

Report Title

**Compositional Analyses of Corn Forage and Grain of MON 87427 Treated with
Glyphosate Grown in the United States during the 2008 Field Season**

This report reflects data developed and reported in Study REG-08-550

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Study Completed On

17 May 2010

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Laboratory Project ID

**MSL0022340
Monsanto Study No. REG-08-550
Covance Study No. 8203-770**

The text below applies only to use of the data by the United States Environmental Protection Agency (US 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.

Statement of No Data Confidentiality Claim

No claim of data 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 US 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.

Monsanto Company

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Title

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Statement of Compliance

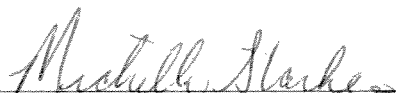
This report describes the compositional analysis of MON 87427 treated with glyphosate, a conventional control and reference substances generated under Monsanto Study REG 08-550. The statement of compliance from Study REG-08-550 is provided below.

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

- The reference standards used for compositional analysis were not listed in the protocol, were not characterized according to GLP standards, and reserve samples were not retained. These exceptions had no effect on the integrity or quality of the study because the reference standards were accompanied by Certificates of Analysis.
- Stability of the compositional analytes in the test, control, and reference substances was not determined. This exception had no effect on the integrity or quality of the study because the samples were maintained at approximately -20°C throughout the duration of the study.

Submitter

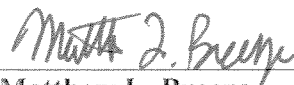
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Date



Matthew L. Breeze
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Quality Assurance Statement

Reviews conducted by the Quality Assurance Unit confirm that the final report for study REG-08-550 accurately describes the methods and standard operating procedures followed and accurately reflects the raw data for the portion of the study conducted by Monsanto Company.

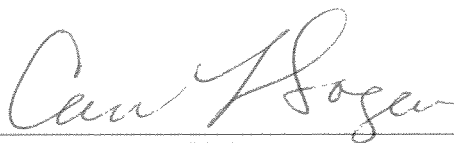
Reviews conducted by Covance were enclosed within the Covance sub-report and specified on their individual QA Statement.

Following is a list of reviews conducted by the Monsanto Regulatory Quality Assurance Unit on study REG-08-550.

Dates of Inspection/Audit	Phase	Date Reported to Study Director	Date Reported to Management
05/03/2010	Draft Report and Data Audit	05/12/2010	05/12/2010
05/03/2010	Statistics Data and Report	05/12/2010	05/12/2010

Additionally, the Quality Assurance Unit reviewed this report, MSL0022340, and confirmed that it accurately describes the portions of the final report for study REG-08-550 that are reported herein.

Dates of Inspection/Audit	Phase	Date Reported to Study Director	Date Reported to Management
05/03/2010	Draft Break-out Report	05/12/2010	05/12/2010



Quality Assurance Unit
Monsanto Regulatory, Monsanto Company

5/17/10

Date

Report Certification

This report is an accurate and complete representation of a portion of the work conducted in study REG-08-550.

Signature of Report Approval:



Matthew L. Breeze
Study Director

5-17-10

Date

Study Information

Report Number: MSL0022340

Study Number: REG-08-550

Report Title: Compositional Analyses of Corn Forage and Grain of MON 87427 Treated with Glyphosate Grown in the United States during the 2008 Field Season

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Study Initiation Date: 28 May 2009

Study Completion Date: 17 May 2010

Report Completion Date: 17 May 2010

Records Retention: All study specific raw data, protocols, final reports and facility records will be retained at Monsanto, St. Louis, except for analytical raw data and facility records maintained at Covance Laboratories Inc., Madison facility.

Sample Storage: Any unused samples will be stored at Covance Laboratories Inc. until their final disposition is directed by the Sponsor at a future date.

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Abbreviations

AA	amino acid
ai	active ingredient
ADF	acid detergent fiber
DW or dw	dry weight
EPSPS	5-enolpyruvylshikimate-3-phosphate synthase enzyme
FA or fa	fatty acid
FW or fw	fresh weight
ILSI CCD	International Life Sciences Institute Crop Composition Database
LOQ	limit of quantitation
NDF	neutral detergent fiber
ppm	parts per million
PRESS	predicted residual sum of squares
RHS	Roundup Hybridizing System
SOP	standard operating procedure
T/C/R	test/control/reference
TDF	total dietary fiber

1.0 Summary

Monsanto Company has developed MON 87427, an inducible male sterile and glyphosate tolerant corn, to facilitate the production of viable hybrid corn seed. MON 87427 produces the same CP4 EPSPS protein that is produced in commercial Roundup Ready corn products, via the incorporation of a *cp4 epsps* coding sequence. However, MON 87427 utilizes a specific promoter and intron combination (*e35S-hsp70*) to drive CP4 EPSPS protein expression in vegetative and female reproductive tissues. Little to no CP4 EPSPS protein is expected to be produced in MON 87427 pollen, thus pollen from MON 87427 is not tolerant to glyphosate. Appropriately timed glyphosate applications produce a non-viable pollen phenotype and allow for specific cross pollinations to be made in corn without using traditional methods to control self pollination.

The purpose of this study was to compare the composition of glyphosate-treated MON 87427(test) to a non-treated conventional control. The conventional control has background genetics similar to that of the test but does not produce the CP4 EPSPS protein. The test and conventional control were grown at three field sites in the United States during 2008 under Production Plan REG-08-069. The field sites were located in Jefferson County, Iowa (IARL), Stark County, Illinois (ILWY), and Jackson County, Arkansas (ARNE). The sites were arranged in a randomized complete block design with three replicates. Four different conventional references were included at each site to provide data for the development of a 99% tolerance interval for each component analyzed. The composition of glyphosate-treated MON 87427 was compared to the conventional control across sites (combined-site analysis) and within each site.

Forage samples were analyzed for proximates (protein, fat, ash, and moisture), carbohydrates by calculation (carbohydrates), acid detergent fiber (ADF), neutral detergent fiber (NDF), calcium and phosphorus. Grain samples were analyzed for proximates, carbohydrates, ADF, NDF, total dietary fiber (TDF), amino acids, fatty acids (C8-C22), vitamins [A (β -carotene), B₁, B₂, B₆, E, niacin, and folic acid], minerals (calcium, copper, iron, magnesium, manganese, phosphorus, potassium, sodium, and zinc), anti-nutrients (phytic acid and raffinose), and secondary metabolites (furfural, ferulic acid, and p-coumaric acid). In all, 78 different analytical components were measured (9 in forage, 69 in grain). Of these evaluated components, 16 components in grain had more than 50% of the observations below the assay limit of quantitation (LOQ) and, as a result, were excluded from the statistical analysis. Therefore, 62 components were statistically assessed using a mixed model analysis of variance method.

Four sets of statistical comparisons were conducted. Three comparisons were based on compositional data from each of the three replicated field sites and the fourth comparison was conducted on data combined from all three field sites. Data from the references grown at the same time and in the same field sites as the test and conventional control (combined across all sites) were used to calculate a 99% tolerance interval that contained, with 95% confidence, 99% of the values in the population of conventional references. Statistical differences were identified at a 5% level of significance ($p < 0.05$).

Composition data were analyzed statistically and results were evaluated for their significance from a food and feed safety or nutritional perspective. If a significant difference ($p < 0.05$) in an analyte was detected in the combined-site analysis between MON 87427 and the conventional control, an analysis was conducted to assess whether the difference was meaningful from a food and feed safety or nutritional perspective. This analysis included reproducibility across individual sites, magnitude of differences, and comparisons of MON 87427 mean analyte values to the 99% tolerance intervals for the population of conventional references (grown concurrently) and published values.

When glyphosate-treated MON 87427 was compared to the conventional control, mean component values were not significantly different ($p > 0.05$) for 55 of the 62 (88.7%) comparisons from the combined-site analysis and 153 of the 186 (82.3%) comparisons from the individual site analyses. The relative magnitudes of the differences (mean difference as % of control) between glyphosate-treated MON 87427 and the conventional control within the combined-site analysis were small, between 1.96 and 5.92%. The mean values that were observed to be significantly different between glyphosate-treated MON 87427 and the conventional control in the combined-site analysis were within the 99% tolerance intervals for the population of conventional references and were within the range of values found in the International Life Sciences Institute Crop Composition Database (ILSI CCD) and published scientific literature.

Collectively, the compositional data support the conclusion that glyphosate-treated MON 87427 is compositionally equivalent to conventional corn.

2.0 Introduction

Monsanto Company has developed MON 87427, an inducible male sterile and glyphosate tolerant corn, to facilitate the production of viable hybrid corn seed. MON 87427 produces the same CP4 EPSPS protein that is produced in commercial Roundup Ready corn products, via the incorporation of a *cp4 epsps* coding sequence. However, MON 87427 utilizes a specific promoter and intron combination (*e35S-hsp70*) to drive CP4 EPSPS protein expression in vegetative and female reproductive tissues. Little to no CP4 EPSPS protein is expected to be produced in MON 87427 pollen, thus pollen from MON 87427 is not tolerant to glyphosate. Appropriately timed glyphosate applications produce a non-viable pollen phenotype and allow for specific cross pollinations to be made in corn without using traditional methods to control self pollination.

3.0 Purpose

The purpose of REG-08-550 was to evaluate multiple test substances and treatments in comparison to a conventional control. The purpose of this study was to evaluate the composition of glyphosate-treated MON 87427 compared to a non-treated conventional control. The conventional control has background genetics similar to that of the test but does not produce the CP4 EPSPS protein. Compositional analyses were conducted on corn forage and grain from the test, control, and conventional references grown under production plan REG-08-069 in the United States during the 2008 growing season at three different field locations: Jefferson County, Iowa (IARL), Stark County, Illinois (ILWY), and Jackson County, Arkansas.

4.0 Test, Control, and Reference (T/C/R) Substances

4.1 Test Substance

Forage and grain from MON 87427 (Seed Lot Number 10001857) treated with glyphosate were evaluated in this study.

4.2 Control Substance

Forage and grain from the non-treated conventional control were evaluated. The conventional control was a conventional corn hybrid (Seed Lot Number 10001859) with background genetics similar to that of the test but does not produce the CP4 EPSPS protein.

4.3 Reference Substances

The conventional references were 12 conventional (non-biotechnology derived) corn hybrids. The conventional references were distributed across sites as follows:

Material Name	Seed Lot Number	Field Site
Crows C6501	10001546	ARNE
Midwest Genetics 87801	10000934	ARNE
Fielder's Choice 7864	10001319	ARNE
Fontanelle 5797	10001548	ARNE
Asgrow RX708	10001564	IARL
Dekalb DKC60-15	10000950	IARL
Midwest Genetics G7944	10001571	IARL
NC+ 4443	10001572	IARL
Asgrow RX715	10000952	ILWY
Dekalb DKC61-50	10001328	ILWY
Midland 7B15	10001545	ILWY
NK N69-P9	10001544	ILWY

4.4 Characterization of Test, Control, and Reference Substances

The identities of the test, conventional control, and conventional references were verified by the Study Director prior to their use in the study by confirming the chain-of-custody documentation of the samples from the field cooperators. Grain of the test, conventional control, and conventional references were also characterized by event-specific PCR analysis for the presence of events included in the field production. One reference and one control replicate from the IARL site contained adventitious presence of at least one unintended event. These two replicates were not included in the compositional analysis. The forage and grain characterization and chain-of-custody data were archived in the Monsanto Regulatory Archive.

5.0 Field Trial Description

Forage and grain from the test, conventional control, and conventional references were collected from replicated plots from three field sites during the 2008 United States growing season. The test, conventional control, and conventional references were planted in a randomized complete block design with three replicates at the ARNE, IARL, and ILWY field sites. The test plots were treated with glyphosate applications at a target rate of 1.0 lb ai/acre. All samples at the field sites were grown under normal agronomic field conditions for their respective geographic regions under Production Plan REG-08-069. Sub-samples, for use in compositional analyses, were obtained from forage and grain samples generated in the field. Forage was collected at the R5 plant growth stage and grain was collected at physiological maturity. The sub-samples were ground to

a powder, stored in a freezer set to maintain -20°C located at Monsanto Company (St. Louis, MO), and then shipped on dry ice to Covance Laboratories Inc. (Madison, WI) for analysis of the components described in Section 6.0.

6.0 Analytical Methods

Ground forage and grain samples were analyzed by Covance Laboratories Inc. Upon receipt, the samples were stored in a freezer set to maintain -20°C until their use in this study. Compositional analyses of the forage samples included proximates, carbohydrates, ADF, NDF, and minerals (calcium and phosphorus). Compositional analyses of the grain samples included proximates, carbohydrates, ADF, NDF, TDF, amino acids, fatty acids (C8-C22), vitamins [A (β -carotene), B₁, B₂, B₆, E, niacin, and folic acid], minerals (calcium, copper, iron, magnesium, manganese, phosphorus, potassium, sodium, and zinc), anti-nutrients (phytic acid and raffinose), and secondary metabolites (furfural, ferulic acid, and p-coumaric acid). The analytical data generated by Covance Laboratories Inc., including a summary of the methods used, Covance SOP or method mnemonics, literature references, limits of quantitation, and the reference standards used, can be found in the analytical sub-report in Appendix 1 of this report. The Study Director approved all methods utilized in this study.

7.0 Control of Bias

Samples were analyzed by Covance Laboratories Inc. in a randomized order that was generated by the Study Director and provided to Covance prior to analysis.

8.0 Statistical Analysis

8.1 Data Processing

After compositional analyses were performed, data spreadsheets containing individual values for each analysis were sent to Monsanto Company for review. Data were then transferred to Certus International Inc. where they were converted into the appropriate units and statistically analyzed. Means, standard errors, and a range of component values were determined for the test substance and the control substance for each site and across all sites. The following formulas were used for re-expression of composition data for statistical analysis:

Component	From (X)	To	Formula ¹
Proximates (excluding Moisture), Carbohydrates, Fiber, Anti-nutrients	% fw	% dw	X/d
Minerals (Calcium, Magnesium, Phosphorus, Potassium, Sodium)	ppm fw	% dw	$(X/d) \times 10^{-4}$
Grain Minerals (Copper, Iron, Manganese, Zinc)	ppm fw	mg/kg dw	X/d
Vitamin A, Vitamin B ₁	mg/100g fw	mg/kg dw	$(X/d) \times 10$
Vitamin E	mg/g fw	mg/kg dw	$(X/d) \times 10^3$
Folic Acid, Niacin, Vitamin B ₂ , Vitamin B ₆	µg/g fw	mg/kg dw	X/d
Secondary Metabolites	ppm fw	µg/g dw	X/d
Fatty Acids (FA)	% fw	% total fa	$(100)X_j/\Sigma X$, for each FA _j where ΣX is over all the FA
Amino Acids (AA)	mg/g fw	% dw	$(X/d) \times 10^{-1}$

¹ 'X' is the individual sample value; 'd' is the fraction of the sample that is dry matter.

In order to complete a statistical analysis for a compositional constituent in this study, at least 50% of the values for an analyte had to be greater than the assay limit of quantitation (LOQ). Analytes with more than 50% of observations below the assay LOQ were excluded from summaries and analysis. The following 16 analytes with more than 50% of observations below the assay LOQ were excluded from statistical analysis: 8:0 caprylic acid, 10:0 capric acid, 12:0 lauric acid, 14:0 myristic acid, 14:1 myristoleic acid, 15:0 pentadecanoic acid, 15:1 pentadecenoic acid, 16:1 palmitoleic acid, 17:0 heptadecanoic acid, 17:1 heptadecenoic acid, 18:3 gamma linolenic acid, 20:2 eicosadienoic acid, 20:3 eicosatrienoic acid, 20:4 arachidonic acid, sodium, and furfural.

Otherwise, results below the LOQ were assigned a value equal to one-half the quantitation limit. The following analyte was assigned values:

		Obs. Below LOQ				
Component	Units	N	(%)	Total N	LOQ	Value Assigned
Grain Fatty Acid						
22:0 Behenic	% fw	5	6.3	79	0.0040	0.0020

Individual samples assigned a value are presented in Listing 2 of the Statistical sub-report.

The data were assessed for potential outliers using a studentized PRESS residuals calculation. A PRESS residual is the difference between any value and its value predicted from a statistical model that excludes the data point (Belsley et al., 1980). The studentized version scales these residuals so that the values tend to have a standard normal distribution when outliers are absent. Thus, most values are expected to be between ± 3 . Extreme data points that are also outside of the ± 6 studentized PRESS residual range are considered for exclusion, as outliers, from the final analyses. The following results had a PRESS residual value outside of ± 6 range:

Site ID	Rep	Material	Component	Sample ID	Value	PRESS Std Residual
ILWY	1	Asgrow RX715	16:0 Palmitic	10007662	12.0033	8.8765
ILWY	1	Asgrow RX715	18:1 Oleic	10007662	30.8266	17.6734
ILWY	1	Asgrow RX715	18:2 Linoleic	10007662	53.1964	-21.2788
ILWY	1	Asgrow RX715	18:3 Linolenic	10007662	1.3395	8.3483
ILWY	1	Asgrow RX715	20:1 Eicosenoic	10007662	0.2723	7.5684
ILWY	3	Asgrow RX715	22:0 Behenic	10007659	0.0650	-6.4028

As none of the identified values were the extreme highest or lowest values within the dataset, these values were not removed from the statistical analysis.

8.2 Statistical Methodology

All corn compositional components were statistically analyzed using a mixed model analysis of variance with the SAS MIXED procedure (Version 9.2, SAS Institute, Inc. 2002-2008). The three replicated sites were analyzed both separately and combined. Individual replicated site analyses used model (1).

$$(1) Y_{ij} = U + T_i + B_j + e_{ij},$$

where Y_{ij} = unique individual observation, U = overall mean, T_i = material effect, B_j = random block effect, and e_{ij} = residual error.

Combined site analyses used model (2).

$$(2) Y_{ijk} = U + T_i + L_j + B(L)_{jk} + LT_{ij} + e_{ijk},$$

where Y_{ijk} = unique individual observation, U = overall mean, T_i = material effect, L_j = random location effect, $B(L)_{jk}$ = random block within location effect, LT_{ij} = random location by material interaction effect, and e_{ijk} = residual error.

For each component analysis, mean comparison tests of the substance versus the conventional control substance were conducted.

A tolerance interval is an interval that one can claim, with a specified degree of confidence, contains at least a specified proportion, p , of an entire sampled population for the parameter measured.

For each compositional component, 99% tolerance intervals were calculated using the conventional references that are expected to contain, with 95% confidence, 99% of the quantities expressed in the population of conventional references. Each estimate was based upon the average of all observations per unique conventional reference. Because negative quantities are not possible, negative calculated lower tolerance bounds were set to zero.

9.0 Compositional Equivalence of Corn Forage and Grain of MON 87427 Treated with Glyphosate to Conventional Corn

Compositional analyses were conducted to assess whether the nutrient, anti-nutrient, and secondary metabolite levels in forage and grain derived from glyphosate-treated MON 87427 were substantially equivalent to those in conventional corn. Compositional analysis included the significant nutrients, anti-nutrients, and key secondary metabolites, consistent with OECD guidelines (OECD, 2002). Data from conventional references grown at the same time and in the same field sites as MON 87427 and the conventional control (combined across all sites) were used to establish a range of natural variability for each analyte, as defined by the 99% tolerance interval.

Overall, the results of the analysis of both forage and grain samples demonstrated no significant differences ($p > 0.05$) between glyphosate-treated MON 87427 and the conventional control for 55 of the 62 (88.7%) comparisons from the combined-site analysis. All mean values from glyphosate-treated MON 87427 identified as significantly different ($p < 0.05$) from the conventional control were within the 99% tolerance intervals for the population of conventional references and within the range of values found in the ILSI CCD and published scientific literature.

