REG09091-00004	3	0.14	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.082	09/18/2009	02/02/2010	02/05/2010	137	3
REG09091-00005	3	0.52	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.289	09/18/2009	02/02/2010	02/05/2010	137	3
REG09091-00006	4	0.06	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.034	09/18/2009	02/02/2010	02/05/2010	137	3
REG09091-00007	4	0.05	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.029	09/18/2009	02/02/2010	02/05/2010	137	3

Locked on 01/23/2011 22:05 by MGMUET

Raw Data Table
RIMS III V4.0

RESIDUES OF AMPA IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE

Location: ID-7
Matrix: Canola Seed

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			AMPA Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw.	
				Constant A	Constant B	Constant C					Sampl. and Extraction	Analysis and Extraction
REG09091-00008	1	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	09/08/2009	02/03/2010	02/05/2010	148	2
REG09091-00008	1	0.00	10.00	7.690E-1	1.700E+1	5.240E-3	0.000	09/08/2009	02/12/2010	02/12/2010	157	0
REG09091-00057	1	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	09/09/2009	02/03/2010	02/05/2010	147	2
REG09091-00058	1	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	09/11/2009	02/03/2010	02/05/2010	145	2
REG09091-00059	1	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	09/15/2009	02/03/2010	02/05/2010	141	2
REG09091-00060	1	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	09/18/2009	02/03/2010	02/05/2010	138	2
REG09091-00009	2	0.27	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.152	09/08/2009	02/03/2010	02/05/2010	148	2
REG09091-00010	2	0.29	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.163	09/08/2009	02/03/2010	02/05/2010	148	2
REG09091-00011	3	0.38	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.210	09/08/2009	02/03/2010	02/05/2010	148	2
REG09091-00012	3	0.35	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.195	09/08/2009	02/03/2010	02/05/2010	148	2
REG09091-00061	3	0.36	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.201	09/09/2009	02/03/2010	02/05/2010	147	2
REG09091-00062	3	0.34	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.188	09/09/2009	02/03/2010	02/05/2010	147	2
REG09091-00063	3	0.33	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.187	09/11/2009	02/03/2010	02/05/2010	145	2
REG09091-00064	3	0.32	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.179	09/11/2009	02/03/2010	02/05/2010	145	2
REG09091-00065	3	0.35	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.198	09/15/2009	02/03/2010	02/05/2010	141	2
REG09091-00066	3	0.36	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.201	09/15/2009	02/03/2010	02/06/2010	141	3
REG09091-00067	3	0.35	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.194	09/18/2009	02/03/2010	02/06/2010	138	3
REG09091-00068	3	0.34	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.189	09/18/2009	02/03/2010	02/06/2010	138	3
REG09091-00013	4	0.07	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.039	09/08/2009	02/03/2010	02/05/2010	148	2
REG09091-00014	4	0.07	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.043	09/08/2009	02/03/2010	02/05/2010	148	2

Locked on 01/23/2011 22:05 by MGMUET

Raw Data Table *RIMS III V4.0*

RESIDUES OF AMPA IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE

Location: MN-2
Matrix: Canola Seed

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			AMPA Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw.	
				Constant A	Constant B	Constant C					Sampl. and Extraction	Analysis and Extraction
REG09091-00022	1	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	09/24/2009	02/02/2010	02/05/2010	131	3
REG09091-00022	1	0.02	10.00	7.690E-1	1.700E+1	5.240E-3	0.006	09/24/2009	02/12/2010	02/13/2010	141	1
REG09091-00023	2	0.17	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.099	09/24/2009	02/02/2010	02/05/2010	131	3
REG09091-00024	2	0.17	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.096	09/24/2009	02/02/2010	02/05/2010	131	3
REG09091-00025	3	0.25	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.142	09/24/2009	02/02/2010	02/05/2010	131	3
REG09091-00026	3	0.21	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.120	09/24/2009	02/02/2010	02/05/2010	131	3
REG09091-00027	4	0.11	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.064	09/24/2009	02/02/2010	02/05/2010	131	3
REG09091-00028	4	0.11	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.062	09/24/2009	02/02/2010	02/05/2010	131	3

Locked on 01/23/2011 22:05 by MGMUET

Raw Data Table *RIMS III V4.0*

RESIDUES OF AMPA IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE

Location: ND-3
Matrix: Canola Seed

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			AMPA Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw.	
				Constant A	Constant B	Constant C					Sampl. and Extraction	Analysis and Extraction
REG09091-00029	1	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	09/25/2009	02/02/2010	02/04/2010	130	2
REG09091-00069	1	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	09/26/2009	02/02/2010	02/04/2010	129	2
REG09091-00070	1	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	09/28/2009	02/02/2010	02/04/2010	127	2
REG09091-00071	1	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	10/02/2009	02/02/2010	02/04/2010	123	2
REG09091-00072	1	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	10/05/2009	02/02/2010	02/04/2010	120	2
REG09091-00030	2	0.06	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.036	09/25/2009	02/02/2010	02/04/2010	130	2
REG09091-00031	2	0.06	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.036	09/25/2009	02/02/2010	02/04/2010	130	2
REG09091-00032	3	0.15	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.085	09/25/2009	02/02/2010	02/04/2010	130	2
REG09091-00033	3	0.15	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.086	09/25/2009	02/02/2010	02/04/2010	130	2
REG09091-00073	3	0.17	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.097	09/26/2009	02/02/2010	02/04/2010	129	2
REG09091-00074	3	0.20	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.115	09/26/2009	02/02/2010	02/04/2010	129	2
REG09091-00075	3	0.15	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.084	09/28/2009	02/02/2010	02/04/2010	127	2
REG09091-00076	3	0.21	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.118	09/28/2009	02/02/2010	02/04/2010	127	2
REG09091-00077	3	0.13	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.074	10/02/2009	02/02/2010	02/04/2010	123	2
REG09091-00078	3	0.15	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.087	10/02/2009	02/02/2010	02/04/2010	123	2
REG09091-00079	3	0.13	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.075	10/05/2009	02/02/2010	02/04/2010	120	2
REG09091-00080	3	0.16	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.090	10/05/2009	02/02/2010	02/04/2010	120	2
REG09091-00034	4	0.07	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.040	09/25/2009	02/02/2010	02/04/2010	130	2
REG09091-00035	4	0.07	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.042	09/25/2009	02/02/2010	02/04/2010	130	2

Locked on 01/23/2011 22:05 by MGMUET

Raw Data Table *RIMS III V4.0*

RESIDUES OF AMPA IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE

Location: ND-4
Matrix: Canola Seed

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve		Curve Constant	Curve Constant	Curve Constant	AMPA Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw. Sampl. and Extraction		Days Betw. Analysis and Extraction
				A	B	C	B	C							
REG09091-00036	1	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	0.000	0.000	08/31/2009	02/03/2010	02/05/2010	156	2	2
REG09091-00037	2	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	0.000	0.000	08/31/2009	02/03/2010	02/05/2010	156	2	2
REG09091-00038	2	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	0.000	0.000	08/31/2009	02/03/2010	02/05/2010	156	2	2
REG09091-00039	3	0.06	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.035	0.035	0.035	08/31/2009	02/03/2010	02/05/2010	156	2	2
REG09091-00040	3	0.05	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.029	0.029	0.029	08/31/2009	02/03/2010	02/05/2010	156	2	2
REG09091-00041	4	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	0.000	0.000	08/31/2009	02/03/2010	02/05/2010	156	2	2
REG09091-00042	4	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	0.000	0.000	08/31/2009	02/03/2010	02/05/2010	156	2	2

Locked on 01/23/2011 22:05 by MGMUET

Raw Data Table *RIMS III V4.0*

RESIDUES OF AMPA IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE

Location: ND-5
Matrix: Canola Seed

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			AMPA Analyte Amount	Sampling Date	Extraction		Days Betw. Sampl. and Extraction		Days Betw. Analysis and Extraction	
				Constant A	Constant B	Constant C			Date	Date	Date	Date	Date	Date
REG09091-00043	1	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	09/10/2009	02/03/2010	02/05/2010	146	2	2	2
REG09091-00044	2	0.07	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.039	09/10/2009	02/03/2010	02/05/2010	146	2	2	2
REG09091-00045	2	0.06	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.038	09/10/2009	02/03/2010	02/05/2010	146	2	2	2
REG09091-00046	3	0.09	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.050	09/10/2009	02/03/2010	02/05/2010	146	2	2	2
REG09091-00047	3	0.09	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.054	09/10/2009	02/03/2010	02/05/2010	146	2	2	2
REG09091-00048	4	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	09/10/2009	02/03/2010	02/05/2010	146	2	2	2
REG09091-00049	4	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	09/10/2009	02/03/2010	02/05/2010	146	2	2	2

Locked on 01/23/2011 22:05 by MGMUET

Raw Data Table *RIMS III V4.0*

RESIDUES OF AMPA IN CANOLA SEED AFTER APPLICATION OF GLYPHOSATE

Location: NJ-1
Matrix: Canola Seed

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			AMPA Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw.	
				Constant A	Constant B	Constant C					Sampl. and Extraction	Analysis and Extraction
REG09091-00050	1	0.00	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.000	09/01/2009	02/03/2010	02/05/2010	155	2
REG09091-00051	2	0.06	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.034	09/01/2009	02/03/2010	02/05/2010	155	2
REG09091-00052	2	0.06	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.036	09/01/2009	02/03/2010	02/05/2010	155	2
REG09091-00053	3	0.20	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.110	09/01/2009	02/03/2010	02/05/2010	155	2
REG09091-00054	3	0.19	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.108	09/01/2009	02/03/2010	02/05/2010	155	2
REG09091-00055	4	0.04	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.023	09/01/2009	02/03/2010	02/05/2010	155	2
REG09091-00056	4	0.04	10.00	-1.680E+0	1.810E+1	-4.420E-3	0.023	09/01/2009	02/03/2010	02/05/2010	155	2

Locked on 01/23/2011 22:05 by MGMUET

Raw Data Table

RIMS III V4.0

RESIDUES OF AMPA IN CANOLA SEED ALKALI REFINED OIL AFTER APPLICATION OF GLYPHOSATE

Location: ND-5

Matrix: Canola Seed Alkali Refined Oil

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			AMPA Analyte Amount	Sampling Date	Extraction		Analysis		Days Betw. Sampl. and Extraction		Days Betw. Analysis and Extraction	
				Constant A	Constant B	Constant C			Date	Date	Date	Date	Extraction	Extraction	Analysis	Extraction
REG09091-00089	1	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	03/04/2010	06/17/2010	06/24/2010	06/24/2010	105	7	7		
REG09091-00089	1	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	03/04/2010	06/17/2010	06/24/2010	06/24/2010	105	7	7		
REG09091-00089	1	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	03/04/2010	06/17/2010	06/24/2010	06/24/2010	105	7	7		
REG09091-00094	3	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	03/04/2010	06/17/2010	06/25/2010	06/25/2010	105	8	8		
REG09091-00094	3	0.00	10.00	4.900E-1	1.760E+1	3.020E-3	0.000	03/04/2010	07/01/2010	07/02/2010	07/02/2010	119	1	1		
REG09091-00094	3	0.00	10.00	4.900E-1	1.760E+1	3.020E-3	0.000	03/04/2010	07/01/2010	07/02/2010	07/02/2010	119	1	1		

Raw Data Table *RIMS III V4.0*

RESIDUES OF AMPA IN CANOLA SEED CRUDE OIL AFTER APPLICATION OF GLYPHOSATE

Location: ND-5
Matrix: Canola Seed Crude Oil

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			Curve Constant	AMPA Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw.	
				Constant	Constant	Constant						Sampl. and Extraction	Analysis and Extraction
REG09091-00088	1	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	0.000	03/04/2010	06/17/2010	06/24/2010	105	7
REG09091-00088	1	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	0.000	03/04/2010	06/17/2010	06/24/2010	105	7
REG09091-00088	1	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	0.000	03/04/2010	06/17/2010	06/24/2010	105	7
REG09091-00088	1	0.00	10.00	4.900E-1	1.760E+1	3.020E-3	0.000	0.000	03/04/2010	07/01/2010	07/01/2010	119	0
REG09091-00088	1	0.00	10.00	4.900E-1	1.760E+1	3.020E-3	0.000	0.000	03/04/2010	07/01/2010	07/01/2010	119	0
REG09091-00088	1	0.00	10.00	4.900E-1	1.760E+1	3.020E-3	0.000	0.000	03/04/2010	07/01/2010	07/01/2010	119	0
REG09091-00093	3	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	0.000	03/04/2010	06/17/2010	06/25/2010	105	8
REG09091-00093	3	0.00	10.00	4.900E-1	1.760E+1	3.020E-3	0.000	0.000	03/04/2010	07/01/2010	07/02/2010	119	1
REG09091-00093	3	0.00	10.00	4.900E-1	1.760E+1	3.020E-3	0.001	0.001	03/04/2010	07/01/2010	07/02/2010	119	1

Locked on 01/23/2011 22:05 by MGMUET

Raw Data Table

RIMS III V4.0

RESIDUES OF AMPA IN CANOLA SEED RAC FROM PROCESSOR AFTER APPLICATION OF GLYPHOSATE

Location: ND-5
Matrix: Canola Seed Rac From Processor

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve		Curve Constant	AMPA Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw. Sampl. and Extraction	
				A	B						Extraction	Analysis and Extraction
REG09091-00085	1	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	03/01/2010	06/17/2010	06/24/2010	108	7
REG09091-00085	1	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	03/01/2010	06/17/2010	06/24/2010	108	7
REG09091-00085	1	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	03/01/2010	06/17/2010	06/24/2010	108	7
REG09091-00090	3	0.09	10.00	4.510E-1	1.760E+1	2.100E-3	0.051	03/01/2010	06/17/2010	06/25/2010	108	8
REG09091-00090	3	0.10	10.00	4.900E-1	1.760E+1	3.020E-3	0.054	03/01/2010	07/01/2010	07/02/2010	122	1
REG09091-00090	3	0.09	10.00	4.900E-1	1.760E+1	3.020E-3	0.050	03/01/2010	07/01/2010	07/02/2010	122	1

Raw Data Table

RIMS III V4.0

RESIDUES OF AMPA IN CANOLA SEED RBD OIL AFTER APPLICATION OF GLYPHOSATE

Location: ND-5
Matrix: Canola Seed RBD Oil

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve A		Curve B		Curve C		AMPA Analyte Amount	Sampling Date	Extraction Date	Analysis Date	Days Betw. Sampl. and Extraction		Days Betw. Analysis and Extraction
				Constant	Curve	Constant	Curve	Constant	Curve					Extraction	Extraction	
REG09091-00087	1	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	0.000	0.000	0.000	03/05/2010	06/17/2010	06/24/2010	104	7	7
REG09091-00087	1	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	0.000	0.000	0.000	03/05/2010	06/17/2010	06/24/2010	104	7	7
REG09091-00087	1	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	0.000	0.000	0.000	03/05/2010	06/17/2010	06/24/2010	104	7	7
REG09091-00087	1	0.00	10.00	4.900E-1	1.760E+1	3.020E-3	0.000	0.000	0.000	0.000	03/05/2010	07/01/2010	07/01/2010	118	0	0
REG09091-00087	1	0.00	10.00	4.900E-1	1.760E+1	3.020E-3	0.000	0.000	0.000	0.000	03/05/2010	07/01/2010	07/01/2010	118	0	0
REG09091-00087	1	0.00	10.00	4.900E-1	1.760E+1	3.020E-3	0.000	0.000	0.000	0.000	03/05/2010	07/01/2010	07/01/2010	118	0	0
REG09091-00092	3	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	0.000	0.000	0.000	03/05/2010	06/17/2010	06/25/2010	104	8	8
REG09091-00092	3	0.00	10.00	4.900E-1	1.760E+1	3.020E-3	0.000	0.000	0.000	0.000	03/05/2010	07/01/2010	07/02/2010	118	1	1
REG09091-00092	3	0.00	10.00	4.900E-1	1.760E+1	3.020E-3	0.000	0.000	0.000	0.000	03/05/2010	07/01/2010	07/02/2010	118	1	1

Locked on 01/23/2011 22:05 by MGMUET

Raw Data Table

RIMS III V4.0

RESIDUES OF AMPA IN CANOLA SEED TOASTED DEFATTED MEAL AFTER APPLICATION OF GLYPHOSATE

Location: ND-5
Matrix: Canola Seed Toasted Defatted Meal

Sample ID	Trt No.	Response Ratio	Final Volume (mL)	Curve			AMPA Analyte Amount	Sampling Date	Extraction		Analysis Date		Days Betw. Sampl. and Extraction		Days Betw. Analysis and Extraction	
				Constant A	Constant B	Constant C			Date	Date	Date	Date	Extraction	Extraction	Analysis	Extraction
REG09091-00086	1	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	03/05/2010	06/17/2010	06/24/2010	06/24/2010	104	7	7		
REG09091-00086	1	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	03/05/2010	06/17/2010	06/24/2010	06/24/2010	104	7	7		
REG09091-00086	1	0.00	10.00	4.510E-1	1.760E+1	2.100E-3	0.000	03/05/2010	06/17/2010	06/24/2010	06/24/2010	104	7	7		
REG09091-00091	3	0.23	10.00	4.510E-1	1.760E+1	2.100E-3	0.129	03/05/2010	06/17/2010	06/25/2010	06/25/2010	104	8	8		
REG09091-00091	3	0.23	10.00	4.900E-1	1.760E+1	3.020E-3	0.128	03/05/2010	07/01/2010	07/02/2010	07/02/2010	118	1	1		
REG09091-00091	3	0.23	10.00	4.900E-1	1.760E+1	3.020E-3	0.127	03/05/2010	07/01/2010	07/02/2010	07/02/2010	118	1	1		

3. Recovery Data Tables

The Recovery Data Tables contain the data on the recovery of fortified control samples that were analyzed in the same analytical sets as treated samples. The first six columns contain information as described for the Raw Data Tables. The tables also contain the following information for control and fortified control samples.

A. PPM Added

This is the amount in $\mu\text{g/g}$ or ppm of analyte fortified onto the respective control sample.

B. Uncorr PPM

This is the amount of analyte directly measured in the fortified sample in parts per million or μg of analyte per gram of sample.

C. Bkgd Corr (ppm)

The amount of analyte found in the fortified sample in parts per million or μg of analyte per gram of sample, less the amount of analyte found in the corresponding unfortified control sample analyzed in the same data set as the fortified sample (or average of values, if unfortified sample was analyzed more than once in data set).

$$\text{Bkgd corr (ppm)} = ((\text{Uncorr ppm}) - (\text{Ave. ppm in unfortified controls}))$$

D. Bkgnd Corr Percent Recovered

This is the calculated recovery of the fortified level after background correction, as shown below. Hand calculation based on these numbers may contain small rounding errors.

$$\text{Bkgd Corr Percent Recovered} = \frac{100 \times (\text{Bkgnd Corr ppm})}{\text{ppm Added}}$$

Example Calculation for the Recovery of Glyphosate

From the Recovery Tables

Glyphosate in Canola seed: REG09091-00029 Fortified at 0.05 ppm

Set 20100204_a2043_Reg09091_Set1_nrs

Control

Sample ID: REG09091-00029

ppm Added: 0.00 $\mu\text{g/g}$

Gly uncorr ppm: 0.0213 $\mu\text{g/g}$

Fortified Control

Sample ID: REG09091-00029 (fortified)

ppm Added: 0.05 $\mu\text{g/g}$

Gly uncorr ppm: 0.0614 $\mu\text{g/g}$

$$\text{Bkgd Corr Percent Recovered} = \frac{[(100)(0.0614\mu\text{g/g} - 0.0213\mu\text{g/g})]}{0.05 \mu\text{g/g}} = \mathbf{80.24 \% \text{ Recovery}}$$

Recovery Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE IN CANOLA SEED

Sample ID	Final Volume (mL)	Response Ratio	Curve A		Curve Constant B	Curve Constant C	Analysis Date	PPM Added	Glyphosate		Bkgd Corr Percent Recovered
			Constant A	Constant					Uncorr PPM	Glyphosate Bkcorr. PPM	
REG09091-00001	10.00	0.04	-1.760E+0	1.840E+1	2.360E-3	2.360E-3	02/13/2010		0.020	0.020	
REG09091-00001	10.00	0.06	-1.900E+0	1.860E+1	2.680E-3	2.680E-3	02/05/2010		0.028	0.028	
REG09091-00008	10.00	0.07	-1.760E+0	1.840E+1	2.360E-3	2.360E-3	02/12/2010		0.035	0.035	
REG09091-00022	10.00	0.93	-1.900E+0	1.860E+1	2.680E-3	2.680E-3	02/05/2010		0.500	0.500	
REG09091-00022	10.00	0.97	-1.760E+0	1.840E+1	2.360E-3	2.360E-3	02/13/2010		0.529	0.529	
REG09091-00029	10.00	0.04	-1.900E+0	1.860E+1	2.680E-3	2.680E-3	02/04/2010		0.021	0.021	
REG09091-00036	10.00	0.03	-1.900E+0	1.860E+1	2.680E-3	2.680E-3	02/05/2010		0.014	0.014	
REG09091-00043	10.00	0.01	-1.900E+0	1.860E+1	2.680E-3	2.680E-3	02/05/2010		0.003	0.003	
REG09091-00001	10.00	0.15	-1.900E+0	1.860E+1	2.680E-3	2.680E-3	02/05/2010	0.05	0.077	0.048	96.98
REG09091-00008	10.00	0.14	-1.760E+0	1.840E+1	2.360E-3	2.360E-3	02/12/2010	0.05	0.075	0.039	78.48
REG09091-00029	10.00	0.12	-1.900E+0	1.860E+1	2.680E-3	2.680E-3	02/04/2010	0.05	0.061	0.040	80.24
REG09091-00008	10.00	0.21	-1.760E+0	1.840E+1	2.360E-3	2.360E-3	02/12/2010	0.10	0.113	0.077	77.18
REG09091-00008	10.00	0.21	-1.760E+0	1.840E+1	2.360E-3	2.360E-3	02/12/2010	0.10	0.114	0.079	78.98
REG09091-00008	10.00	0.22	-1.760E+0	1.840E+1	2.360E-3	2.360E-3	02/12/2010	0.10	0.119	0.083	83.39
REG09091-00022	10.00	1.09	-1.900E+0	1.860E+1	2.680E-3	2.680E-3	02/05/2010	0.10	0.588	0.088	88.15
REG09091-00008	10.00	0.45	-1.760E+0	1.840E+1	2.360E-3	2.360E-3	02/12/2010	0.25	0.245	0.210	83.85
REG09091-00008	10.00	0.45	-1.760E+0	1.840E+1	2.360E-3	2.360E-3	02/12/2010	0.25	0.247	0.211	84.51
REG09091-00008	10.00	0.46	-1.760E+0	1.840E+1	2.360E-3	2.360E-3	02/12/2010	0.25	0.250	0.214	85.77
REG09091-00022	10.00	1.30	-1.760E+0	1.840E+1	2.360E-3	2.360E-3	02/13/2010	0.25	0.712	0.183	73.22
REG09091-00001	10.00	0.85	-1.760E+0	1.840E+1	2.360E-3	2.360E-3	02/13/2010	0.50	0.462	0.442	88.44
REG09091-00001	10.00	0.85	-1.760E+0	1.840E+1	2.360E-3	2.360E-3	02/13/2010	0.50	0.464	0.445	88.92
REG09091-00022	10.00	1.65	-1.760E+0	1.840E+1	2.360E-3	2.360E-3	02/13/2010	0.50	0.906	0.377	75.49
REG09091-00036	10.00	0.86	-1.900E+0	1.860E+1	2.680E-3	2.680E-3	02/05/2010	0.50	0.462	0.448	89.64
REG09091-00043	10.00	0.84	-1.900E+0	1.860E+1	2.680E-3	2.680E-3	02/05/2010	0.50	0.452	0.449	89.74
REG09091-00022	100.00	8.15	-1.760E+0	1.840E+1	2.360E-3	2.360E-3	02/13/2010	50.00	46.425	45.896	91.79
REG09091-00022	100.00	9.08	-1.760E+0	1.840E+1	2.360E-3	2.360E-3	02/13/2010	50.00	52.042	51.513	103.03

Locked on 01/23/2011 22:05 by MGMUET

Recovery Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE IN CANOLA SEED ALKALI REFINED OIL

Sample ID	Final Volume (mL)	Response Ratio	Curve		Analysis Date	PPM Added	Glyphosate		Bkgd Corr Percent Recovered
			Constant A	Constant B			Uncorr PPM	Bkcorr. PPM	
REG09091-00089	10.00	0.00	-7.040E-1	1.800E+1	06/24/2010		0.000	0.000	
REG09091-00089	10.00	0.00	-7.040E-1	1.800E+1	06/24/2010		0.000	0.000	
REG09091-00089	10.00	0.00	-7.040E-1	1.800E+1	06/24/2010		0.000	0.000	
REG09091-00089	10.00	0.08	-7.040E-1	1.800E+1	06/25/2010	0.05	0.046	0.046	92.75
REG09091-00089	10.00	0.09	-7.040E-1	1.800E+1	06/24/2010	0.05	0.047	0.047	94.26
REG09091-00089	10.00	0.10	-7.040E-1	1.800E+1	06/25/2010	0.05	0.056	0.055	110.83
REG09091-00089	10.00	0.83	-7.040E-1	1.800E+1	06/25/2010	0.50	0.460	0.460	91.99
REG09091-00089	10.00	0.83	-7.040E-1	1.800E+1	06/25/2010	0.50	0.464	0.464	92.83
REG09091-00089	10.00	0.84	-7.040E-1	1.800E+1	06/25/2010	0.50	0.470	0.469	93.89

Recovery Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE IN CANOLA SEED CRUDE OIL

Sample ID	Final Volume (mL)	Response Ratio	Curve		Constant	Analysis Date	PPM Added	Glyphosate		Bkgd Corr Percent Recovered
			Constant	A	Constant			Uncorr PPM	Glyphosate Bkcorr. PPM	
REG09091-00088	10.00	0.00	-7.040E-1	1.800E+1	9.660E-4	06/24/2010		0.000	0.000	
REG09091-00088	10.00	0.00	-7.040E-1	1.800E+1	9.660E-4	06/24/2010		0.000	0.000	
REG09091-00088	10.00	0.00	-7.040E-1	1.800E+1	9.660E-4	06/24/2010		0.000	0.000	
REG09091-00088	10.00	0.00	-1.470E+0	1.800E+1	4.000E-3	07/01/2010		0.000	0.000	
REG09091-00088	10.00	0.00	-1.470E+0	1.800E+1	4.000E-3	07/01/2010		0.000	0.000	
REG09091-00088	10.00	0.00	-1.470E+0	1.800E+1	4.000E-3	07/01/2010		0.000	0.000	
REG09091-00088	10.00	0.06	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.05	0.034	0.034	68.97
REG09091-00088	10.00	0.06	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.05	0.035	0.035	69.29
REG09091-00088	10.00	0.07	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.05	0.036	0.036	71.23
REG09091-00088	10.00	0.07	-1.470E+0	1.800E+1	4.000E-3	07/01/2010	0.05	0.035	0.035	70.98
REG09091-00088	10.00	0.08	-1.470E+0	1.800E+1	4.000E-3	07/01/2010	0.05	0.040	0.040	80.85
REG09091-00088	10.00	0.08	-1.470E+0	1.800E+1	4.000E-3	07/01/2010	0.05	0.041	0.041	81.67
REG09091-00088	10.00	0.60	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.50	0.331	0.331	66.29
REG09091-00088	10.00	0.67	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.50	0.371	0.371	74.14
REG09091-00088	10.00	0.70	-1.470E+0	1.800E+1	4.000E-3	07/01/2010	0.50	0.390	0.390	77.99
REG09091-00088	10.00	0.75	-1.470E+0	1.800E+1	4.000E-3	07/02/2010	0.50	0.415	0.415	82.96
REG09091-00088	10.00	0.76	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.50	0.421	0.421	84.11
REG09091-00088	10.00	0.80	-1.470E+0	1.800E+1	4.000E-3	07/02/2010	0.50	0.445	0.445	89.03
REG09091-00088	10.00	0.85	-1.470E+0	1.800E+1	4.000E-3	07/01/2010	0.50	0.469	0.469	93.83

Locked on 01/23/2011 22:05 by MGMUET

Recovery Table *RIMS III V4.0*

RESIDUES OF GLYPHOSATE IN CANOLA SEED RAC FROM PROCESSOR

Sample ID	Final Volume (mL)	Response Ratio	Curve		Constant	Analysis Date	PPM Added	Glyphosate		Bkgd Corr Percent Recovered
			Constant	A	Constant			Uncorr PPM	Bkcorr. PPM	
REG09091-00085	10.00	0.01	-7.040E-1	1.800E+1	9.660E-4	06/24/2010		0.006	0.006	
REG09091-00085	10.00	0.01	-7.040E-1	1.800E+1	9.660E-4	06/24/2010		0.007	0.007	
REG09091-00085	10.00	0.01	-7.040E-1	1.800E+1	9.660E-4	06/24/2010		0.007	0.007	
REG09091-00085	10.00	0.09	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.05	0.050	0.043	86.28
REG09091-00085	10.00	0.09	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.05	0.051	0.045	89.34
REG09091-00085	10.00	0.09	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.05	0.052	0.045	90.51
REG09091-00085	10.00	0.83	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.50	0.462	0.455	91.09
REG09091-00085	10.00	0.84	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.50	0.466	0.459	91.76
REG09091-00085	10.00	0.85	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.50	0.471	0.464	92.85

Recovery Table

RIMS III V4.0

RESIDUES OF GLYPHOSATE IN CANOLA SEED RBD OIL

Sample ID	Final Volume (mL)	Response Ratio	Curve		Constant C	Analysis Date	Glyphosate		Bkgd Corr Percent Recovered
			Constant A	Constant B			Uncorr PPM	Bkcorr. PPM	
REG09091-00087	10.00	0.00	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.000	0.000	
REG09091-00087	10.00	0.00	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.000	0.000	
REG09091-00087	10.00	0.00	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.000	0.000	
REG09091-00087	10.00	0.00	-1.470E+0	1.800E+1	4.000E-3	07/01/2010	0.000	0.000	
REG09091-00087	10.00	0.00	-1.470E+0	1.800E+1	4.000E-3	07/01/2010	0.000	0.000	
REG09091-00087	10.00	0.00	-1.470E+0	1.800E+1	4.000E-3	07/01/2010	0.000	0.000	
REG09091-00087	10.00	0.08	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.042	0.042	84.08
REG09091-00087	10.00	0.08	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.044	0.044	88.41
REG09091-00087	10.00	0.08	-1.470E+0	1.800E+1	4.000E-3	07/01/2010	0.044	0.044	88.92
REG09091-00087	10.00	0.08	-1.470E+0	1.800E+1	4.000E-3	07/01/2010	0.045	0.045	89.42
REG09091-00087	10.00	0.09	-1.470E+0	1.800E+1	4.000E-3	07/01/2010	0.046	0.046	92.33
REG09091-00087	10.00	0.84	-1.470E+0	1.800E+1	4.000E-3	07/01/2010	0.466	0.466	93.18
REG09091-00087	10.00	0.85	-1.470E+0	1.800E+1	4.000E-3	07/01/2010	0.469	0.469	93.76
REG09091-00087	10.00	0.85	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.471	0.471	94.23
REG09091-00087	10.00	0.86	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.477	0.477	95.32
REG09091-00087	10.00	0.86	-7.040E-1	1.800E+1	9.660E-4	06/24/2010	0.480	0.480	95.92

Locked on 01/23/2011 22:05 by MGMUET

Recovery Table *RIMS III V4.0*

RESIDUES OF GLYPHOSATE IN CANOLA SEED TOASTED DEFATTED MEAL

Sample ID	Final Volume (mL)	Response Ratio	Curve		Analysis Date	PPM Added	Glyphosate		Bkgd Corr Percent Recovered
			Constant A	Constant B			Uncorr PPM	Bkcorr. PPM	
REG09091-00086	10.00	0.03	-7.040E-1	1.800E+1	06/24/2010		0.016	0.016	
REG09091-00086	10.00	0.03	-7.040E-1	1.800E+1	06/24/2010		0.016	0.016	
REG09091-00086	10.00	0.03	-7.040E-1	1.800E+1	06/24/2010		0.018	0.018	
REG09091-00086	10.00	0.11	-7.040E-1	1.800E+1	06/24/2010	0.05	0.062	0.046	91.77
REG09091-00086	10.00	0.11	-7.040E-1	1.800E+1	06/24/2010	0.05	0.063	0.046	91.91
REG09091-00086	10.00	0.11	-7.040E-1	1.800E+1	06/24/2010	0.05	0.063	0.047	93.68
REG09091-00086	10.00	0.79	-7.040E-1	1.800E+1	06/24/2010	0.50	0.441	0.425	84.96
REG09091-00086	10.00	0.82	-7.040E-1	1.800E+1	06/24/2010	0.50	0.458	0.441	88.22
REG09091-00086	10.00	0.88	-7.040E-1	1.800E+1	06/24/2010	0.50	0.490	0.473	94.65

Recovery Table

RIMS III V4.0

RESIDUES OF AMPA IN CANOLA SEED

Sample ID	Final Volume (mL)	Response Ratio	Curve		Constant	Curve	Constant	Analysis Date	PPM Added	AMPA Uncorr PPM	AMPA Bkcorr. PPM	Bkgd Corr Percent Recovered
			Constant	A			B					
REG09091-00001	10.00	0.00	-1.680E+0	1.810E+1	-4.420E-3	02/05/2010			0.000	0.000		
REG09091-00001	10.00	0.00	7.690E-1	1.700E+1	5.240E-3	02/13/2010			0.000	0.000		
REG09091-00008	10.00	0.00	7.690E-1	1.700E+1	5.240E-3	02/12/2010			0.000	0.000		
REG09091-00022	10.00	0.00	-1.680E+0	1.810E+1	-4.420E-3	02/05/2010			0.000	0.000		
REG09091-00022	10.00	0.02	7.690E-1	1.700E+1	5.240E-3	02/13/2010			0.006	0.006		
REG09091-00029	10.00	0.00	-1.680E+0	1.810E+1	-4.420E-3	02/04/2010			0.000	0.000		
REG09091-00036	10.00	0.00	-1.680E+0	1.810E+1	-4.420E-3	02/05/2010			0.000	0.000		
REG09091-00043	10.00	0.00	-1.680E+0	1.810E+1	-4.420E-3	02/05/2010			0.000	0.000		
REG09091-00001	10.00	0.09	-1.680E+0	1.810E+1	-4.420E-3	02/05/2010		0.05	0.052	0.052	0.052	104.19
REG09091-00008	10.00	0.09	7.690E-1	1.700E+1	5.240E-3	02/12/2010		0.05	0.048	0.048	0.048	95.21
REG09091-00022	10.00	0.09	7.690E-1	1.700E+1	5.240E-3	02/13/2010		0.05	0.052	0.046	0.046	92.24
REG09091-00029	10.00	0.09	-1.680E+0	1.810E+1	-4.420E-3	02/04/2010		0.05	0.052	0.052	0.052	103.06
REG09091-00008	10.00	0.14	7.690E-1	1.700E+1	5.240E-3	02/12/2010		0.10	0.081	0.081	0.081	81.19
REG09091-00008	10.00	0.14	7.690E-1	1.700E+1	5.240E-3	02/12/2010		0.10	0.082	0.082	0.082	81.69
REG09091-00008	10.00	0.16	7.690E-1	1.700E+1	5.240E-3	02/12/2010		0.10	0.090	0.090	0.090	90.26
REG09091-00022	10.00	0.16	-1.680E+0	1.810E+1	-4.420E-3	02/05/2010		0.10	0.090	0.090	0.090	90.20
REG09091-00008	10.00	0.35	7.690E-1	1.700E+1	5.240E-3	02/12/2010		0.25	0.202	0.202	0.202	80.86
REG09091-00008	10.00	0.36	7.690E-1	1.700E+1	5.240E-3	02/12/2010		0.25	0.207	0.207	0.207	82.73
REG09091-00008	10.00	0.37	7.690E-1	1.700E+1	5.240E-3	02/12/2010		0.25	0.216	0.216	0.216	86.24
REG09091-00022	10.00	0.43	7.690E-1	1.700E+1	5.240E-3	02/13/2010		0.25	0.247	0.241	0.241	96.29
REG09091-00001	10.00	0.73	7.690E-1	1.700E+1	5.240E-3	02/13/2010		0.50	0.424	0.424	0.424	84.79
REG09091-00001	10.00	0.79	7.690E-1	1.700E+1	5.240E-3	02/13/2010		0.50	0.457	0.457	0.457	91.44
REG09091-00022	10.00	0.82	7.690E-1	1.700E+1	5.240E-3	02/13/2010		0.50	0.480	0.474	0.474	94.77
REG09091-00036	10.00	0.80	-1.680E+0	1.810E+1	-4.420E-3	02/05/2010		0.50	0.444	0.444	0.444	88.86
REG09091-00043	10.00	0.76	-1.680E+0	1.810E+1	-4.420E-3	02/05/2010		0.50	0.425	0.425	0.425	85.06
REG09091-00022	100.00	7.93	7.690E-1	1.700E+1	5.240E-3	02/13/2010		50.00	45.562	45.556	45.556	91.11
REG09091-00022	100.00	8.97	7.690E-1	1.700E+1	5.240E-3	02/13/2010		50.00	51.411	51.405	51.405	102.81

Locked on 01/23/2011 22:05 by MGMUET

Recovery Table
RIMS III V4.0

RESIDUES OF AMPA IN CANOLA SEED ALKALI REFINED OIL

Sample ID	Final Volume (mL)	Response Ratio	Curve		Analysis Date	PPM Added	AMPA		AMPA Bkcorr. PPM	Bkgd Corr Percent Recovered
			Constant A	Constant B			Uncorr PPM	Corr PPM		
REG09091-00089	10.00	0.00	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.000	0.000	0.000	
REG09091-00089	10.00	0.00	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.000	0.000	0.000	
REG09091-00089	10.00	0.00	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.000	0.000	0.000	
REG09091-00089	10.00	0.08	4.510E-1	1.760E+1	2.100E-3	06/25/2010	0.042	0.042	0.042	83.61
REG09091-00089	10.00	0.08	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.05	0.047	0.047	93.49
REG09091-00089	10.00	0.10	4.510E-1	1.760E+1	2.100E-3	06/25/2010	0.05	0.053	0.053	106.85
REG09091-00089	10.00	0.78	4.510E-1	1.760E+1	2.100E-3	06/25/2010	0.50	0.444	0.444	88.77
REG09091-00089	10.00	0.81	4.510E-1	1.760E+1	2.100E-3	06/25/2010	0.50	0.459	0.459	91.72
REG09091-00089	10.00	0.82	4.510E-1	1.760E+1	2.100E-3	06/25/2010	0.50	0.466	0.466	93.14

Recovery Table
RIMS III V4.0

RESIDUES OF AMPA IN CANOLA SEED CRUDE OIL

Sample ID	Final Volume (mL)	Response Ratio	Curve		Analysis Date	PPM Added	AMPA		Bkgd Corr Percent Recovered
			Constant A	Constant B			Uncorr PPM	Bkcorr. PPM	
REG09091-00088	10.00	0.00	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.000	0.000	
REG09091-00088	10.00	0.00	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.000	0.000	
REG09091-00088	10.00	0.00	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.000	0.000	
REG09091-00088	10.00	0.00	4.900E-1	1.760E+1	3.020E-3	07/01/2010	0.000	0.000	
REG09091-00088	10.00	0.00	4.900E-1	1.760E+1	3.020E-3	07/01/2010	0.000	0.000	
REG09091-00088	10.00	0.00	4.900E-1	1.760E+1	3.020E-3	07/01/2010	0.000	0.000	
REG09091-00088	10.00	0.06	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.034	0.034	68.11
REG09091-00088	10.00	0.06	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.035	0.035	69.23
REG09091-00088	10.00	0.06	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.036	0.036	71.45
REG09091-00088	10.00	0.07	4.900E-1	1.760E+1	3.020E-3	07/01/2010	0.036	0.036	71.80
REG09091-00088	10.00	0.07	4.900E-1	1.760E+1	3.020E-3	07/01/2010	0.040	0.040	79.17
REG09091-00088	10.00	0.08	4.900E-1	1.760E+1	3.020E-3	07/01/2010	0.041	0.041	82.27
REG09091-00088	10.00	0.61	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.348	0.348	69.55
REG09091-00088	10.00	0.64	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.361	0.361	72.15
REG09091-00088	10.00	0.69	4.900E-1	1.760E+1	3.020E-3	07/01/2010	0.392	0.392	78.39
REG09091-00088	10.00	0.71	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.400	0.400	79.90
REG09091-00088	10.00	0.74	4.900E-1	1.760E+1	3.020E-3	07/02/2010	0.420	0.420	83.98
REG09091-00088	10.00	0.79	4.900E-1	1.760E+1	3.020E-3	07/02/2010	0.445	0.445	88.91
REG09091-00088	10.00	0.82	4.900E-1	1.760E+1	3.020E-3	07/01/2010	0.462	0.462	92.45

Locked on 01/23/2011 22:05 by MGMUET

Recovery Table

RIMS III V4.0

RESIDUES OF AMPA IN CANOLA SEED RAC FROM PROCESSOR

Sample ID	Final Volume (mL)	Response Ratio	Curve Constant A	Curve Constant B	Curve Constant C	Analysis Date	PPM Added	AMPA Uncorr PPM	AMPA Bkcorr. PPM	Bkgd Corr Percent Recovered
REG09091-00085	10.00	0.00	4.510E-1	1.760E+1	2.100E-3	06/24/2010		0.000	0.000	
REG09091-00085	10.00	0.00	4.510E-1	1.760E+1	2.100E-3	06/24/2010		0.000	0.000	
REG09091-00085	10.00	0.00	4.510E-1	1.760E+1	2.100E-3	06/24/2010		0.000	0.000	
REG09091-00085	10.00	0.08	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.05	0.043	0.043	85.89
REG09091-00085	10.00	0.08	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.05	0.043	0.043	86.21
REG09091-00085	10.00	0.08	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.05	0.044	0.044	87.02
REG09091-00085	10.00	0.78	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.50	0.441	0.441	88.11
REG09091-00085	10.00	0.79	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.50	0.446	0.446	89.11
REG09091-00085	10.00	0.79	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.50	0.447	0.447	89.41

Locked on 01/23/2011 22:05 by MGMUET

Recovery Table *RIMS III V4.0* **RESIDUES OF AMPA IN CANOLA SEED RBD OIL**

Sample ID	Final Volume (mL)	Response Ratio	Curve Constant A	Curve Constant B	Curve Constant C	Analysis Date	PPM Added	AMPA Uncorr PPM	AMPA Bkcorr. PPM	Bkgd Corr Percent Recovered
REG09091-00087	10.00	0.00	4.510E-1	1.760E+1	2.100E-3	06/24/2010		0.000	0.000	
REG09091-00087	10.00	0.00	4.510E-1	1.760E+1	2.100E-3	06/24/2010		0.000	0.000	
REG09091-00087	10.00	0.00	4.510E-1	1.760E+1	2.100E-3	06/24/2010		0.000	0.000	
REG09091-00087	10.00	0.00	4.900E-1	1.760E+1	3.020E-3	07/01/2010		0.000	0.000	
REG09091-00087	10.00	0.00	4.900E-1	1.760E+1	3.020E-3	07/01/2010		0.000	0.000	
REG09091-00087	10.00	0.00	4.900E-1	1.760E+1	3.020E-3	07/01/2010		0.000	0.000	
REG09091-00087	10.00	0.08	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.05	0.044	0.044	87.26
REG09091-00087	10.00	0.08	4.900E-1	1.760E+1	3.020E-3	07/01/2010	0.05	0.044	0.044	87.88
REG09091-00087	10.00	0.08	4.900E-1	1.760E+1	3.020E-3	07/01/2010	0.05	0.045	0.045	89.05
REG09091-00087	10.00	0.08	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.05	0.045	0.045	90.55
REG09091-00087	10.00	0.08	4.900E-1	1.760E+1	3.020E-3	07/01/2010	0.05	0.046	0.046	92.17
REG09091-00087	10.00	0.82	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.50	0.463	0.463	92.63
REG09091-00087	10.00	0.82	4.900E-1	1.760E+1	3.020E-3	07/01/2010	0.50	0.466	0.466	93.15
REG09091-00087	10.00	0.83	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.50	0.471	0.471	94.12
REG09091-00087	10.00	0.84	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.50	0.474	0.474	94.73
REG09091-00087	10.00	0.84	4.900E-1	1.760E+1	3.020E-3	07/01/2010	0.50	0.474	0.474	94.80

Locked on 01/23/2011 22:05 by MGMUET

Recovery Table

RIMS III V4.0

RESIDUES OF AMPA IN CANOLA SEED TOASTED DEFATTED MEAL

Sample ID	Final Volume (mL)	Response Ratio	Curve Constant A	Curve Constant B	Curve Constant C	Analysis Date	PPM Added	AMPA Uncorr PPM	AMPA Bkcorr. PPM	Bkgd Corr Percent Recovered
REG09091-00086	10.00	0.00	4.510E-1	1.760E+1	2.100E-3	06/24/2010		0.000	0.000	
REG09091-00086	10.00	0.00	4.510E-1	1.760E+1	2.100E-3	06/24/2010		0.000	0.000	
REG09091-00086	10.00	0.00	4.510E-1	1.760E+1	2.100E-3	06/24/2010		0.000	0.000	
REG09091-00086	10.00	0.08	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.05	0.042	0.042	83.83
REG09091-00086	10.00	0.08	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.05	0.044	0.044	87.45
REG09091-00086	10.00	0.08	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.05	0.045	0.045	90.89
REG09091-00086	10.00	0.73	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.50	0.413	0.413	82.52
REG09091-00086	10.00	0.73	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.50	0.414	0.414	82.88
REG09091-00086	10.00	0.77	4.510E-1	1.760E+1	2.100E-3	06/24/2010	0.50	0.436	0.436	87.13

Locked on 01/23/2011 22:05 by MGMUET

Appendix F. Representative Chromatograms

The following section contains representative chromatograms generated from the LC/MS/MS data system along with LC/MS/MS conditions and representative standard curves. The table on the following pages presents a key to the identification of each of the sample chromatograms; it contains the sample description and ID and the injection number (based on the analysis set). The sample chromatograms are intended to provide the reader with examples of the analyte peaks and the background in the area of the analysis. This is readily seen in the sample chromatograms. If the reader wishes to calculate the concentration of the analyte in a given sample, use of the raw data tables is necessary. In the raw data tables in Appendix E, the curve constants and all the necessary information for calculation of concentrations according to the provided equations are available. Each of the sample chromatograms contains the analysis of the sample (control, fortified or treated) on the left side of the page, with the analysis of the corresponding internal standard on the right side of the page. An isotopically labeled internal standard for each of the analytes was used in the analysis.

Sample Description	Sample ID	Analyte	Sample Injection Number
Canola seed			
Standard 0.0025 ug/ml		Glyphosate	20100204 002
Control ND-3	REG09091-00029	Glyphosate	20100204 003
Fortified ND-3 control 0.05 ppm	REG09091-00029	Glyphosate	20100204 004
ND-3 Treatment 2	REG09091-00030	Glyphosate	20100204 005
ND-3 Treatment 3	REG09091-00032	Glyphosate	20100204 007
ND-3 Treatment 4	REG09091-00034	Glyphosate	20100204 009
Standard 0.6 ug/ml		Glyphosate	20100204 018
Control MN-2	REG09091-00022	Glyphosate	20100204 045
Fortified MN-2 control 0.10 ppm	REG09091-00022	Glyphosate	20100204 046
MN-2 Treatment 2	REG09091-00023	Glyphosate	20100204 047
MN-2 Treatment 3	REG09091-00026	Glyphosate	20100204 050
MN-2 Treatment 4	REG09091-00027	Glyphosate	20100204 052
Standard 0.1 ug/ml		Glyphosate	20100204 059
Control ND-5	REG09091-00043	Glyphosate	20100204 063
Fortified ND-5 control 0.50 ppm	REG09091-00043	Glyphosate	20100204 064
ND-5 Treatment 2	REG09091-00044	Glyphosate	20100204 065
ND-5 Treatment 4	REG09091-00048	Glyphosate	20100204 070
ID-7 Treatment 4	REG09091-00013	Glyphosate	20100204 088
Standard 0.03 ug/ml		Glyphosate	20100204 093
ID-7 Treatment 2	REG09091-00009	Glyphosate	20100308 016

Sample Description	Sample ID	Analyte	Sample Injection Number
Standard 0.1 ug/ml		Glyphosate	20100308_021
Standard 0.3 ug/ml		Glyphosate	20100308_030
Standard 0.0025 ug/ml		AMPA	20100204_002
Control ND-3	REG09091-00029	AMPA	20100204_003
Fortified ND-3 control 0.05 ppm	REG09091-00029	AMPA	20100204_004
ND-3 Treatment 2	REG09091-00030	AMPA	20100204_005
ND-3 Treatment 3	REG09091-00032	AMPA	20100204_007
ND-3 Treatment 4	REG09091-00034	AMPA	20100204_009
Standard 0.6 ug/ml		AMPA	20100204_018
Control MN-2	REG09091-00022	AMPA	20100204_045
Fortified MN-2 control 0.10 ppm	REG09091-00022	AMPA	20100204_046
MN-2 Treatment 2	REG09091-00023	AMPA	20100204_047
MN-2 Treatment 3	REG09091-00026	AMPA	20100204_050
MN-2 Treatment 4	REG09091-00027	AMPA	20100204_052
Standard 0.1 ug/ml		AMPA	20100204_059
Control ND-5	REG09091-00043	AMPA	20100204_063
Fortified ND-5 control 0.50 ppm	REG09091-00043	AMPA	20100204_064
ND-5 Treatment 2	REG09091-00044	AMPA	20100204_065
ND-5 Treatment 4	REG09091-00048	AMPA	20100204_070
ID-7 Treatment 2	REG09091-00009	AMPA	20100204_082
ID-7 Treatment 4	REG09091-00013	AMPA	20100204_088
Standard 0.03 ug/ml		AMPA	20100204_093
Processed Fractions			
Standard 0.0025 ug/ml		Glyphosate	20100624_002
Control ND-5 Toasted Meal	REG09091-00086	Glyphosate	20100624_013
Control ND-5 Toasted Meal	REG09091-00086	Glyphosate	20100624_014
Control ND-5 Toasted Meal	REG09091-00086	Glyphosate	20100624_015
Fortified ND-5 Toasted Meal 0.05ppm	REG09091-00086	Glyphosate	20100624_016
Standard 0.6 ug/ml		Glyphosate	20100624_018
Fortified ND-5 Toasted Meal 0.05ppm	REG09091-00086	Glyphosate	20100624_020
Fortified ND-5 Toasted Meal 0.50ppm	REG09091-00086	Glyphosate	20100624_021
Control ND-5 Crude Oil	REG09091-00087	Glyphosate	20100624_024
Fortified ND-5 Crude Oil 0.05 ppm	REG09091-00087	Glyphosate	20100624_028
Control ND-5 Refined Oil	REG09091-00088	Glyphosate	20100624_034

Sample Description	Sample ID	Analyte	Sample Injection Number
Fortified ND-5 Refined Oil 0.50 ppm	REG09091-00088	Glyphosate	20100624_041
Standard 0.3 ug/ml		Glyphosate	20100624_043
Control ND-5 RBD Oil	REG09091-00089	Glyphosate	20100624_046
Fortified ND-5 RBD Oil 0.05 ppm	REG09091-00089	Glyphosate	20100624_048
Standard 0.06 ug/ml		Glyphosate	20100624_051
ND-5 Treatment 3 Toasted Meal	REG09091-00091	Glyphosate	20100624_056
ND-5 Treatment 3 Crude Oil	REG09091-00092	Glyphosate	20100624_057
ND-5 Treatment 3 Refined Oil	REG09091-00093	Glyphosate	20100624_058
ND-5 Treatment 3 RBD Oil	REG09091-00094	Glyphosate	20100624_060
Standard 0.01 ug/ml		Glyphosate	20100701_001
Standard 0.03 ug/ml		Glyphosate	20100701_010
ND-5 Treatment 3 Seed	REG09091-00090	Glyphosate	20100701_024
ND-5 Treatment 3 Seed	REG09091-00090	Glyphosate	20100701_025
ND-5 Treatment 3 Toasted Meal	REG09091-00091	Glyphosate	20100701_026
ND-5 Treatment 3 Toasted Meal	REG09091-00091	Glyphosate	20100701_028
Standard 0.0025 ug/ml		AMPA	20100624_002
Control ND-5 Toasted Meal	REG09091-00086	AMPA	20100624_013
Control ND-5 Toasted Meal	REG09091-00086	AMPA	20100624_014
Control ND-5 Toasted Meal	REG09091-00086	AMPA	20100624_015
Fortified ND-5 Toasted Meal 0.05ppm	REG09091-00086	AMPA	20100624_016
Standard 0.6 ug/ml		AMPA	20100624_018
Fortified ND-5 Toasted Meal 0.05ppm	REG09091-00086	AMPA	20100624_020
Fortified ND-5 Toasted Meal 0.50ppm	REG09091-00086	AMPA	20100624_021
Control ND-5 Crude Oil	REG09091-00087	AMPA	20100624_024
Fortified ND-5 Crude Oil 0.05 ppm	REG09091-00087	AMPA	20100624_028
Control ND-5 Refined Oil	REG09091-00088	AMPA	20100624_034
Fortified ND-5 Refined Oil 0.50 ppm	REG09091-00088	AMPA	20100624_041
Standard 0.3 ug/ml		AMPA	20100624_043
Control ND-5 RBD Oil	REG09091-00089	AMPA	20100624_046
Fortified ND-5 RBD Oil 0.05 ppm	REG09091-00089	AMPA	20100624_048
Standard 0.06 ug/ml		AMPA	20100624_051
ND-5 Treatment 3 Toasted Meal	REG09091-00091	AMPA	20100624_056
ND-5 Treatment 3 Crude Oil	REG09091-00092	AMPA	20100624_057
ND-5 Treatment 3 Refined Oil	REG09091-00093	AMPA	20100624_058

Sample Description	Sample ID	Analyte	Sample Injection Number
ND-5 Treatment 3 RBD Oil	REG09091-00094	AMPA	20100624_060
Standard 0.01 ug/ml		AMPA	20100701_001
Standard 0.03 ug/ml		AMPA	20100701_010
ND-5 Treatment 3 Seed	REG09091-00090	AMPA	20100701_024
ND-5 Treatment 3 Seed	REG09091-00090	AMPA	20100701_025
ND-5 Treatment 3 Toasted Meal	REG09091-00091	AMPA	20100701_026
ND-5 Treatment 3 Toasted Meal	REG09091-00091	AMPA	20100701_028

LC-MS/MS SYSTEM CONDITIONS FOR ANALYSIS OF GLYPHOSATE AND AMPA

AB/Sciex API 5000 Mass Spectrometer with Agilent 1200 HPLC System Column: Bio-Rad Cation H 30 mm x 4.6 mm. Guard Column: none Injection Volume: 5 µL Autosampler Temp.: 4 °C Column Temp.: 50 °C Mobile Phase A: 0.1% formic acid in H ₂ O Mobile Phase B: Acetonitrile Flow Rate: 500 µL/minute Isocratic: <ul style="list-style-type: none"> • Initial: 80 % A 20% B • 19 minutes: 80 % A 20% B 					
Mass Spectrometer Conditions					
Scan Type: Negative Ion MRM Resolution Q1: Unit Resolution Q3: Unit Ion Source: ESI					
Duration : 19 min. Curtain Gas (CUR): 15 Collision Gas (CAD): 6 Gas 1: 40 Gas 2: 30			IonSpray Voltage (IS): -4500 V Entrance Potential: -10 Interface heater: On Temp: 600 °C Scan Time (ms): 200		
Analyte:	Precursor Ion Q1 (amu)	Product Ion Q3 (amu)	DP (V)	CE (V)	CXP (V)
Glyphosate	168	63	-70	-31	-25
Gly (IS)	172	63	-70	-31	-25
AMPA	110	63	-70	-30	-20
Ampa (IS)	114	63	-70	-30	-20

REPRESENTATIVE GLYPHOSATE CALIBRATION CURVE

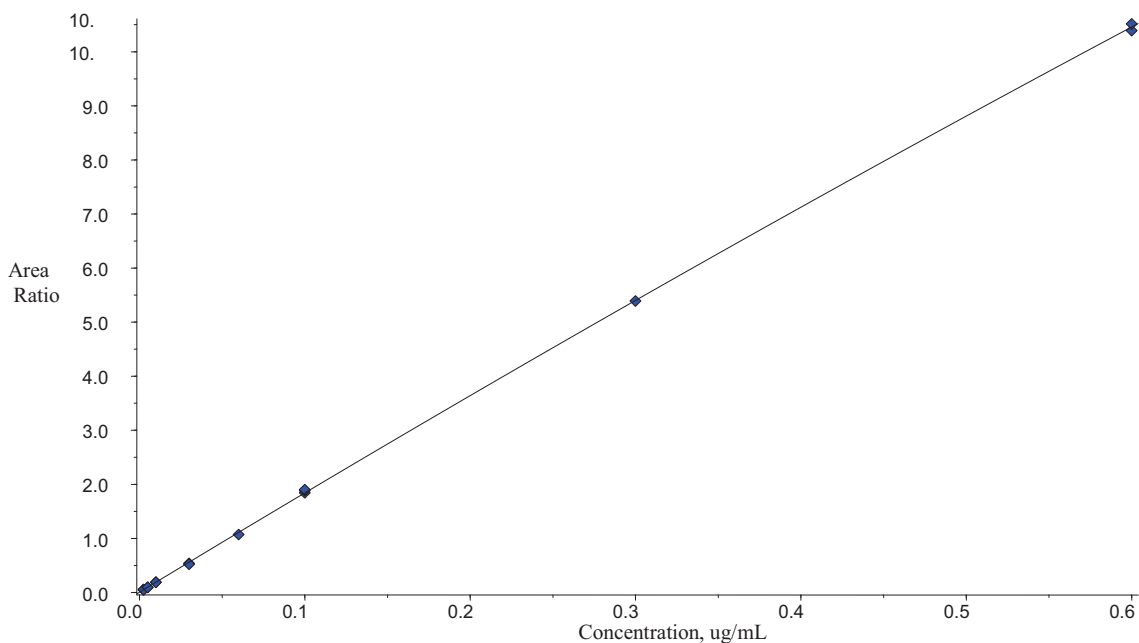
Result Table	20100204_a2043_REG09091_Set1_nrs.rdb
Data File	20100204_a2043_REG09091_Set1_nrs.wiff
Acquisition Date	2/4/2010 4:01:35 PM
Acquisition Method	AG ME 1294 01 30x4.6CationH.dam
Instrument Name	API 5000

Analyte: Glyphosate (168.0/63.0 Da)
Internal Standard: IS Gly (172.0/63.0 Da)
Regression Equation: $y = -1.9 x^2 + 18.6 x + 0.00268$ ($r = 0.9998$)

Expected Concentration	Number of Values	Mean Calculated Concentration	% Accuracy
0.01	2	0.01001	100.1
0.0025	3	0.00261	104.2
0.03	2	0.02852	95.1
0.60	2	0.59982	100.0
0.10	3	0.10199	102.0
0.005	2	0.00487	97.5
0.30	1	0.29935	99.8
0.06	1	0.05791	96.5

20100204_a2043_REG09091_Set1_nrs.rdb (Glyphosate): "Quadratic" Regression ("1 / x" weightin...
 $y = -1.9 x^2 + 18.6 x + 0.00268$ ($r = 0.9998$)

Max. 4.4e4 cps.