Results of the comparisons indicate that glyphosate-treated MON 87427 is compositionally equivalent to conventional corn hybrids that have a history of safe human and animal consumption. Further details are provided in the following sections. A summary of the significant differences ($p < 0.05$) between glyphosate-treated MON 87427 and the conventional control can be found in Table 1. Reported literature and ILSI CCD ranges for the analytical components present in forage and grain are presented in Table 2.

9.1 Nutrient Levels in Grain from MON 87427

Grain was analyzed for 64 compositional nutrients including: Protein, moisture, fat, ash, carbohydrates, ADF, NDF, TDF, amino acids, fatty acids, β -carotene, vitamin B₁, vitamin B₂, vitamin B₆, vitamin E, niacin, folic acid, and minerals. In the combined-site analysis of grain, no significant differences ($p > 0.05$) were observed between glyphosate-treated MON 87427 and the conventional control for 58 of the 64 nutrients. Significant differences ($p < 0.05$) included mean values for 16:0 palmitic acid, 18:0 stearic acid, 18:1

oleic acid, 18:2 linoleic acid, 20:0 arachidic acid, and total fat. Mean values of these components from the combined-site analysis were within the 99% tolerance intervals for the population of conventional references.

Differences between MON 87427 and the conventional control observed in the combined-site analysis were evaluated at the individual sites. Of the six combined-site differences observed in grain, only significant differences in mean values for 16:0 palmitic acid, 18:1 oleic acid, and 18:2 linoleic acid were observed consistently across all three individual sites. The relative magnitudes of the differences (mean difference as % of control) between glyphosate-treated MON 87427 and the conventional control for these three components were small; between 1.13 and 4.53%. Additionally, single site significant differences were observed in grain mean values for 18:0 stearic acid and 20:0 arachidic acid. The significant difference for total fat mean values observed between glyphosate-treated MON 87427 and the conventional control was not observed at any of the individual sites. All of the mean values that were significantly different were within the 99% tolerance intervals for the population of conventional references and within the range of values found in the ILSI CCD and published scientific literature (Table 2).

For grain, additional individual site significant differences, that were not observed in the combined-site analysis, included mean values at two individual sites for methionine, 18:3 linolenic acid, and vitamin B₂. Additionally, significant differences were observed for mean values for moisture, protein, carbohydrates, ADF, arginine, cystine, serine, tryptophan, 22:0 behenic acid, folic acid, calcium, and zinc, each at a single site. With the exception of a mean calcium value at one site, all mean values from glyphosate-treated MON 87427 were within the 99% tolerance intervals for the population of conventional references. The single mean calcium value was within the range of values found in the published scientific literature and the relative magnitude of difference between MON 87427 and the conventional control was small (14.03%). All other mean values that were significantly different were within the range of values found in the ILSI CCD and/or published scientific literature.

Based upon these results, the significant differences observed between the grain from glyphosate-treated MON 87427 and the conventional control are not relevant from a food and feed safety or nutritional perspective.

9.2 Anti-Nutrient Levels in Grain from MON 87427

Corn grain contains two main anti-nutrients according to OECD (OECD, 2002), phytic acid and raffinose. Phytic acid is present in corn grain, where it chelates mineral nutrients, including calcium, magnesium, potassium, iron, and zinc, rendering them biologically unavailable to mono-gastric animals consuming the grain (Liener, 2000). Raffinose is a low molecular weight non-digestible carbohydrate present in corn grain that is considered to be an anti-nutrient due to the gas production and resulting flatulence caused by consumption (Liener, 2000).

In the combined-site analysis of grain, a significant difference ($p < 0.05$) was observed between glyphosate-treated MON 87427 and the conventional control for mean values for phytic acid. The significant difference in phytic acid was not observed at any of the individual sites. A significant difference was not found in the combined-site analysis for raffinose but a significant difference was observed at one site. All of the mean values for anti-nutrients that were significantly different were within the 99% tolerance intervals for the population of conventional references and within the range of values found in the ILSI CCD and published scientific literature (Table 2).

Based upon these results, the significant differences observed between the grain from glyphosate-treated MON 87427 and the conventional control are not relevant from a food and feed safety or nutritional perspective.

9.3 Key Secondary Metabolite Levels in Grain from MON 87427

Corn grain contains three main secondary metabolites according to OECD (OECD, 2002); furfural, ferulic acid, and *p*-coumaric acid. The non-starch polysaccharide pentosans are a major source of furfural (Adams et al., 1997). Ferulic acid and *p*-coumaric acid are derived from the aromatic amino acids, phenylalanine and tyrosine (Buchanan et al., 2000), and serve as precursors for a large group of phenylpropanoid compounds. There were no combined-site or individual site significant differences ($p > 0.05$) observed in secondary metabolites when the grain from glyphosate-treated MON 87427 was compared to grain from the conventional control.

9.4 Nutrient Levels in Forage from MON 87427

Corn forage was analyzed for nine compositional nutrients (protein, moisture, fat, ash, carbohydrates, ADF, NDF, calcium, and phosphorus). In the combined-site analysis of forage, there were no significant differences ($p > 0.05$) between glyphosate-treated MON 87427 and the conventional control. Individual site significant differences included mean values for moisture, protein, and carbohydrates at a single site. All mean values from glyphosate-treated MON 87427 that were significantly different were within the 99% tolerance intervals for the population of conventional references and within the range of values found in the ILSI CCD and published scientific literature (Table 2). Therefore, these differences are not relevant from a food and feed safety or nutritional perspective.

10.0 Conclusions

Detailed compositional and nutritional comparisons of glyphosate-treated MON 87427, a conventional control, and twelve commercially available conventional references were conducted. These compositional comparisons were made by analyzing the forage and grain harvested from three replicated field sites across the United States during the 2008 field season. The analysis conducted in accordance with OECD guidelines, included proximates, carbohydrates, ADF, NDF, TDF, amino acids, fatty acids (C8-C22), vitamins [A (β -carotene), B₁, B₂, B₆, E, niacin, and folic acid], minerals (calcium, copper, iron, magnesium, manganese, phosphorus, potassium, sodium, and zinc), anti-nutrients (phytic

acid and raffinose), and secondary metabolites (furfural, ferulic acid, and p-coumaric acid). Statistical analysis was conducted on data from a combination of all sites (combined-site) and data from each of three individual sites.

Statistical comparisons between glyphosate-treated MON 87427 and the conventional control demonstrated that mean component values were not significantly different ($p>0.05$) for 55 of the 62 (88.7%) comparisons from the combined-site analysis. The seven combined-site differences identified in grain included five fatty acids (16:0 palmitic acid, 18:0 stearic acid, 18:1 oleic acid, 18:2 linoleic acid, and 20:0 arachidic acid), total fat, and phytic acid. Three of these components (16:0 palmitic acid, 18:1 oleic acid, and 18:2 linoleic acid) were observed to be significantly different at all three individual sites however the magnitude of difference was small; between 1.13 and 4.53%. All of the mean values observed to be significantly different from the control in the combined-site analysis were within the 99% tolerance intervals for the population of conventional references and were within the range of values found in the ILSI CCD and published scientific literature. Therefore, these differences are not meaningful from a food and feed safety or nutritional perspective.

Collectively, the compositional data support the conclusion that glyphosate-treated MON 87427 is compositionally equivalent to conventional corn.

11.0 References

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12.0 Protocol Amendments/Deviations

There was one protocol amendment to this study protocol.

Protocol Amendment #1 corrected the plot number and treatment information according to the information in the ORION database.

Table 1. Summary of Differences (p<0.05) for the Comparison of Corn Component Levels for Glyphosate-Treated MON 87427 vs. the Conventional Control

Analytical Component (Units) ¹	Test ² Mean ³	Control ⁴ Mean	Mean Difference (Test minus Control)		Test Range	Conventional Tolerance Interval ⁵
			Mean Difference (% of Control)	Significance (p-Value)		
Statistical Differences Observed in Combined-Site Analysis						
Grain Proximate (% dw)						
Total Fat	3.50	3.69	-5.09	0.036	3.13 - 3.83	2.12, 5.35
Grain Fatty Acid (% Total FA)						
16:0 Palmitic	10.91	10.54	3.52	<0.001	10.44 - 11.52	6.42, 15.23
18:0 Stearic	1.97	1.90	3.67	0.038	1.81 - 2.17	0.87, 2.88
18:1 Oleic	24.28	23.52	3.22	0.010	22.84 - 26.62	11.30, 43.27
18:2 Linoleic	60.84	62.06	-1.96	0.002	57.61 - 62.70	41.35, 74.78
20:0 Arachidic	0.42	0.41	4.00	0.005	0.37 - 0.48	0.15, 0.67
Grain Anti-nutrient (% dw)						
Phytic Acid	0.96	1.02	-5.92	0.008	0.87 - 1.04	0.73, 1.23

Table 1. Summary of Differences (p<0.05) for the Comparison of Corn Component Levels for Glyphosate-Treated MON 87427 vs. the Conventional Control (cont.)

Analytical Component (Units) ¹	Test ² Mean ³	Control ⁴ Mean	Mean Difference (Test minus Control)		Test Range	Conventional Tolerance Interval ⁵
			Mean Difference (% of Control)	Significance (p-Value)		
Statistical Differences Observed in More than One Individual Site						
Grain Fatty Acid (% Total FA)						
16:0 Palmitic Site ARNE	11.49	10.99	4.53	<0.001	11.47 - 11.52	6.42, 15.23
16:0 Palmitic Site IARL	10.72	10.44	2.66	0.007	10.58 - 10.85	6.42, 15.23
16:0 Palmitic Site ILWY	10.54	10.21	3.25	<0.001	10.44 - 10.65	6.42, 15.23
18:1 Oleic Site ARNE	26.34	25.35	3.93	<0.001	26.16 - 26.62	11.30, 43.27
18:1 Oleic Site IARL	22.91	21.95	4.41	0.002	22.84 - 22.98	11.30, 43.27
18:1 Oleic Site ILWY	23.58	23.24	1.44	0.043	23.29 - 23.78	11.30, 43.27
18:2 Linoleic Site ARNE	57.94	59.56	-2.72	<0.001	57.61 - 58.13	41.35, 74.78
18:2 Linoleic Site IARL	62.57	63.90	-2.09	<0.001	62.49 - 62.70	41.35, 74.78

Table 1. Summary of Differences (p<0.05) for the Comparison of Corn Component Levels for Glyphosate-Treated MON 87427 vs. the Conventional Control (cont.)

Analytical Component (Units) ¹	Test ² Mean ³	Control ⁴ Mean	Mean Difference (Test minus Control)		Test Range	Conventional Tolerance Interval ⁵
			Mean Difference (% of Control)	Significance (p-Value)		
Statistical Differences Observed in More than One Individual Site						
Grain Fatty Acid (% Total FA)						
18:2 Linoleic Site ILWY	62.01	62.72	-1.13	0.005	61.68 - 62.32	41.35, 74.78
Grain Amino Acid (% dw)						
Methionine Site ARNE	0.29	0.27	6.48	0.043	0.28 - 0.29	0.11, 0.29
Methionine Site IARL	0.23	0.25	-7.29	0.018	0.22 - 0.23	0.11, 0.29
Grain Fatty Acid (% Total FA)						
18:3 Linolenic Site ARNE	1.15	1.19	-3.92	0.033	1.13 - 1.17	0.78, 1.52
18:3 Linolenic Site IARL	1.24	1.20	3.35	0.014	1.22 - 1.26	0.78, 1.52
Grain Vitamin (mg/kg dw)						
Vitamin B2 Site ARNE	3.27	2.36	38.30	0.004	3.05 - 3.56	0, 4.47
Vitamin B2 Site IARL	1.41	1.93	-26.71	0.042	1.17 - 1.60	0, 4.47

Table 1. Summary of Differences (p<0.05) for the Comparison of Corn Component Levels for Glyphosate-Treated MON 87427 vs. the Conventional Control (cont.)

Analytical Component (Units) ¹	Test ² Mean ³	Control ⁴ Mean	Mean Difference (Test minus Control)		Test Range	Conventional Tolerance Interval ⁵
			Mean Difference (% of Control)	Significance (p-Value)		
Statistical Differences Observed in One Individual Site						
Grain Proximate (% dw)						
Carbohydrates Site IARL	84.24	83.11	1.36	0.047	83.60 - 84.96	80.77, 89.46
Moisture (% fw) Site IARL	10.93	10.40	5.13	0.043	10.90 - 11.00	7.56, 14.80
Protein Site IARL	10.60	11.73	-9.64	0.019	9.91 - 11.35	5.79, 13.43
Grain Fiber (% dw)						
Acid Detergent Fiber Site ILWY	3.78	3.05	23.75	0.020	3.33 - 4.27	1.84, 4.39
Grain Amino Acid (% dw)						
Arginine Site IARL	0.48	0.53	-9.19	0.033	0.45 - 0.49	0.24, 0.68
Cystine Site IARL	0.24	0.26	-5.95	0.012	0.24 - 0.25	0.14, 0.30
Serine Site IARL	0.49	0.56	-11.21	0.037	0.46 - 0.51	0.24, 0.66

Table 1. Summary of Differences (p<0.05) for the Comparison of Corn Component Levels for Glyphosate-Treated MON 87427 vs. the Conventional Control (cont.)

Analytical Component (Units) ¹	Test ² Mean ³	Control ⁴ Mean	Mean Difference (Test minus Control)		Test Range	Conventional Tolerance Interval ⁵
			Mean Difference (% of Control)	Significance (p-Value)		
Statistical Differences Observed in One Individual Site						
Grain Amino Acid (% dw)						
Tryptophan Site ARNE	0.062	0.052	19.32	0.006	0.059 - 0.064	0.032, 0.069
Grain Fatty Acid (% Total FA)						
18:0 Stearic Site ARNE	2.17	2.04	6.43	0.002	2.16 - 2.17	0.87, 2.88
20:0 Arachidic Site ARNE	0.48	0.46	4.63	0.002	0.47 - 0.48	0.15, 0.67
22:0 Behenic Site ARNE	0.21	0.19	11.00	0.007	0.21 - 0.23	0, 0.32
Grain Mineral						
Calcium (% dw) Site ARNE	0.0077	0.0067	14.03	0.024	0.0075 - 0.0079	0.0019, 0.0076
Zinc (mg/kg dw) Site IARL	23.54	26.51	-11.20	0.010	22.45 - 24.61	11.46, 30.37
Grain Vitamin (mg/kg dw)						
Folic Acid Site IARL	0.36	0.45	-19.59	0.020	0.31 - 0.40	0.11, 0.61

Table 1. Summary of Differences (p<0.05) for the Comparison of Corn Component Levels for Glyphosate-Treated MON 87427 vs. the Conventional Control (cont.)

Analytical Component (Units) ¹	Test ² Mean ³	Control ⁴ Mean	Mean Difference (Test minus Control)		Test Range	Conventional Tolerance Interval ⁵
			Mean Difference (% of Control)	Significance (p-Value)		
Statistical Differences Observed in One Individual Site						
Grain Anti-nutrient (% dw)						
Raffinose Site ARNE	0.11	0.13	-18.51	0.031	0.11 - 0.11	0.024, 0.29
Forage Proximate (% dw)						
Carbohydrates Site IARL	86.46	84.12	2.78	0.029	86.21 - 86.75	80.13, 94.05
Moisture (% fw) Site IARL	69.90	74.71	-6.44	0.008	67.70 - 71.20	51.70, 86.22
Protein Site IARL	7.03	8.63	-18.59	0.037	6.75 - 7.40	1.34, 11.57

¹dw = dry weight; fw = fresh weight; FA = fatty acid.

²Test refers to Glyphosate-Treated MON 87427.

³Mean = least-square mean.

⁴Control refers to the non-biotechnology derived, conventional control.

⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional references. Negative limits set to zero.

Table 2. Literature and ILSI Ranges for Components in Corn in Forage and Grain

Grain Tissue Components¹	Literature Range²	ILSI Range³
Grain Nutrients		
Proximates (% dw)		
Ash	1.17 – 2.01 ^a ; 1.14 – 1.63 ^b	0.616 – 6.282
Carbohydrates by calculation	81.31 – 87.06 ^a ; 82.10 – 86.65 ^b	77.4 – 89.5
Fat, total	2.95 – 4.40 ^a ; 3.16 – 4.23 ^b	1.742 – 5.823
Moisture (% fw)	8.74 – 11.30 ^a ; 11.00 – 13.20 ^b	6.1 – 40.5
Protein	8.27 – 13.33 ^a ; 8.55 – 12.19 ^b	6.15 – 17.26
Fiber (% dw)		
Acid detergent fiber	1.82 – 4.48 ^a ; 1.14 – 4.41 ^b	1.82 – 11.34
Neutral detergent fiber	6.51 – 12.28 ^a ; 6.08 – 10.36 ^b	5.59 – 22.64
Total dietary fiber	10.65 – 16.26 ^a ; 10.24 – 14.56 ^b	8.82 – 35.31
Amino Acids (% dw)		
Alanine	0.60 – 1.04 ^a ; 0.63 – 0.96 ^b	0.439 – 1.393
Arginine	0.34 – 0.52 ^a ; 0.32 – 0.50 ^b	0.119 – 0.639
Aspartic acid	0.52 – 0.78 ^a ; 0.56 – 0.77 ^b	0.335 – 1.208
Cystine	0.19 – 0.26 ^a ; 0.20 – 0.26 ^b	0.125 – 0.514
Glutamic acid	1.54 – 2.67 ^a ; 1.62 – 2.44 ^b	0.965 – 3.536
Glycine	0.33 – 0.43 ^a ; 0.31 – 0.42 ^b	0.184 – 0.539
Histidine	0.25 – 0.37 ^a ; 0.24 – 0.34 ^b	0.137 – 0.434
Isoleucine	0.30 – 0.48 ^a ; 0.30 – 0.44 ^b	0.179 – 0.692
Leucine	1.02 – 1.87 ^a ; 1.06 – 1.65 ^b	0.642 – 2.492
Lysine	0.26 – 0.33 ^a ; 0.25 – 0.31 ^b	0.172 – 0.668
Methionine	0.17 – 0.26 ^a ; 0.16 – 0.30 ^b	0.124 – 0.468
Phenylalanine	0.43 – 0.72 ^a ; 0.43 – 0.63 ^b	0.244 – 0.930
Proline	0.74 – 1.21 ^a ; 0.72 – 1.11 ^b	0.462 – 1.632
Serine	0.39 – 0.67 ^a ; 0.40 – 0.60 ^b	0.235 – 0.769
Threonine	0.29 – 0.45 ^a ; 0.29 – 0.39 ^b	0.224 – 0.666
Tryptophan	0.047 – 0.085 ^a ; 0.040 – 0.070 ^b	0.0271 – 0.215
Tyrosine	0.13 – 0.43 ^a ; 0.12 – 0.41 ^b	0.103 – 0.642
Valine	0.42 – 0.62 ^a ; 0.41 – 0.58 ^b	0.266 – 0.855
Fatty Acids (% Total FA)		
16:0 Palmitic	8.80 – 13.33 ^a ; 9.53 – 12.33 ^b	7.94 – 20.71
16:1 Palmitoleic	0.059 – 0.23 ^a	0.095 – 0.447
18:0 Stearic	1.36 – 2.14 ^a ; 1.28 – 2.13 ^b	1.02 – 3.40
18:1 Oleic	19.50 – 33.71 ^a ; 19.59 – 31.09 ^b	17.4 – 40.2
18:2 Linoleic	49.31 – 64.70 ^a ; 55.17 – 65.65 ^b	36.2 – 66.5
18:3 Linolenic	0.89 – 1.56 ^a ; 1.00 – 1.38 ^b	0.57 – 2.25
20:0 Arachidic	0.30 – 0.49 ^a ; 0.29 – 0.42 ^b	0.279 – 0.965
20:1 Eicosenoic	0.17 – 0.29 ^a ; 0.17 – 0.31 ^b	0.170 – 1.917
22:0 Behenic	0.069 – 0.28 ^a ; 0.059 – 0.33 ^b	0.110 – 0.349
Minerals		
Calcium (% dw)	0.0036 – 0.0068 ^a ; 0.0032 – 0.0070 ^b	0.00127 – 0.02084
Copper (mg/kg dw)	1.14 – 3.43 ^a ; 1.29 – 4.16 ^b	0.73 – 18.50
Iron (mg/kg dw)	14.17 – 23.40 ^a ; 14.37 – 24.66 ^b	10.42 – 49.07
Magnesium (% dw)	0.091 – 0.14 ^a ; 0.095 – 0.14 ^b	0.0594 – 0.194
Manganese (mg/kg dw)	4.83 – 8.34 ^a ; 4.55 – 9.35 ^b	1.69 – 14.30
Phosphorous (% dw)	0.24 – 0.37 ^a ; 0.26 – 0.38 ^b	0.147 – 0.533
Potassium (% dw)	0.29 – 0.39 ^a ; 0.32 – 0.45 ^b	0.181 – 0.603
Zinc (mg/kg dw)	16.78 – 28.17 ^a ; 18.12 – 30.44 ^b	6.5 – 37.2