REPRESENTATIVE AMPA CALIBRATION CURVE

Result Table	20100204_a2043_REG09091_Set1_nrs.rdb
Data File	20100204_a2043_REG09091_Set1_nrs.wiff
Acquisition Date	2/4/2010 4:01:35 PM
Acquisition Method	AG ME 1294 01 30x4.6CationH.dam
Instrument Name	API 5000

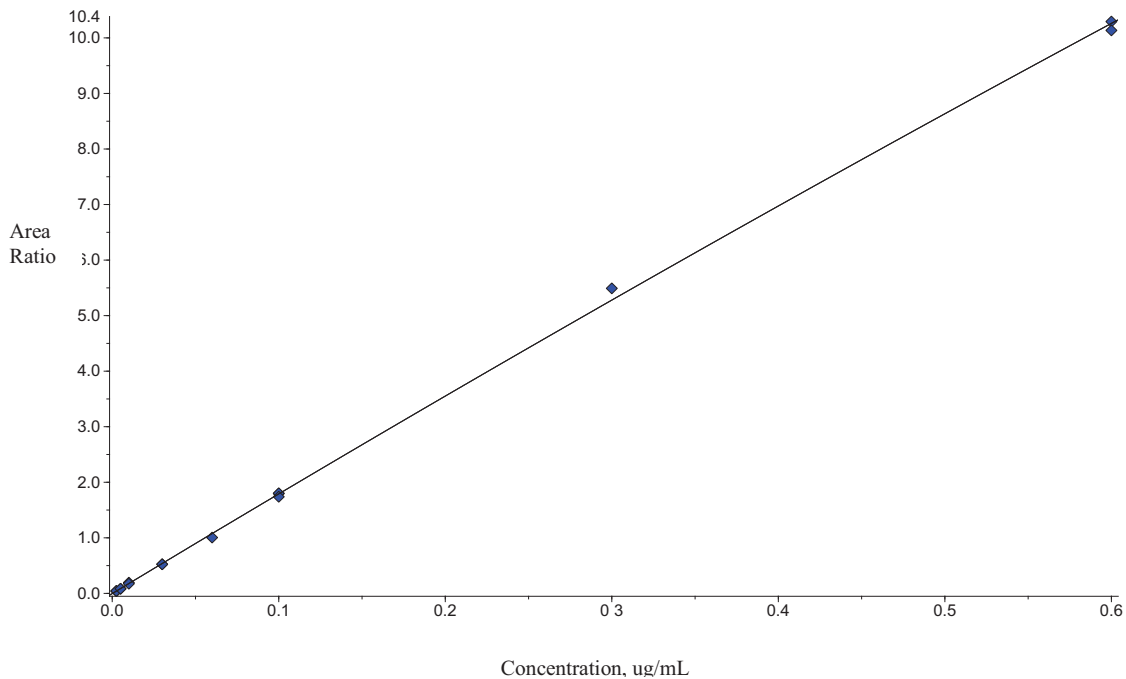
Analyte: AMPA (110.0/63.0 Da)

Internal Standard: IS AMPA (114.0/63.0 Da)

Regression Equation: $y = -1.68 x^2 + 18.1 x + -0.00442$ ($r = 0.9997$)

Expected Concentration	Number of Values	Mean Calculated Concentration	% Accuracy
0.01	2	0.01039	103.9
0.0025	3	0.00257	102.9
0.03	2	0.02925	97.5
0.60	2	0.59716	99.5
0.10	3	0.09937	99.4
0.005	2	0.00485	97.0
0.30	1	0.31235	104.1
0.06	1	0.05601	93.4

20100204_a2043_REG09091_Set1_nrs.rdb (AMPA): "Quadratic" Regression ("1 / x" weighting):
 $y = -1.68 x^2 + 18.1 x + -0.00442$ ($r = 0.9997$)



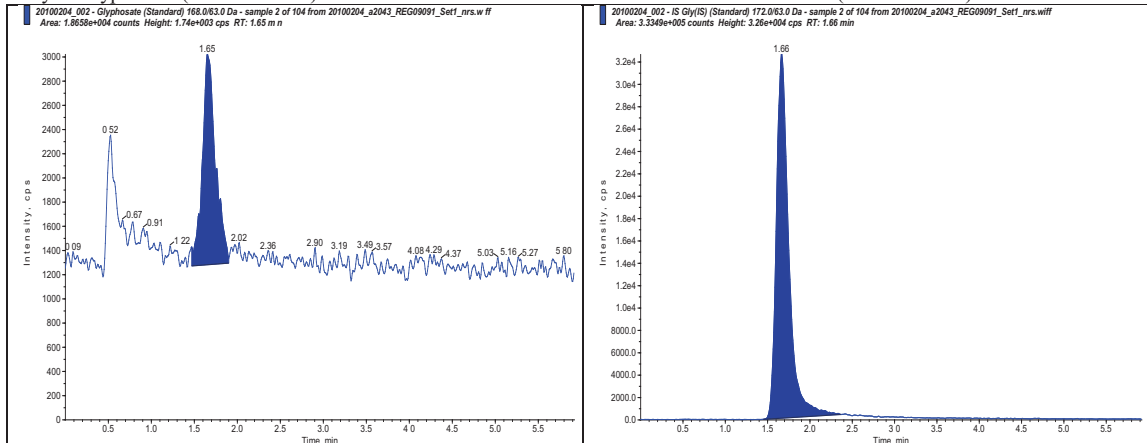
Sample Id.: std 0.0025

Sample No.: 20100204_002 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

RT: 1.65min Area Ratio: 0.0559 PPM Found: 0.00287

Analyte: Glyphosate (168.0/63.0 Da)

Internal Standard : (172.0/63.0 Da)



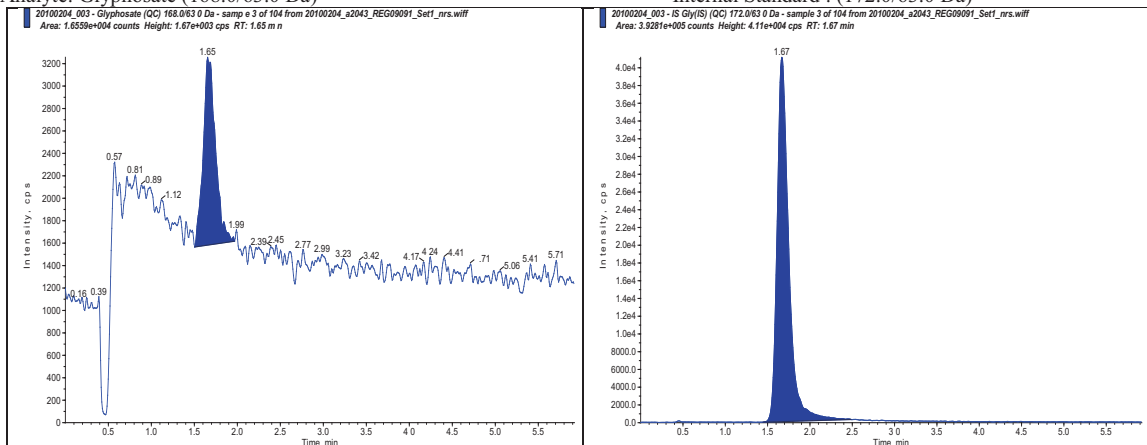
Sample Id.: REG09091-00029

Sample No.: 20100204_003 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

RT: 1.65min Area Ratio: 0.0422 PPM Found: 0.02127

Analyte: Glyphosate (168.0/63.0 Da)

Internal Standard : (172.0/63.0 Da)



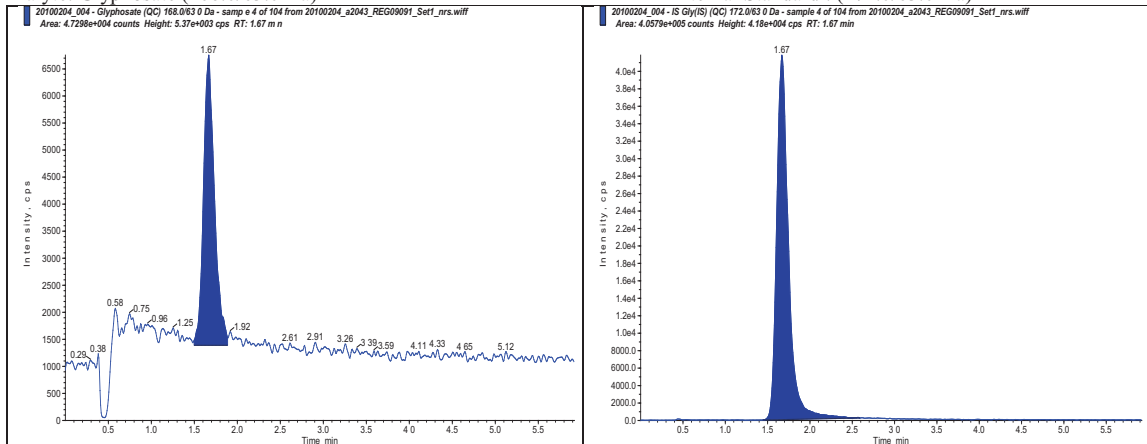
Sample Id.: REG09091-00029

Sample No.: 20100204_004 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

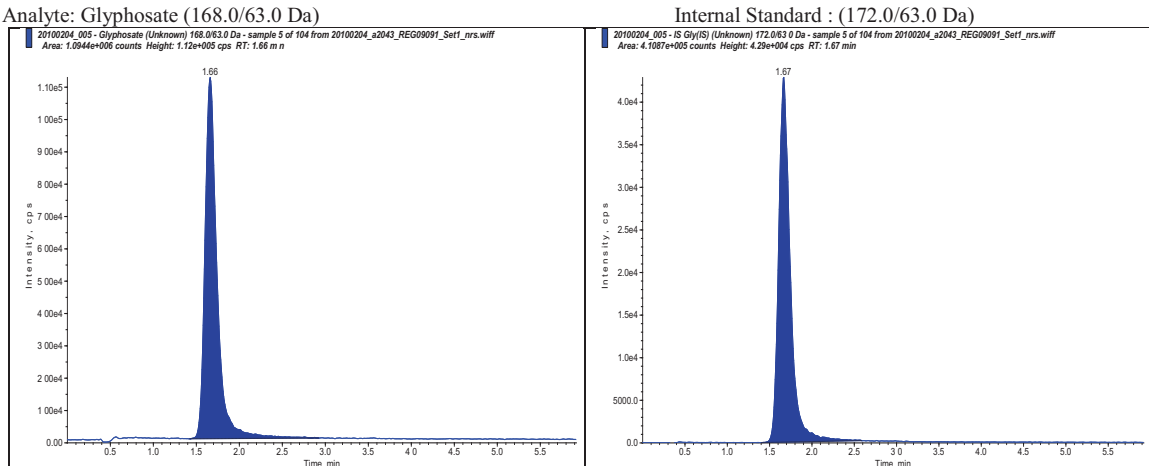
RT: 1.67min Area Ratio: 0.1166 PPM Found: 0.06139

Analyte: Glyphosate (168.0/63.0 Da)

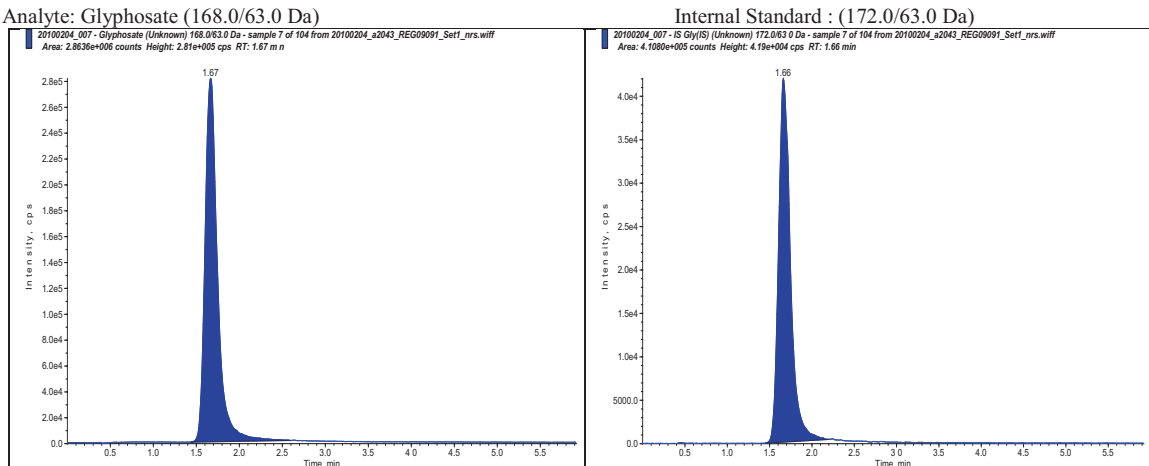
Internal Standard : (172.0/63.0 Da)



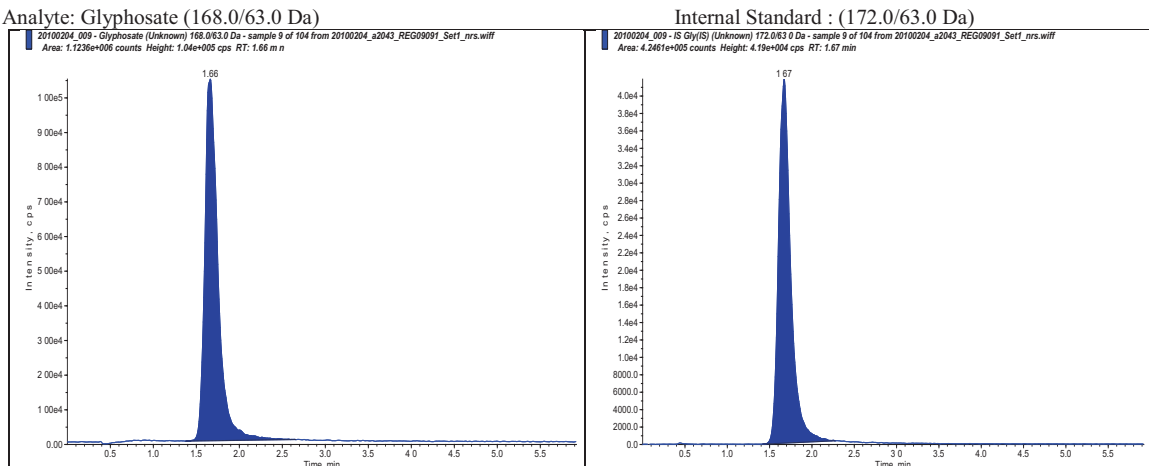
Sample Id.: REG09091-00030
Sample No.: 20100204_005 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 1.66min Area Ratio: 2.6635 PPM Found: 1.45520
Analyte: Glyphosate (168.0/63.0 Da)



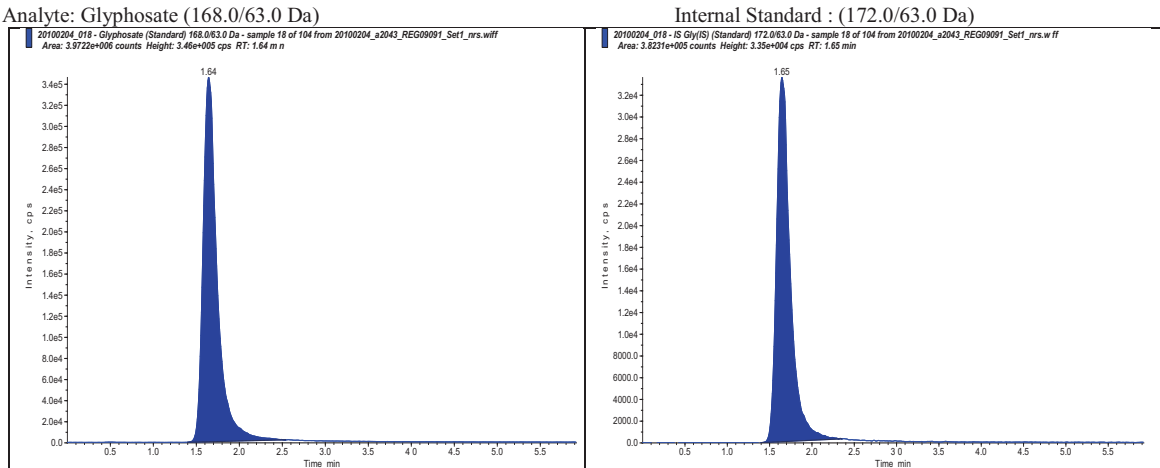
Sample Id.: REG09091-00032
Sample No.: 20100204_007 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 1.67min Area Ratio: 6.9708 PPM Found: 3.91080
Analyte: Glyphosate (168.0/63.0 Da)



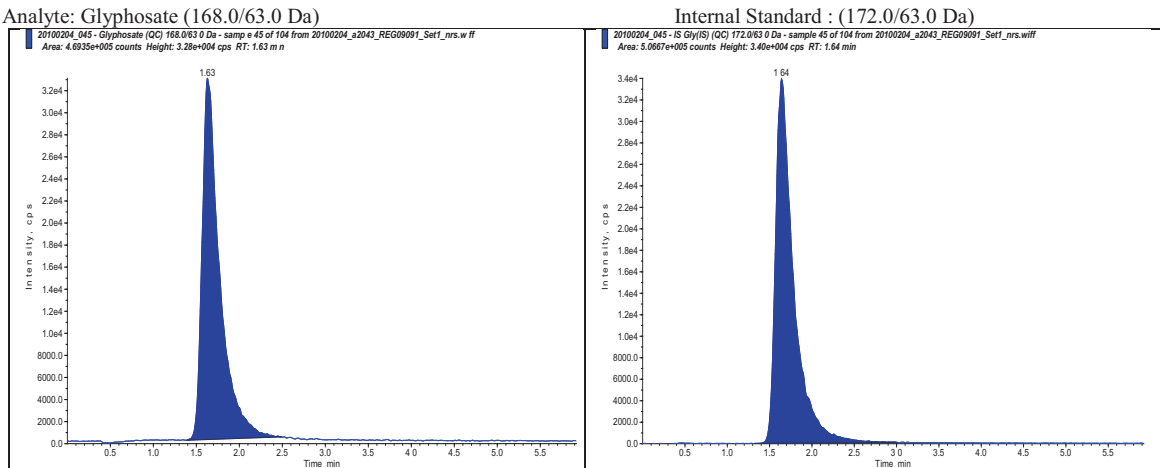
Sample Id.: REG09091-00034
Sample No.: 20100204_009 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 1.66min Area Ratio: 2.6461 PPM Found: 1.44560
Analyte: Glyphosate (168.0/63.0 Da)



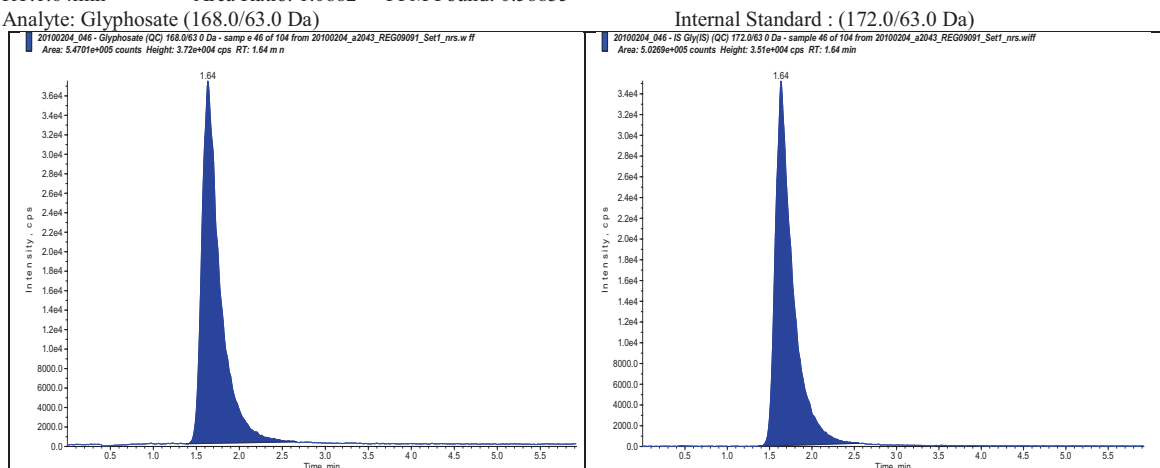
Sample Id.: std 0.6
Sample No.: 20100204_018 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 1.64min Area Ratio: 10.3900 PPM Found: 0.59599
Analyte: Glyphosate (168.0/63.0 Da)



Sample Id.: REG09091-00022
Sample No.: 20100204_045 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 1.63min Area Ratio: 0.9264 PPM Found: 0.50020
Analyte: Glyphosate (168.0/63.0 Da)



Sample Id.: REG09091-00022
Sample No.: 20100204_046 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 1.64min Area Ratio: 1.0882 PPM Found: 0.58835
Analyte: Glyphosate (168.0/63.0 Da)



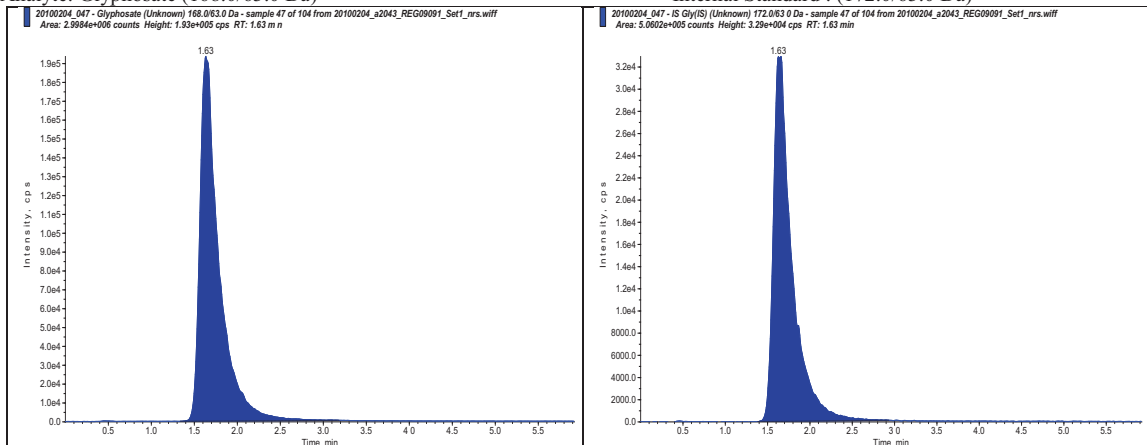
Sample Id.: REG09091-00023

Sample No.: 20100204_047 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

RT: 1.63min Area Ratio: 5.9254 PPM Found: 3.30260

Analyte: Glyphosate (168.0/63.0 Da)

Internal Standard : (172.0/63.0 Da)



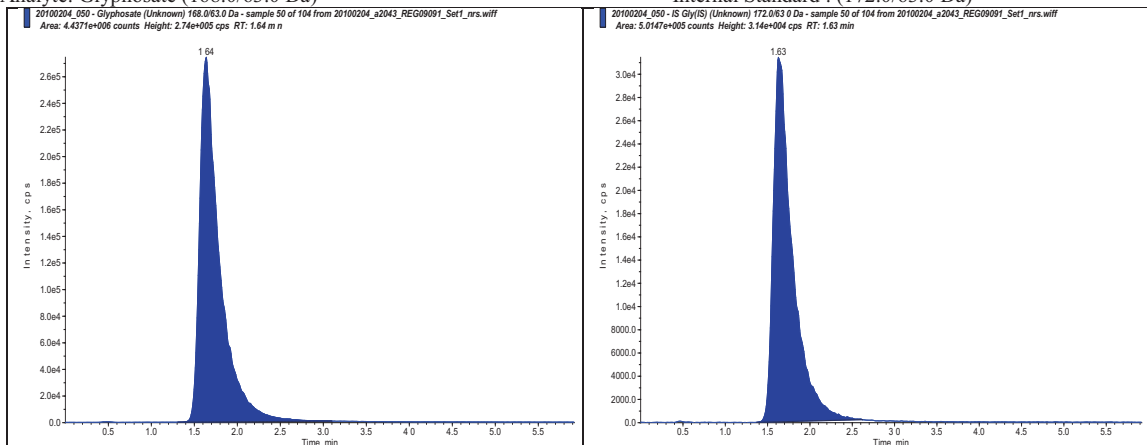
Sample Id.: REG09091-00026

Sample No.: 20100204_050 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

RT: 1.64min Area Ratio: 8.8483 PPM Found: 5.02410

Analyte: Glyphosate (168.0/63.0 Da)

Internal Standard : (172.0/63.0 Da)



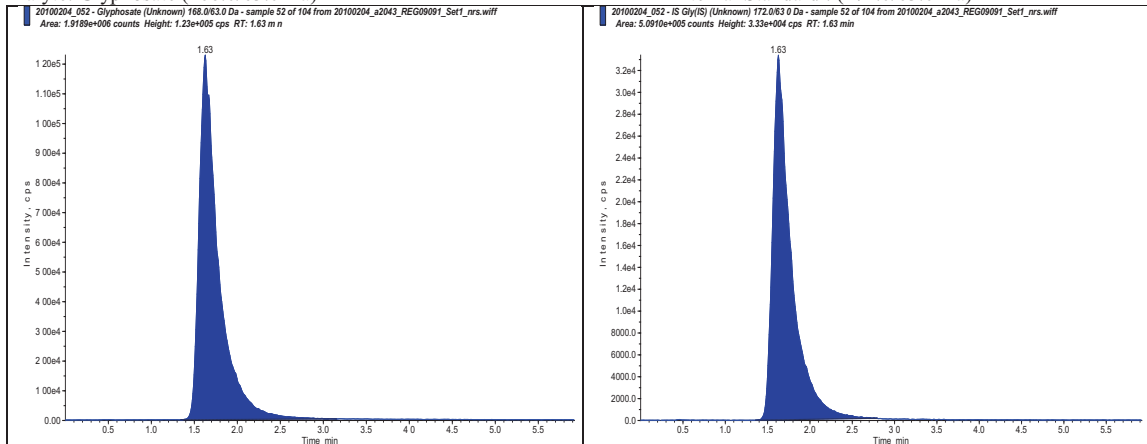
Sample Id.: REG09091-00027

Sample No.: 20100204_052 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

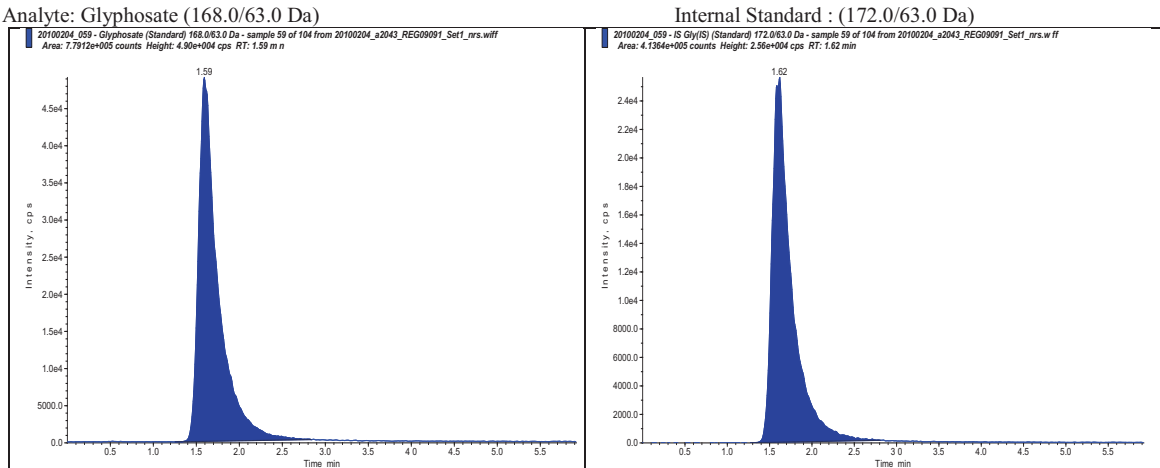
RT: 1.63min Area Ratio: 3.7692 PPM Found: 2.07330

Analyte: Glyphosate (168.0/63.0 Da)

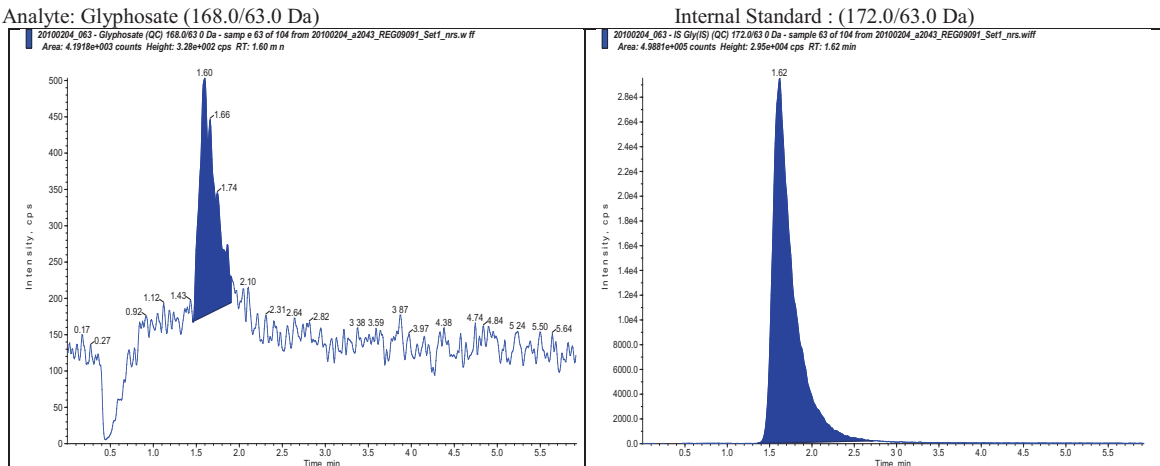
Internal Standard : (172.0/63.0 Da)



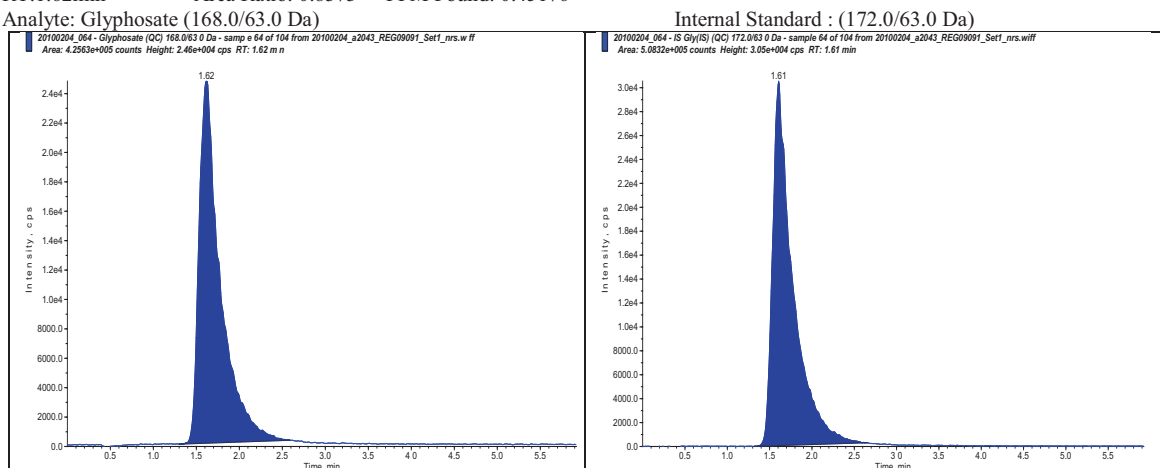
Sample Id.: std 0.1
Sample No.: 20100204_059 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 1.59min Area Ratio: 1.8836 PPM Found: 0.10241
Analyte: Glyphosate (168.0/63.0 Da)



Sample Id.: REG09091-00043
Sample No.: 20100204_063 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 1.60min Area Ratio: 0.0084 PPM Found: 0.00308
Analyte: Glyphosate (168.0/63.0 Da)



Sample Id.: REG09091-00043
Sample No.: 20100204_064 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 1.62min Area Ratio: 0.8373 PPM Found: 0.45176
Analyte: Glyphosate (168.0/63.0 Da)



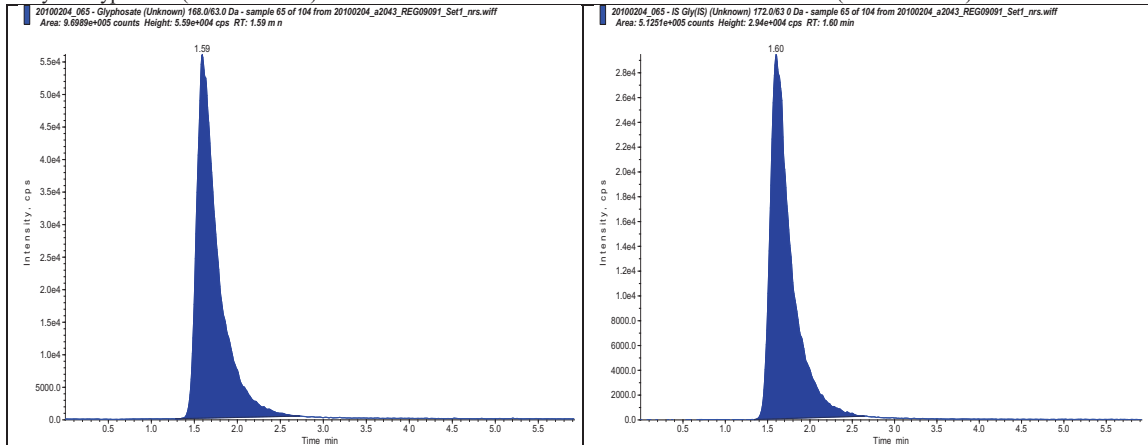
Sample Id.: REG09091-00044

Sample No.: 20100204_065 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

RT: 1.59min Area Ratio: 1.8924 PPM Found: 1.02900

Analyte: Glyphosate (168.0/63.0 Da)

Internal Standard : (172.0/63.0 Da)



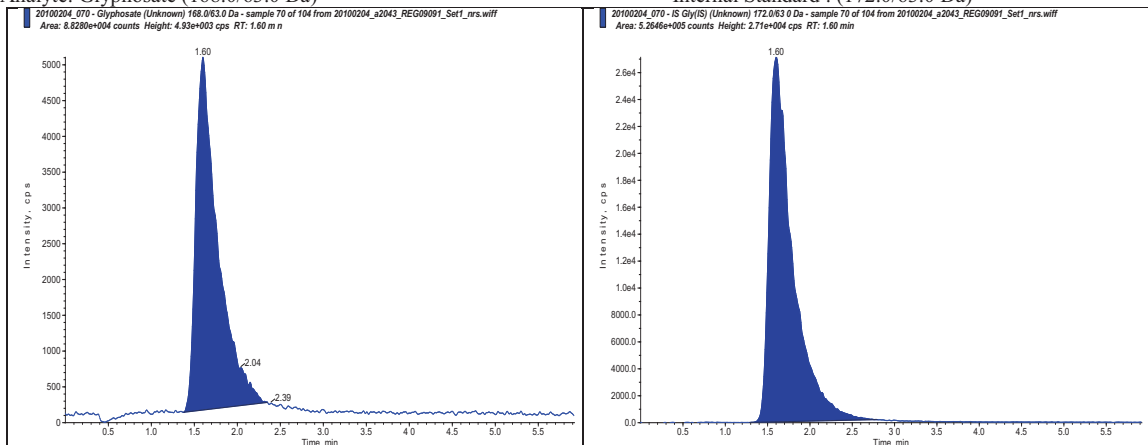
Sample Id.: REG09091-00048

Sample No.: 20100204_070 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

RT: 1.60min Area Ratio: 0.1677 PPM Found: 0.08898

Analyte: Glyphosate (168.0/63.0 Da)

Internal Standard : (172.0/63.0 Da)



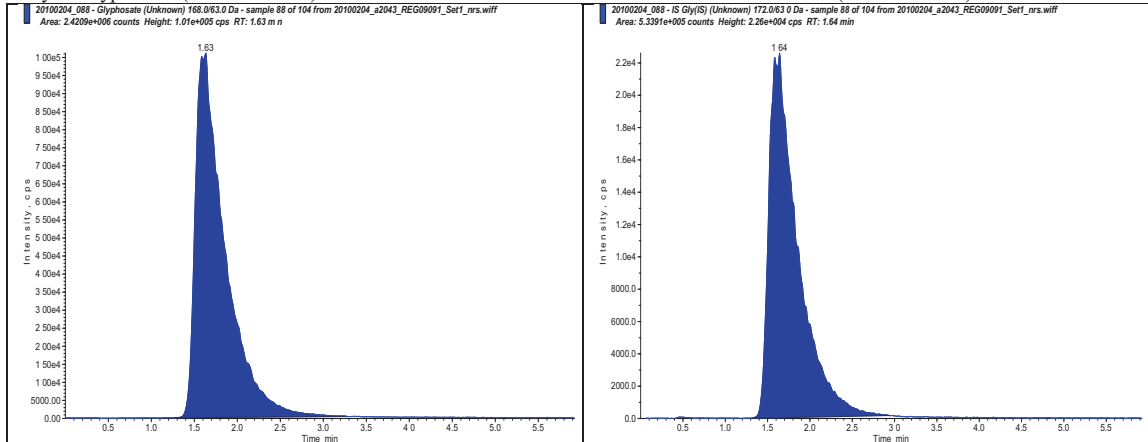
Sample Id.: REG09091-00013

Sample No.: 20100204_088 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

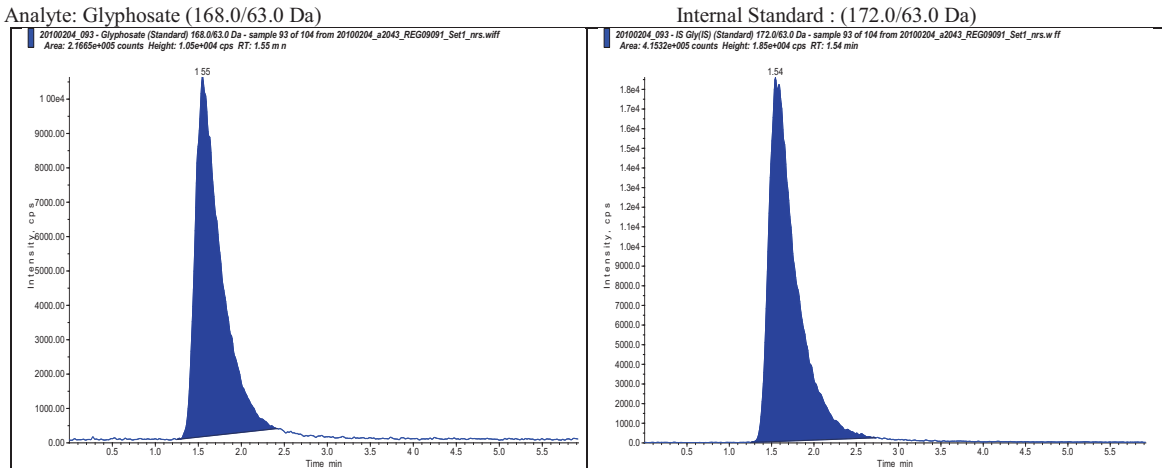
RT: 1.63min Area Ratio: 4.5344 PPM Found: 2.50580

Analyte: Glyphosate (168.0/63.0 Da)

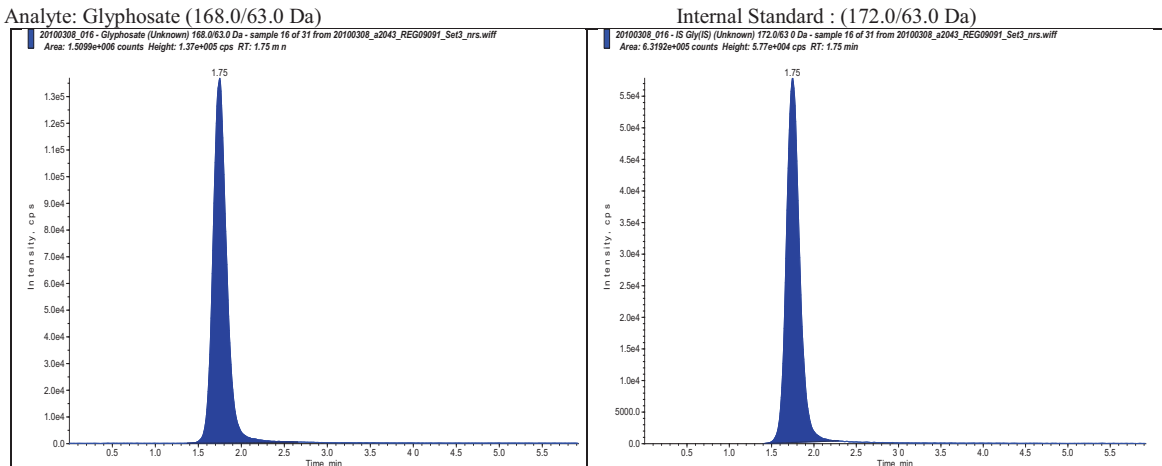
Internal Standard : (172.0/63.0 Da)



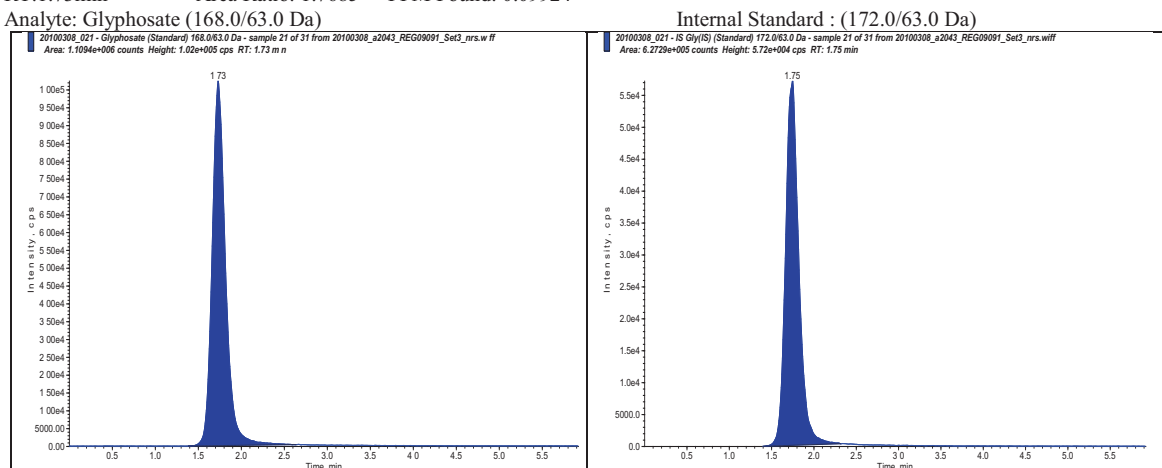
Sample Id.: std 0.03
Sample No.: 20100204_093 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 1.55min Area Ratio: 0.5217 PPM Found: 0.02804
Analyte: Glyphosate (168.0/63.0 Da)



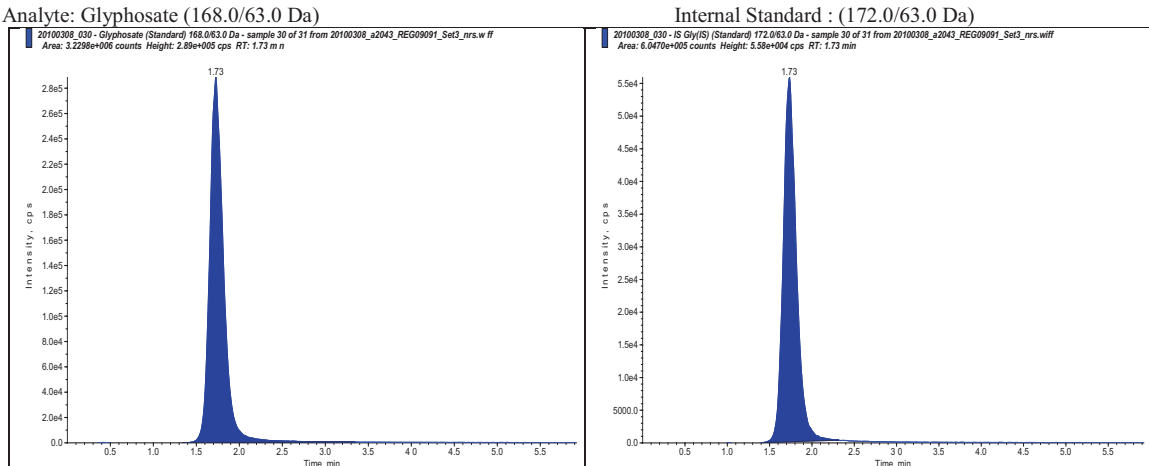
Sample Id.: REG09091-00009
Sample No.: 20100308_016 Data Set: 20100308_a2043_REG09091_Set3_nrs.rdb
RT: 1.75min Area Ratio: 2.3894 PPM Found: 6.71220
Analyte: Glyphosate (168.0/63.0 Da)



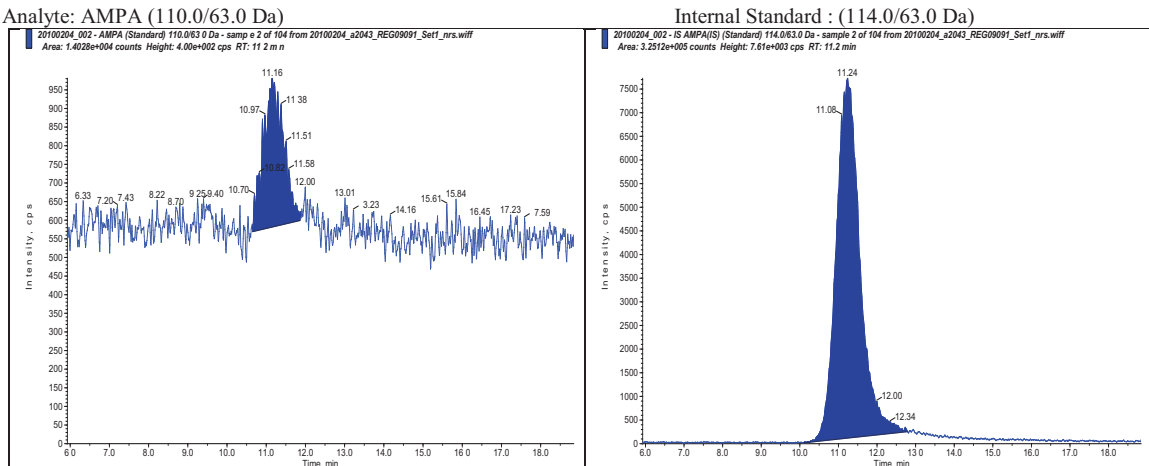
Sample Id.: std 0.1
Sample No.: 20100308_021 Data Set: 20100308_a2043_REG09091_Set3_nrs.rdb
RT: 1.73min Area Ratio: 1.7685 PPM Found: 0.09924
Analyte: Glyphosate (168.0/63.0 Da)



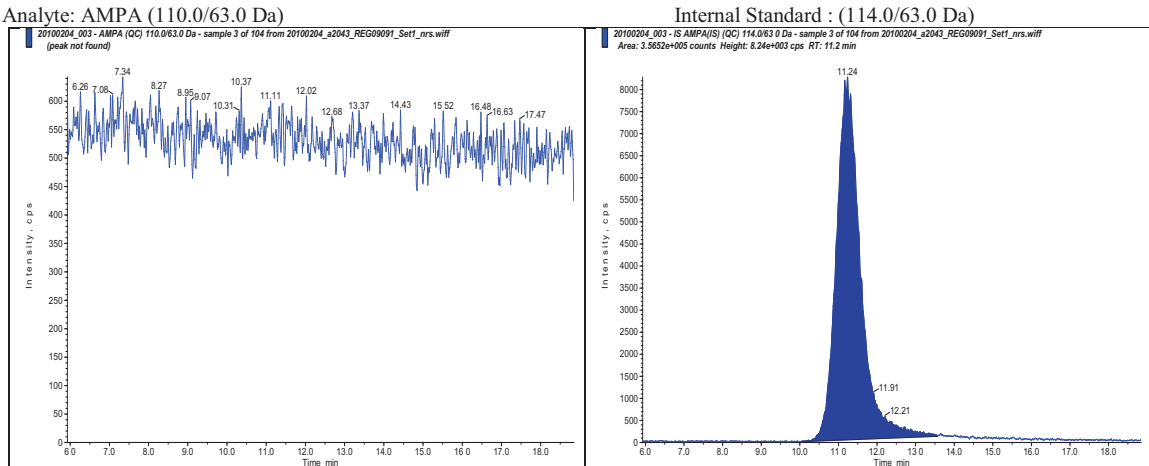
Sample Id.: std 0.3
Sample No.: 20100308_030 Data Set: 20100308_a2043_REG09091_Set3_nrs.rdb
RT: 1.73min Area Ratio: 5.3411 PPM Found: 0.30167
Analyte: Glyphosate (168.0/63.0 Da)



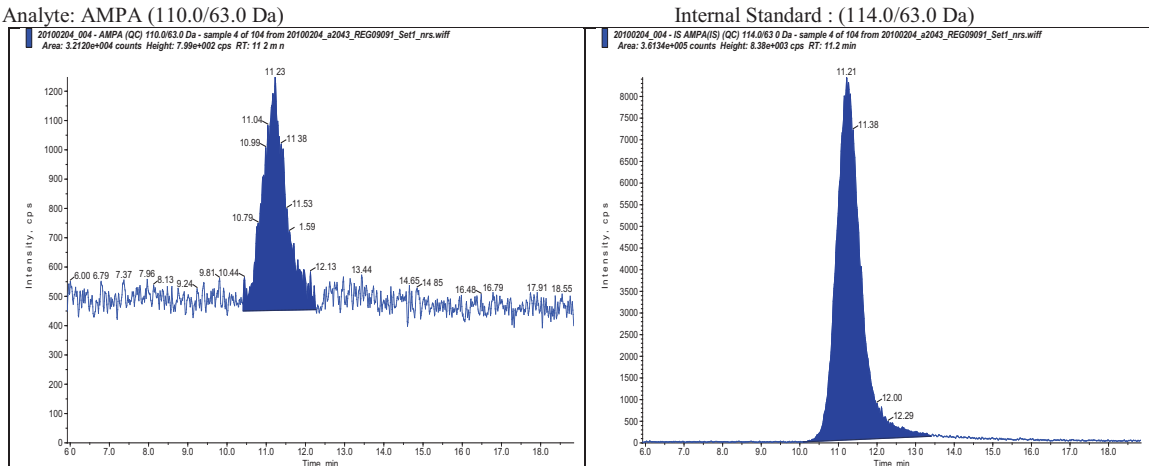
Sample Id.: std 0.0025
Sample No.: 20100204_002 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 11.20min Area Ratio: 0.0431 PPM Found: 0.00263
Analyte: AMPA (110.0/63.0 Da)



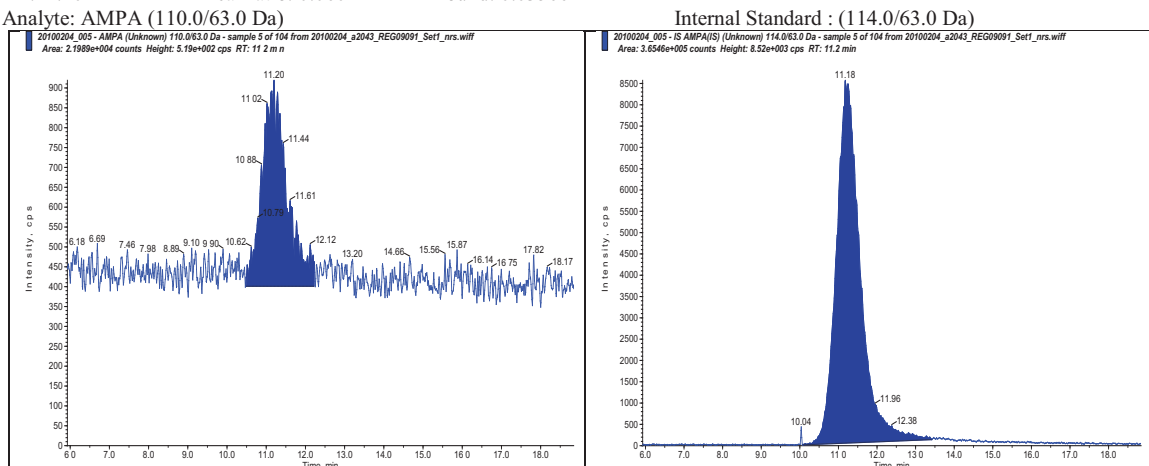
Sample Id.: REG09091-00029
Sample No.: 20100204_003 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 0.00min Area Ratio: 0.0000 PPM Found: No Peak
Analyte: AMPA (110.0/63.0 Da)



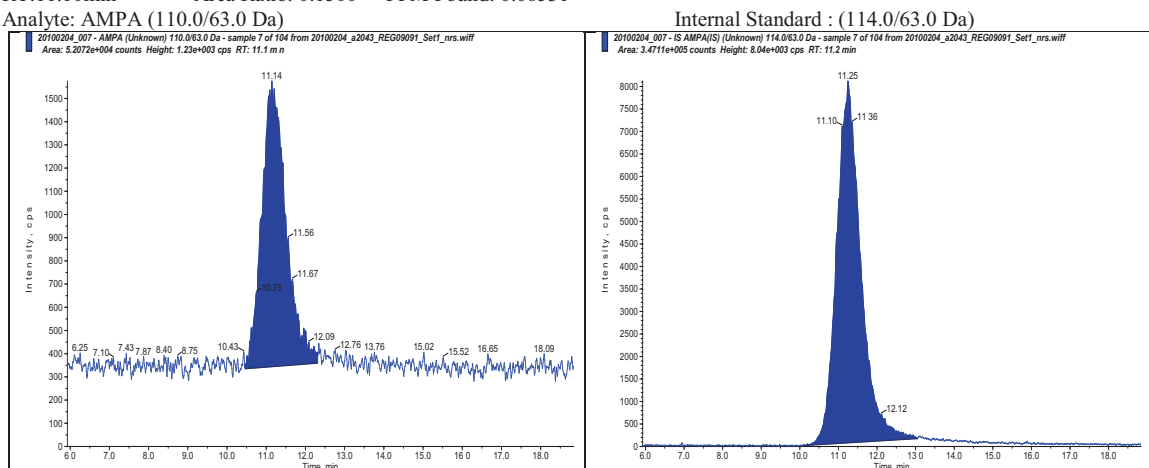
Sample Id.: REG09091-00029
Sample No.: 20100204_004 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 11.20min Area Ratio: 0.0889 PPM Found: 0.05153
Analyte: AMPA (110.0/63.0 Da)



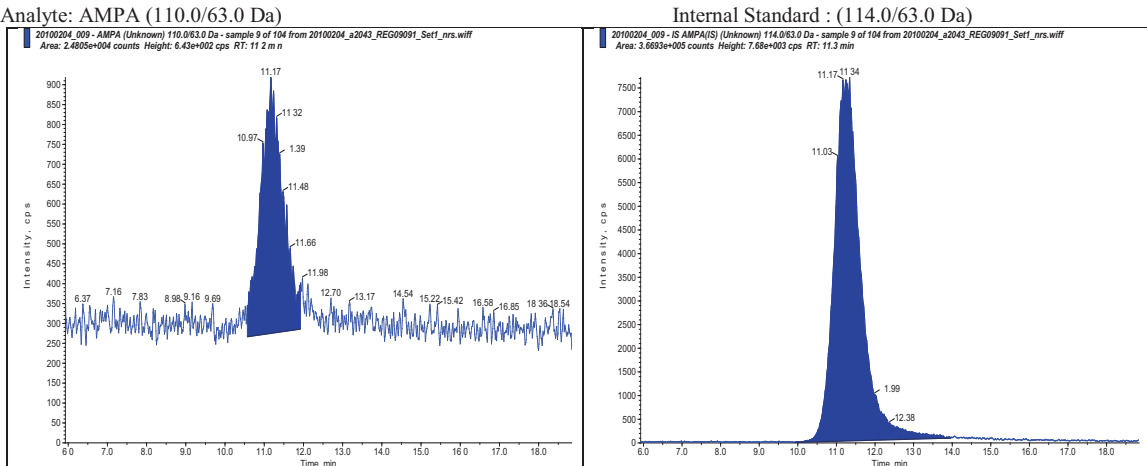
Sample Id.: REG09091-00030
Sample No.: 20100204_005 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 11.20min Area Ratio: 0.0602 PPM Found: 0.03566
Analyte: AMPA (110.0/63.0 Da)



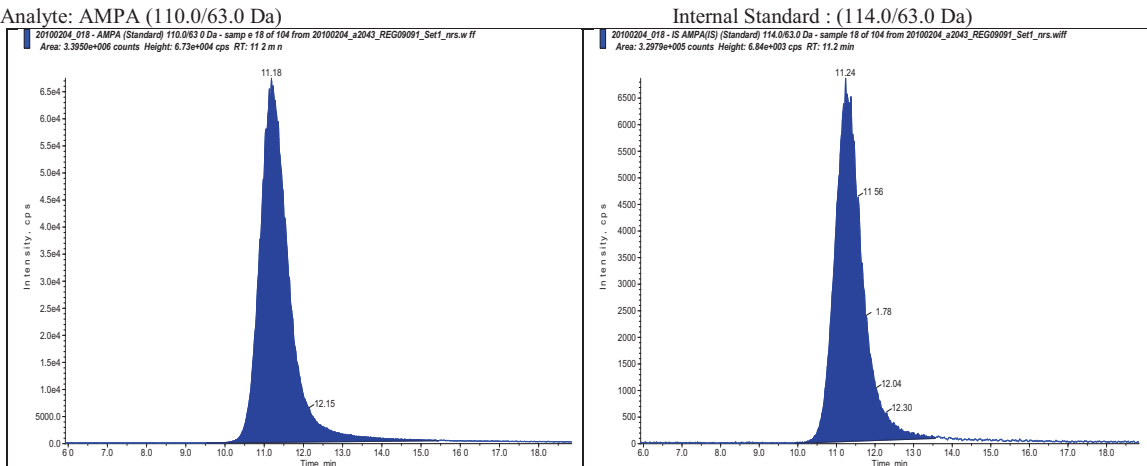
Sample Id.: REG09091-00032
Sample No.: 20100204_007 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 11.10min Area Ratio: 0.1500 PPM Found: 0.08531
Analyte: AMPA (110.0/63.0 Da)