Table 2 (cont.). Literature and ILSI Ranges for Components in Corn in Forage and Grain

Grain Tissue Components¹	Literature Range²	ILSI Range³
Vitamins (mg/kg DW)		
Folic acid	0.19 – 0.35 ^a ; 0.22 – 0.42 ^b	0.147 – 1.464
Vitamin A [β-Carotene]	Not Available	0.19 – 46.81
Vitamin B ₁ [Thiamine]	2.33 – 4.17 ^a ; 2.71 – 4.78 ^b	1.26 – 40.00
Vitamin B ₂ [Riboflavin]	0.94 – 2.42 ^a ; 1.46 – 2.81 ^b	0.50 – 2.36
Vitamin B ₃ [Niacin]	15.07 – 32.38 ^a ; 13.64 – 42.60 ^b	10.37 – 46.94
Vitamin B ₆ [Pyridoxine]	4.93 – 7.53 ^a ; 4.01 – 8.27 ^b	3.68 – 11.32
Vitamin E [α-Tocopherol]	5.96 – 18.44 ^a ; 2.83 – 15.53 ^b	1.5 – 68.7
Grain Anti-Nutrients (%DW)		
Phytic acid	0.69 – 1.09 ^a ; 0.58 – 0.97 ^b	0.111 – 1.570
Raffinose	0.079 – 0.22 ^a ; 0.028 – 0.15 ^b	0.020 – 0.320
Grain Secondary Metabolites (μg/g DW)		
Ferulic acid	1205.75 – 2873.05 ^a ; 820.14 – 2539.86 ^b	291.9 – 3885.8
p-Coumaric acid	94.77 – 327.39 ^a ; 64.03 – 259.68 ^b	53.4 – 576.2
Forage Tissue Components¹	Literature Range²	ILSI Range³
Forage Nutrients		
Proximates (% dw)		
Ash	2.67–8.01 ^a ; 3.88 – 6.90 ^b	1.527 – 9.638
Carbohydrates by calculation	81.88 – 89.26 ^a ; 84.11 – 89.52 ^b	76.4 – 92.1
Fat, total	1.28 – 3.62 ^a ; 0.20 – 2.33 ^b	0.296 – 4.570
Moisture (% FW)	64.20 – 75.70 ^a ; 71.40 – 78.00 ^b	49.1 – 81.3
Protein	5.80 – 10.24 ^a ; 5.56 – 9.14 ^b	3.14 – 11.57
Fiber (% dw)		
Acid detergent fiber	19.11 – 30.49 ^a ; 20.73 – 33.39 ^b	16.13 – 47.39
Neutral detergent fiber	27.73 – 49.62 ^a ; 31.81 – 50.61 ^b	20.29 – 63.71
Minerals (% dw)		
Calcium	0.12 – 0.33 ^a ; 0.17 – 0.41 ^b	0.0714 – 0.5768
Phosphorous	0.090 – 0.26 ^a ; 0.13 – 0.21 ^b	0.0936 – 0.3704

¹dw=dry weight; fw=fresh weight, FA = fatty acids.

²Literature range references: ^aHarrigan *et al* 2009[US 2006], ^bHarrigan *et al* 2009 [Chile 2006/2007]

³ILSI range is from ILSI Crop Composition Database, 2006.

Appendix I Analytical Sub-report

**The following 94 pages are the analytical sub-report
Pages 32-125**



Final Sub-Report

Study Title	Compositional Analyses of Corn Forage and Grain of MON 87427 Treated with Glyphosate Grown in the United States during the 2008 Field Season
Study Director	Matthew L. Breeze Monsanto Company
Sponsor	Monsanto Company 800 North Lindbergh Blvd. St. Louis, MO 63167
Covance Principal Investigator	Kathleen D. Miller
Compositional Analysis Testing Facility	Covance Laboratories Inc. 3301 Kinsman Blvd. Madison, WI 53704
Covance Study Number	8203-770
Covance Client Number	1002066
Sponsor Reference Number	REG-08-550
Breakout Sub-Report Issued	10 May, 2010
Page Number	1 of 94

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QUALITY CONTROL REVIEW

This report has been reviewed by the Principal Investigator of Covance Laboratories Inc. and accurately reflects the raw data. The Principal Investigator ensures the quality control review was conducted and ensures this breakout sub-report reflects information for the glyphosate-treated test substance MON 87427 plus control and reference data generated under Monsanto study REG-08-550.

Kathleen D. Miller

Kathleen D. Miller
Principal Investigator
Nutritional Chemistry and Food Safety
Covance Laboratories Inc.

10 May 10
Date

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Quality Assurance

Timothy H. Valley
Manager

STUDY IDENTIFICATION

Test Substance:

MON 87427

Original Monsanto Study Number:

REG-08-550

Breakout Sub-Report Title

Compositional Analyses of Corn Forage and Grain of MON 87427 Treated with Glyphosate Grown in the United States during the 2008 Field Season

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Study Timetable

Study Initiation Date:	28 May, 2009
Report Completion Date:	10 May, 2010
Breakout Report Issue Date:	10 May, 2010
:	

INTRODUCTION

The purpose of this portion of the study was to evaluate the composition of corn forage and grain from MON 87427 with a glyphosate treatment compared to a non-treated conventional corn control. Compositional analyses were also conducted on twelve unique conventional reference corn hybrids. This sub-report contains data specific to one test substance plus control and reference data from the larger, single sub-report, and is considered a breakout sub-report. The larger single sub-report, Monsanto study number REG-08-550, should be referenced for additional study details.

REGULATORY COMPLIANCE

This report describes compositional analyses of MON 87427 treated with glyphosate, a control, and reference substances generated under Monsanto study number REG-08-550. The statement of compliance from study number REG-08-550 (Covance study number 8203-770) is provided below.

This portion of the study was conducted in accordance with the Environmental Protection Agency (EPA) Good Laboratory Practice (GLP) Standards, §160.135(b) in compliance with all requirements of section 40 CFR 160 with the following exceptions:

- 1) Reference standards were not listed in the protocol but are listed in the sub-report, were not characterized according to GLP standards, and no reserve samples were retained from each batch.
- 2) Storage stability was not determined in this portion of the study; however, the samples were maintained at Covance at approximately –20°C throughout the study to minimize degradation.

These exceptions had no effect on the integrity or quality of the study.

MAJOR COMPUTER SYSTEMS

The major computer systems used on this study may have included, but were not limited to, the following systems:

- Laboratory Information Management System (sample and assay tracking)
- Metasys or REES (monitor and document storage conditions for test/control/reference materials and samples)
- Balance Application (balance weight capture system)
- Waters Empower[®] Chromatography Manager (data acquisition and result calculation system)
- MADCAP (dilution calculation system)

[®]Empower is a registered trademark of Waters Corporation.

- WINGZ (calculation of standard curve)
- PCCalc (result calculation system)
- ICP WinLab32 (ICP spectrometry)
- eNotes (official study communication)

TEST, CONTROL, AND REFERENCE SUBSTANCES

Test Substance

Forage and grain of the test substance were evaluated in this portion of the study. The test substance was described as follows:

Material Name	Seed Lot Number	Herbicide Treatment
MON 87427	10001857	Glyphosate

Control Substance

Forage and grain of the control substance were evaluated in this portion of the study. The control substance was described as follows:

Material Name	Seed Lot Number
Conventional Control	10001859

Reference Substances

The reference substances were conventional corn hybrids. Forage and grain from each of the reference substance were evaluated in this portion of the study. The reference substances were described as follows:

Material Name	Seed Lot Number	Field Site
Crows C6501	10001546	ARNE
Midwest Genetics 87801	10000934	ARNE
Fielder's Choice 7864	10001319	ARNE
Fontanelle 5797	10001548	ARNE
Asgrow RX708	10001564	IARL
Dekalb DKC60-15	10000950	IARL
Midwest Genetics G7944	10001571	IARL
NC + 4443	10001572	IARL
Asgrow RX715	10000952	ILWY
Dekalb DKC61-50	10001328	ILWY
Midland 7B15	10001545	ILWY
NK N69-P9	10001544	ILWY

Appropriate reference standards were used in each assay for the analytical procedures and equipment calibrations. See Appendix A for reference standard identification.

Storage Condition

The samples were stored in a freezer set to maintain $-20 \pm 10^{\circ}\text{C}$. Reference standards were stored according to vendor specifications.

Characterization

Information on the characterization that defined the test, control or reference substances was the responsibility of the sponsor. Storage stability was not determined in this study; however, the samples were maintained in a freezer set to maintain $-20 \pm 10^{\circ}\text{C}$ at Covance throughout the study to minimize degradation.

Disposition

Any remaining prepared dilutions or extractions of the tissues were discarded at Covance. After the samples are analyzed, all excess tissues will be retained by Covance for one year, at which time the Sponsor will be contacted for approval to either dispose of or return the excess tissues to Monsanto. Remaining reference standards may be used for other testing.

Retain Samples

Retain samples of the test, control, and reference substances were the responsibility of the Sponsor.

SAFETY

Safety precautions were taken as outlined in the Environmental, Health, and Safety section of the Covance Policies and Procedures Manual.

SAMPLE RECEIPT AND HANDLING

The samples were entered into the Covance Laboratory Information Management System (LIMS) with unique LIMS numbers. Each Monsanto sample identification was matched with the Covance LIMS information. The samples were received in a frozen state on dry ice. Documentation of the samples upon receipt at Covance was maintained in the raw data.

EXPERIMENTAL DESIGN

This study used approved analytical methods to determine the composition of the samples. See Appendix A for a summary of the analytical methods referenced by the method mnemonic.

The following analyses were performed on the **forage** samples:

Analyte	Method Mnemonic¹
Proximates	
Moisture	M100
Protein	PGEN
Fat	FAAH
Ash	ASHM
Acid Detergent Fiber	ADF
Neutral Detergent Fiber	NDFE
Calcium, Phosphorus	ICPS

¹Analytical methods are kept on file at Covance Laboratories Inc.

In addition, carbohydrate (CHO) values were estimated by calculation.

The following analyses were performed on the **grain** samples:

Analyte	Method Mnemonic¹
Proximates	
Ash	ASHM
Fat	FSOX
Moisture	M100
Protein	PGEN
Acid detergent fiber	ADF
Neutral detergent fiber	NDFE
Total dietary fiber	TDF
Amino acid composition	TAA5
Fatty acid profile (C8-C22)	FAPM
Calcium, Copper, Iron, Magnesium, Manganese, Phosphorus, Potassium, Sodium, Zinc	ICPS
Vitamin A (β -carotene)	BCLC
Vitamin B ₁ (Thiamin) ²	BIDE
Vitamin B ₂ (Riboflavin)	B2FV
Vitamin B ₆ (Pyridoxine) ²	B6A

¹Analytical methods are kept on file at Covance Laboratories Inc.

²Reported as the hydrochloride salt

Analyte	Method Mnemonic¹
Vitamin E	EFD2
Folic Acid	FOAN
Niacin	NIAP
<i>p</i> -Coumaric and Ferulic Acid	ACID
Phytic Acid	PHYT
2-Furfuraldehyde (Furfural)	FURF
Raffinose	SUGT

¹Analytical methods are kept on file at Covance Laboratories Inc.

In addition, carbohydrate (CHO) values were estimated by calculation.

The samples were analyzed singly unless otherwise determined by Covance methods and/or SOPs. A minimum frequency of 10% quality control samples (duplicates, recoveries, certified reference standards, blanks, or validated control samples) were prepared and analyzed at Covance. Appropriate standards were used in each assay as reference standards for the analytical procedures or calibration of equipment. Re-analyses were performed as determined by Covance methods and/or SOPs. When re-analyses were deemed necessary, documentation and justification were provided in the raw data.

CONTROL OF BIAS

The samples were analyzed in a non-systematic, random order to minimize assay bias. The Study Director provided the random order to Covance Laboratories Inc. and a copy was maintained in the study file.

STATISTICAL EVALUATION

There were no statistical evaluations performed on the final tabulated results by Covance.

RECORD RETENTION

All data relating to or generated by this portion of the project, including a copy of the protocol and amendments, a copy of the analytical sub-report, results, laboratory notebooks and any other information or records relating to this portion of the project will be retained in the archives of Covance in accordance with EPA 40 CFR Part 160. The data will be retained for one year, at which time the Sponsor will be contacted for approval to transfer all data (except for copies of the final protocol, and final report which will be kept by Covance). Electronic data collected at Covance Laboratories Inc. using Empower[®] software will be stored on duplicate compact discs

(CDs). One of the CDs will be stored in the archives at Covance Laboratories Inc. The second CD will be transferred to the archives at Monsanto Company in St. Louis, Missouri.

The supporting records retained at Covance, but not archived with the study data, include the following items:

1. Instrument calibration and maintenance records
2. Storage temperature records
3. Training records of study personnel
4. Durable media records
5. Standard Operating Procedures
6. Standard logbooks
7. Certificates of Analysis for reference standards

RESULTS

The results of the forage and grain are presented in Tables 1 and 2, respectively. All of the results are on a fresh-weight basis and are deemed acceptable.

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007245	10007220	10007264
Material Name	MON 87427	MON 87427	MON 87427
Site Code	ARNE	ARNE	ARNE
Plot ID	115	209	304
Seed Lot Number	10001857	10001857	10001857
Herbicide Treatment	Glyphosate	Glyphosate	Glyphosate
Covance LIMS Number	90600121	90600181	90600198
Proximate (%)			
Moisture	68.5	70.6	73.1
Protein	2.21	2.01	1.79
Total Fat	0.486	0.459	0.391
Ash	1.50	1.29	1.25
Carbohydrates	27.3	25.6	23.5
Acid Detergent Fiber (%)	6.86	7.93	6.37
Neutral Detergent Fiber (%)	11.8	12.2	10.0
Minerals (ppm)			
Calcium	616	603	495
Phosphorus	844	721	539

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007414	10007393	10007382
Material Name	MON 87427	MON 87427	MON 87427
Site Code	IARL	IARL	IARL
Plot ID	113	218	304
Seed Lot Number	10001857	10001857	10001857
Herbicide Treatment	Glyphosate	Glyphosate	Glyphosate
Covance LIMS Number	90600116	90600137	90600136
Proximate (%)			
Moisture	70.8	71.2	67.7
Protein	1.97	2.13	2.24
Total Fat	0.508	0.451	0.589
Ash	1.49	1.39	1.45
Carbohydrates	25.2	24.8	28.0
Acid Detergent Fiber (%)	7.01	6.79	6.81
Neutral Detergent Fiber (%)	10.9	12.3	12.6
Minerals (ppm)			
Calcium	429	522	458
Phosphorus	723	907	801

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007566	10007567	10007575
Material Name	MON 87427	MON 87427	MON 87427
Site Code	ILWY	ILWY	ILWY
Plot ID	116	213	309
Seed Lot Number	10001857	10001857	10001857
Herbicide Treatment	Glyphosate	Glyphosate	Glyphosate
Covance LIMS Number	90600188	90600134	90600169
Proximate (%)			
Moisture	67.9	65.9	62.7
Protein	1.98	1.96	1.67
Total Fat	0.349	0.631	0.657
Ash	1.51	1.75	1.69
Carbohydrates	28.3	29.8	33.3
Acid Detergent Fiber (%)	9.31	9.01	10.5
Neutral Detergent Fiber (%)	11.6	14.7	16.3
Minerals (ppm)			
Calcium	614	728	818
Phosphorus	682	723	747

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007217	10007243	10007254
Material Name	Parental Control	Parental Control	Parental Control
Site Code	ARNE	ARNE	ARNE
Plot ID	101	214	314
Seed Lot Number	10001859	10001859	10001859
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600165	90600209	90600145
Proximate (%)			
Moisture	72.3	68.4	67.4
Protein	1.99	2.09	1.76
Total Fat	0.632	0.626	0.684
Ash	1.41	1.45	1.30
Carbohydrates	23.7	27.4	28.9
Acid Detergent Fiber (%)	7.99	8.67	8.31
Neutral Detergent Fiber (%)	9.16	11.6	11.1
Minerals (ppm)			
Calcium	546	582	490
Phosphorus	638	733	608

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007426	10007389
Material Name	Parental Control	Parental Control
Site Code	IARL	IARL
Plot ID	106	302
Seed Lot Number	10001859	10001859
Herbicide Treatment	NA	NA
Covance LIMS Number	90600157	90600128
Proximate (%)		
Moisture	75.0	73.6
Protein	2.08	2.36
Total Fat	0.509	0.314
Ash	1.46	1.38
Carbohydrates	21.0	22.3
Acid Detergent Fiber (%)	8.04	5.35
Neutral Detergent Fiber (%)	9.72	10.5
Minerals (ppm)		
Calcium	489	486
Phosphorus	776	736

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007563	10007542	10007574
Material Name	Parental Control	Parental Control	Parental Control
Site Code	ILWY	ILWY	ILWY
Plot ID	105	217	308
Seed Lot Number	10001859	10001859	10001859
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600158	90600178	90600195
Proximate (%)			
Moisture	66.6	67.3	64.1
Protein	1.84	1.69	2.14
Total Fat	0.734	0.384	0.207
Ash	1.47	1.57	1.63
Carbohydrates	29.4	29.1	31.9
Acid Detergent Fiber (%)	9.18	9.06	8.82
Neutral Detergent Fiber (%)	12.2	14.2	15.2
Minerals (ppm)			
Calcium	850	717	658
Phosphorus	632	713	984

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007244	10007233	10007213
Material Name	Crows C6501	Crows C6501	Crows C6501
Site Code	ARNE	ARNE	ARNE
Plot ID	119	217	306
Seed Lot Number	10001546	10001546	10001546
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600206	90600140	90600210
Proximate (%)			
Moisture	73.3	74.9	74.2
Protein	1.81	1.78	1.97
Total Fat	0.843	0.561	0.405
Ash	1.35	1.32	1.30
Carbohydrates	22.7	21.4	22.1
Acid Detergent Fiber (%)	9.59	7.77	8.43
Neutral Detergent Fiber (%)	9.96	15.1	11.5
Minerals (ppm)			
Calcium	446	458	475
Phosphorus	576	511	662

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007260	10007208	10007227
Material Name	Fielder's Choice 7864	Fielder's Choice 7864	Fielder's Choice 7864
Site Code	ARNE	ARNE	ARNE
Plot ID	108	212	303
Seed Lot Number	10001319	10001319	10001319
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600161	90600192	90600118
Proximate (%)			
Moisture	71.3	70.8	73.5
Protein	1.85	1.95	1.87
Total Fat	0.671	0.341	0.613
Ash	1.10	1.27	1.33
Carbohydrates	25.1	25.6	22.7
Acid Detergent Fiber (%)	6.62	7.85	7.93
Neutral Detergent Fiber (%)	10.8	12.9	13.3
Minerals (ppm)			
Calcium	595	542	547
Phosphorus	677	688	572

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007246	10007249	10007256
Material Name	Fontanelle 5797	Fontanelle 5797	Fontanelle 5797
Site Code	ARNE	ARNE	ARNE
Plot ID	105	219	307
Seed Lot Number	10001548	10001548	10001548
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600176	90600184	90600190
Proximate (%)			
Moisture	71.0	72.2	70.8
Protein	1.88	2.22	2.00
Total Fat	0.727	0.614	0.447
Ash	1.20	1.36	1.31
Carbohydrates	25.2	23.6	25.4
Acid Detergent Fiber (%)	8.17	8.18	8.97
Neutral Detergent Fiber (%)	11.9	10.8	10.7
Minerals (ppm)			
Calcium	546	546	536
Phosphorus	509	634	546

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007240	10007234	10007212
Material Name	Midwest Genetics 87801	Midwest Genetics 87801	Midwest Genetics 87801
Site Code	ARNE	ARNE	ARNE
Plot ID	107	220	315
Seed Lot Number	10000934	10000934	10000934
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600141	90600150	90600175
Proximate (%)			
Moisture	71.7	76.0	71.8
Protein	1.71	1.75	2.01
Total Fat	0.566	0.544	0.496
Ash	1.45	1.29	1.15
Carbohydrates	24.6	20.4	24.5
Acid Detergent Fiber (%)	7.58	7.55	7.03
Neutral Detergent Fiber (%)	9.43	10.5	11.4
Minerals (ppm)			
Calcium	429	478	540
Phosphorus	545	546	616

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007408	10007379	10007411
Material Name	Asgrow RX708	Asgrow RX708	Asgrow RX708
Site Code	IARL	IARL	IARL
Plot ID	104	217	312
Seed Lot Number	10001564	10001564	10001564
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600114	90600119	90600156
Proximate (%)			
Moisture	68.4	69.2	69.1
Protein	2.45	2.18	2.68
Total Fat	0.530	0.658	0.746
Ash	1.35	1.24	1.16
Carbohydrates	27.3	26.7	26.3
Acid Detergent Fiber (%)	6.74	6.82	7.10
Neutral Detergent Fiber (%)	9.69	14.3	9.17
Minerals (ppm)			
Calcium	370	317	344
Phosphorus	756	759	755

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007399	10007423	10007386
Material Name	Dekalb DKC60-15	Dekalb DKC60-15	Dekalb DKC60-15
Site Code	IARL	IARL	IARL
Plot ID	109	219	306
Seed Lot Number	10000950	10000950	10000950
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600153	90600135	90600204
Proximate (%)			
Moisture	69.9	69.8	67.5
Protein	2.38	2.22	2.32
Total Fat	0.837	0.532	0.933
Ash	1.45	1.46	1.51
Carbohydrates	25.4	26.0	27.7
Acid Detergent Fiber (%)	6.90	7.41	7.68
Neutral Detergent Fiber (%)	10.4	12.4	12.0
Minerals (ppm)			
Calcium	507	524	482
Phosphorus	791	915	887

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007398	10007394	10007419
Material Name	Midwest Genetics G7944	Midwest Genetics G7944	Midwest Genetics G7944
Site Code	IARL	IARL	IARL
Plot ID	105	205	305
Seed Lot Number	10001571	10001571	10001571
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600185	90600162	90600126
Proximate (%)			
Moisture	73.1	74.1	71.3
Protein	1.85	2.41	2.05
Total Fat	0.225	0.584	0.403
Ash	1.60	1.35	1.65
Carbohydrates	23.2	21.6	24.6
Acid Detergent Fiber (%)	7.79	7.49	7.86
Neutral Detergent Fiber (%)	10.7	8.87	12.2
Minerals (ppm)			
Calcium	568	456	544
Phosphorus	833	764	731

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007431	10007409
Material Name	NC + 4443	NC + 4443
Site Code	IARL	IARL
Plot ID	215	315
Seed Lot Number	10001572	10001572
Herbicide Treatment	NA	NA
Covance LIMS Number	90600155	90600208
Proximate (%)		
Moisture	71.5	69.2
Protein	2.08	2.16
Total Fat	0.477	0.406
Ash	1.21	1.48
Carbohydrates	24.7	26.8
Acid Detergent Fiber (%)	6.78	8.31
Neutral Detergent Fiber (%)	9.86	10.4
Minerals (ppm)		
Calcium	547	579
Phosphorus	661	649

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007580	10007597	10007560
Material Name	Asgrow RX715	Asgrow RX715	Asgrow RX715
Site Code	ILWY	ILWY	ILWY
Plot ID	109	205	311
Seed Lot Number	10000952	10000952	10000952
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600132	90600191	90600115
Proximate (%)			
Moisture	62.9	62.1	62.4
Protein	1.83	1.85	1.70
Total Fat	0.688	0.463	0.841
Ash	1.48	1.66	1.61
Carbohydrates	33.1	33.9	33.4
Acid Detergent Fiber (%)	9.80	9.62	10.2
Neutral Detergent Fiber (%)	15.1	13.7	17.0
Minerals (ppm)			
Calcium	780	729	896
Phosphorus	589	631	700

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007564	10007549	10007590
Material Name	Dekalb DKC61-50	Dekalb DKC61-50	Dekalb DKC61-50
Site Code	ILWY	ILWY	ILWY
Plot ID	108	209	319
Seed Lot Number	10001328	10001328	10001328
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600170	90600149	90600112
Proximate (%)			
Moisture	61.1	63.2	61.0
Protein	2.28	1.69	1.71
Total Fat	0.871	0.581	0.837
Ash	1.44	1.60	1.79
Carbohydrates	34.3	32.9	34.7
Acid Detergent Fiber (%)	9.81	9.68	9.16
Neutral Detergent Fiber (%)	15.3	14.9	16.5
Minerals (ppm)			
Calcium	774	760	702
Phosphorus	671	655	694

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007593	10007582	10007601
Material Name	Midland 7B15	Midland 7B15	Midland 7B15
Site Code	ILWY	ILWY	ILWY
Plot ID	114	220	303
Seed Lot Number	10001545	10001545	10001545
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600171	90600202	90600174
Proximate (%)			
Moisture	66.9	66.7	64.3
Protein	1.60	1.71	1.61
Total Fat	0.531	0.537	0.615
Ash	1.28	1.63	1.43
Carbohydrates	29.7	29.4	32.0
Acid Detergent Fiber (%)	8.30	9.44	9.24
Neutral Detergent Fiber (%)	14.2	14.2	13.7
Minerals (ppm)			
Calcium	624	707	689
Phosphorus	567	697	700

Table 1
Compositional Analyses of Corn Forage

Sample ID Number	10007588	10007585	10007581
Material Name	NK N69-P9	NK N69-P9	NK N69-P9
Site Code	ILWY	ILWY	ILWY
Plot ID	107	212	302
Seed Lot Number	10001544	10001544	10001544
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600139	90600117	90600131
Proximate (%)			
Moisture	62.8	68.1	66.1
Protein	1.68	1.80	1.48
Total Fat	0.751	0.374	0.265
Ash	1.47	1.45	1.52
Carbohydrates	33.3	28.3	30.6
Acid Detergent Fiber (%)	9.24	8.19	9.05
Neutral Detergent Fiber (%)	14.4	14.5	14.7
Minerals (ppm)			
Calcium	679	637	614
Phosphorus	656	600	688

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007326	10007327	10007347
Material Name	MON 87427	MON 87427	MON 87427
Site Code	ARNE	ARNE	ARNE
Plot ID	115	209	304
Seed Lot Number	10001857	10001857	10001857
Herbicide Treatment	Glyphosate	Glyphosate	Glyphosate
Covance LIMS Number	90600046	90600033	90600040
Proximate (%)			
Moisture	11.3	11.2	11.7
Protein	9.29	9.53	10.0
Total Fat	2.78	2.87	2.81
Ash	1.40	1.27	1.34
Carbohydrates	75.2	75.1	74.2
Acid Detergent Fiber (%)	2.79	3.02	3.08
Neutral Detergent Fiber (%)	9.01	9.70	8.97
Total Dietary Fiber (%)	11.7	12.0	11.6
Beta Carotene (mg/100g)	0.0882	0.0857	0.0780
Ferulic Acid (ppm)	2270	2080	2230
p-Coumaric Acid (ppm)	231	202	215
Furfural (ppm)	< 0.500	< 0.500	< 0.500
Thiamin HCl (mg/100g)	0.26	0.26	0.25
Riboflavin/Vitamin B2 (µg/g)	3.16	2.84	2.69
Pyridoxine HCl (µg/g)	7.71	7.29	7.58
Vitamin E (mg/g)	0.0142	0.0148	0.0154
Niacin (µg/g)	22.1	22.4	24.0
Folic Acid (µg/g)	0.306	0.331	0.376
Phytic Acid (%)	0.776	0.793	0.786
Raffinose (%)	0.100	0.0937	0.0930
Minerals (ppm)			
Calcium	69.7	68.2	66.4
Copper	1.41	1.84	1.69
Iron	20.8	21.5	21.8
Magnesium	1120	1130	1220
Manganese	7.52	7.48	8.23
Phosphorus	2900	2940	3010
Potassium	3440	3560	3500
Sodium	< 100	< 100	< 100
Zinc	19.5	19.8	22.5

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007326	10007327	10007347
Material Name	MON 87427	MON 87427	MON 87427
Site Code	ARNE	ARNE	ARNE
Plot ID	115	209	304
Seed Lot Number	10001857	10001857	10001857
Herbicide Treatment	Glyphosate	Glyphosate	Glyphosate
Covance LIMS Number	90600046	90600033	90600040
Amino Acids (mg/g)			
Aspartic acid	6.32	6.01	6.28
Threonine	3.42	3.34	3.40
Serine	4.62	4.36	4.56
Glutamic acid	18.1	16.9	18.0
Proline	8.65	8.10	8.69
Glycine	3.81	3.72	3.77
Alanine	7.39	6.89	7.36
Cystine	2.37	2.22	2.32
Valine	4.73	4.49	4.75
Methionine	2.59	2.51	2.53
Isoleucine	3.47	3.25	3.51
Leucine	12.0	11.0	12.0
Tyrosine	2.18	3.22	3.39
Phenylalanine	4.96	4.67	4.99
Lysine	2.93	2.88	2.90
Histidine	2.76	2.68	2.77
Arginine	4.39	4.80	4.87
Tryptophan	0.526	0.560	0.563

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007326	10007327	10007347
Material Name	MON 87427	MON 87427	MON 87427
Site Code	ARNE	ARNE	ARNE
Plot ID	115	209	304
Seed Lot Number	10001857	10001857	10001857
Herbicide Treatment	Glyphosate	Glyphosate	Glyphosate
Covance LIMS Number	90600046	90600033	90600040
Fatty Acids (%)			
8:0 Caprylic	< 0.00400	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400	< 0.00400
16:0 Palmitic	0.296	0.316	0.300
16:1 Palmitoleic	0.00434	0.00467	0.00451
17:0 Heptadecanoic	< 0.00400	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400	< 0.00400
18:0 Stearic	0.0560	0.0595	0.0565
18:1 Oleic	0.675	0.730	0.687
18:2 Linoleic	1.50	1.58	1.52
18:3 gamma-Linolenic	< 0.00400	< 0.00400	< 0.00400
18:3 Linolenic	0.0301	0.0313	0.0295
20:0 Arachidic	0.0123	0.0132	0.0124
20:1 Eicosenoic	0.00583	0.00617	0.00583
20:2 Eicosadienoic	< 0.00400	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400	< 0.00400
22:0 Behenic	0.00541	0.00622	0.00537

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007515	10007490	10007493
Material Name	MON 87427	MON 87427	MON 87427
Site Code	IARL	IARL	IARL
Plot ID	113	218	304
Seed Lot Number	10001857	10001857	10001857
Herbicide Treatment	Glyphosate	Glyphosate	Glyphosate
Covance LIMS Number	90600104	90600089	90600020
Proximate (%)			
Moisture	10.9	10.9	11.0
Protein	8.83	9.39	10.1
Total Fat	3.26	3.17	3.20
Ash	1.30	1.57	1.33
Carbohydrates	75.7	75.0	74.4
Acid Detergent Fiber (%)	2.95	2.38	2.63
Neutral Detergent Fiber (%)	8.17	8.40	8.39
Total Dietary Fiber (%)	11.2	11.3	10.8
Beta Carotene (mg/100g)	0.0847	0.0841	0.0918
Ferulic Acid (ppm)	2040	1950	2030
p-Coumaric Acid (ppm)	148	153	174
Furfural (ppm)	< 0.500	< 0.500	< 0.500
Thiamin HCl (mg/100g)	0.23	0.23	0.27
Riboflavin/Vitamin B2 (µg/g)	1.04	1.31	1.42
Pyridoxine HCl (µg/g)	5.27	6.36	7.38
Vitamin E (mg/g)	0.00756	0.0121	0.00998
Niacin (µg/g)	24.3	20.1	21.7
Folic Acid (µg/g)	0.323	0.278	0.359
Phytic Acid (%)	0.899	0.791	0.919
Raffinose (%)	0.0875	0.100	0.108
Minerals (ppm)			
Calcium	47.8	50.4	48.5
Copper	1.17	1.08	1.39
Iron	20.2	21.5	23.0
Magnesium	1130	1140	1140
Manganese	8.37	8.25	8.37
Phosphorus	3090	2920	2820
Potassium	3430	3440	3390
Sodium	< 100	< 100	< 100
Zinc	20.0	21.0	21.9

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007515	10007490	10007493
Material Name	MON 87427	MON 87427	MON 87427
Site Code	IARL	IARL	IARL
Plot ID	113	218	304
Seed Lot Number	10001857	10001857	10001857
Herbicide Treatment	Glyphosate	Glyphosate	Glyphosate
Covance LIMS Number	90600104	90600089	90600020
Amino Acids (mg/g)			
Aspartic acid	5.52	6.05	6.31
Threonine	2.99	3.19	3.32
Serine	4.12	4.48	4.58
Glutamic acid	16.5	18.4	19.9
Proline	8.14	8.83	9.63
Glycine	3.18	3.36	3.52
Alanine	6.60	7.34	7.89
Cystine	2.14	2.12	2.24
Valine	4.18	4.61	4.91
Methionine	2.05	1.97	2.09
Isoleucine	3.06	3.45	3.76
Leucine	11.0	12.4	13.5
Tyrosine	2.53	3.09	2.84
Phenylalanine	4.44	4.95	5.37
Lysine	2.54	2.65	2.68
Histidine	2.60	2.81	2.99
Arginine	4.00	4.37	4.37
Tryptophan	0.441	0.444	0.519

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007515	10007490	10007493
Material Name	MON 87427	MON 87427	MON 87427
Site Code	IARL	IARL	IARL
Plot ID	113	218	304
Seed Lot Number	10001857	10001857	10001857
Herbicide Treatment	Glyphosate	Glyphosate	Glyphosate
Covance LIMS Number	90600104	90600089	90600020
Fatty Acids (%)			
8:0 Caprylic	< 0.00400	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400	< 0.00400
16:0 Palmitic	0.316	0.326	0.307
16:1 Palmitoleic	0.00550	< 0.00400	< 0.00400
17:0 Heptadecanoic	< 0.00400	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400	< 0.00400
18:0 Stearic	0.0538	0.0565	0.0525
18:1 Oleic	0.665	0.697	0.667
18:2 Linoleic	1.82	1.90	1.82
18:3 gamma-Linolenic	< 0.00400	< 0.00400	< 0.00400
18:3 Linolenic	0.0361	0.0383	0.0355
20:0 Arachidic	0.0110	0.0118	0.0107
20:1 Eicosenoic	0.00572	0.00608	0.00561
20:2 Eicosadienoic	< 0.00400	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400	< 0.00400
22:0 Behenic	0.00415	0.00466	0.00428

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007674	10007671	10007642
Material Name	MON 87427	MON 87427	MON 87427
Site Code	ILWY	ILWY	ILWY
Plot ID	116	213	309
Seed Lot Number	10001857	10001857	10001857
Herbicide Treatment	Glyphosate	Glyphosate	Glyphosate
Covance LIMS Number	90600065	90600004	90600101
Proximate (%)			
Moisture	12.2	13.3	12.1
Protein	7.43	7.68	7.74
Total Fat	3.18	3.22	3.37
Ash	1.41	1.33	1.59
Carbohydrates	75.8	74.5	75.2
Acid Detergent Fiber (%)	3.75	3.24	2.93
Neutral Detergent Fiber (%)	8.58	9.51	8.80
Total Dietary Fiber (%)	12.6	11.1	11.1
Beta Carotene (mg/100g)	0.106	0.0926	0.0954
Ferulic Acid (ppm)	1970	2040	2070
p-Coumaric Acid (ppm)	162	172	173
Furfural (ppm)	< 0.500	< 0.500	< 0.500
Thiamin HC1 (mg/100g)	0.27	0.29	0.30
Riboflavin/Vitamin B2 (µg/g)	1.19	1.44	1.58
Pyridoxine HC1 (µg/g)	5.72	6.44	5.76
Vitamin E (mg/g)	0.0116	0.0127	0.00619
Niacin (µg/g)	29.3	24.9	27.6
Folic Acid (µg/g)	0.248	0.339	0.287
Phytic Acid (%)	0.885	0.869	0.918
Raffinose (%)	0.170	0.182	0.174
Minerals (ppm)			
Calcium	42.6	41.2	43.9
Copper	1.44	1.55	1.38
Iron	19.5	19.9	19.7
Magnesium	1110	1140	1140
Manganese	5.02	4.91	4.86
Phosphorus	2990	2930	3050
Potassium	3710	3490	3600
Sodium	< 100	< 100	< 100
Zinc	18.6	18.2	19.0

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007674	10007671	10007642
Material Name	MON 87427	MON 87427	MON 87427
Site Code	ILWY	ILWY	ILWY
Plot ID	116	213	309
Seed Lot Number	10001857	10001857	10001857
Herbicide Treatment	Glyphosate	Glyphosate	Glyphosate
Covance LIMS Number	90600065	90600004	90600101
Amino Acids (mg/g)			
Aspartic acid	4.73	4.72	4.82
Threonine	2.56	2.61	2.66
Serine	3.31	3.58	3.51
Glutamic acid	13.4	13.5	13.9
Proline	6.49	6.38	6.77
Glycine	3.04	2.94	3.02
Alanine	5.32	5.34	5.50
Cystine	1.88	1.87	1.92
Valine	3.69	3.54	3.67
Methionine	1.76	1.75	1.83
Isoleucine	2.58	2.50	2.62
Leucine	8.55	8.70	8.97
Tyrosine	2.08	2.44	1.58
Phenylalanine	3.49	3.67	3.77
Lysine	2.41	2.36	2.39
Histidine	2.36	2.30	2.35
Arginine	3.62	3.91	3.55
Tryptophan	0.423	0.390	0.427