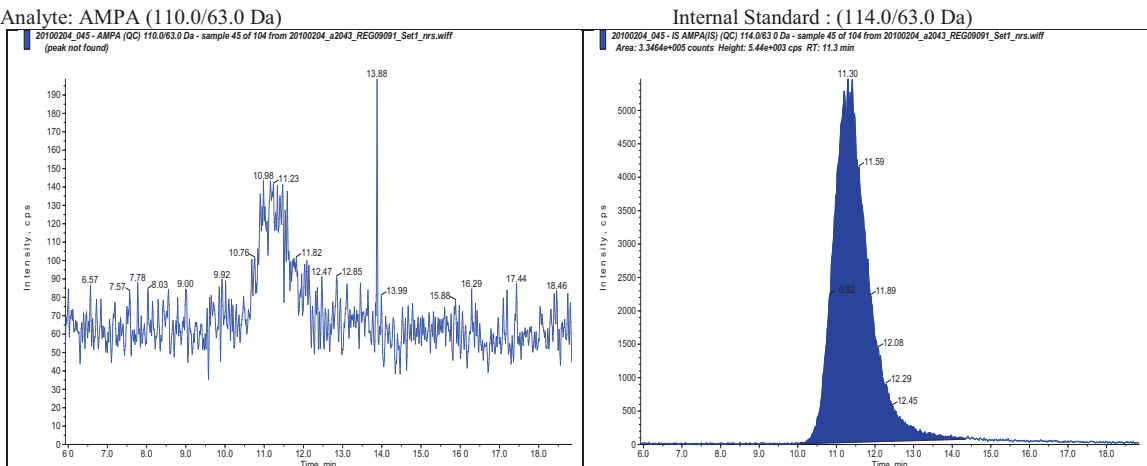
Sample Id.: REG09091-00034
Sample No.: 20100204_009 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 11.20min Area Ratio: 0.0676 PPM Found: 0.03977
Analyte: AMPA (110.0/63.0 Da)



Sample Id.: std 0.6
Sample No.: 20100204_018 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 11.20min Area Ratio: 10.2940 PPM Found: 0.60211
Analyte: AMPA (110.0/63.0 Da)



Sample Id.: REG09091-00022
Sample No.: 20100204_045 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 0.00min Area Ratio: 0.0000 PPM Found: No Peak
Analyte: AMPA (110.0/63.0 Da)



Sample Id.: REG09091-00022

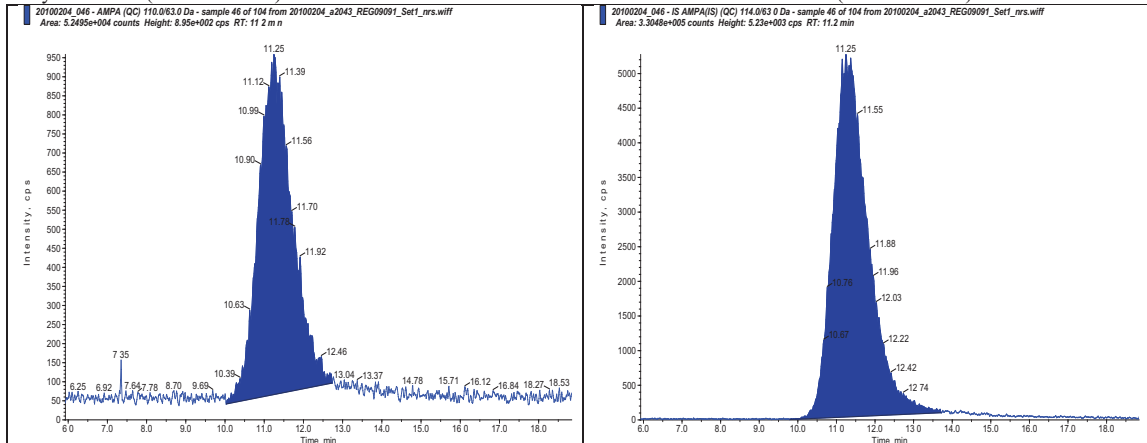
Sample No.: 20100204_046 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

RT: 11.20min

Area Ratio: 0.1589 PPM Found: 0.09020

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



Sample Id.: REG09091-00023

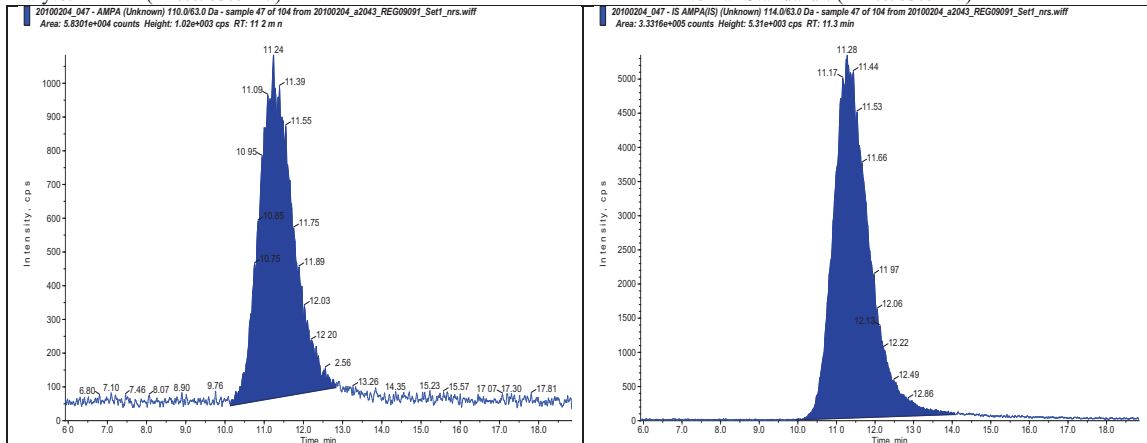
Sample No.: 20100204_047 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

RT: 11.20min

Area Ratio: 0.1750 PPM Found: 0.09913

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



Sample Id.: REG09091-00026

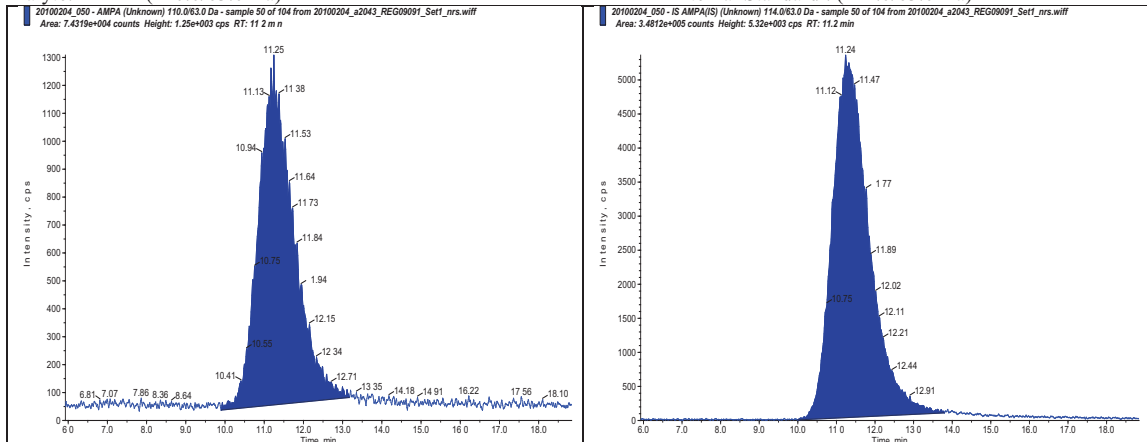
Sample No.: 20100204_050 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

RT: 11.20min

Area Ratio: 0.2135 PPM Found: 0.12042

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



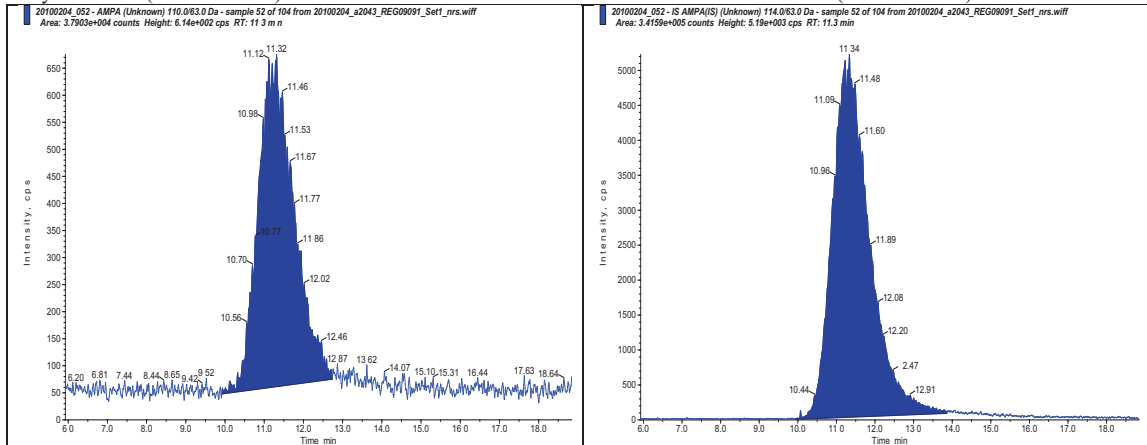
Sample Id.: REG09091-00027

Sample No.: 20100204_052 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

RT:11.30min Area Ratio: 0.1110 PPM Found: 0.06373

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



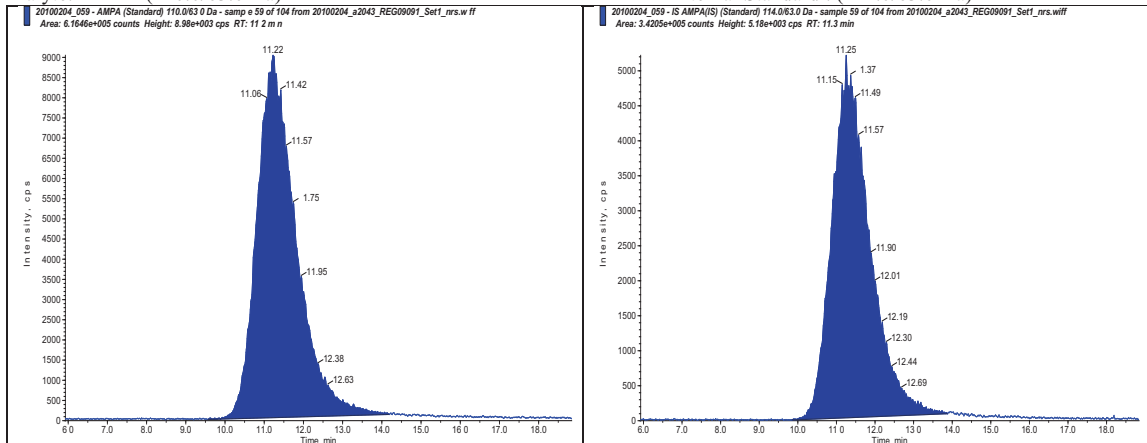
Sample Id.: std 0.1

Sample No.: 20100204_059 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

RT:11.20min Area Ratio: 1.8022 PPM Found: 0.10067

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



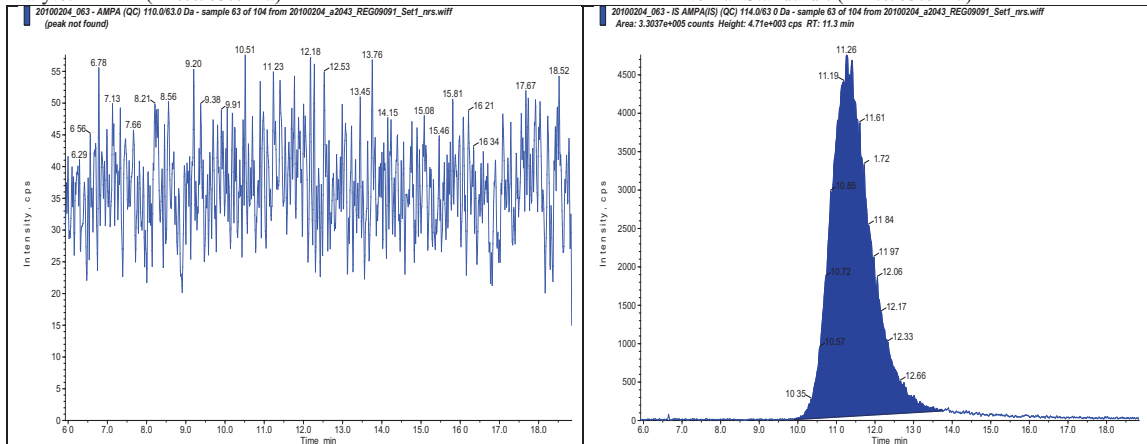
Sample Id.: REG09091-00043

Sample No.: 20100204_063 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

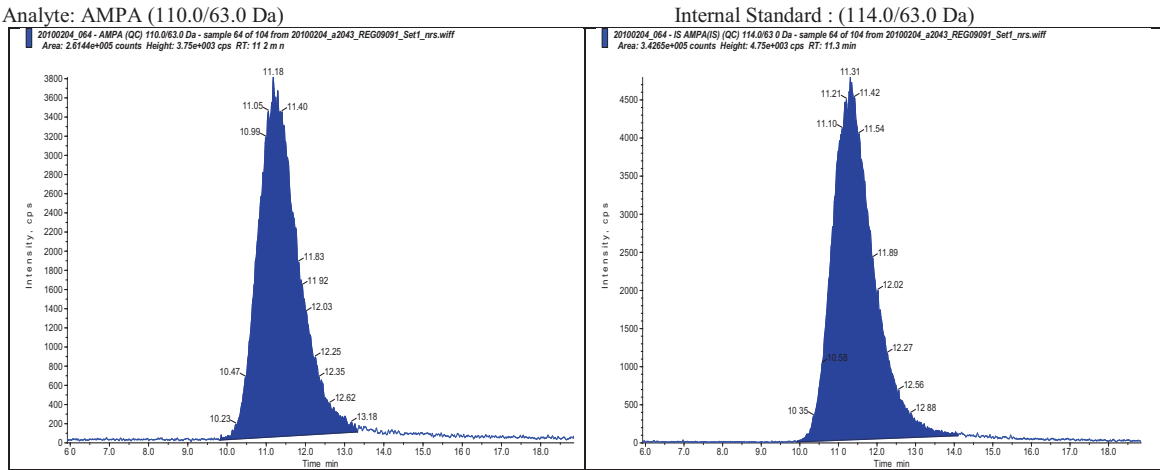
RT:0.00min Area Ratio: 0.0000 PPM Found: No Peak

Analyte: AMPA (110.0/63.0 Da)

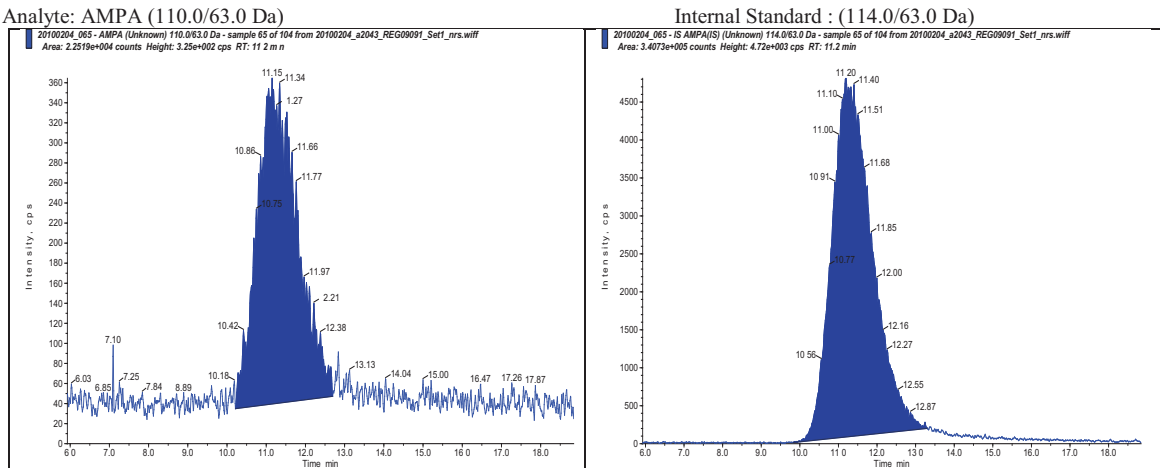
Internal Standard : (114.0/63.0 Da)



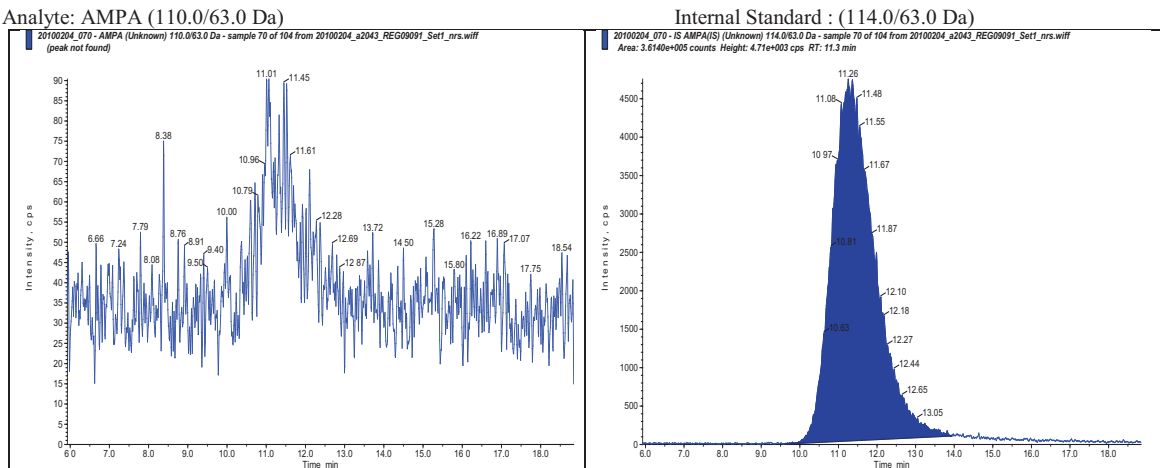
Sample Id.: REG09091-00043
Sample No.: 20100204_064 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 11.20min Area Ratio: 0.7630 PPM Found: 0.42529
Analyte: AMPA (110.0/63.0 Da)



Sample Id.: REG09091-00044
Sample No.: 20100204_065 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 11.20min Area Ratio: 0.0661 PPM Found: 0.03893
Analyte: AMPA (110.0/63.0 Da)



Sample Id.: REG09091-00048
Sample No.: 20100204_070 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb
RT: 0.00min Area Ratio: 0.0000 PPM Found: No Peak
Analyte: AMPA (110.0/63.0 Da)



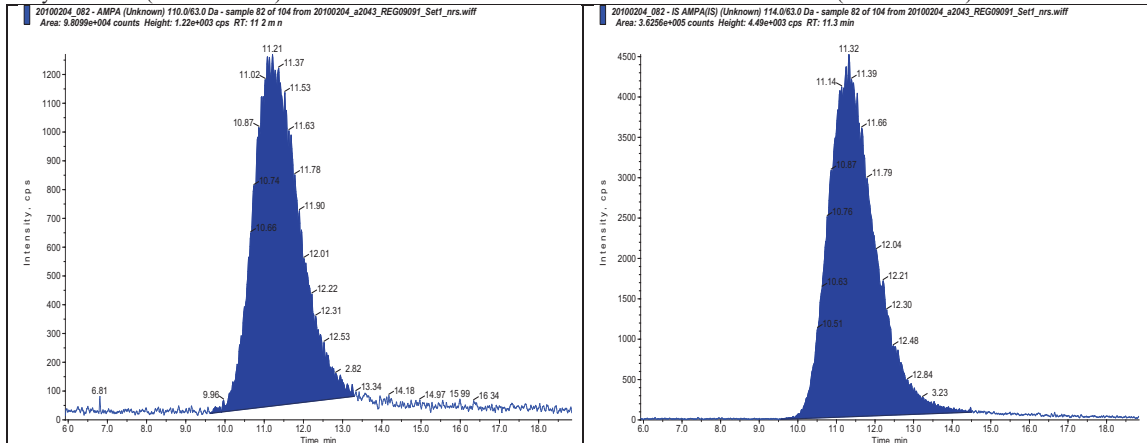
Sample Id.: REG09091-00009

Sample No.: 20100204_082 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

RT: 11.20min Area Ratio: 0.2706 PPM Found: 0.15201

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



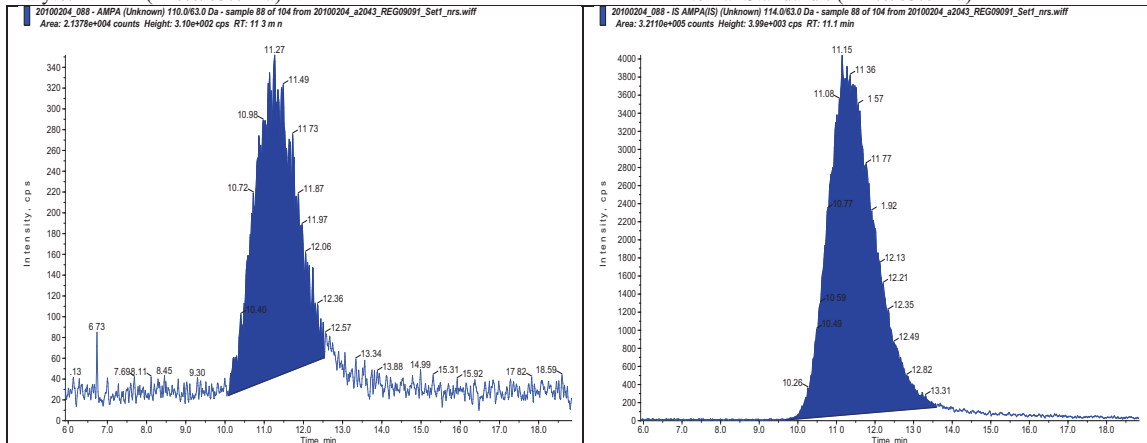
Sample Id.: REG09091-00013

Sample No.: 20100204_088 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

RT: 11.30min Area Ratio: 0.0666 PPM Found: 0.03920

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



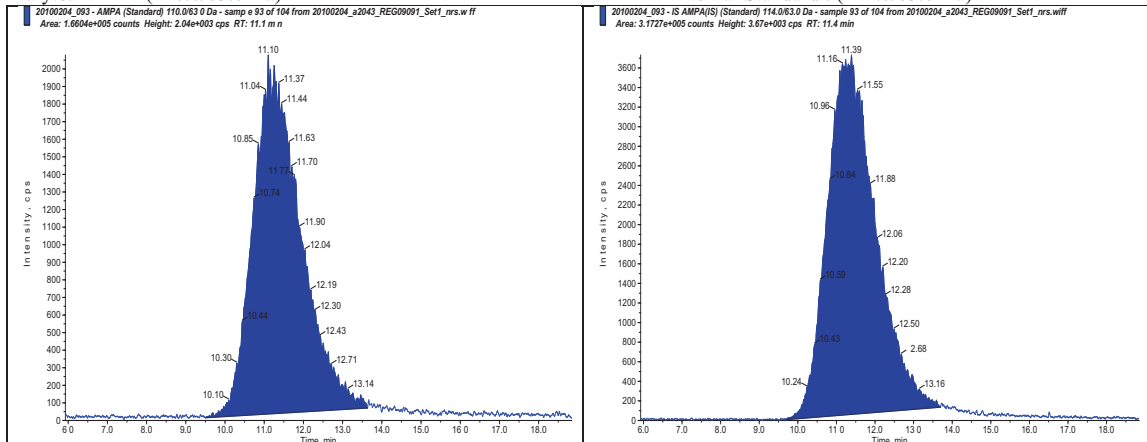
Sample Id.: std 0.03

Sample No.: 20100204_093 Data Set: 20100204_a2043_REG09091_Set1_nrs.rdb

RT: 11.10min Area Ratio: 0.5234 PPM Found: 0.02921

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



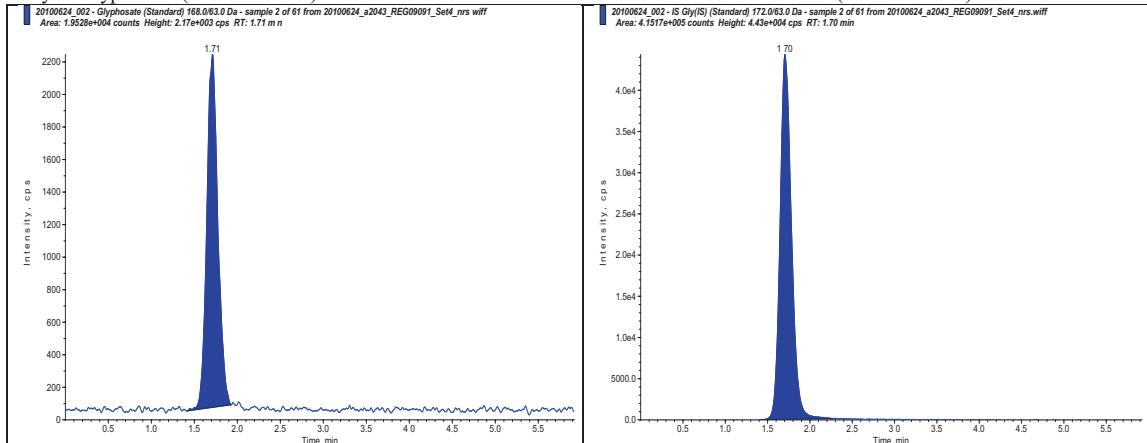
Sample Id.: std 0.0025

Sample No.: 20100624_002 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb

RT: 1.71 min Area Ratio: 0.0470 PPM Found: 0.00256

Analyte: Glyphosate (168.0/63.0 Da)

Internal Standard : (172.0/63.0 Da)



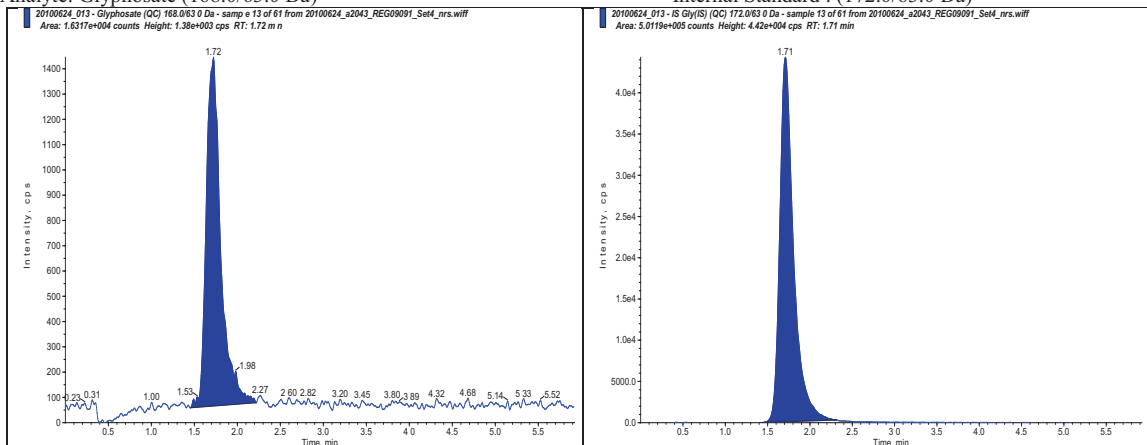
Sample Id.: REG09091-00086

Sample No.: 20100624_013 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb

RT: 1.72 min Area Ratio: 0.0326 PPM Found: 0.01756

Analyte: Glyphosate (168.0/63.0 Da)

Internal Standard : (172.0/63.0 Da)



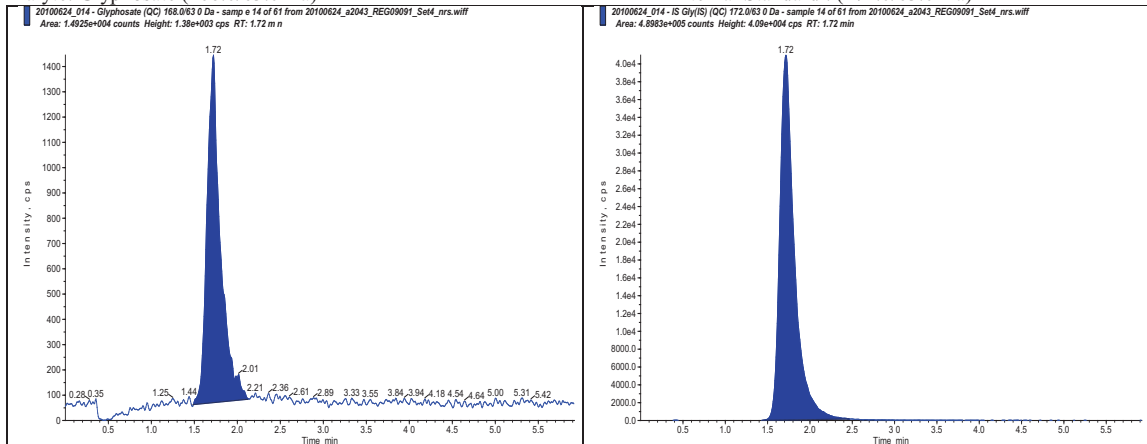
Sample Id.: REG09091-00086

Sample No.: 20100624_014 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb

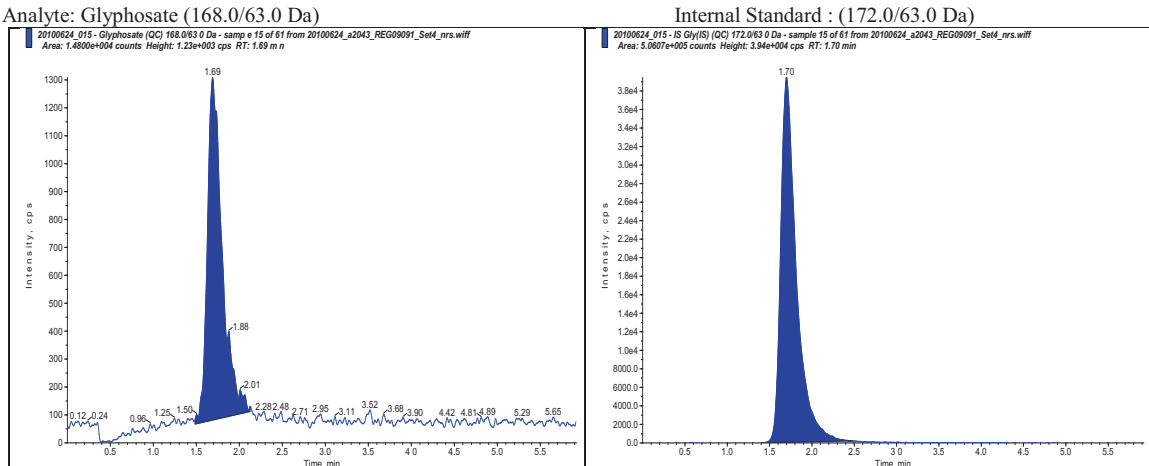
RT: 1.72 min Area Ratio: 0.0305 PPM Found: 0.01640