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007674	10007671	10007642
Material Name	MON 87427	MON 87427	MON 87427
Site Code	ILWY	ILWY	ILWY
Plot ID	116	213	309
Seed Lot Number	10001857	10001857	10001857
Herbicide Treatment	Glyphosate	Glyphosate	Glyphosate
Covance LIMS Number	90600065	90600004	90600101
Fatty Acids (%)			
8:0 Caprylic	< 0.00400	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400	< 0.00400
16:0 Palmitic	0.318	0.323	0.309
16:1 Palmitoleic	< 0.00400	< 0.00400	< 0.00400
17:0 Heptadecanoic	< 0.00400	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400	< 0.00400
18:0 Stearic	0.0583	0.0578	0.0552
18:1 Oleic	0.721	0.714	0.690
18:2 Linoleic	1.89	1.91	1.79
18:3 gamma-Linolenic	< 0.00400	< 0.00400	< 0.00400
18:3 Linolenic	0.0358	0.0370	0.0354
20:0 Arachidic	0.0127	0.0124	0.0119
20:1 Eicosenoic	0.00648	0.00625	0.00618
20:2 Eicosadienoic	< 0.00400	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400	< 0.00400
22:0 Behenic	0.00478	0.00460	0.00449

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007316	10007308	10007321
Material Name	Parental Control	Parental Control	Parental Control
Site Code	ARNE	ARNE	ARNE
Plot ID	101	214	314
Seed Lot Number	10001859	10001859	10001859
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600045	90600014	90600022
Proximate (%)			
Moisture	11.6	11.3	11.9
Protein	9.39	8.79	8.92
Total Fat	3.23	3.08	3.09
Ash	1.39	1.31	1.30
Carbohydrates	74.4	75.5	74.8
Acid Detergent Fiber (%)	3.02	3.14	2.88
Neutral Detergent Fiber (%)	9.12	10.0	9.74
Total Dietary Fiber (%)	11.2	12.2	11.7
Beta Carotene (mg/100g)	0.0865	0.0673	0.0767
Ferulic Acid (ppm)	2210	2160	2040
p-Coumaric Acid (ppm)	223	221	206
Furfural (ppm)	< 0.500	< 0.500	< 0.500
Thiamin HCl (mg/100g)	0.23	0.22	0.22
Riboflavin/Vitamin B2 (µg/g)	2.06	2.29	1.92
Pyridoxine HCl (µg/g)	7.89	8.52	7.25
Vitamin E (mg/g)	0.0160	0.0155	0.0156
Niacin (µg/g)	22.2	25.3	21.6
Folic Acid (µg/g)	0.363	0.417	0.311
Phytic Acid (%)	0.880	0.850	0.832
Raffinose (%)	0.124	0.114	0.113
Minerals (ppm)			
Calcium	58.3	53.4	67.0
Copper	1.57	1.68	1.62
Iron	22.6	19.6	20.3
Magnesium	1120	1040	1150
Manganese	7.90	7.39	8.20
Phosphorus	3070	2890	3030
Potassium	3430	3530	3610
Sodium	< 100	< 100	< 100
Zinc	19.8	19.2	19.5

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007316	10007308	10007321
Material Name	Parental Control	Parental Control	Parental Control
Site Code	ARNE	ARNE	ARNE
Plot ID	101	214	314
Seed Lot Number	10001859	10001859	10001859
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600045	90600014	90600022
Amino Acids (mg/g)			
Aspartic acid	5.98	5.53	5.77
Threonine	3.28	3.07	3.10
Serine	4.42	4.22	4.09
Glutamic acid	17.0	15.8	16.5
Proline	8.36	7.66	8.03
Glycine	3.70	3.43	3.57
Alanine	6.84	6.40	6.64
Cystine	2.25	2.17	2.14
Valine	4.53	4.12	4.44
Methionine	2.43	2.41	2.31
Isoleucine	3.26	2.94	3.23
Leucine	11.2	10.3	10.8
Tyrosine	3.22	2.25	3.06
Phenylalanine	4.71	4.32	4.55
Lysine	2.93	2.71	2.77
Histidine	2.75	2.51	2.63
Arginine	4.98	4.22	4.65
Tryptophan	0.470	0.464	0.445

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007316	10007308	10007321
Material Name	Parental Control	Parental Control	Parental Control
Site Code	ARNE	ARNE	ARNE
Plot ID	101	214	314
Seed Lot Number	10001859	10001859	10001859
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600045	90600014	90600022
Fatty Acids (%)			
8:0 Caprylic	< 0.00400	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400	< 0.00400
16:0 Palmitic	0.331	0.318	0.310
16:1 Palmitoleic	0.00483	0.00472	0.00441
17:0 Heptadecanoic	< 0.00400	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400	< 0.00400
18:0 Stearic	0.0606	0.0592	0.0578
18:1 Oleic	0.769	0.743	0.701
18:2 Linoleic	1.82	1.71	1.67
18:3 gamma-Linolenic	< 0.00400	< 0.00400	< 0.00400
18:3 Linolenic	0.0360	0.0340	0.0340
20:0 Arachidic	0.0136	0.0132	0.0130
20:1 Eicosenoic	0.00693	0.00643	0.00636
20:2 Eicosadienoic	< 0.00400	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400	< 0.00400
22:0 Behenic	0.00556	0.00565	0.00559

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007477	10007521
Material Name	Parental Control	Parental Control
Site Code	IARL	IARL
Plot ID	106	302
Seed Lot Number	10001859	10001859
Herbicide Treatment	NA	NA
Covance LIMS Number	90600038	90600013
Proximate (%)		
Moisture	10.6	10.2
Protein	10.2	10.7
Total Fat	3.32	3.22
Ash	1.43	1.37
Carbohydrates	74.5	74.5
Acid Detergent Fiber (%)	2.89	2.71
Neutral Detergent Fiber (%)	8.28	8.27
Total Dietary Fiber (%)	11.3	11.5
Beta Carotene (mg/100g)	0.0851	0.0742
Ferulic Acid (ppm)	2200	2060
p-Coumaric Acid (ppm)	174	146
Furfural (ppm)	< 0.500	< 0.500
Thiamin HC1 (mg/100g)	0.27	0.26
Riboflavin/Vitamin B2 (µg/g)	1.69	1.76
Pyridoxine HC1 (µg/g)	5.82	7.31
Vitamin E (mg/g)	0.0100	0.00958
Niacin (µg/g)	24.6	20.3
Folic Acid (µg/g)	0.376	0.441
Phytic Acid (%)	0.873	0.918
Raffinose (%)	0.0943	0.0969
Minerals (ppm)		
Calcium	47.3	41.3
Copper	1.44	1.34
Iron	20.7	21.4
Magnesium	1170	1200
Manganese	8.78	8.54
Phosphorus	3160	3010
Potassium	3700	3430
Sodium	< 100	< 100
Zinc	25.1	22.4

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007477	10007521
Material Name	Parental Control	Parental Control
Site Code	IARL	IARL
Plot ID	106	302
Seed Lot Number	10001859	10001859
Herbicide Treatment	NA	NA
Covance LIMS Number	90600038	90600013
Amino Acids (mg/g)		
Aspartic acid	6.42	6.58
Threonine	3.38	3.49
Serine	4.69	5.19
Glutamic acid	19.7	20.5
Proline	9.48	9.51
Glycine	3.53	3.52
Alanine	7.92	8.11
Cystine	2.28	2.36
Valine	4.99	4.86
Methionine	2.19	2.23
Isoleucine	3.79	3.71
Leucine	13.6	14.0
Tyrosine	3.48	2.86
Phenylalanine	5.39	5.52
Lysine	2.76	2.78
Histidine	3.01	2.99
Arginine	4.72	4.55
Tryptophan	0.577	0.452

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007477	10007521
Material Name	Parental Control	Parental Control
Site Code	IARL	IARL
Plot ID	106	302
Seed Lot Number	10001859	10001859
Herbicide Treatment	NA	NA
Covance LIMS Number	90600038	90600013
Fatty Acids (%)		
8:0 Caprylic	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400
16:0 Palmitic	0.333	0.313
16:1 Palmitoleic	< 0.00400	< 0.00400
17:0 Heptadecanoic	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400
18:0 Stearic	0.0571	0.0532
18:1 Oleic	0.692	0.664
18:2 Linoleic	2.04	1.91
18:3 gamma-Linolenic	< 0.00400	< 0.00400
18:3 Linolenic	0.0381	0.0361
20:0 Arachidic	0.0117	0.0110
20:1 Eicosenoic	0.00631	0.00594
20:2 Eicosadienoic	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400
22:0 Behenic	0.00468	0.00441

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007647	10007663	10007691
Material Name	Parental Control	Parental Control	Parental Control
Site Code	ILWY	ILWY	ILWY
Plot ID	105	217	308
Seed Lot Number	10001859	10001859	10001859
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600099	90600081	90600027
Proximate (%)			
Moisture	11.9	12.2	12.4
Protein	8.10	7.99	7.55
Total Fat	3.48	3.16	3.49
Ash	1.46	1.36	1.46
Carbohydrates	75.1	75.3	75.1
Acid Detergent Fiber (%)	2.80	2.46	2.79
Neutral Detergent Fiber (%)	9.33	8.77	8.95
Total Dietary Fiber (%)	11.7	11.8	11.5
Beta Carotene (mg/100g)	0.0942	0.102	0.0940
Ferulic Acid (ppm)	1970	2080	2190
p-Coumaric Acid (ppm)	162	165	178
Furfural (ppm)	< 0.500	< 0.500	< 0.500
Thiamin HC1 (mg/100g)	0.30	0.27	0.28
Riboflavin/Vitamin B2 (µg/g)	1.50	1.16	1.33
Pyridoxine HC1 (µg/g)	6.72	4.98	6.47
Vitamin E (mg/g)	0.0104	0.00889	0.0119
Niacin (µg/g)	29.3	27.9	27.3
Folic Acid (µg/g)	0.283	0.275	0.258
Phytic Acid (%)	0.983	0.908	0.980
Raffinose (%)	0.166	0.162	0.188
Minerals (ppm)			
Calcium	46.0	41.1	41.1
Copper	1.44	1.43	1.74
Iron	18.2	19.8	19.6
Magnesium	1140	1120	1190
Manganese	4.31	5.70	5.10
Phosphorus	3000	3010	3050
Potassium	3540	3490	3740
Sodium	< 100	< 100	< 100
Zinc	20.3	19.9	21.9

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007647	10007663	10007691
Material Name	Parental Control	Parental Control	Parental Control
Site Code	ILWY	ILWY	ILWY
Plot ID	105	217	308
Seed Lot Number	10001859	10001859	10001859
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600099	90600081	90600027
Amino Acids (mg/g)			
Aspartic acid	5.18	5.11	4.24
Threonine	2.84	2.79	2.43
Serine	3.82	3.72	3.19
Glutamic acid	15.0	14.8	12.1
Proline	7.12	7.26	5.73
Glycine	3.22	3.22	2.72
Alanine	5.93	5.89	4.82
Cystine	1.96	2.01	1.85
Valine	3.95	3.97	3.23
Methionine	1.76	1.85	1.72
Isoleucine	2.84	2.82	2.27
Leucine	9.70	9.60	7.78
Tyrosine	1.84	2.04	2.11
Phenylalanine	4.06	4.02	3.30
Lysine	2.60	2.55	2.15
Histidine	2.53	2.48	2.05
Arginine	3.94	3.92	3.41
Tryptophan	0.494	0.490	0.372

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007647	10007663	10007691
Material Name	Parental Control	Parental Control	Parental Control
Site Code	ILWY	ILWY	ILWY
Plot ID	105	217	308
Seed Lot Number	10001859	10001859	10001859
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600099	90600081	90600027
Fatty Acids (%)			
8:0 Caprylic	< 0.00400	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400	< 0.00400
16:0 Palmitic	0.305	0.321	0.328
16:1 Palmitoleic	< 0.00400	< 0.00400	< 0.00400
17:0 Heptadecanoic	< 0.00400	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400	< 0.00400
18:0 Stearic	0.0546	0.0593	0.0618
18:1 Oleic	0.696	0.727	0.749
18:2 Linoleic	1.89	1.97	2.00
18:3 gamma-Linolenic	< 0.00400	< 0.00400	< 0.00400
18:3 Linolenic	0.0362	0.0372	0.0383
20:0 Arachidic	0.0115	0.0123	0.0132
20:1 Eicosenoic	0.00629	0.00654	0.00678
20:2 Eicosadienoic	< 0.00400	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400	< 0.00400
22:0 Behenic	0.00422	0.00491	0.00527

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007343	10007313	10007318
Material Name	Crows C6501	Crows C6501	Crows C6501
Site Code	ARNE	ARNE	ARNE
Plot ID	119	217	306
Seed Lot Number	10001546	10001546	10001546
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600080	90600010	90600039
Proximate (%)			
Moisture	11.2	11.5	11.7
Protein	8.79	8.64	8.91
Total Fat	2.76	3.14	2.96
Ash	1.34	1.49	1.49
Carbohydrates	75.9	75.2	74.9
Acid Detergent Fiber (%)	2.48	2.03	2.66
Neutral Detergent Fiber (%)	7.37	7.40	7.99
Total Dietary Fiber (%)	10.6	10.6	10.2
Beta Carotene (mg/100g)	0.0573	0.0599	0.0762
Ferulic Acid (ppm)	1860	1850	1990
p-Coumaric Acid (ppm)	169	164	170
Furfural (ppm)	< 0.500	< 0.500	< 0.500
Thiamin HC1 (mg/100g)	0.23	0.28	0.26
Riboflavin/Vitamin B2 (µg/g)	2.56	2.55	2.74
Pyridoxine HC1 (µg/g)	8.53	8.53	7.79
Vitamin E (mg/g)	0.0154	0.0153	0.0151
Niacin (µg/g)	23.7	24.9	23.7
Folic Acid (µg/g)	0.374	0.415	0.371
Phytic Acid (%)	0.915	0.873	0.938
Raffinose (%)	0.113	0.129	0.124
Minerals (ppm)			
Calcium	48.5	45.7	47.3
Copper	2.19	2.32	2.28
Iron	19.1	18.9	18.3
Magnesium	954	967	999
Manganese	6.12	6.35	7.32
Phosphorus	3090	3090	3200
Potassium	3890	4070	4060
Sodium	< 100	< 100	< 100
Zinc	18.9	19.8	19.5

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007343	10007313	10007318
Material Name	Crows C6501	Crows C6501	Crows C6501
Site Code	ARNE	ARNE	ARNE
Plot ID	119	217	306
Seed Lot Number	10001546	10001546	10001546
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600080	90600010	90600039
Amino Acids (mg/g)			
Aspartic acid	6.06	5.82	6.11
Threonine	3.08	2.97	3.01
Serine	4.36	4.23	4.12
Glutamic acid	15.9	15.4	16.4
Proline	6.92	6.73	7.35
Glycine	3.61	3.50	3.62
Alanine	6.45	6.30	6.68
Cystine	1.95	1.95	2.00
Valine	4.07	3.93	4.30
Methionine	1.85	1.88	1.90
Isoleucine	3.05	2.93	3.25
Leucine	10.4	9.94	10.7
Tyrosine	2.83	2.90	2.76
Phenylalanine	4.31	4.35	4.62
Lysine	2.89	2.81	2.86
Histidine	2.42	2.33	2.47
Arginine	4.66	4.59	4.61
Tryptophan	0.492	0.434	0.560

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007343	10007313	10007318
Material Name	Crows C6501	Crows C6501	Crows C6501
Site Code	ARNE	ARNE	ARNE
Plot ID	119	217	306
Seed Lot Number	10001546	10001546	10001546
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600080	90600010	90600039
Fatty Acids (%)			
8:0 Caprylic	< 0.00400	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400	< 0.00400
16:0 Palmitic	0.299	0.356	0.331
16:1 Palmitoleic	< 0.00400	0.00463	0.00443
17:0 Heptadecanoic	< 0.00400	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400	< 0.00400
18:0 Stearic	0.0464	0.0545	0.0504
18:1 Oleic	0.659	0.774	0.737
18:2 Linoleic	1.44	1.68	1.61
18:3 gamma-Linolenic	< 0.00400	< 0.00400	< 0.00400
18:3 Linolenic	0.0296	0.0353	0.0323
20:0 Arachidic	0.0119	0.0136	0.0127
20:1 Eicosenoic	0.00635	0.00698	0.00692
20:2 Eicosadienoic	< 0.00400	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400	< 0.00400
22:0 Behenic	0.00506	0.00569	0.00541

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007342	10007348	10007309
Material Name	Fielder's Choice 7864	Fielder's Choice 7864	Fielder's Choice 7864
Site Code	ARNE	ARNE	ARNE
Plot ID	108	212	303
Seed Lot Number	10001319	10001319	10001319
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600069	90600047	90600049
Proximate (%)			
Moisture	10.9	11.1	11.0
Protein	9.53	9.04	8.89
Total Fat	3.45	3.58	3.57
Ash	1.39	1.39	1.35
Carbohydrates	74.7	74.9	75.2
Acid Detergent Fiber (%)	3.09	2.52	3.16
Neutral Detergent Fiber (%)	7.59	6.42	9.00
Total Dietary Fiber (%)	10.7	10.9	11.3
Beta Carotene (mg/100g)	0.0956	0.107	0.111
Ferulic Acid (ppm)	1890	2050	1860
p-Coumaric Acid (ppm)	120	130	121
Furfural (ppm)	< 0.500	< 0.500	< 0.500
Thiamin HC1 (mg/100g)	0.31	0.22	0.28
Riboflavin/Vitamin B2 (µg/g)	1.72	1.70	1.84
Pyridoxine HC1 (µg/g)	6.91	6.99	7.83
Vitamin E (mg/g)	0.0102	0.00996	0.00970
Niacin (µg/g)	33.5	38.3	35.4
Folic Acid (µg/g)	0.298	0.327	0.366
Phytic Acid (%)	0.849	0.826	0.844
Raffinose (%)	0.168	0.158	0.159
Minerals (ppm)			
Calcium	42.9	44.3	42.5
Copper	1.82	1.66	1.69
Iron	18.8	19.3	18.6
Magnesium	1020	1010	989
Manganese	6.31	6.07	6.29
Phosphorus	2820	2850	2850
Potassium	3410	3590	3620
Sodium	< 100	< 100	< 100
Zinc	19.3	18.6	19.2

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007342	10007348	10007309
Material Name	Fielder's Choice 7864	Fielder's Choice 7864	Fielder's Choice 7864
Site Code	ARNE	ARNE	ARNE
Plot ID	108	212	303
Seed Lot Number	10001319	10001319	10001319
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600069	90600047	90600049
Amino Acids (mg/g)			
Aspartic acid	6.25	5.84	5.92
Threonine	3.31	3.06	3.09
Serine	4.50	4.15	4.01
Glutamic acid	17.9	16.2	16.2
Proline	7.78	7.41	7.43
Glycine	3.79	3.60	3.70
Alanine	7.11	6.51	6.51
Cystine	2.19	2.16	2.10
Valine	4.60	4.31	4.39
Methionine	1.98	1.90	1.84
Isoleucine	3.42	3.14	3.17
Leucine	11.6	10.4	10.3
Tyrosine	2.97	2.90	2.80
Phenylalanine	4.71	4.40	4.25
Lysine	2.98	2.89	2.99
Histidine	2.76	2.59	2.65
Arginine	4.87	4.71	4.83
Tryptophan	0.459	0.488	0.468

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007342	10007348	10007309
Material Name	Fielder's Choice 7864	Fielder's Choice 7864	Fielder's Choice 7864
Site Code	ARNE	ARNE	ARNE
Plot ID	108	212	303
Seed Lot Number	10001319	10001319	10001319
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600069	90600047	90600049
Fatty Acids (%)			
8:0 Caprylic	< 0.00400	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400	< 0.00400
16:0 Palmitic	0.377	0.388	0.395
16:1 Palmitoleic	0.00400	0.00427	0.00423
17:0 Heptadecanoic	< 0.00400	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400	< 0.00400
18:0 Stearic	0.0683	0.0724	0.0750
18:1 Oleic	1.11	1.16	1.17
18:2 Linoleic	1.59	1.65	1.71
18:3 gamma-Linolenic	< 0.00400	< 0.00400	< 0.00400
18:3 Linolenic	0.0380	0.0395	0.0407
20:0 Arachidic	0.0157	0.0166	0.0169
20:1 Eicosenoic	0.00982	0.00984	0.0100
20:2 Eicosadienoic	< 0.00400	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400	< 0.00400
22:0 Behenic	0.00535	0.00535	0.00581