Analyte: Glyphosate (168.0/63.0 Da)

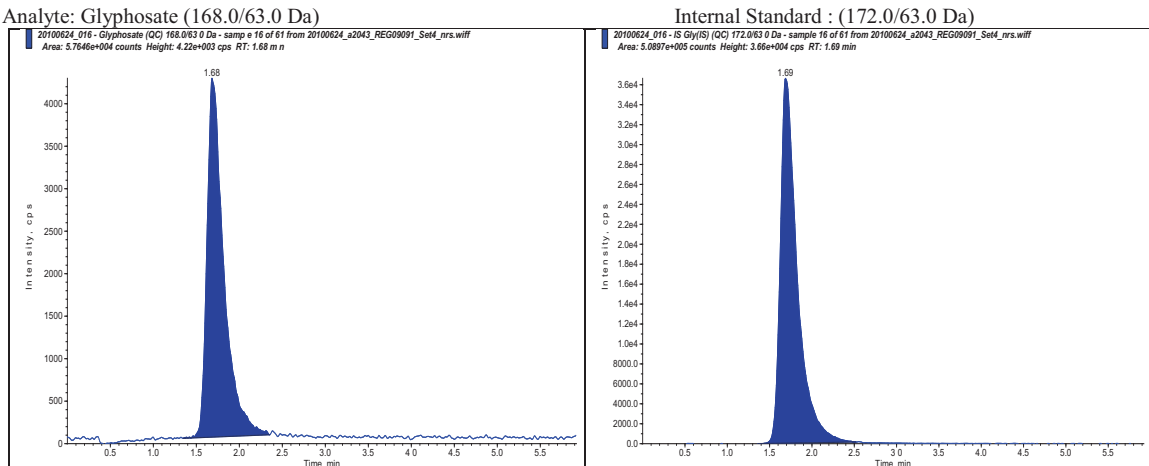
Internal Standard : (172.0/63.0 Da)



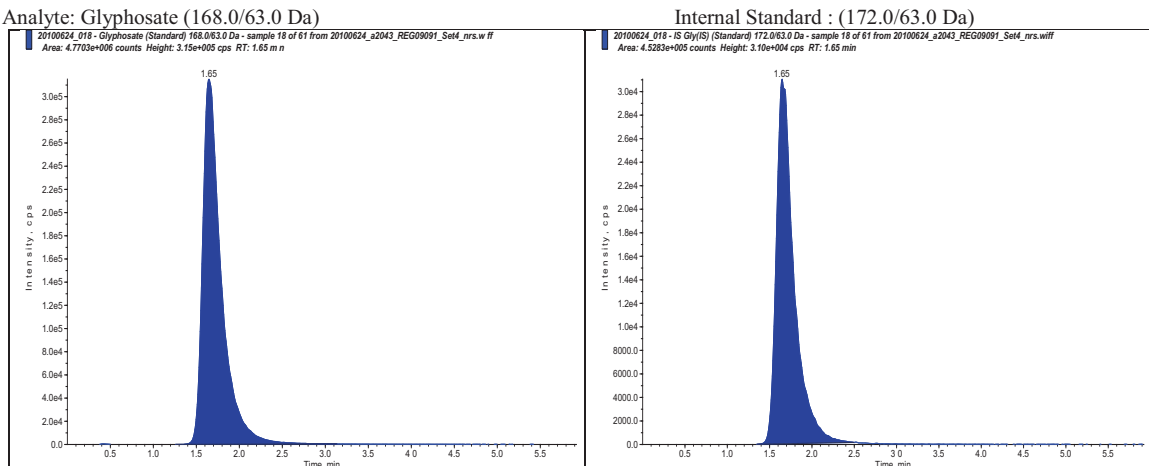
Sample Id.: REG09091-00086
Sample No.: 20100624_015 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 1.69min Area Ratio: 0.0292 PPM Found: 0.01572
Analyte: Glyphosate (168.0/63.0 Da)



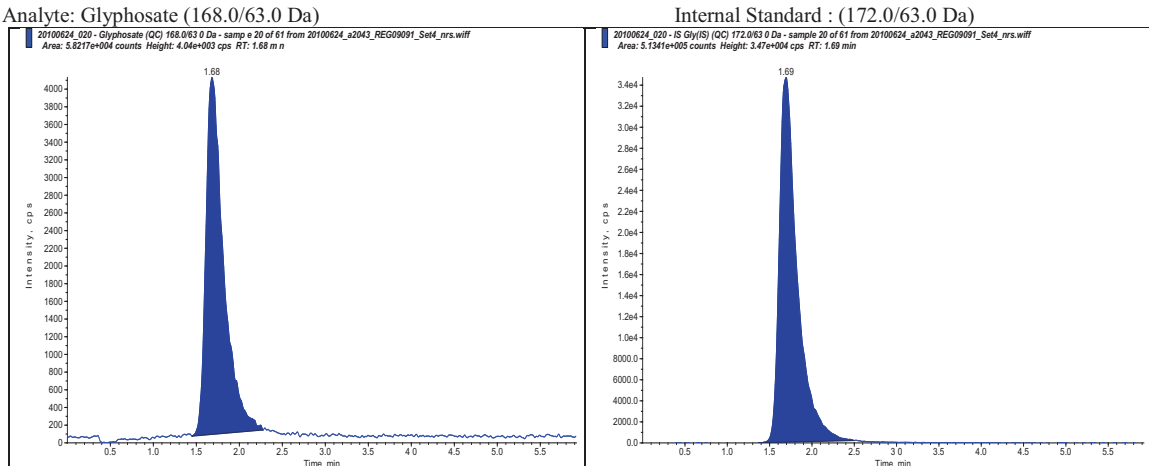
Sample Id.: REG09091-00086
Sample No.: 20100624_016 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 1.68min Area Ratio: 0.1133 PPM Found: 0.06245
Analyte: Glyphosate (168.0/63.0 Da)



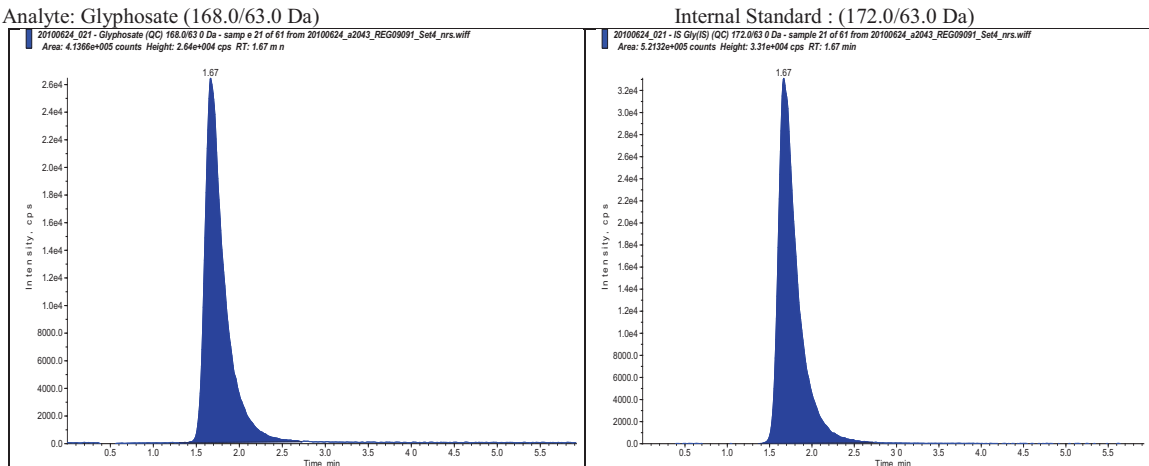
Sample Id.: std 0.6
Sample No.: 20100624_018 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 1.65min Area Ratio: 10.5350 PPM Found: 0.59970
Analyte: Glyphosate (168.0/63.0 Da)



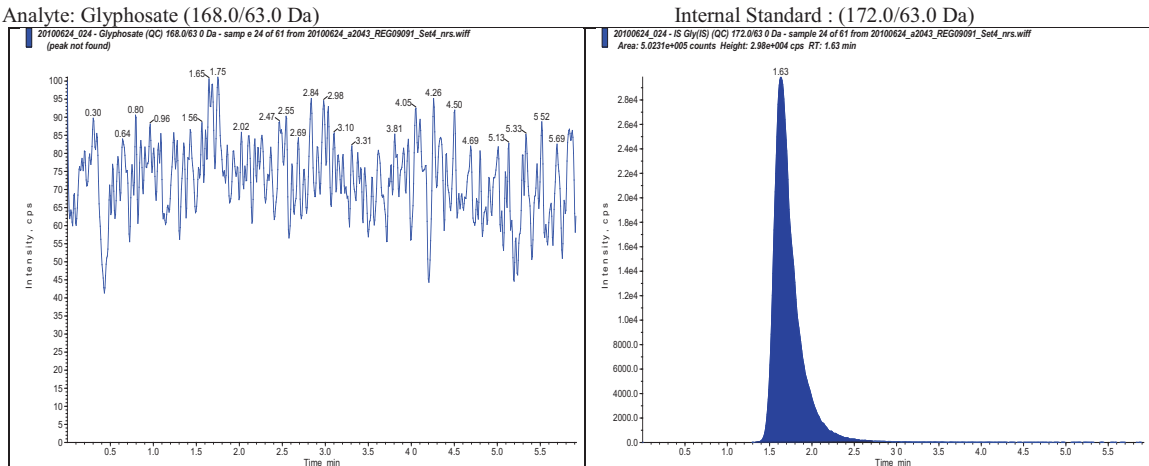
Sample Id.: REG09091-00086
Sample No.: 20100624_020 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 1.68min Area Ratio: 0.1134 PPM Found: 0.06252
Analyte: Glyphosate (168.0/63.0 Da)



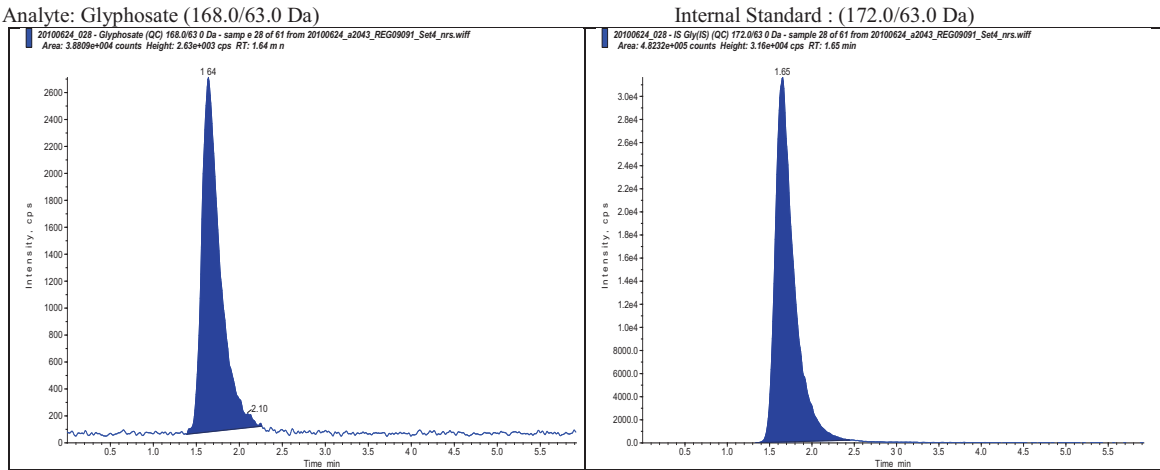
Sample Id.: REG09091-00086
Sample No.: 20100624_021 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 1.67min Area Ratio: 0.7935 PPM Found: 0.44136
Analyte: Glyphosate (168.0/63.0 Da)



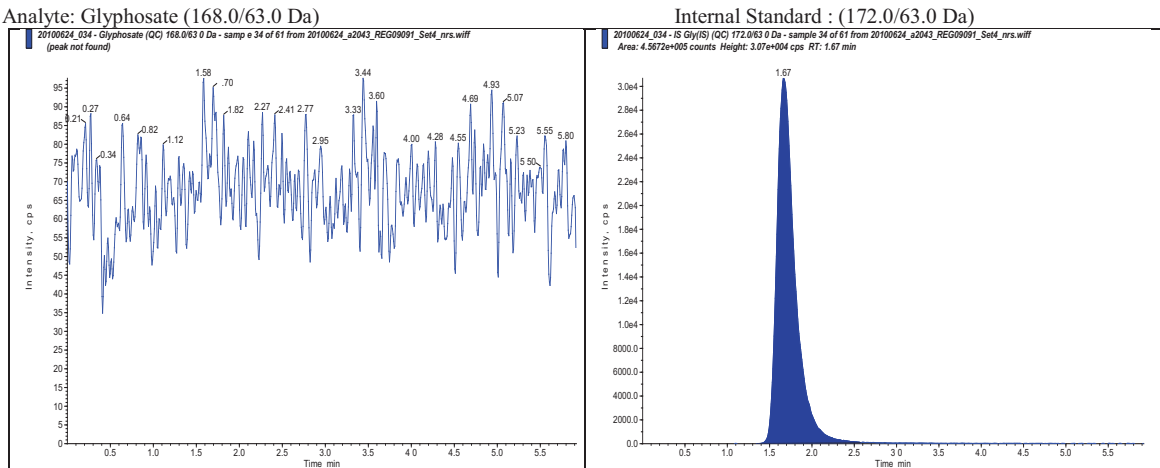
Sample Id.: REG09091-00087
Sample No.: 20100624_024 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 0.00min Area Ratio: 0.0000 PPM Found: No Peak
Analyte: Glyphosate (168.0/63.0 Da)



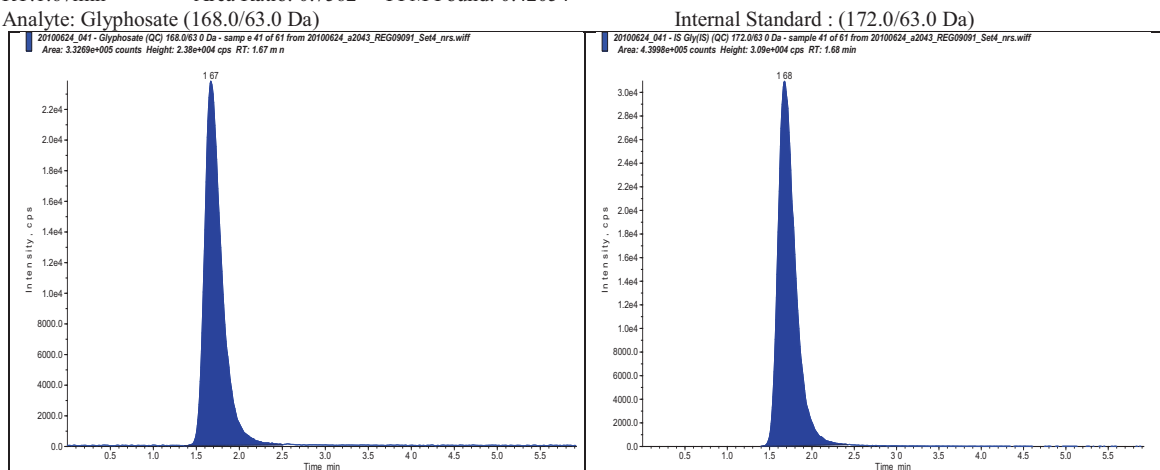
Sample Id.: REG09091-00087
Sample No.: 20100624_028 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 1.64min Area Ratio: 0.0805 PPM Found: 0.04421
Analyte: Glyphosate (168.0/63.0 Da)



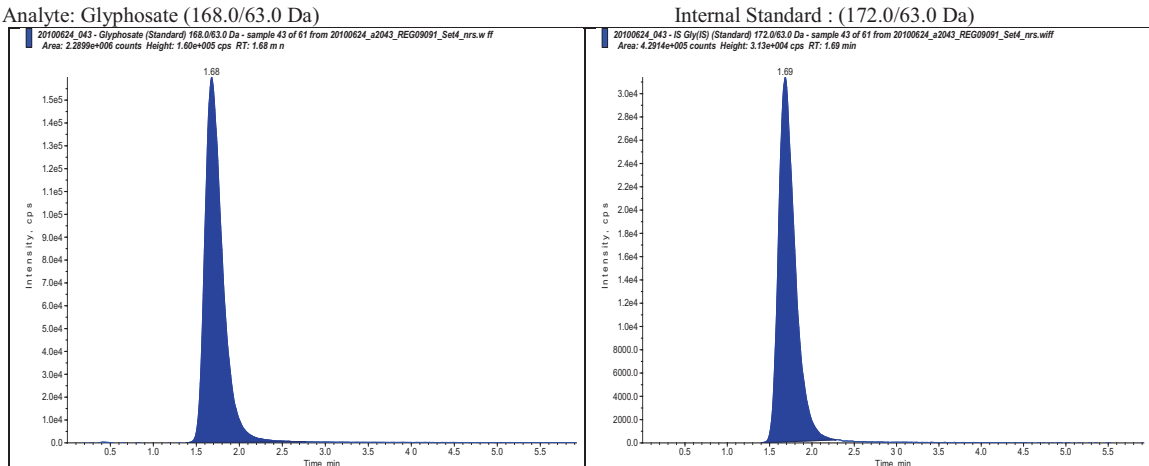
Sample Id.: REG09091-00088
Sample No.: 20100624_034 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 0.00min Area Ratio: 0.0000 PPM Found: No Peak
Analyte: Glyphosate (168.0/63.0 Da)



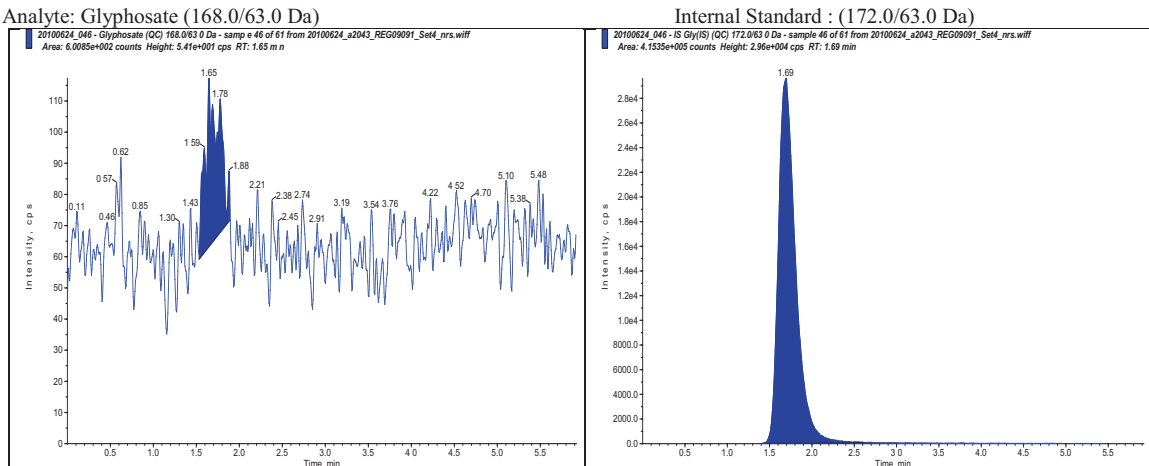
Sample Id.: REG09091-00088
Sample No.: 20100624_041 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 1.67min Area Ratio: 0.7562 PPM Found: 0.42054
Analyte: Glyphosate (168.0/63.0 Da)



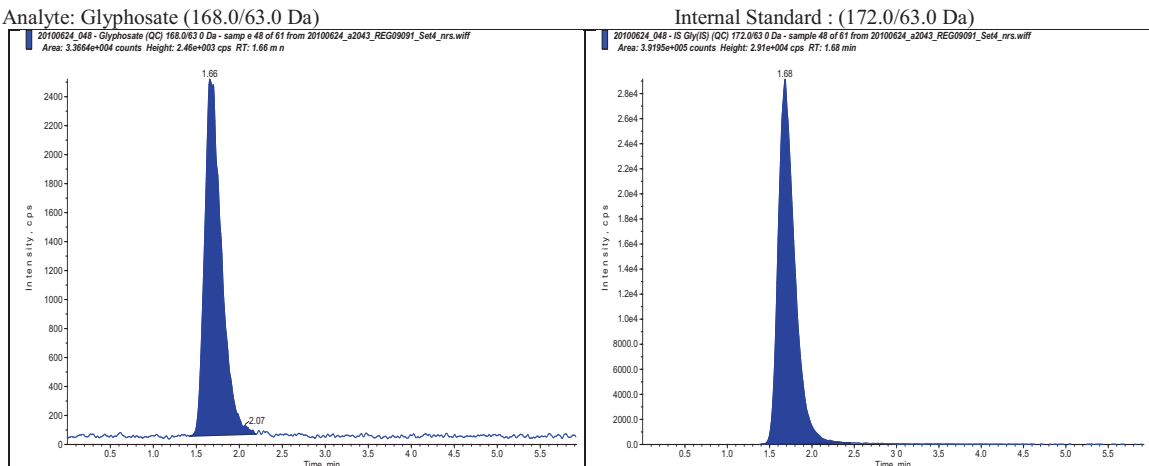
Sample Id.: std 0.3
Sample No.: 20100624_043 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 1.68min Area Ratio: 5.3362 PPM Found: 0.30014
Analyte: Glyphosate (168.0/63.0 Da)



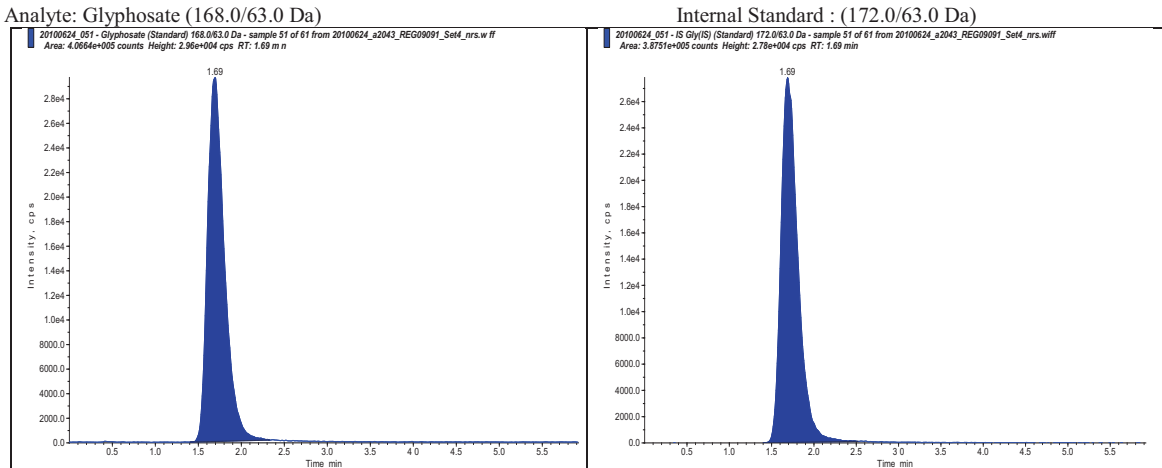
Sample Id.: REG09091-00089
Sample No.: 20100624_046 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 1.65min Area Ratio: 0.0014 PPM Found: 0.00027
Analyte: Glyphosate (168.0/63.0 Da)



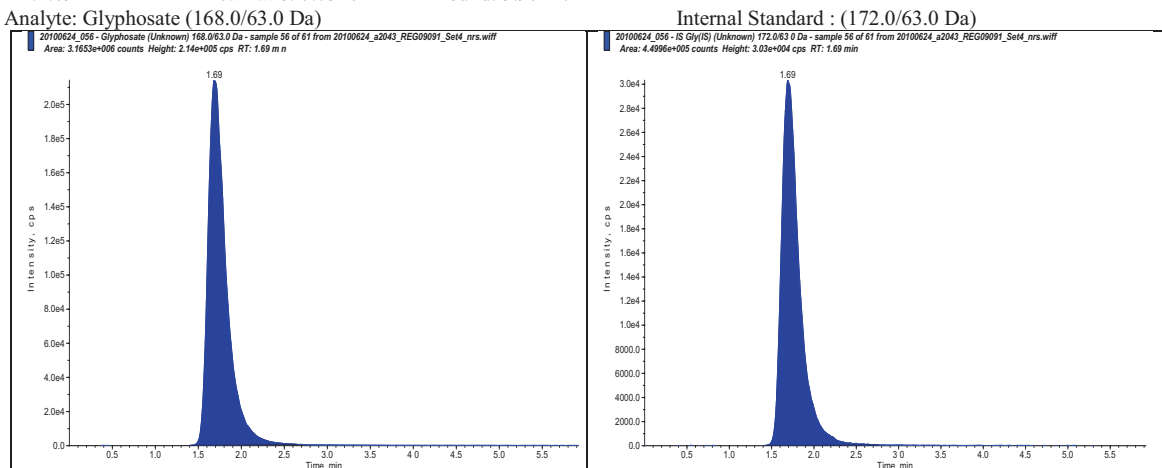
Sample Id.: REG09091-00089
Sample No.: 20100624_048 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 1.66min Area Ratio: 0.0859 PPM Found: 0.04722
Analyte: Glyphosate (168.0/63.0 Da)



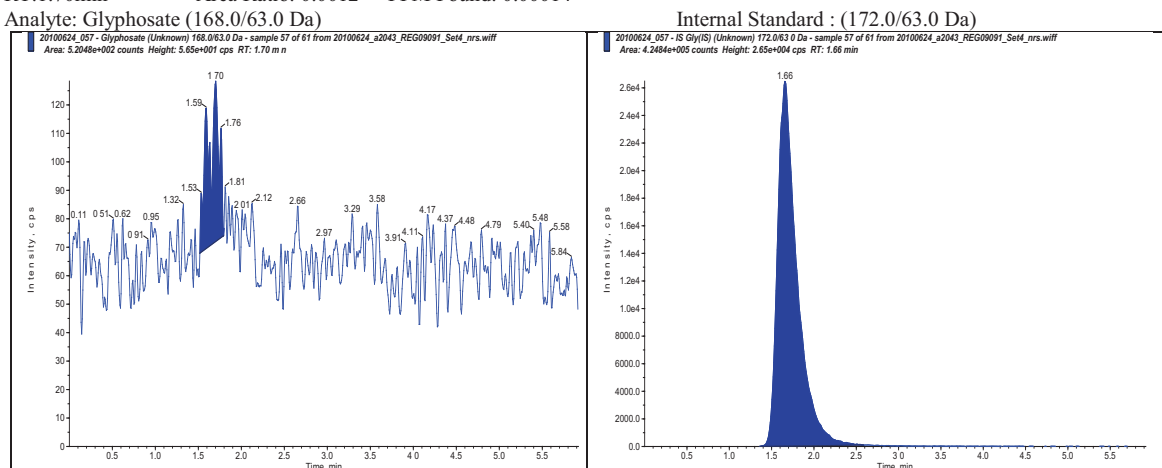
Sample Id.: std 0.06
Sample No.: 20100624_051 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 1.69min Area Ratio: 1.0494 PPM Found: 0.05842
Analyte: Glyphosate (168.0/63.0 Da)



Sample Id.: REG09091-00091
Sample No.: 20100624_056 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 1.69min Area Ratio: 7.0346 PPM Found: 3.97220
Analyte: Glyphosate (168.0/63.0 Da)



Sample Id.: REG09091-00092
Sample No.: 20100624_057 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 1.70min Area Ratio: 0.0012 PPM Found: 0.00014
Analyte: Glyphosate (168.0/63.0 Da)



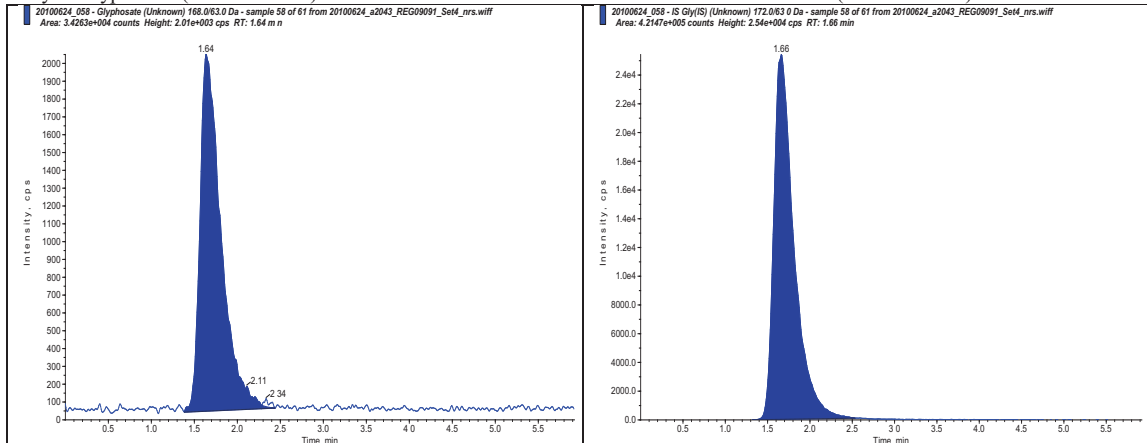
Sample Id.: REG09091-00093

Sample No.: 20100624_058 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb

RT: 1.64 min Area Ratio: 0.0813 PPM Found: 0.04467

Analyte: Glyphosate (168.0/63.0 Da)

Internal Standard : (172.0/63.0 Da)