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007339	10007349	10007331
Material Name	Fontanelle 5797	Fontanelle 5797	Fontanelle 5797
Site Code	ARNE	ARNE	ARNE
Plot ID	105	219	307
Seed Lot Number	10001548	10001548	10001548
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600097	90600064	90600015
Proximate (%)			
Moisture	11.1	11.1	11.1
Protein	9.71	8.69	8.92
Total Fat	3.30	3.36	3.26
Ash	1.62	1.37	1.49
Carbohydrates	74.3	75.5	75.2
Acid Detergent Fiber (%)	2.64	3.80	2.69
Neutral Detergent Fiber (%)	8.69	8.62	9.40
Total Dietary Fiber (%)	11.5	12.3	11.3
Beta Carotene (mg/100g)	0.0785	0.0860	0.0515
Ferulic Acid (ppm)	1930	1970	2120
p-Coumaric Acid (ppm)	140	152	183
Furfural (ppm)	< 0.500	< 0.500	< 0.500
Thiamin HCl (mg/100g)	0.24	0.24	0.22
Riboflavin/Vitamin B2 (µg/g)	2.90	2.07	2.22
Pyridoxine HCl (µg/g)	7.65	6.86	8.02
Vitamin E (mg/g)	0.0120	0.0140	0.0142
Niacin (µg/g)	25.5	26.5	22.7
Folic Acid (µg/g)	0.390	0.347	0.418
Phytic Acid (%)	0.911	0.930	0.838
Raffinose (%)	0.104	0.132	0.133
Minerals (ppm)			
Calcium	50.2	45.3	46.7
Copper	1.92	1.96	2.14
Iron	18.1	17.2	16.4
Magnesium	1180	982	1120
Manganese	5.52	5.31	6.10
Phosphorus	3290	2980	3050
Potassium	3670	3490	3660
Sodium	< 100	< 100	< 100
Zinc	19.9	17.8	19.5

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007339	10007349	10007331
Material Name	Fontanelle 5797	Fontanelle 5797	Fontanelle 5797
Site Code	ARNE	ARNE	ARNE
Plot ID	105	219	307
Seed Lot Number	10001548	10001548	10001548
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600097	90600064	90600015
Amino Acids (mg/g)			
Aspartic acid	6.12	5.69	5.62
Threonine	3.40	3.03	3.10
Serine	4.48	3.95	4.33
Glutamic acid	17.5	15.9	16.0
Proline	8.24	7.58	7.61
Glycine	3.79	3.63	3.52
Alanine	7.01	6.35	6.41
Cystine	2.25	2.11	2.15
Valine	4.47	4.31	4.16
Methionine	2.23	2.06	2.10
Isoleucine	3.32	3.14	3.03
Leucine	11.4	10.3	10.4
Tyrosine	1.53	2.38	2.87
Phenylalanine	4.83	4.33	4.44
Lysine	2.96	2.83	2.73
Histidine	2.73	2.61	2.57
Arginine	4.07	4.39	4.50
Tryptophan	0.515	0.464	0.439

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007339	10007349	10007331
Material Name	Fontanelle 5797	Fontanelle 5797	Fontanelle 5797
Site Code	ARNE	ARNE	ARNE
Plot ID	105	219	307
Seed Lot Number	10001548	10001548	10001548
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600097	90600064	90600015
Fatty Acids (%)			
8:0 Caprylic	< 0.00400	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400	< 0.00400
16:0 Palmitic	0.343	0.354	0.335
16:1 Palmitoleic	0.00439	0.00455	0.00417
17:0 Heptadecanoic	< 0.00400	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400	< 0.00400
18:0 Stearic	0.0670	0.0683	0.0650
18:1 Oleic	0.956	0.985	0.933
18:2 Linoleic	1.67	1.69	1.65
18:3 gamma-Linolenic	< 0.00400	< 0.00400	< 0.00400
18:3 Linolenic	0.0308	0.0329	0.0313
20:0 Arachidic	0.0164	0.0165	0.0160
20:1 Eicosenoic	0.00917	0.00905	0.00890
20:2 Eicosadienoic	< 0.00400	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400	< 0.00400
22:0 Behenic	0.00573	0.00566	0.00543

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007333	10007351	10007353
Material Name	Midwest Genetics 87801	Midwest Genetics 87801	Midwest Genetics 87801
Site Code	ARNE	ARNE	ARNE
Plot ID	107	220	315
Seed Lot Number	10000934	10000934	10000934
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600054	90600057	90600055
Proximate (%)			
Moisture	10.7	11.6	11.5
Protein	9.23	8.52	8.84
Total Fat	2.59	2.74	2.74
Ash	1.47	1.48	1.42
Carbohydrates	76.0	75.7	75.5
Acid Detergent Fiber (%)	3.23	2.88	2.95
Neutral Detergent Fiber (%)	8.87	8.03	8.44
Total Dietary Fiber (%)	11.2	10.6	10.1
Beta Carotene (mg/100g)	0.0780	0.0798	0.0819
Ferulic Acid (ppm)	1900	1850	1810
p-Coumaric Acid (ppm)	169	143	152
Furfural (ppm)	< 0.500	< 0.500	< 0.500
Thiamin HCl (mg/100g)	0.22	0.25	0.26
Riboflavin/Vitamin B2 (µg/g)	2.89	2.73	2.91
Pyridoxine HCl (µg/g)	7.80	7.29	7.57
Vitamin E (mg/g)	0.0136	0.0146	0.0152
Niacin (µg/g)	23.8	22.7	23.6
Folic Acid (µg/g)	0.513	0.362	0.423
Phytic Acid (%)	0.845	0.874	0.951
Raffinose (%)	0.0914	0.129	0.108
Minerals (ppm)			
Calcium	53.4	49.0	46.3
Copper	1.91	2.10	1.92
Iron	19.1	20.6	17.1
Magnesium	986	972	962
Manganese	6.58	6.71	7.47
Phosphorus	3150	3140	3130
Potassium	3950	3880	3800
Sodium	< 100	< 100	< 100
Zinc	19.1	18.3	17.6

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007333	10007351	10007353
Material Name	Midwest Genetics 87801	Midwest Genetics 87801	Midwest Genetics 87801
Site Code	ARNE	ARNE	ARNE
Plot ID	107	220	315
Seed Lot Number	10000934	10000934	10000934
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600054	90600057	90600055
Amino Acids (mg/g)			
Aspartic acid	6.42	5.82	6.01
Threonine	3.21	2.86	3.03
Serine	4.23	3.92	4.05
Glutamic acid	16.8	15.4	16.3
Proline	7.36	6.87	7.27
Glycine	3.84	3.53	3.53
Alanine	6.80	6.22	6.55
Cystine	2.04	1.93	1.98
Valine	4.48	4.07	4.23
Methionine	2.03	1.85	1.88
Isoleucine	3.35	3.07	3.21
Leucine	10.9	9.98	10.7
Tyrosine	1.88	2.71	2.51
Phenylalanine	4.50	4.19	4.44
Lysine	3.07	2.80	2.79
Histidine	2.51	2.36	2.44
Arginine	4.30	4.55	4.38
Tryptophan	0.552	0.448	0.475

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007333	10007351	10007353
Material Name	Midwest Genetics 87801	Midwest Genetics 87801	Midwest Genetics 87801
Site Code	ARNE	ARNE	ARNE
Plot ID	107	220	315
Seed Lot Number	10000934	10000934	10000934
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600054	90600057	90600055
Fatty Acids (%)			
8:0 Caprylic	< 0.00400	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400	< 0.00400
16:0 Palmitic	0.290	0.316	0.304
16:1 Palmitoleic	0.00400	0.00399	0.00401
17:0 Heptadecanoic	< 0.00400	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400	< 0.00400
18:0 Stearic	0.0443	0.0476	0.0474
18:1 Oleic	0.632	0.664	0.669
18:2 Linoleic	1.36	1.49	1.48
18:3 gamma-Linolenic	< 0.00400	< 0.00400	< 0.00400
18:3 Linolenic	0.0278	0.0316	0.0302
20:0 Arachidic	0.0115	0.0121	0.0119
20:1 Eicosenoic	0.00625	0.00634	0.00639
20:2 Eicosadienoic	< 0.00400	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400	< 0.00400
22:0 Behenic	0.00536	0.00546	0.00519

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007513	10007474	10007486
Material Name	Asgrow RX708	Asgrow RX708	Asgrow RX708
Site Code	IARL	IARL	IARL
Plot ID	104	217	312
Seed Lot Number	10001564	10001564	10001564
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600062	90600083	90600092
Proximate (%)			
Moisture	10.1	10.1	10.6
Protein	8.86	9.11	9.08
Total Fat	3.31	3.30	3.48
Ash	1.29	1.29	1.49
Carbohydrates	76.4	76.2	75.4
Acid Detergent Fiber (%)	3.28	2.73	2.82
Neutral Detergent Fiber (%)	7.61	8.11	7.57
Total Dietary Fiber (%)	11.4	11.8	10.2
Beta Carotene (mg/100g)	0.135	0.109	0.102
Ferulic Acid (ppm)	1820	1770	1720
p-Coumaric Acid (ppm)	118	126	111
Furfural (ppm)	< 0.500	< 0.500	< 0.500
Thiamin HCl (mg/100g)	0.24	0.28	0.29
Riboflavin/Vitamin B2 (µg/g)	1.52	1.28	1.53
Pyridoxine HCl (µg/g)	5.38	7.36	6.02
Vitamin E (mg/g)	0.0141	0.0139	0.0128
Niacin (µg/g)	24.9	28.7	23.5
Folic Acid (µg/g)	0.313	0.324	0.308
Phytic Acid (%)	0.934	0.926	0.923
Raffinose (%)	0.155	0.153	0.153
Minerals (ppm)			
Calcium	36.5	41.2	35.5
Copper	1.20	0.987	1.02
Iron	17.0	16.7	16.6
Magnesium	1040	1030	1060
Manganese	6.23	6.44	5.81
Phosphorus	3030	2980	2850
Potassium	3510	3600	3390
Sodium	< 100	< 100	< 100
Zinc	16.3	17.0	18.0

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007513	10007474	10007486
Material Name	Asgrow RX708	Asgrow RX708	Asgrow RX708
Site Code	IARL	IARL	IARL
Plot ID	104	217	312
Seed Lot Number	10001564	10001564	10001564
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600062	90600083	90600092
Amino Acids (mg/g)			
Aspartic acid	5.61	5.76	5.79
Threonine	3.03	3.10	3.16
Serine	4.14	4.33	4.35
Glutamic acid	17.2	18.0	17.9
Proline	7.64	7.91	7.98
Glycine	3.16	3.21	3.29
Alanine	6.90	7.13	7.10
Cystine	1.94	1.93	1.91
Valine	4.27	4.35	4.38
Methionine	1.83	1.83	1.87
Isoleucine	3.32	3.38	3.37
Leucine	11.8	12.2	12.1
Tyrosine	2.88	1.45	2.18
Phenylalanine	4.66	4.92	4.91
Lysine	2.47	2.47	2.54
Histidine	2.43	2.49	2.51
Arginine	4.10	3.48	3.96
Tryptophan	0.415	0.487	0.499

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007513	10007474	10007486
Material Name	Asgrow RX708	Asgrow RX708	Asgrow RX708
Site Code	IARL	IARL	IARL
Plot ID	104	217	312
Seed Lot Number	10001564	10001564	10001564
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600062	90600083	90600092
Fatty Acids (%)			
8:0 Caprylic	< 0.00400	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400	< 0.00400
16:0 Palmitic	0.289	0.274	0.312
16:1 Palmitoleic	< 0.00400	< 0.00400	< 0.00400
17:0 Heptadecanoic	< 0.00400	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400	< 0.00400
18:0 Stearic	0.0535	0.0514	0.0591
18:1 Oleic	0.932	0.891	1.06
18:2 Linoleic	1.67	1.59	1.81
18:3 gamma-Linolenic	< 0.00400	< 0.00400	< 0.00400
18:3 Linolenic	0.0349	0.0320	0.0371
20:0 Arachidic	0.0114	0.0110	0.0126
20:1 Eicosenoic	0.00768	0.00734	0.00870
20:2 Eicosadienoic	< 0.00400	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400	< 0.00400
22:0 Behenic	0.00430	0.00421	0.00470

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007491	10007517	10007469
Material Name	Dekalb DKC60-15	Dekalb DKC60-15	Dekalb DKC60-15
Site Code	IARL	IARL	IARL
Plot ID	109	219	306
Seed Lot Number	10000950	10000950	10000950
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600021	90600091	90600078
Proximate (%)			
Moisture	10.8	10.8	10.8
Protein	8.58	8.37	9.12
Total Fat	3.09	3.07	2.75
Ash	1.38	1.58	1.32
Carbohydrates	76.2	76.2	76.0
Acid Detergent Fiber (%)	2.75	2.45	2.45
Neutral Detergent Fiber (%)	7.66	7.65	7.48
Total Dietary Fiber (%)	9.81	9.90	10.1
Beta Carotene (mg/100g)	0.0892	0.0837	0.0917
Ferulic Acid (ppm)	1790	1650	1690
p-Coumaric Acid (ppm)	181	162	174
Furfural (ppm)	< 0.500	< 0.500	< 0.500
Thiamin HCl (mg/100g)	0.27	0.26	0.25
Riboflavin/Vitamin B2 (µg/g)	1.73	1.42	1.52
Pyridoxine HCl (µg/g)	6.21	9.18	5.88
Vitamin E (mg/g)	0.0118	0.0110	0.0113
Niacin (µg/g)	18.4	19.3	18.7
Folic Acid (µg/g)	0.313	0.304	0.257
Phytic Acid (%)	0.908	0.890	0.950
Raffinose (%)	0.152	0.166	0.143
Minerals (ppm)			
Calcium	39.6	41.8	35.8
Copper	1.62	1.61	1.49
Iron	21.2	21.5	20.9
Magnesium	1070	1070	1080
Manganese	5.91	6.20	6.47
Phosphorus	3100	3200	3100
Potassium	3840	3860	3590
Sodium	< 100	< 100	< 100
Zinc	22.5	22.1	22.7

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007491	10007517	10007469
Material Name	Dekalb DKC60-15	Dekalb DKC60-15	Dekalb DKC60-15
Site Code	IARL	IARL	IARL
Plot ID	109	219	306
Seed Lot Number	10000950	10000950	10000950
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600021	90600091	90600078
Amino Acids (mg/g)			
Aspartic acid	5.34	5.12	5.65
Threonine	2.84	2.75	3.10
Serine	3.90	3.74	4.48
Glutamic acid	16.2	15.3	17.2
Proline	8.00	7.30	8.46
Glycine	3.14	3.06	3.35
Alanine	6.44	6.04	6.83
Cystine	1.98	1.89	2.08
Valine	4.21	3.96	4.33
Methionine	1.78	1.68	1.87
Isoleucine	3.14	2.90	3.19
Leucine	10.9	10.1	11.6
Tyrosine	2.42	1.48	3.01
Phenylalanine	4.45	4.17	4.54
Lysine	2.49	2.41	2.62
Histidine	2.54	2.40	2.71
Arginine	3.94	3.34	4.37
Tryptophan	0.405	0.485	0.421

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007491	10007517	10007469
Material Name	Dekalb DKC60-15	Dekalb DKC60-15	Dekalb DKC60-15
Site Code	IARL	IARL	IARL
Plot ID	109	219	306
Seed Lot Number	10000950	10000950	10000950
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600021	90600091	90600078
Fatty Acids (%)			
8:0 Caprylic	< 0.00400	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400	< 0.00400
16:0 Palmitic	0.357	0.355	0.312
16:1 Palmitoleic	< 0.00400	< 0.00400	< 0.00400
17:0 Heptadecanoic	< 0.00400	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400	< 0.00400
18:0 Stearic	0.0464	0.0467	0.0411
18:1 Oleic	0.624	0.631	0.548
18:2 Linoleic	1.81	1.83	1.61
18:3 gamma-Linolenic	< 0.00400	< 0.00400	< 0.00400
18:3 Linolenic	0.0382	0.0384	0.0346
20:0 Arachidic	0.00985	0.0102	0.00865
20:1 Eicosenoic	0.00608	0.00621	0.00540
20:2 Eicosadienoic	< 0.00400	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400	< 0.00400
22:0 Behenic	0.00426	0.00418	< 0.00400

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007480	10007494	10007479
Material Name	Midwest Genetics G7944	Midwest Genetics G7944	Midwest Genetics G7944
Site Code	IARL	IARL	IARL
Plot ID	105	205	305
Seed Lot Number	10001571	10001571	10001571
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600095	90600090	90600052
Proximate (%)			
Moisture	10.0	10.5	9.31
Protein	10.1	9.35	11.0
Total Fat	3.68	3.62	3.68
Ash	1.54	1.55	1.46
Carbohydrates	74.7	75.0	74.6
Acid Detergent Fiber (%)	2.51	2.82	3.01
Neutral Detergent Fiber (%)	6.87	8.06	8.48
Total Dietary Fiber (%)	10.3	10.2	10.8
Beta Carotene (mg/100g)	0.0900	0.0841	0.0995
Ferulic Acid (ppm)	1460	1580	1630
p-Coumaric Acid (ppm)	172	189	227
Furfural (ppm)	< 0.500	< 0.500	< 0.500
Thiamin HCl (mg/100g)	0.30	0.25	0.27
Riboflavin/Vitamin B2 (µg/g)	1.83	1.66	1.72
Pyridoxine HCl (µg/g)	5.17	4.69	5.55
Vitamin E (mg/g)	0.00680	0.00796	0.00784
Niacin (µg/g)	21.7	19.8	19.4
Folic Acid (µg/g)	0.214	0.286	0.466
Phytic Acid (%)	0.962	0.962	0.936
Raffinose (%)	0.120	0.118	0.109
Minerals (ppm)			
Calcium	55.6	60.8	50.0
Copper	1.17	1.27	1.54
Iron	17.7	18.1	17.8
Magnesium	1290	1330	1300
Manganese	7.30	8.21	7.63
Phosphorus	3160	3130	3100
Potassium	3250	3130	3250
Sodium	< 100	< 100	< 100
Zinc	19.7	21.0	21.1

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007480	10007494	10007479
Material Name	Midwest Genetics G7944	Midwest Genetics G7944	Midwest Genetics G7944
Site Code	IARL	IARL	IARL
Plot ID	105	205	305
Seed Lot Number	10001571	10001571	10001571
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600095	90600090	90600052
Amino Acids (mg/g)			
Aspartic acid	6.48	6.99	7.07
Threonine	3.38	3.65	3.61
Serine	4.83	5.27	5.12
Glutamic acid	20.5	22.3	22.3
Proline	8.85	9.62	9.67
Glycine	3.55	3.75	3.83
Alanine	8.06	8.76	8.80
Cystine	2.13	2.24	2.34
Valine	4.83	5.19	5.30
Methionine	1.96	2.06	2.09
Isoleucine	3.76	4.09	4.17
Leucine	13.8	15.1	15.1
Tyrosine	2.19	3.87	2.03
Phenylalanine	5.46	5.93	5.83
Lysine	2.72	2.84	2.93
Histidine	2.78	2.96	3.02
Arginine	4.37	5.10	4.68
Tryptophan	0.516	0.459	0.553