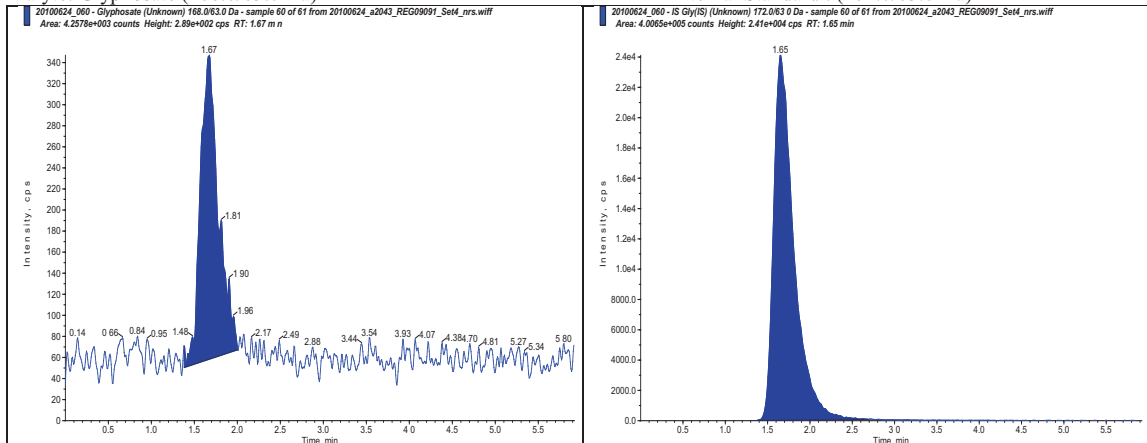
Sample Id.: REG09091-00094

Sample No.: 20100624_060 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb

RT: 1.67 min Area Ratio: 0.0106 PPM Found: 0.00537

Analyte: Glyphosate (168.0/63.0 Da)

Internal Standard : (172.0/63.0 Da)



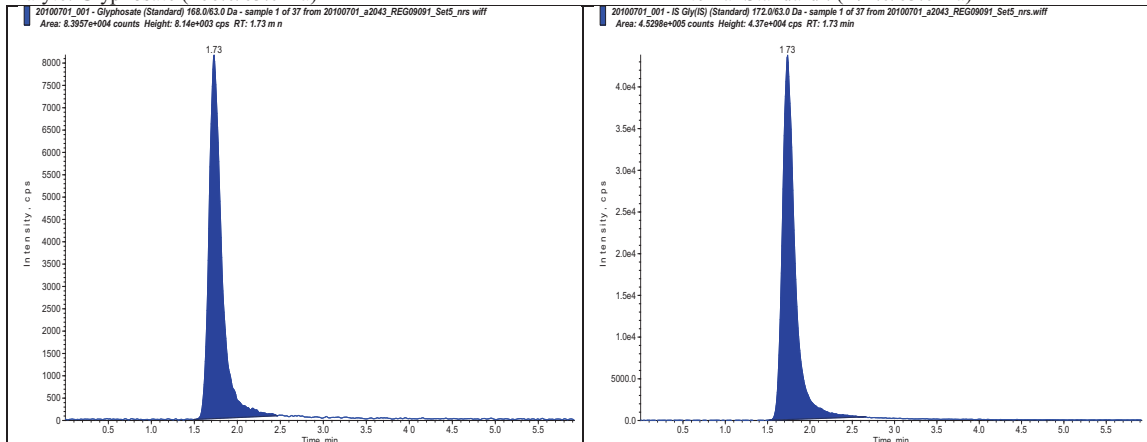
Sample Id.: std 0.01

Sample No.: 20100701_001 Data Set: 20100701_a2043_REG09091_Set5_nrs.rdb

RT: 1.73 min Area Ratio: 0.1853 PPM Found: 0.01007

Analyte: Glyphosate (168.0/63.0 Da)

Internal Standard : (172.0/63.0 Da)



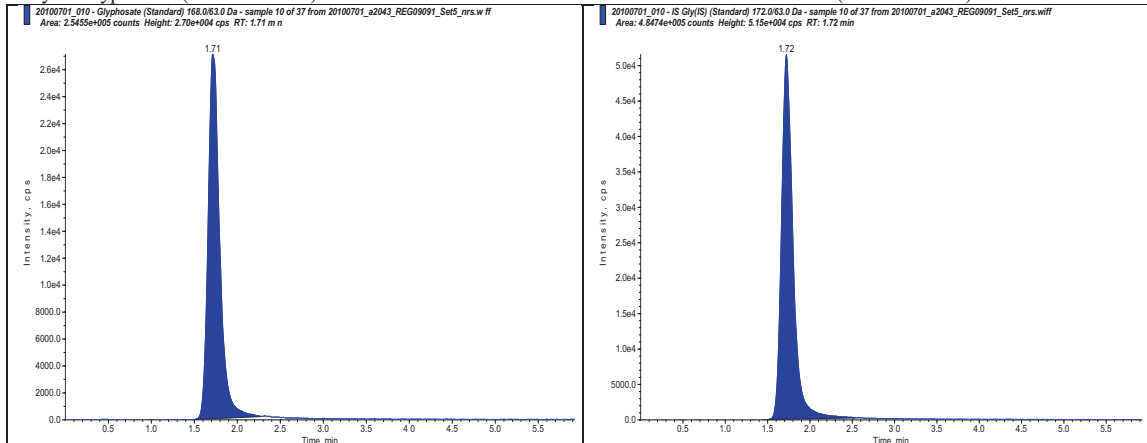
Sample Id.: std 0.03

Sample No.: 20100701_010 Data Set: 20100701_a2043_REG09091_Set5_nrs.rdb

RT: 1.71 min Area Ratio: 0.5251 PPM Found: 0.02900

Analyte: Glyphosate (168.0/63.0 Da)

Internal Standard : (172.0/63.0 Da)



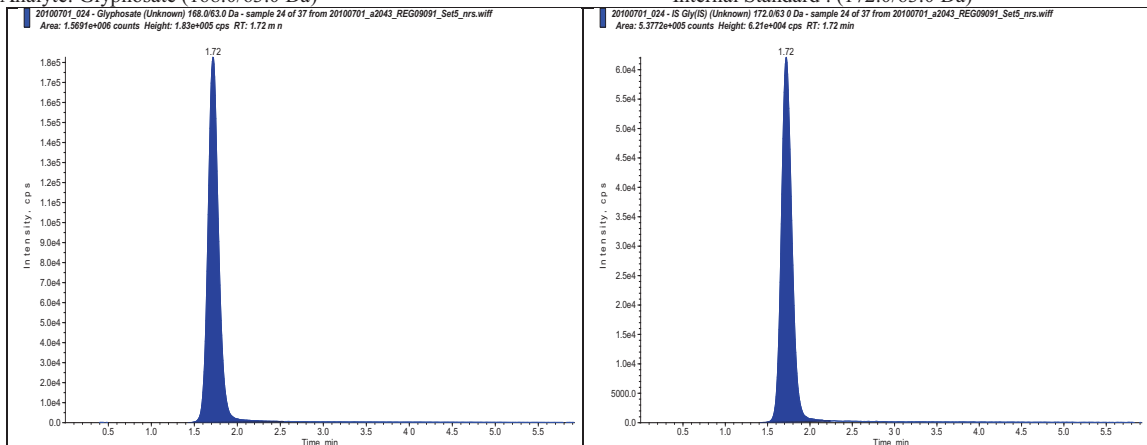
Sample Id.: REG09091-00090

Sample No.: 20100701_024 Data Set: 20100701_a2043_REG09091_Set5_nrs.rdb

RT: 1.72 min Area Ratio: 2.9181 PPM Found: 1.63950

Analyte: Glyphosate (168.0/63.0 Da)

Internal Standard : (172.0/63.0 Da)



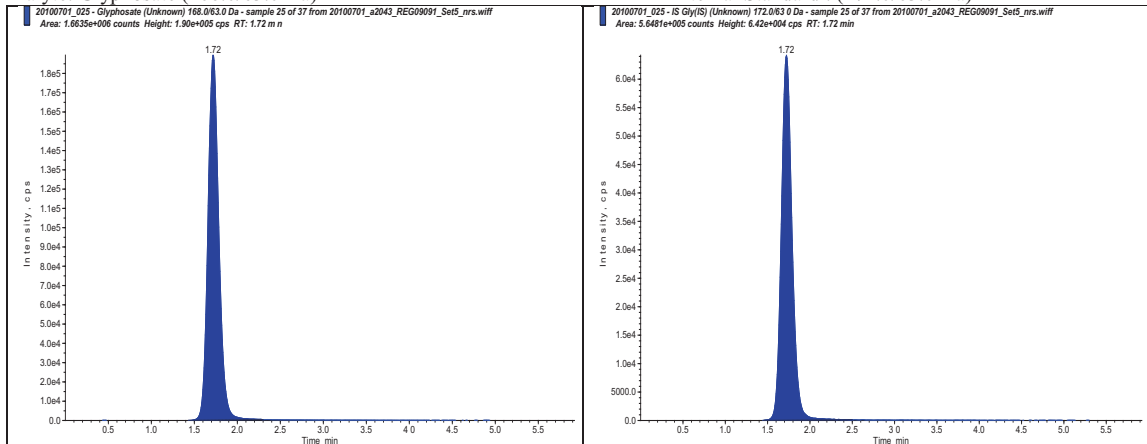
Sample Id.: REG09091-00090

Sample No.: 20100701_025 Data Set: 20100701_a2043_REG09091_Set5_nrs.rdb

RT: 1.72 min Area Ratio: 2.9452 PPM Found: 1.65490

Analyte: Glyphosate (168.0/63.0 Da)

Internal Standard : (172.0/63.0 Da)



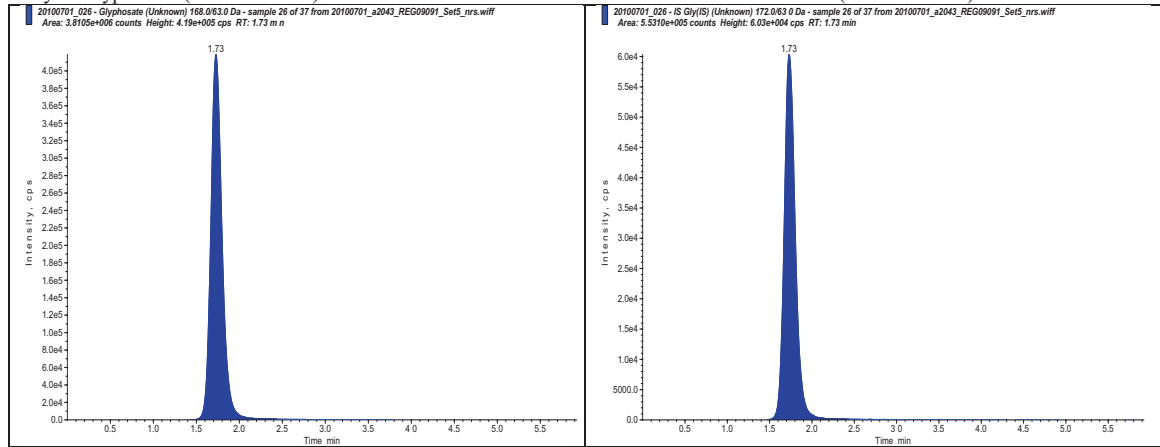
Sample Id.: REG09091-00091

Sample No.: 20100701_026 Data Set: 20100701_a2043_REG09091_Set5_nrs.rdb

RT: 1.73min Area Ratio: 6.8893 PPM Found: 3.94920

Analyte: Glyphosate (168.0/63.0 Da)

Internal Standard : (172.0/63.0 Da)



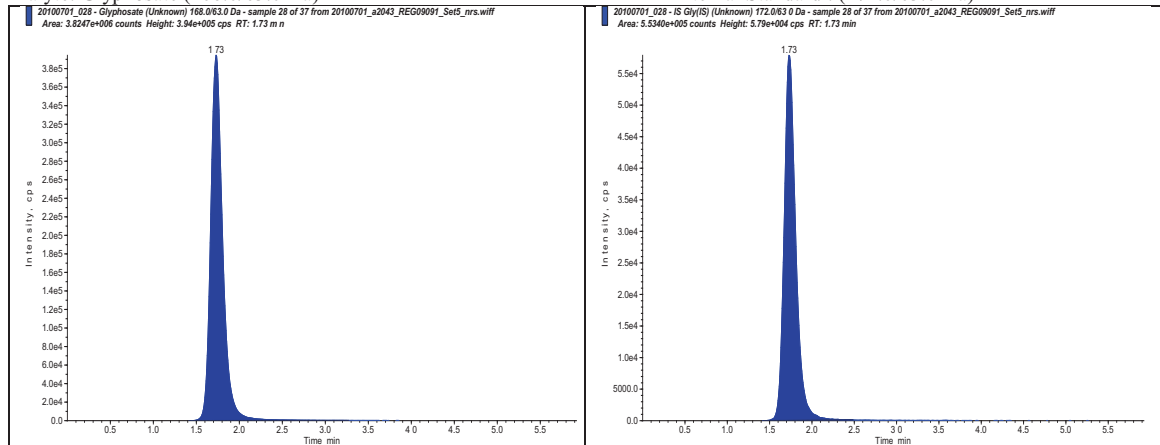
Sample Id.: REG09091-00091

Sample No.: 20100701_028 Data Set: 20100701_a2043_REG09091_Set5_nrs.rdb

RT: 1.73min Area Ratio: 6.9113 PPM Found: 3.96230

Analyte: Glyphosate (168.0/63.0 Da)

Internal Standard : (172.0/63.0 Da)



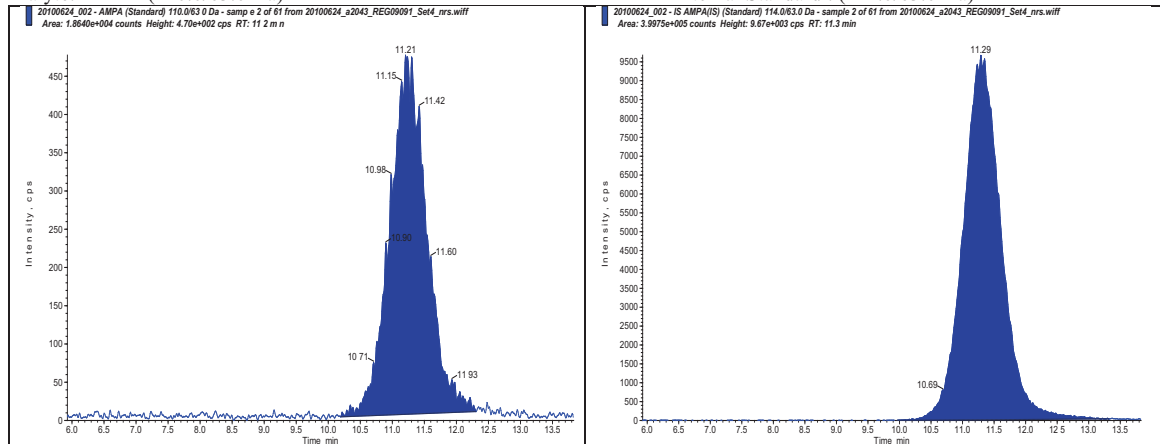
Sample Id.: std 0.0025

Sample No.: 20100624_002 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb

RT: 11.20min Area Ratio: 0.0466 PPM Found: 0.00253

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



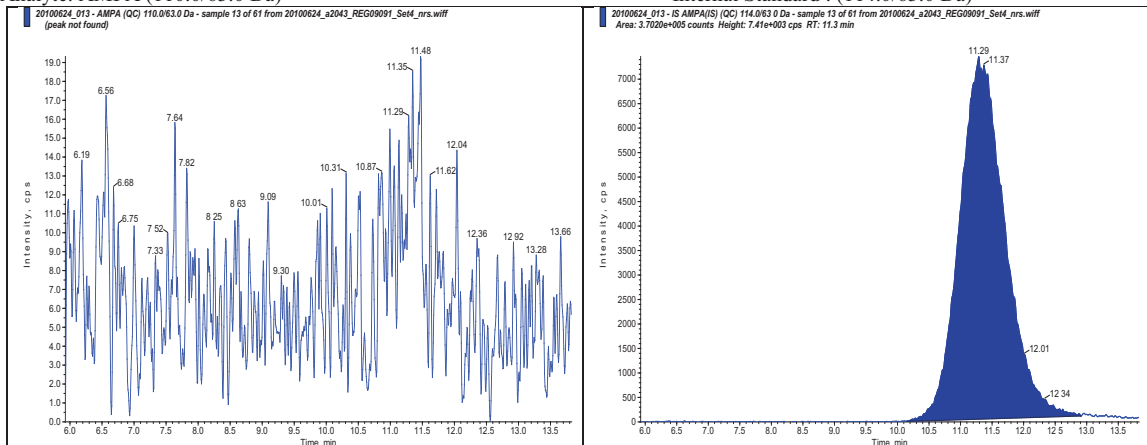
Sample Id.: REG09091-00086

Sample No.: 20100624_013 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb

RT:0.00min Area Ratio: 0.0000 PPM Found: No Peak

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



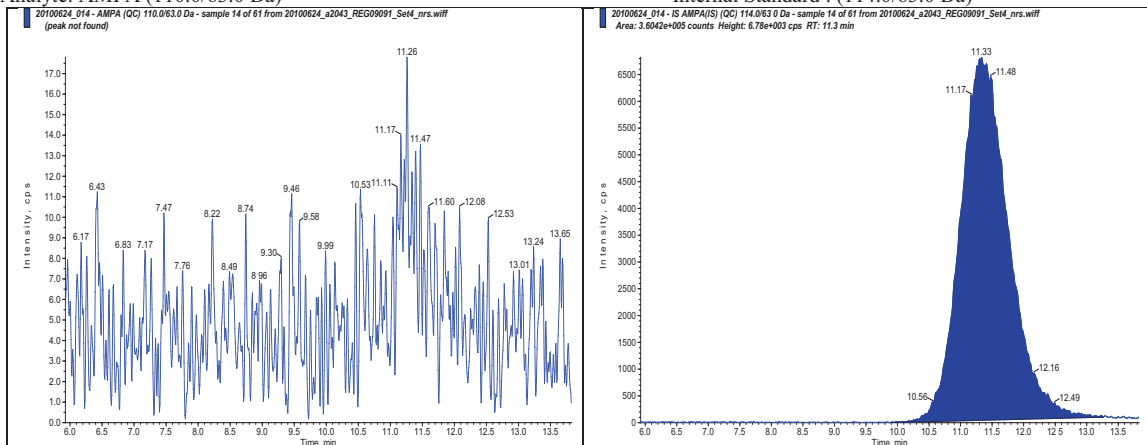
Sample Id.: REG09091-00086

Sample No.: 20100624_014 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb

RT:0.00min Area Ratio: 0.0000 PPM Found: No Peak

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



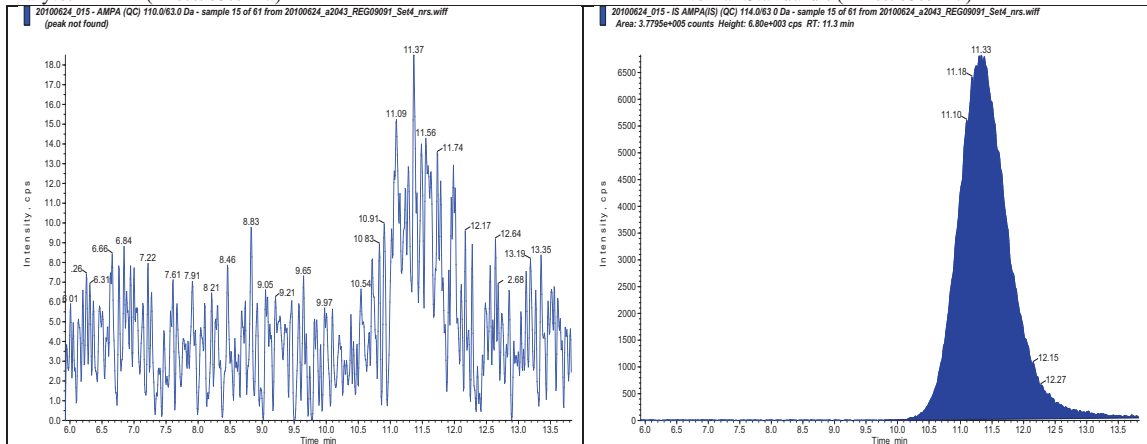
Sample Id.: REG09091-00086

Sample No.: 20100624_015 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb

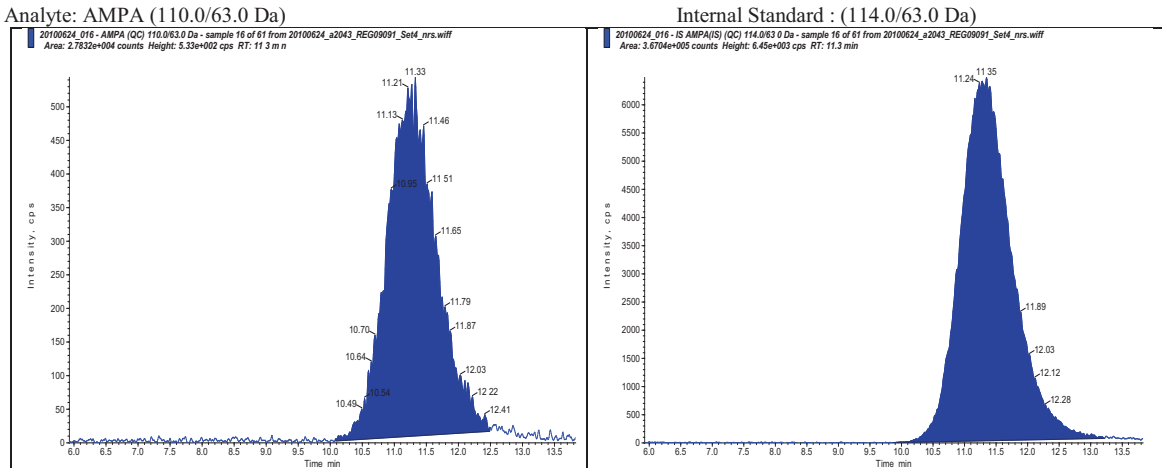
RT:0.00min Area Ratio: 0.0000 PPM Found: No Peak

Analyte: AMPA (110.0/63.0 Da)

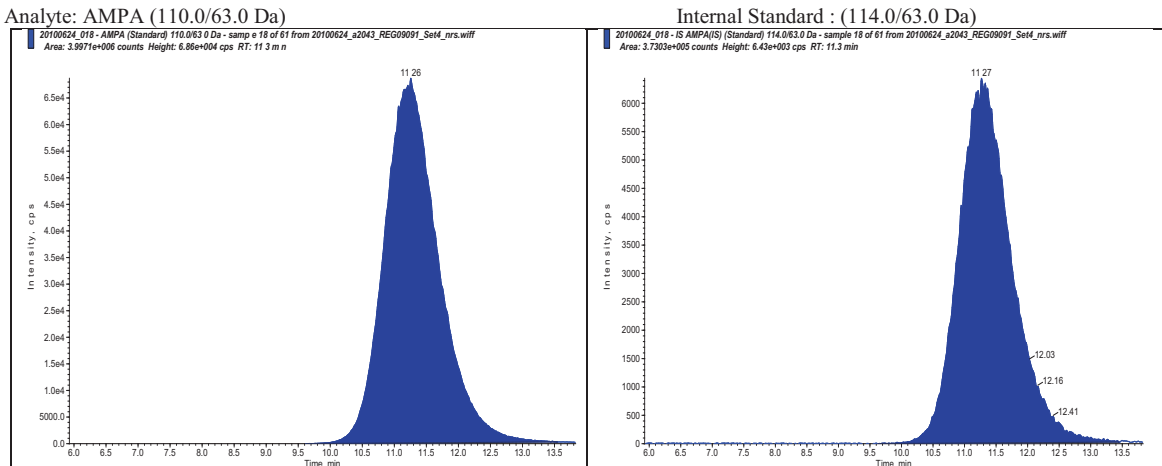
Internal Standard : (114.0/63.0 Da)



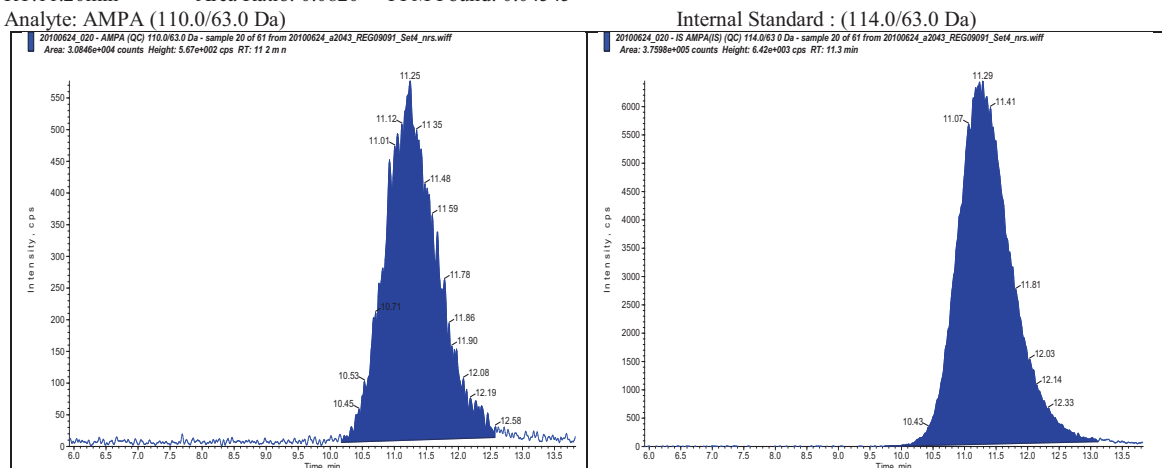
Sample Id.: REG09091-00086
Sample No.: 20100624_016 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 11.30min Area Ratio: 0.0758 PPM Found: 0.04192
Analyte: AMPA (110.0/63.0 Da)



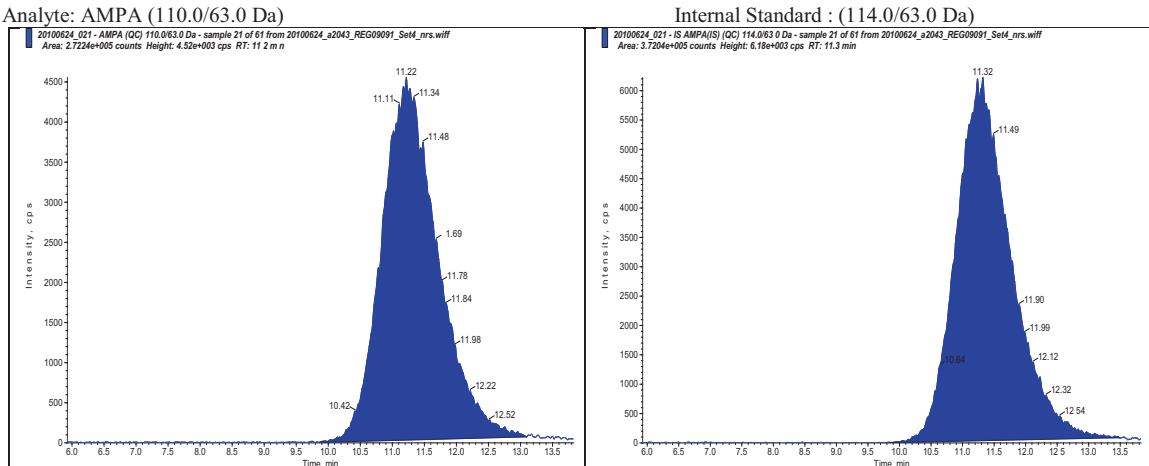
Sample Id.: std 0.6
Sample No.: 20100624_018 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 11.30min Area Ratio: 10.7150 PPM Found: 0.59984
Analyte: AMPA (110.0/63.0 Da)



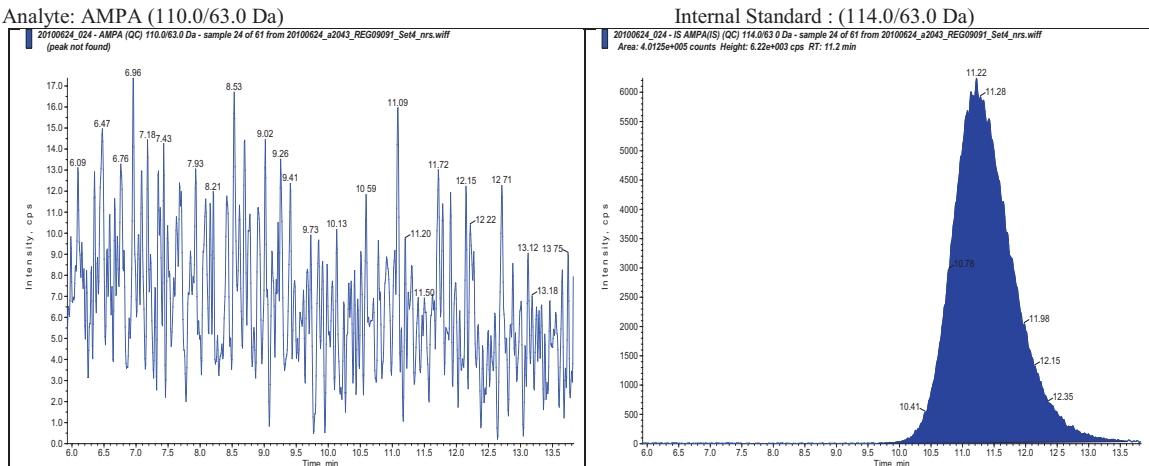
Sample Id.: REG09091-00086
Sample No.: 20100624_020 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 11.20min Area Ratio: 0.0820 PPM Found: 0.04545
Analyte: AMPA (110.0/63.0 Da)