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007480	10007494	10007479
Material Name	Midwest Genetics G7944	Midwest Genetics G7944	Midwest Genetics G7944
Site Code	IARL	IARL	IARL
Plot ID	105	205	305
Seed Lot Number	10001571	10001571	10001571
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600095	90600090	90600052
Fatty Acids (%)			
8:0 Caprylic	< 0.00400	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400	< 0.00400
16:0 Palmitic	0.302	0.333	0.326
16:1 Palmitoleic	0.00410	0.00684	0.00432
17:0 Heptadecanoic	< 0.00400	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400	< 0.00400
18:0 Stearic	0.0740	0.0819	0.0808
18:1 Oleic	0.981	1.07	1.04
18:2 Linoleic	1.79	1.95	1.89
18:3 gamma-Linolenic	< 0.00400	< 0.00400	< 0.00400
18:3 Linolenic	0.0311	0.0350	0.0340
20:0 Arachidic	0.0118	0.0129	0.0128
20:1 Eicosenoic	0.00667	0.00731	0.00718
20:2 Eicosadienoic	< 0.00400	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400	< 0.00400
22:0 Behenic	< 0.00400	< 0.00400	< 0.00400

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007467	10007506
Material Name	NC + 4443	NC + 4443
Site Code	IARL	IARL
Plot ID	215	315
Seed Lot Number	10001572	10001572
Herbicide Treatment	NA	NA
Covance LIMS Number	90600011	90600071
Proximate (%)		
Moisture	10.3	9.34
Protein	8.67	9.20
Total Fat	3.86	3.79
Ash	1.41	1.25
Carbohydrates	75.8	76.4
Acid Detergent Fiber (%)	3.19	2.79
Neutral Detergent Fiber (%)	7.51	6.40
Total Dietary Fiber (%)	10.5	9.95
Beta Carotene (mg/100g)	0.0946	0.0939
Ferulic Acid (ppm)	1690	1440
p-Coumaric Acid (ppm)	177	132
Furfural (ppm)	< 0.500	< 0.500
Thiamin HC1 (mg/100g)	0.26	0.26
Riboflavin/Vitamin B2 (µg/g)	1.15	1.66
Pyridoxine HC1 (µg/g)	6.31	5.72
Vitamin E (mg/g)	0.00841	0.00741
Niacin (µg/g)	23.5	24.6
Folic Acid (µg/g)	0.299	0.267
Phytic Acid (%)	0.904	0.879
Raffinose (%)	0.144	0.147
Minerals (ppm)		
Calcium	36.7	40.6
Copper	1.51	1.16
Iron	16.2	16.9
Magnesium	1070	1100
Manganese	6.39	6.50
Phosphorus	2810	2840
Potassium	3200	2980
Sodium	< 100	< 100
Zinc	17.6	16.0

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007467	10007506
Material Name	NC + 4443	NC + 4443
Site Code	IARL	IARL
Plot ID	215	315
Seed Lot Number	10001572	10001572
Herbicide Treatment	NA	NA
Covance LIMS Number	90600011	90600071
Amino Acids (mg/g)		
Aspartic acid	5.49	6.00
Threonine	2.91	3.08
Serine	4.23	4.35
Glutamic acid	16.3	18.3
Proline	7.36	8.15
Glycine	3.04	3.24
Alanine	6.50	7.31
Cystine	1.88	1.92
Valine	3.93	4.43
Methionine	1.65	1.72
Isoleucine	3.01	3.49
Leucine	11.0	12.5
Tyrosine	2.83	2.85
Phenylalanine	4.44	4.88
Lysine	2.40	2.51
Histidine	2.32	2.54
Arginine	4.03	4.26
Tryptophan	0.421	0.399

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007467	10007506
Material Name	NC + 4443	NC + 4443
Site Code	IARL	IARL
Plot ID	215	315
Seed Lot Number	10001572	10001572
Herbicide Treatment	NA	NA
Covance LIMS Number	90600011	90600071
Fatty Acids (%)		
8:0 Caprylic	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400
16:0 Palmitic	0.391	0.396
16:1 Palmitoleic	< 0.00400	< 0.00400
17:0 Heptadecanoic	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400
18:0 Stearic	0.0578	0.0553
18:1 Oleic	0.934	0.881
18:2 Linoleic	2.29	2.19
18:3 gamma-Linolenic	< 0.00400	< 0.00400
18:3 Linolenic	0.0394	0.0386
20:0 Arachidic	0.0120	0.0118
20:1 Eicosenoic	0.00823	0.00801
20:2 Eicosadienoic	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400
22:0 Behenic	0.00447	0.00436

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007662	10007653	10007659
Material Name	Asgrow RX715	Asgrow RX715	Asgrow RX715
Site Code	ILWY	ILWY	ILWY
Plot ID	109	205	311
Seed Lot Number	10000952	10000952	10000952
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600024	90600042	90600058
Proximate (%)			
Moisture	12.2	12.7	12.7
Protein	7.92	7.50	7.30
Total Fat	3.75	3.49	3.40
Ash	1.21	1.34	1.22
Carbohydrates	74.9	75.0	75.4
Acid Detergent Fiber (%)	2.22	2.41	2.72
Neutral Detergent Fiber (%)	7.25	7.42	6.81
Total Dietary Fiber (%)	10.4	8.95	9.76
Beta Carotene (mg/100g)	0.0949	0.105	0.0945
Ferulic Acid (ppm)	1540	1710	1410
p-Coumaric Acid (ppm)	167	173	149
Furfural (ppm)	< 0.500	< 0.500	< 0.500
Thiamin HC1 (mg/100g)	0.29	0.21	0.25
Riboflavin/Vitamin B2 (µg/g)	1.68	1.54	1.20
Pyridoxine HC1 (µg/g)	5.82	5.11	5.53
Vitamin E (mg/g)	0.00949	0.00887	0.00917
Niacin (µg/g)	26.5	25.0	28.9
Folic Acid (µg/g)	0.315	0.257	0.308
Phytic Acid (%)	0.840	0.793	0.834
Raffinose (%)	0.161	0.162	0.147
Minerals (ppm)			
Calcium	39.0	38.6	39.3
Copper	1.57	1.26	1.40
Iron	16.3	14.8	15.8
Magnesium	1060	1000	985
Manganese	3.93	3.49	3.54
Phosphorus	2710	2740	2710
Potassium	3070	3030	3040
Sodium	< 100	< 100	< 100
Zinc	15.7	16.2	15.1

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007662	10007653	10007659
Material Name	Asgrow RX715	Asgrow RX715	Asgrow RX715
Site Code	ILWY	ILWY	ILWY
Plot ID	109	205	311
Seed Lot Number	10000952	10000952	10000952
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600024	90600042	90600058
Amino Acids (mg/g)			
Aspartic acid	5.10	4.73	4.86
Threonine	2.59	2.57	2.48
Serine	3.52	3.52	3.30
Glutamic acid	14.7	13.3	13.4
Proline	6.42	5.79	6.01
Glycine	3.00	2.83	2.96
Alanine	5.89	5.40	5.43
Cystine	1.78	1.75	1.69
Valine	3.76	3.35	3.55
Methionine	1.53	1.57	1.46
Isoleucine	2.87	2.48	2.65
Leucine	9.73	8.80	8.82
Tyrosine	1.81	2.45	1.27
Phenylalanine	4.02	3.66	3.64
Lysine	2.38	2.23	2.36
Histidine	2.22	1.99	2.11
Arginine	3.61	3.64	3.36
Tryptophan	0.433	0.436	0.397

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007662	10007653	10007659
Material Name	Asgrow RX715	Asgrow RX715	Asgrow RX715
Site Code	ILWY	ILWY	ILWY
Plot ID	109	205	311
Seed Lot Number	10000952	10000952	10000952
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600024	90600042	90600058
Fatty Acids (%)			
8:0 Caprylic	< 0.00400	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400	< 0.00400
16:0 Palmitic	0.440	0.353	0.331
16:1 Palmitoleic	< 0.00400	< 0.00400	< 0.00400
17:0 Heptadecanoic	< 0.00400	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400	< 0.00400
18:0 Stearic	0.0665	0.0537	0.0493
18:1 Oleic	1.13	0.821	0.774
18:2 Linoleic	1.95	1.99	1.87
18:3 gamma-Linolenic	< 0.00400	< 0.00400	< 0.00400
18:3 Linolenic	0.0491	0.0372	0.0340
20:0 Arachidic	0.0148	0.0117	0.0110
20:1 Eicosenoic	0.00998	0.00756	0.00713
20:2 Eicosadienoic	< 0.00400	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400	< 0.00400
22:0 Behenic	0.00528	0.00432	< 0.00400

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007648	10007665	10007637
Material Name	Dekalb DKC61-50	Dekalb DKC61-50	Dekalb DKC61-50
Site Code	ILWY	ILWY	ILWY
Plot ID	108	209	319
Seed Lot Number	10001328	10001328	10001328
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600003	90600082	90600035
Proximate (%)			
Moisture	12.5	11.8	11.6
Protein	7.49	7.41	7.27
Total Fat	3.63	3.51	3.65
Ash	1.31	1.22	1.29
Carbohydrates	75.1	76.1	76.2
Acid Detergent Fiber (%)	2.59	2.18	2.19
Neutral Detergent Fiber (%)	7.27	6.94	6.65
Total Dietary Fiber (%)	9.42	9.87	10.3
Beta Carotene (mg/100g)	0.0976	0.0878	0.107
Ferulic Acid (ppm)	1510	1660	1670
p-Coumaric Acid (ppm)	175	192	192
Furfural (ppm)	< 0.500	< 0.500	< 0.500
Thiamin HC1 (mg/100g)	0.30	0.28	0.30
Riboflavin/Vitamin B2 (µg/g)	1.95	1.49	1.38
Pyridoxine HC1 (µg/g)	5.32	5.40	5.45
Vitamin E (mg/g)	0.00821	0.00632	0.00803
Niacin (µg/g)	29.9	28.6	31.4
Folic Acid (µg/g)	0.354	0.274	0.248
Phytic Acid (%)	0.758	0.834	0.868
Raffinose (%)	0.165	0.155	0.181
Minerals (ppm)			
Calcium	33.9	37.2	36.2
Copper	1.40	1.07	1.52
Iron	15.0	14.6	15.5
Magnesium	984	975	1050
Manganese	3.61	3.68	4.17
Phosphorus	2570	2680	2760
Potassium	3230	3140	3530
Sodium	< 100	< 100	< 100
Zinc	15.2	15.4	16.4

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007648	10007665	10007637
Material Name	Dekalb DKC61-50	Dekalb DKC61-50	Dekalb DKC61-50
Site Code	ILWY	ILWY	ILWY
Plot ID	108	209	319
Seed Lot Number	10001328	10001328	10001328
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600003	90600082	90600035
Amino Acids (mg/g)			
Aspartic acid	4.87	4.94	4.59
Threonine	2.70	2.62	2.51
Serine	3.69	3.53	3.42
Glutamic acid	13.8	13.7	12.9
Proline	6.15	6.15	5.89
Glycine	2.98	3.09	2.88
Alanine	5.54	5.57	5.20
Cystine	1.75	1.72	1.73
Valine	3.45	3.64	3.32
Methionine	1.49	1.49	1.49
Isoleucine	2.56	2.69	2.41
Leucine	9.01	8.94	8.30
Tyrosine	2.44	2.44	2.26
Phenylalanine	3.81	3.79	3.51
Lysine	2.40	2.50	2.29
Histidine	2.09	2.15	1.95
Arginine	3.93	4.02	3.60
Tryptophan	0.421	0.497	0.431

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007648	10007665	10007637
Material Name	Dekalb DKC61-50	Dekalb DKC61-50	Dekalb DKC61-50
Site Code	ILWY	ILWY	ILWY
Plot ID	108	209	319
Seed Lot Number	10001328	10001328	10001328
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600003	90600082	90600035
Fatty Acids (%)			
8:0 Caprylic	< 0.00400	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400	< 0.00400
16:0 Palmitic	0.355	0.312	0.353
16:1 Palmitoleic	0.00404	< 0.00400	< 0.00400
17:0 Heptadecanoic	< 0.00400	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400	< 0.00400
18:0 Stearic	0.0602	0.0533	0.0608
18:1 Oleic	0.927	0.804	0.926
18:2 Linoleic	2.07	1.81	2.04
18:3 gamma-Linolenic	< 0.00400	< 0.00400	< 0.00400
18:3 Linolenic	0.0408	0.0360	0.0401
20:0 Arachidic	0.0134	0.0118	0.0137
20:1 Eicosenoic	0.00801	0.00684	0.00787
20:2 Eicosadienoic	< 0.00400	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400	< 0.00400
22:0 Behenic	0.00507	0.00441	0.00511

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007687	10007644	10007641
Material Name	Midland 7B15	Midland 7B15	Midland 7B15
Site Code	ILWY	ILWY	ILWY
Plot ID	114	220	303
Seed Lot Number	10001545	10001545	10001545
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600103	90600068	90600030
Proximate (%)			
Moisture	12.3	11.9	12.2
Protein	7.47	7.11	7.33
Total Fat	3.00	2.85	2.96
Ash	1.43	1.36	1.30
Carbohydrates	75.8	76.8	76.2
Acid Detergent Fiber (%)	2.95	3.61	2.79
Neutral Detergent Fiber (%)	7.85	9.39	9.09
Total Dietary Fiber (%)	11.5	12.6	11.7
Beta Carotene (mg/100g)	0.0824	0.128	0.0831
Ferulic Acid (ppm)	2000	2160	2310
p-Coumaric Acid (ppm)	166	196	180
Furfural (ppm)	< 0.500	< 0.500	< 0.500
Thiamin HC1 (mg/100g)	0.26	0.25	0.26
Riboflavin/Vitamin B2 (µg/g)	1.29	1.15	1.28
Pyridoxine HC1 (µg/g)	5.33	5.76	5.99
Vitamin E (mg/g)	0.00807	0.0122	0.0123
Niacin (µg/g)	25.5	27.3	25.3
Folic Acid (µg/g)	0.288	0.259	0.265
Phytic Acid (%)	0.920	0.887	0.845
Raffinose (%)	0.177	0.189	0.184
Minerals (ppm)			
Calcium	37.1	35.9	38.0
Copper	1.66	1.59	1.73
Iron	17.9	18.0	18.3
Magnesium	1120	1080	1110
Manganese	4.20	4.01	3.62
Phosphorus	3020	2870	2860
Potassium	3550	3540	3650
Sodium	< 100	< 100	< 100
Zinc	20.2	19.7	21.7

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007687	10007644	10007641
Material Name	Midland 7B15	Midland 7B15	Midland 7B15
Site Code	ILWY	ILWY	ILWY
Plot ID	114	220	303
Seed Lot Number	10001545	10001545	10001545
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600103	90600068	90600030
Amino Acids (mg/g)			
Aspartic acid	4.59	4.57	4.60
Threonine	2.57	2.54	2.56
Serine	3.44	3.31	3.44
Glutamic acid	13.5	13.0	13.3
Proline	6.57	6.14	6.56
Glycine	2.94	3.01	2.97
Alanine	5.25	5.09	5.25
Cystine	1.94	1.79	1.79
Valine	3.59	3.57	3.60
Methionine	1.75	1.58	1.58
Isoleucine	2.52	2.48	2.53
Leucine	8.62	8.21	8.56
Tyrosine	1.00	1.22	2.33
Phenylalanine	3.70	3.46	3.69
Lysine	2.33	2.40	2.33
Histidine	2.26	2.27	2.25
Arginine	3.00	3.30	3.72
Tryptophan	0.420	0.387	0.346

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007687	10007644	10007641
Material Name	Midland 7B15	Midland 7B15	Midland 7B15
Site Code	ILWY	ILWY	ILWY
Plot ID	114	220	303
Seed Lot Number	10001545	10001545	10001545
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600103	90600068	90600030
Fatty Acids (%)			
8:0 Caprylic	< 0.00400	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400	< 0.00400
16:0 Palmitic	0.287	0.272	0.287
16:1 Palmitoleic	< 0.00400	< 0.00400	< 0.00400
17:0 Heptadecanoic	< 0.00400	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400	< 0.00400
18:0 Stearic	0.0497	0.0478	0.0500
18:1 Oleic	0.612	0.608	0.642
18:2 Linoleic	1.72	1.67	1.75
18:3 gamma-Linolenic	< 0.00400	< 0.00400	< 0.00400
18:3 Linolenic	0.0324	0.0313	0.0332
20:0 Arachidic	0.0113	0.0108	0.0114
20:1 Eicosenoic	0.00643	0.00610	0.00649
20:2 Eicosadienoic	< 0.00400	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400	< 0.00400
22:0 Behenic	0.00425	0.00410	0.00477

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007666	10007656	10007683
Material Name	NK N69-P9	NK N69-P9	NK N69-P9
Site Code	ILWY	ILWY	ILWY
Plot ID	107	212	302
Seed Lot Number	10001544	10001544	10001544
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600018	90600084	90600105
Proximate (%)			
Moisture	11.6	11.6	12.4
Protein	7.42	8.11	7.16
Total Fat	3.53	3.35	3.53
Ash	1.24	1.04	1.35
Carbohydrates	76.2	75.9	75.6
Acid Detergent Fiber (%)	2.81	2.75	2.48
Neutral Detergent Fiber (%)	7.58	7.72	7.64
Total Dietary Fiber (%)	10.9	10.9	10.7
Beta Carotene (mg/100g)	0.0822	0.122	0.0811
Ferulic Acid (ppm)	1830	1780	1880
p-Coumaric Acid (ppm)	206	207	216
Furfural (ppm)	< 0.500	< 0.500	< 0.500
Thiamin HCl (mg/100g)	0.26	0.25	0.26
Riboflavin/Vitamin B2 (µg/g)	1.63	1.45	1.80
Pyridoxine HCl (µg/g)	5.99	7.34	5.74
Vitamin E (mg/g)	0.00839	0.00590	0.00828
Niacin (µg/g)	27.6	28.4	26.9
Folic Acid (µg/g)	0.275	0.256	0.242
Phytic Acid (%)	0.754	0.748	0.720
Raffinose (%)	0.0935	0.0809	0.0877
Minerals (ppm)			
Calcium	33.8	39.1	36.9
Copper	2.02	1.71	1.65
Iron	14.9	15.8	14.9
Magnesium	1060	1100	1070
Manganese	3.72	4.32	3.64
Phosphorus	2490	2600	2690
Potassium	3130	2930	3160
Sodium	< 100	< 100	< 100
Zinc	17.3	18.6	19.1

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007666	10007656	10007683
Material Name	NK N69-P9	NK N69-P9	NK N69-P9
Site Code	ILWY	ILWY	ILWY
Plot ID	107	212	302
Seed Lot Number	10001544	10001544	10001544
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600018	90600084	90600105
Amino Acids (mg/g)			
Aspartic acid	4.91	5.37	4.69
Threonine	2.51	2.77	2.49
Serine	3.38	3.82	3.43
Glutamic acid	13.6	15.3	13.0
Proline	6.37	7.16	6.17
Glycine	2.91	3.13	2.88
Alanine	5.46	6.10	5.23
Cystine	1.58	1.75	1.65
Valine	3.55	3.86	3.34
Methionine	1.46	1.68	1.59
Isoleucine	2.67	2.91	2.45
Leucine	8.91	10.1	8.42
Tyrosine	2.11	2.45	2.12
Phenylalanine	3.76	4.17	3.59
Lysine	2.41	2.57	2.37
Histidine	2.04	2.23	1.98
Arginine	3.59	3.90	3.53
Tryptophan	0.378	0.439	0.364

Table 2
Compositional Analyses of Corn Grain

Sample ID Number	10007666	10007656	10007683
Material Name	NK N69-P9	NK N69-P9	NK N69-P9
Site Code	ILWY	ILWY	ILWY
Plot ID	107	212	302
Seed Lot Number	10001544	10001544	10001544
Herbicide Treatment	NA	NA	NA
Covance LIMS Number	90600018	90600084	90600105
Fatty Acids (%)			
8:0 Caprylic	< 0.00400	< 0.00400	< 0.00400
10:0 Capric	< 0.00400	< 0.00400	< 0.00400
12:0 Lauric	< 0.00400	< 0.00400	< 0.00400
14:0 Myristic	< 0.00400	< 0.00400	< 0.00400
14:1 Myristoleic	< 0.00400	< 0.00400	< 0.00400
15:0 Pentadecanoic	< 0.00400	< 0.00400	< 0.00400
15:1 Pentadecenoic	< 0.00400	< 0.00400	< 0.00400
16:0 Palmitic	0.298	0.285	0.301
16:1 Palmitoleic	< 0.00400	< 0.00400	< 0.00400
17:0 Heptadecanoic	< 0.00400	< 0.00400	< 0.00400
17:1 Heptadecenoic	< 0.00400	< 0.00400	< 0.00400
18:0 Stearic	0.0637	0.0599	0.0646
18:1 Oleic	0.792	0.751	0.816
18:2 Linoleic	2.05	1.95	1.98
18:3 gamma-Linolenic	< 0.00400	< 0.00400	< 0.00400
18:3 Linolenic	0.0367	0.0352	0.0369
20:0 Arachidic	0.0129	0.0122	0.0135
20:1 Eicosenoic	0.00711	0.00676	0.00753
20:2 Eicosadienoic	< 0.00400	< 0.00400	< 0.00400
20:4 Arachidonic	< 0.00400	< 0.00400	< 0.00400
20:3 Eicosatrienoic	< 0.00400	< 0.00400	< 0.00400
22:0 Behenic	0.00486	0.00470	0.00569

APPENDIX A

Analytical Method Summaries and Reference Standards

Analytical Method Summaries and Reference Standards

2-Furaldehyde (FURF)

The ground sample was extracted with 4% trichloroacetic acid and injected directly on a high-performance liquid chromatography system for quantitation of free furfurals by ultraviolet detection. The quantitation limit for this study was 0.500 ppm.