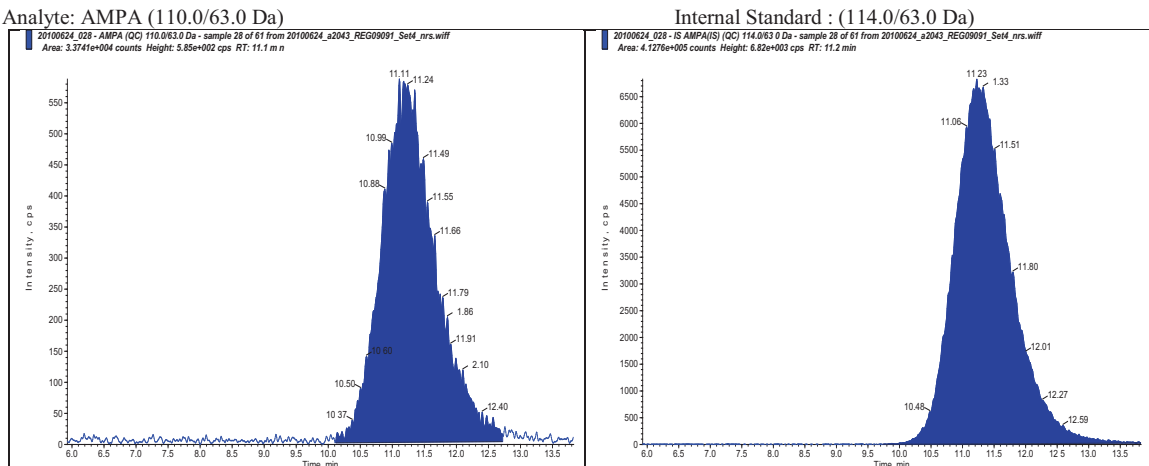
Sample Id.: REG09091-00086
Sample No.: 20100624_021 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 11.20min Area Ratio: 0.7317 PPM Found: 0.41438
Analyte: AMPA (110.0/63.0 Da)



Sample Id.: REG09091-00087
Sample No.: 20100624_024 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 0.00min Area Ratio: 0.0000 PPM Found: No Peak
Analyte: AMPA (110.0/63.0 Da)



Sample Id.: REG09091-00087
Sample No.: 20100624_028 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT: 11.10min Area Ratio: 0.0817 PPM Found: 0.04528
Analyte: AMPA (110.0/63.0 Da)



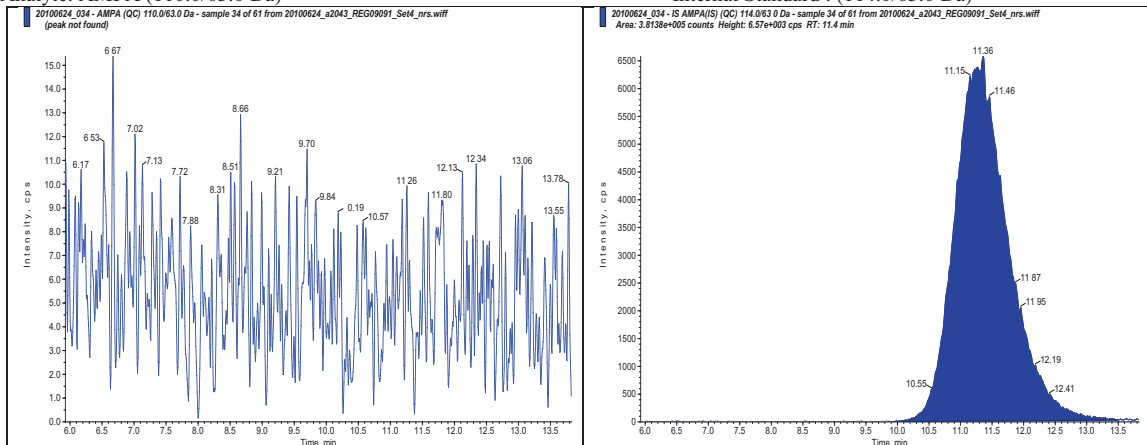
Sample Id.: REG09091-00088

Sample No.: 20100624_034 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb

RT: 0.00min Area Ratio: 0.0000 PPM Found: No Peak

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



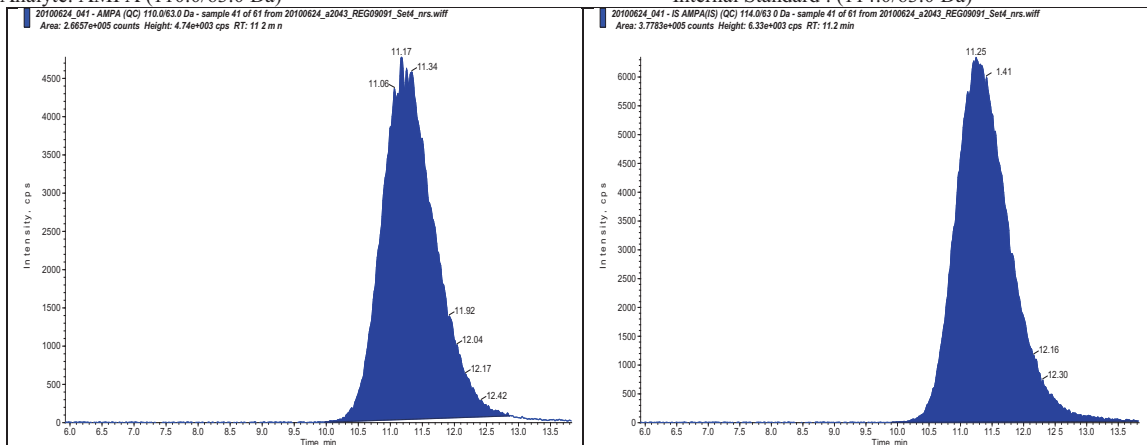
Sample Id.: REG09091-00088

Sample No.: 20100624_041 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb

RT: 11.20min Area Ratio: 0.7055 PPM Found: 0.39950

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



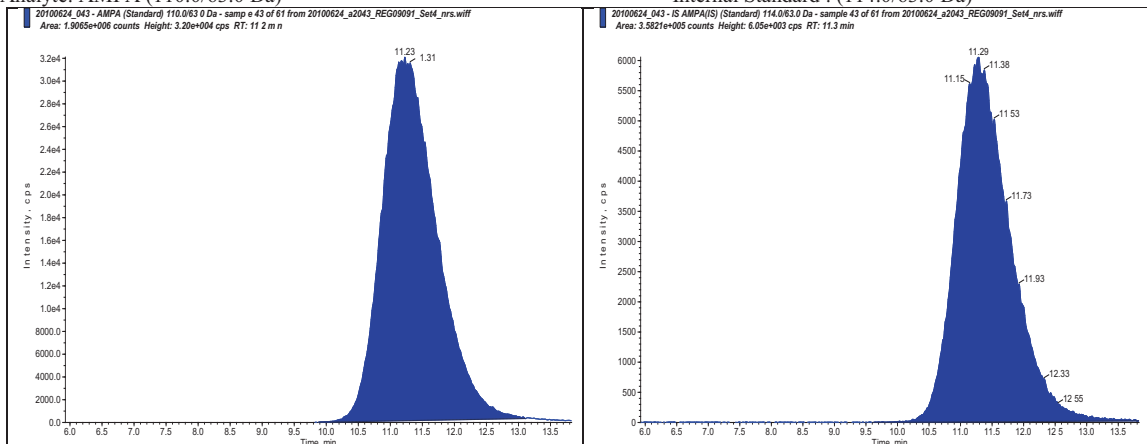
Sample Id.: std 0.3

Sample No.: 20100624_043 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb

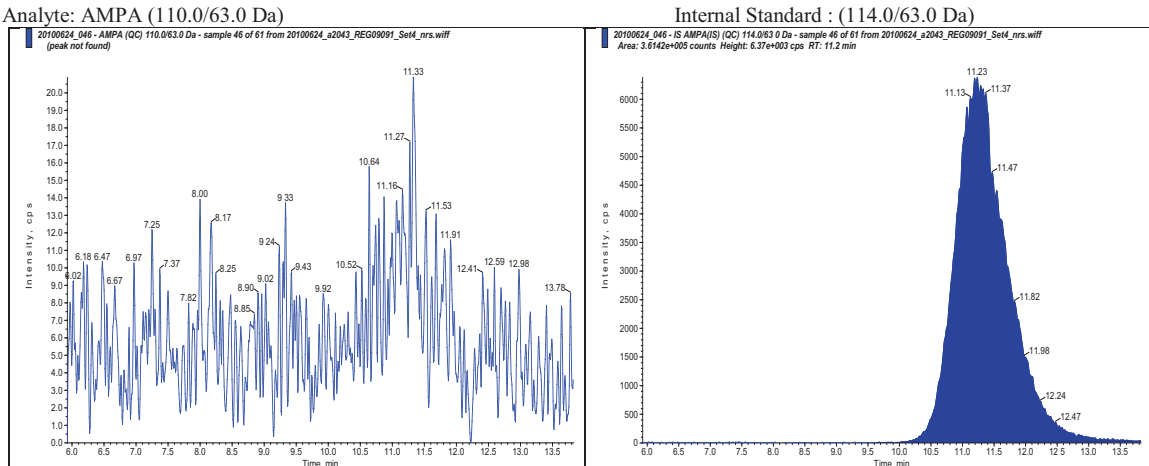
RT: 11.20min Area Ratio: 5.3223 PPM Found: 0.30016

Analyte: AMPA (110.0/63.0 Da)

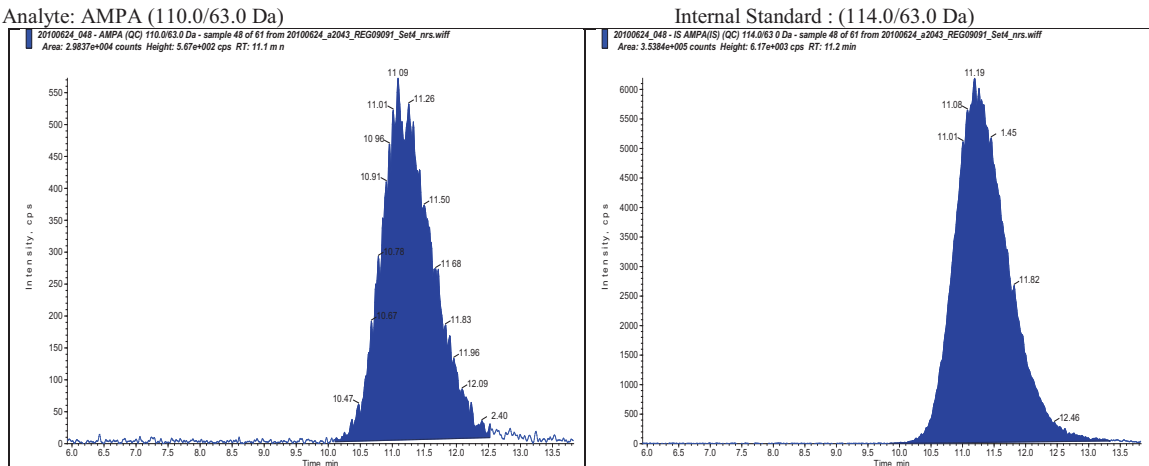
Internal Standard : (114.0/63.0 Da)



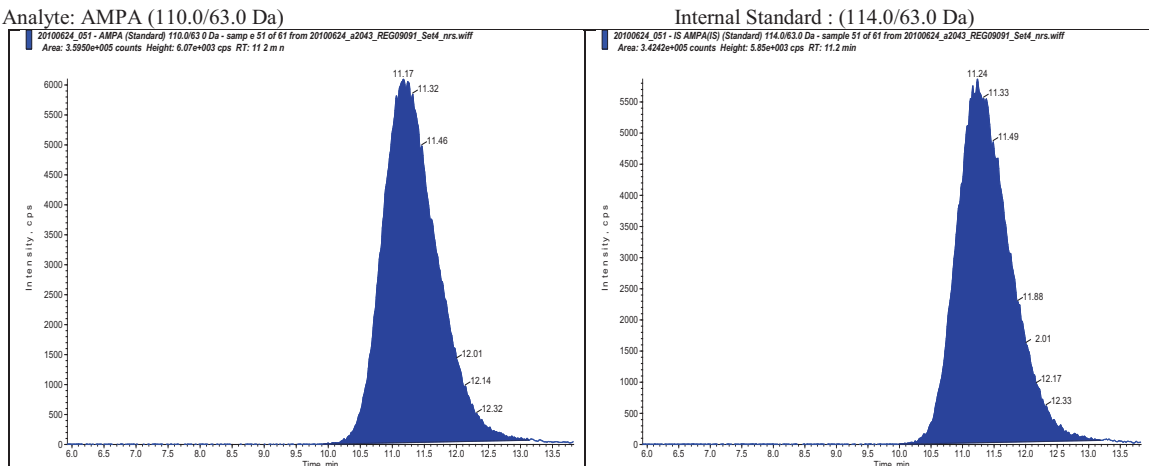
Sample Id.: REG09091-00089
Sample No.: 20100624_046 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT:0.00min Area Ratio: 0.0000 PPM Found: No Peak
Analyte: AMPA (110.0/63.0 Da)



Sample Id.: REG09091-00089
Sample No.: 20100624_048 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT:11.10min Area Ratio: 0.0843 PPM Found: 0.04674
Analyte: AMPA (110.0/63.0 Da)

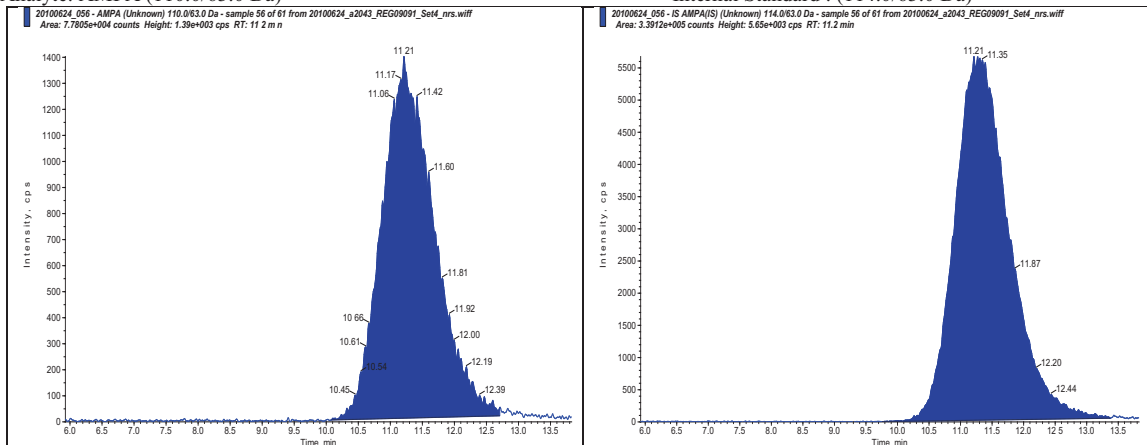


Sample Id.: std 0.06
Sample No.: 20100624_051 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT:11.20min Area Ratio: 1.0499 PPM Found: 0.05948
Analyte: AMPA (110.0/63.0 Da)



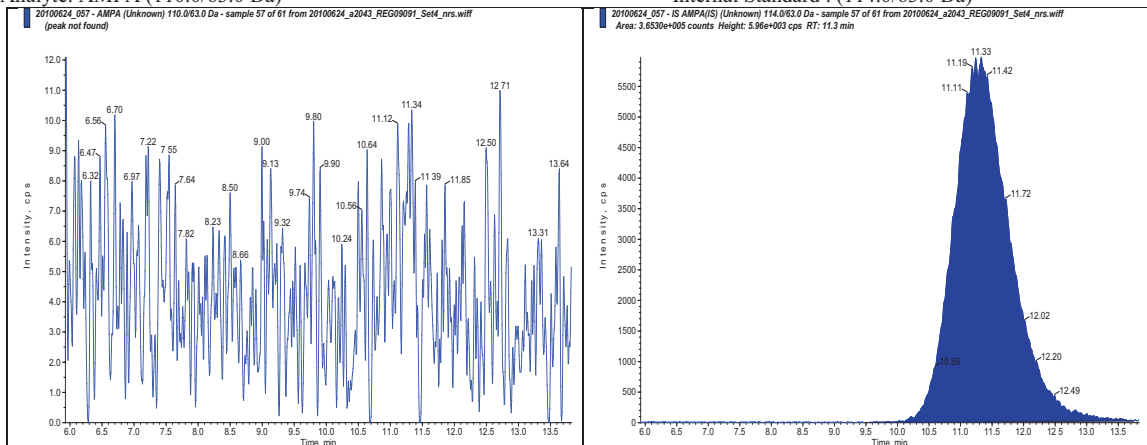
Sample Id.: REG09091-00091
Sample No.: 20100624_056 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT:11.20min Area Ratio: 0.2294 PPM Found: 0.12921
Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



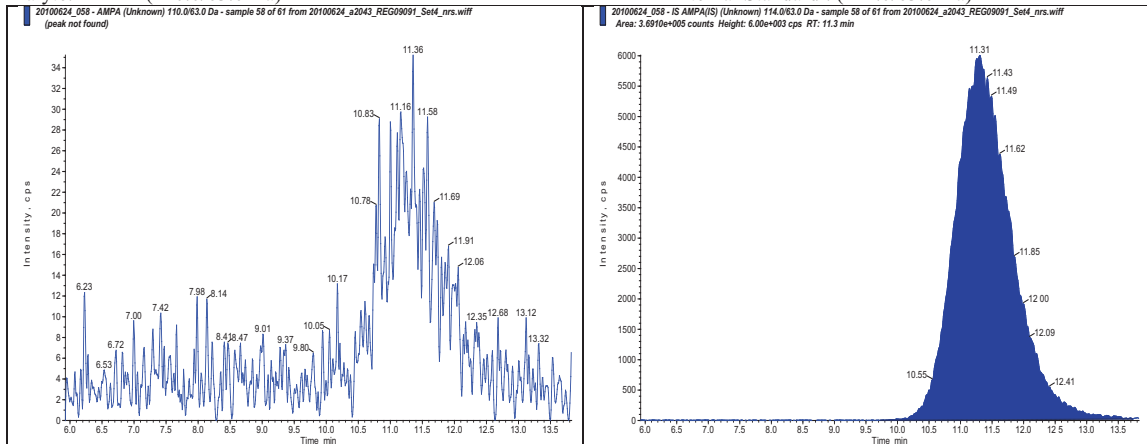
Sample Id.: REG09091-00092
Sample No.: 20100624_057 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT:0.00min Area Ratio: 0.0000 PPM Found: No Peak
Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



Sample Id.: REG09091-00093
Sample No.: 20100624_058 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb
RT:0.00min Area Ratio: 0.0000 PPM Found: No Peak
Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



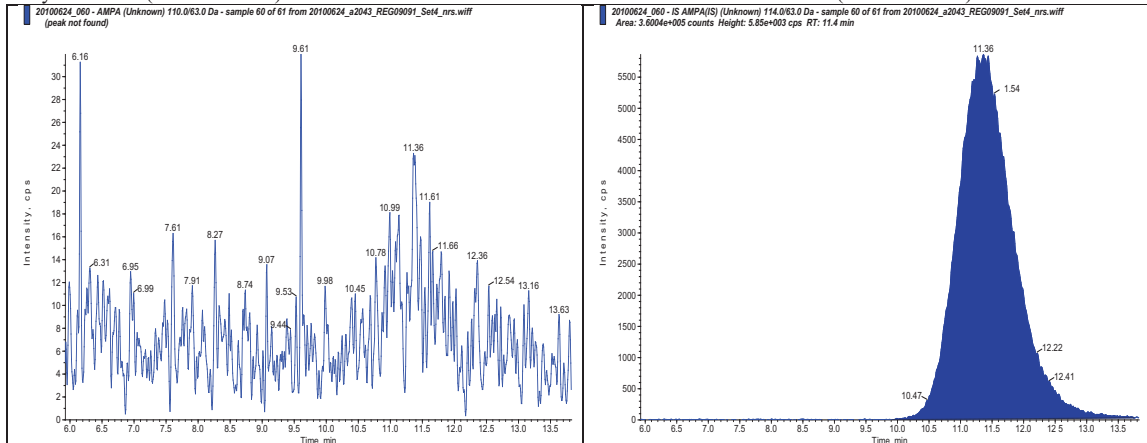
Sample Id.: REG09091-00094

Sample No.: 20100624_060 Data Set: 20100624_a2043_REG09091_Set4_nrs.rdb

RT: 0.00 min Area Ratio: 0.0000 PPM Found: No Peak

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



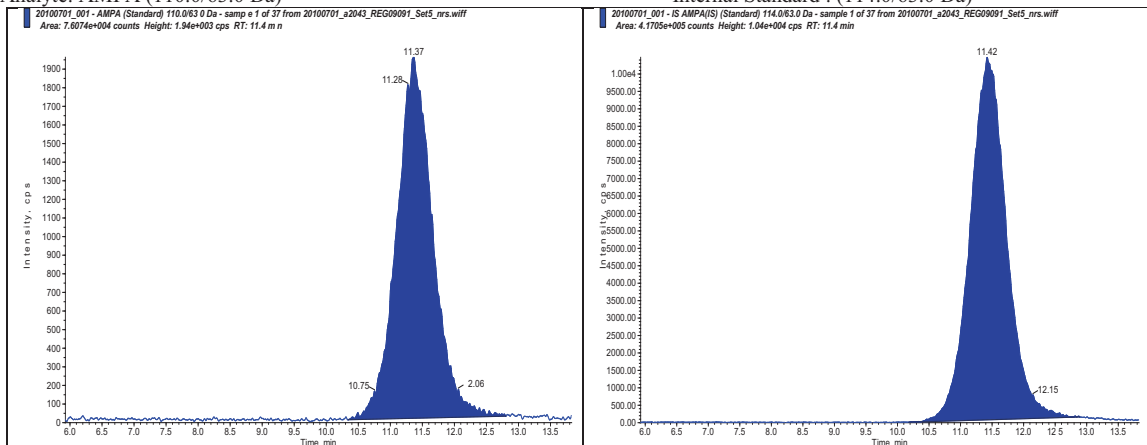
Sample Id.: std 0.01

Sample No.: 20100701_001 Data Set: 20100701_a2043_REG09091_Set5_nrs.rdb

RT: 11.40 min Area Ratio: 0.1824 PPM Found: 0.01020

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



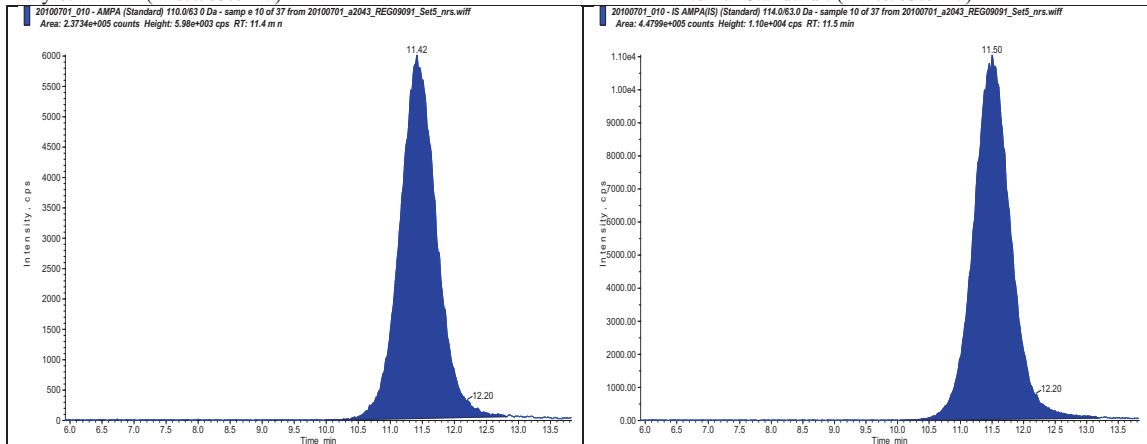
Sample Id.: std 0.03

Sample No.: 20100701_010 Data Set: 20100701_a2043_REG09091_Set5_nrs.rdb

RT: 11.40 min Area Ratio: 0.5298 PPM Found: 0.02993

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



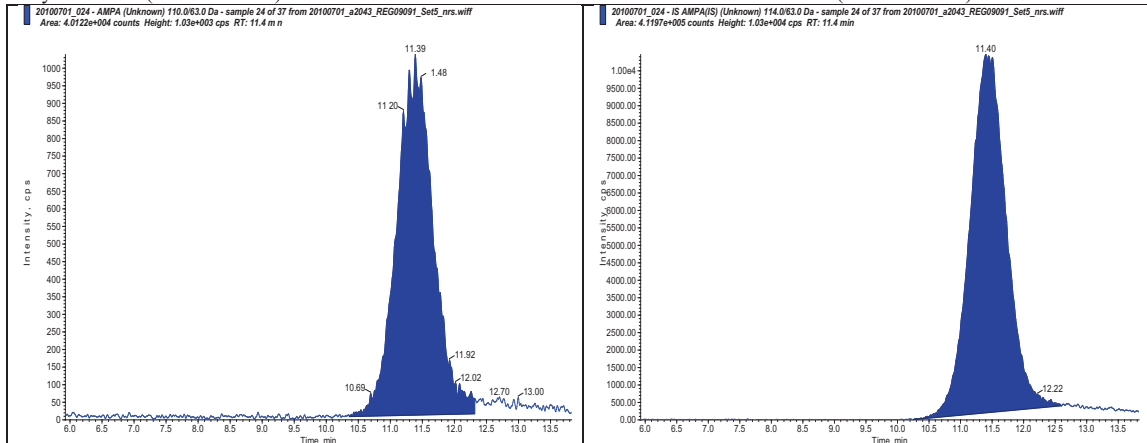
Sample Id.: REG09091-00090

Sample No.: 20100701_024 Data Set: 20100701_a2043_REG09091_Set5_nrs.rdb

RT: 11.40min Area Ratio: 0.0974 PPM Found: 0.05366

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



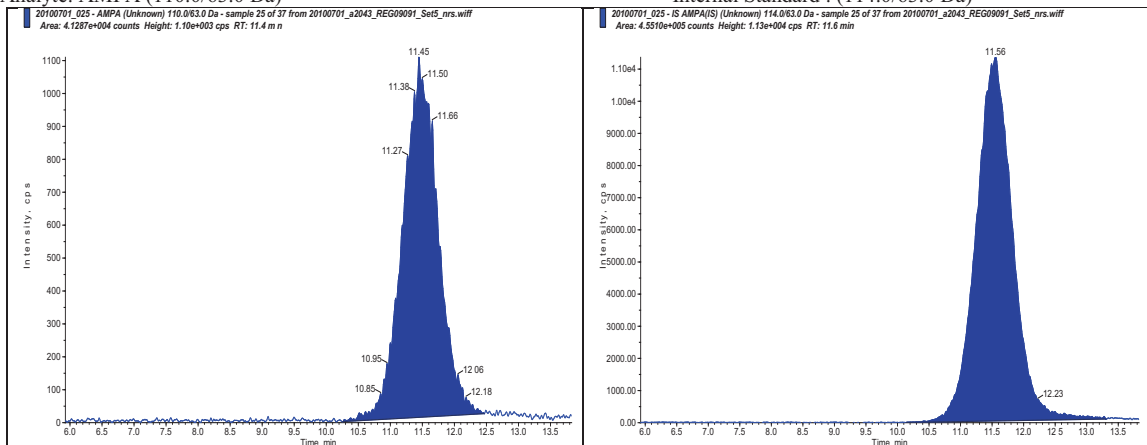
Sample Id.: REG09091-00090

Sample No.: 20100701_025 Data Set: 20100701_a2043_REG09091_Set5_nrs.rdb

RT: 11.40min Area Ratio: 0.0907 PPM Found: 0.04986

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



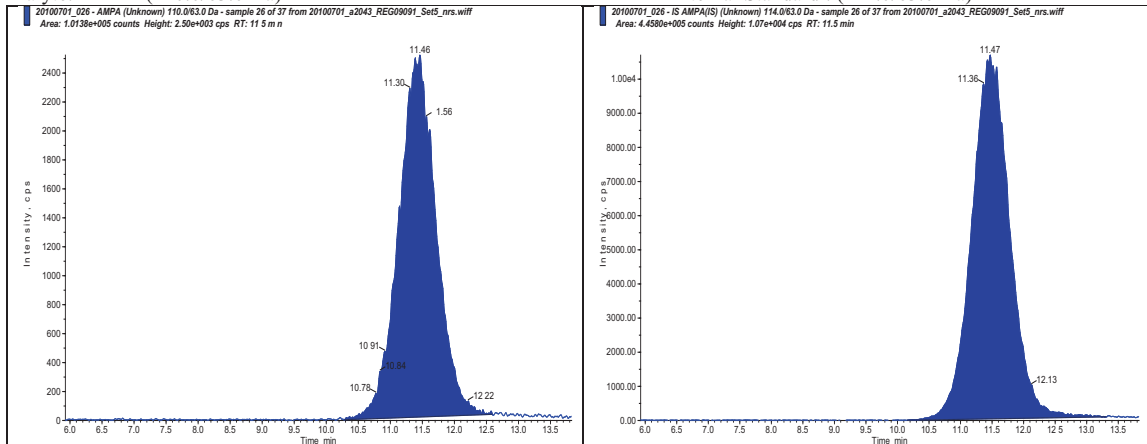
Sample Id.: REG09091-00091

Sample No.: 20100701_026 Data Set: 20100701_a2043_REG09091_Set5_nrs.rdb

RT: 11.50min Area Ratio: 0.2274 PPM Found: 0.12755

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)



Sample Id.: REG09091-00091

Sample No.: 20100701_028 Data Set: 20100701_a2043_REG09091_Set5_nrs.rdb

RT: 11.30min Area Ratio: 0.2258 PPM Found: 0.12663

Analyte: AMPA (110.0/63.0 Da)

Internal Standard : (114.0/63.0 Da)