Reference Standard:

Acros, 2-Furaldehyde, 99.7%, Lot Number A0219180

Reference:

Albala-Hurtado S., Veciana-Nogues, M. T., Izquierdo-Pulido, M., and Vidal-Carou, M. C., "Determination of Free and Total Furfural Compounds In Infant Milk Formulas By High-Performance Liquid Chromatography," *Journal of Agricultural and Food Chemistry*, 45:2128-2133, (1997).

Amino Acid Composition (TAA5)

Total aspartic acid (including asparagine)

Total threonine

Total serine

Total glutamic acid (including glutamine)

Total proline

Total glycine

Total alanine

Total valine

Total isoleucine

Total leucine

Total tyrosine

Total phenylalanine

Total histidine

Total lysine

Total arginine

Total tryptophan

Sulfur-containing amino acids:	Total methionine
	Total cystine (including cysteine)

The sample was assayed by three methods to obtain the full profile. Tryptophan required a base hydrolysis with sodium hydroxide. The sulfur-containing amino acids required an oxidation with performic acid prior to hydrolysis with hydrochloric acid. Analysis of the samples for the remaining amino acids was accomplished through direct acid hydrolysis with hydrochloric acid. Once hydrolyzed, the individual amino acids were then quantitated using an automated amino acid analyzer. The limit of quantitation for this study was 0.100 mg/g.

Reference Standards:

Thermo Scientific, K18, 2.5 $\mu\text{mol/mL}$ per constituent (except cystine 1.25 $\mu\text{mol/mL}$),
Lot Number JK126327

Sigma, L-Tryptophan, 100%, Lot Number 076K0075

Sigma/BioChemika, L-Cysteic Acid Monohydrate, 99.5% (used as 100%),
Lot Number 1305674

Sigma, L-Methionine Sulfone, 100%, Lot Number 047K1321

Reference:

Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 982.30,
AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

Acid Detergent Fiber (ADF)

The sample was placed in a fritted vessel and washed with an acidic boiling detergent solution that dissolved the protein, carbohydrate, and ash. An acetone wash removed the fats and pigments. The lignocellulose fraction was collected on the frit and determined gravimetrically. The limit of quantitation for this study was 0.100%.

Reference:

Forage Fiber Analyses, Agriculture Handbook No.379, United States Department of
Agriculture, (1970).

Ash (ASHM)

The sample was placed in an electric furnace at 550°C and ignited to drive off all volatile organic matter. The nonvolatile matter remaining was quantitated gravimetrically and calculated to determine percent ash. The limit of quantitation for this study was 0.100%.

Reference:

Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 923.03,
AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

Beta Carotene (BCLC)

The sample was saponified and extracted with hexane. The sample was then injected on a reverse phase high-performance liquid chromatography system with ultraviolet light detection. Quantitation was achieved with a linear regression analysis. The limit of quantitation for Beta Carotene was approximately 0.0200 mg/100g.

Reference Standard:

Sigma-Aldrich, Beta Carotene, Type 1, Purity 96.30% and 94.96% (determined
spectrophotometrically), Lot Number 068K2561

References:

Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 941.15,
AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

Quackenbush, F. W., *Journal of Liquid Chromatography*, 10: 643-653, (1987).

Carbohydrate (CHO)

The total carbohydrate level was calculated by difference using the fresh weight-derived data and the following equation:

$$\% \text{ carbohydrates} = 100 \% - (\% \text{ protein} + \% \text{ fat} + \% \text{ moisture} + \% \text{ ash})$$

The limit of quantitation for this study was 0.100%.

Reference:

United States Department of Agriculture, "Energy Value of Foods", *Agriculture Handbook No. 74*, pp. 2-11, (1973).

Fat by Acid Hydrolysis (FAAH)

The sample was hydrolyzed with hydrochloric acid at an elevated temperature. The fat was extracted with ether and hexane. The extract was evaporated on a steambath, re-dissolved in hexane and filtered through a sodium sulfate column. The hexane extract was then evaporated again on a steambath under nitrogen, dried, and weighed. The limit of quantitation for this study was 0.100%.

Reference:

Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 922.06 and 954.02, AOAC INTERNATIONAL, Gaithersburg, Maryland, (2005).

Fat by Soxhlet Extraction (FSOX)

The sample was weighed into a cellulose thimble containing sodium sulfate and dried to remove excess moisture. Pentane was dripped through the sample to remove the fat. The extract was then evaporated, dried, and weighed. The limit of quantitation for this study was 0.100%.

Reference:

Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 960.39 and 948.22, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005)

Fatty Acids (FAPM)

The lipid was extracted and saponified with 0.5N sodium hydroxide in methanol. The saponification mixture was methylated with 14% boron trifluoride in methanol. The resulting methyl esters were extracted with heptane containing an internal standard. The methyl esters of the fatty acids were analyzed by gas chromatography using external standards for quantitation. The limit of quantitation was 0.00400%.

Reference Standards:

Nu Chek Prep GLC Reference Standard Hazleton No. 1, *, Lot Number AU18-S
Nu Chek Prep GLC Reference Standard Hazleton No. 2, *, Lot Number M13-O
Nu Chek Prep GLC Reference Standard Hazleton No. 3, *, Lot Number MA18-S
Nu Chek Prep GLC Reference Standard Hazleton No. 4, *, Lot Number JA16-T
Nu Chek Prep Methyl Gamma Linolenate, used as 100%,
Lot Number U-63M-JY12-R
Nu Chek Prep Methyl Tridecanoate, used as 100%, Lot Number N-13M-JA16-T
* Overall purity of the sum of the mixture of components was used as 100%.

References:

Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 983.23,
AOAC INTERNATIONAL, Gaithersburg, Maryland, (2005).

Official Methods and Recommended Practices of the AOCS, 5th Ed., Methods Ce 2-66
(1997) and Ce 1e-92 (2001) , American Oil Chemists' Society: Champaign, Illinois.

Folic acid (FOAN)

The sample was hydrolyzed in a potassium phosphate buffer with the addition of ascorbic acid to protect the folic acid during autoclaving. Following hydrolysis by autoclaving, the sample was treated with a chicken-pancreas enzyme and incubated approximately 18 hours to liberate the bound folic acid. The amount of folic acid was determined by comparing the growth response of the sample, using the bacteria *Lactobacillus casei*, with the growth response of a folic acid standard. This response was measured turbidimetrically. The limit of quantitation for this study was 0.0600 µg/g.

Reference Standard:

USP, Folic acid, 98.9%, Lot Number Q0G151

References:

Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 960.46
and 992.05, AOAC INTERNATIONAL, Gaithersburg, Maryland, (2005).

Methods of Analysis for Infant Formulas, Infant Formula Council, Atlanta, Georgia,
Section C-2, (1985).

ICP Emission Spectrometry (ICPS)

The sample was dried, precharred, and ashed overnight in a muffle set to maintain 500°C. The ashed sample was re-ashed with nitric acid, treated with hydrochloric acid, taken to dryness, and put into a solution of 5% hydrochloric acid. The amount of each element was determined at appropriate wavelengths by comparing the emission of the unknown sample, measured on the inductively coupled plasma spectrometer, with the emission of the standard solutions.

Inorganic Ventures Reference Standards and Limits of Quantitation:

Mineral	Lot Numbers	Concentration (µg/ml)	Limit of Quantitation (ppm)
Calcium	C2-MEB290078, C2-MEB289124	200, 1000	20.0
Copper	C2-MEB290078, C2-MEB290079	2, 10	0.50
Iron	C2-MEB290078, C2-MEB290080	10, 50	2.00
Magnesium	C2-MEB290078, C2-MEB290079	50, 250	20.0
Manganese	C2-MEB290078, C2-MEB290079	2, 10	0.30
Phosphorus	C2-MEB290078, C2-MEB289124	200, 1000	20.0
Potassium	C2-MEB290078, BB11-203K*	200, 10000*	100
Sodium	C2-MEB290078, C2-MEB289124	200, 1000	100
Zinc	C2-MEB290078, C2-MEB290079	10, 50	0.40

*Used SPEX standard for potassium, top standard was 1000 µg/mL.

References:

Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 984.27 and 985.01, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

Moisture (M100)

The sample was dried in a vacuum oven at approximately 100°C to a constant weight. The moisture weight loss was determined and converted to percent moisture. The limit of quantitation for this study was 0.100%.

Reference:

Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 926.08 and 925.09, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

Neutral Detergent Fiber, Enzyme Method (NDFE)

The sample was placed in a fritted vessel and washed with a neutral boiling detergent solution that dissolved the protein, carbohydrate, enzyme, and ash. An acetone wash removed the fats and pigments. Hemicellulose, cellulose, and lignin fractions were collected on the frit and determined gravimetrically. The limit of quantitation for this study was 0.100%.

References:

Approved Methods of the American Association of Cereal Chemists, 9th Ed., Method 32.20, (1998).

Forage Fiber Analyses, Agriculture Handbook No.379, United States Department of Agriculture, (1970).

Niacin (NIAP)

The sample was hydrolyzed with sulfuric acid and the pH was adjusted to remove interferences. The amount of niacin was determined by comparing the growth response of the sample, using the bacteria *Lactobacillus plantarum*, with the growth response of a niacin standard. This response was measured turbidimetrically. The limit of quantitation for this study was 0.300 µg/g.

Reference Standard:

USP, Niacin, 99.8%, Lot Number I0E295

Reference:

Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 944.13, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

p-Coumaric Acid and Ferulic Acid (ACID)

The sample was extracted with methanol using ultrasonication, hydrolyzed using 4N sodium hydroxide, buffered using acetic acid/sodium hydroxide, acidified with 3N hydrochloric acid, and filtered. The levels of p-coumaric and ferulic acids in the extract were determined by reverse phase high-performance liquid chromatography with ultraviolet detection. The limit of quantitation for the p-coumaric acid and ferulic acid assays was 50.0 ppm.

Reference Standards:

Acros Organics, 4-Hydroxy-3-methoxycinnamic (ferulic acid), 99.4%,
Lot Number A0248008

Acros Organics, p-Hydroxycinnamic acid (coumaric acid), 99.4%,
Lot Number A0236839

Reference:

Hagerman, A. E. and Nicholson, R. L., "High-Performance Liquid Chromatographic Determination of Hydroxycinnamic Acids in Maize Mesocotyl," *Journal of Agricultural and Food Chemistry*, 30 (No. 6):1098-1102, (1982).

Phytic Acid (PHYT)

The sample was extracted using 0.5M HCl with ultrasonication. Purification and concentration were accomplished on a silica-based anion-exchange column. The sample was analyzed on a polymer high-performance liquid chromatography column PRP-1, 5µm (150 x 4.1mm) with a refractive index detector. The limit of quantitation for this study was 0.100%.

Reference Standard:

Aldrich, Phytic Acid Dodecasodium Salt Hydrate, 98%, Lot Number 068K0755

References:

Lehrfeld, Jacob, "HPLC Separation and Quantitation of Phytic Acid and Some Inositol Phosphates in Foods: Problem and Solutions," *Journal of Agricultural and Food Chemistry*, 42:2726-2731, (1994).

Lehrfeld, Jacob, "High-Performance Liquid Chromatography Analysis of Phytic Acid on a pH-Stable, Macroporous Polymer Column," *Cereal Chemistry*, 66(6):510-515, (1989).

Protein (PGEN)

Nitrogenous compounds in the sample were reduced in the presence of boiling sulfuric acid and a mercury catalyst mixture to form ammonia. The acid digest was made alkaline. The ammonia was distilled and then titrated with a previously standardized acid. The percent nitrogen was calculated and converted to equivalent protein using the factor 6.25. The limit of quantitation for this study was 0.100%.

References:

Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 955.04 and 979.09, AOAC INTERNATIONAL, Gaithersburg, Maryland, (2005).

Bradstreet, R. B., *The Kjeldahl Method for Organic Nitrogen*, Academic Press: New York, New York, (1965).

Kalchoff, I. M., and Sandell, E. B., *Quantitative Inorganic Analysis*, MacMillan: New York, (1948).

Raffinose (SUGT)

The sample was extracted with deionized water and the extract treated with a hydroxylamine hydrochloride solution in pyridine, containing phenyl- β -D-glucoside as an internal standard. The resulting oximes were converted to silyl derivatives by treatment with hexamethyldisilazane and trifluoroacetic acid and analyzed by gas chromatography using a flame ionization detector. The limit of quantitation for this study was 0.0500%.

Reference Standards:

Sigma, D-(+)-Raffinose Pentahydrate, 95.5% after correction for degree of hydration, Lot Number 037K1059

References:

Brobst, K. M., "Gas-Liquid Chromatography of Trimethylsilyl Derivatives," *Methods in Carbohydrate Chemistry*, Volume 6, Academic Press: New York, New York, (1972).

Mason, B. S., and Slover, H. T., "A Gas Chromatographic Method for the Determination of Sugars in Foods," *Journal of Agricultural and Food Chemistry*, 19(3):551-554, (1971).

Total Dietary Fiber (TDF)

Duplicate samples were gelatinized with α -amylase and digested with enzymes to break down starch and protein. Ethanol was added to each sample to precipitate the soluble fiber. The samples were filtered, and the residue was rinsed with ethanol and acetone to remove starch and protein degradation products and moisture. Protein content was determined for one of the duplicates; ash content was determined for the other. The total dietary fiber in the sample was calculated using the protein and ash values. The limit of quantitation for this study was 1.00%.

Reference:

Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 985.29, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

Vitamin B₁ (Thiamine Hydrochloride) (BIDE)

The sample was autoclaved under weak acid conditions to extract the thiamine. The resulting solution was incubated with a buffered enzyme solution to release any bound thiamine. The solution was purified on a cation-exchange column. An aliquot was reacted with potassium ferricyanide to convert thiamine to thiochrome. The thiochrome was extracted into isobutyl alcohol, measured on a fluorometer, and quantitated by comparison to a known standard. The limit of quantitation for this study was 0.01 mg/100g. Results were reported as thiamine hydrochloride.

Reference Standard:

USP, Thiamine hydrochloride, 95.9% after correction for moisture content,
Lot Number 01F236

Reference:

Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 942.23, 953.17, and 957.17, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

Vitamin B₂ (B2FV)

The sample was hydrolyzed with dilute hydrochloric acid and the pH was adjusted to remove interferences. The amount of riboflavin was determined by comparing the growth response of the sample, using the bacteria *Lactobacillus casei*, with the growth response of multipoint riboflavin standards. The growth response was measured turbidimetrically. The limit of quantitation for this study was 0.200 μ g/g.

Reference Standard:

USP, Riboflavin, 100%, Lot Number: N0C021

References:

Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 940.33 and 960.46, AOAC INTERNATIONAL, Gaithersburg, Maryland, (2005).

The United States Pharmacopeia, Twenty-Ninth Revision, p. 1913, United States Pharmacopeial Convention, Inc.: Rockville, Maryland, (2005).

Vitamin B6 (Pyridoxine Hydrochloride) (B6A)

The sample was hydrolyzed with dilute sulfuric acid in the autoclave and the pH was adjusted to remove interferences. The amount of pyridoxine was determined by comparing the growth response of the sample, using the yeast *Saccharomyces carlsbergensis*, with the growth response of a pyridoxine standard. The response was measured turbidimetrically. Results were reported as pyridoxine hydrochloride. The limit of quantitation for this study was 0.0700 µg/g.

Reference Standard:

USP, Pyridoxine hydrochloride, 99.8%, Lot Number: Q0G409

References:

Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 961.15, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

Atkins, L., Schultz, A. S., Williams, W. L., and Frey, C. N., "Yeast Microbiological Methods for Determination of Vitamins," *Industrial and Engineering Chemistry, Analytical Edition*, 15:141-144, (1943).

Vitamin E (EFD2)

The product was saponified to break down any fat and release vitamin E. The saponified mixture was extracted with ethyl ether and then quantitated by high-performance liquid chromatography using a silica column. The limit of quantitation for this study was approximately 0.00500 mg/g.

Reference Standard:

USP, Alpha Tocopherol, 100%, Lot Number M

Reference:

Cort, W. M., Vincente, T. S., Waysek, E. H., and Williams, B. D., "Vitamin E Content of Feedstuffs Determined by High-Performance Liquid Chromatographic Fluorescence," *Journal of Agricultural Food Chemistry*, 31:1330-1333, (1983).

Speek, A. J., Schijver, J., and Schreurs, W. H. P., "Vitamin E Composition of Some Seed Oils as Determined by High-Performance Liquid Chromatography with Fluorometric Quantitation," *Journal of Food Science*, 50(1):121-124, (1985).

McMurray, C. H., Blanchflower, W. J., and Rice, D. A., "Influence of Extraction Techniques on Determination of alpha-Tocopherol in Animal Feedstuffs," *Journal of the Association of Official Analytical Chemists*, 63(6):1258-1261, (1980).

Appendix II Statistical Sub-report

**The following 68 pages are the statistical sub-report
Pages 127-194**

STATISTICAL REPORT

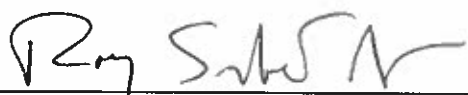
Composition Analyses of Corn Forage and Grain from MON 87427 (Glyphosate-Treated) Grown in the United States during the 2008 Field Season

This report reflects data developed and reported in Study Number REG-08-550

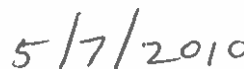
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1. Data Description

A SAS[®] dataset (datareg08550.sas7bdat, created 9/9/2009) containing corn forage and grain compositional analysis data was received from Monsanto. Data were from test substances MON 87427 (glyphosate-treated), a conventional parental control substance, twelve commercial conventional reference substances, and three additional test substances. The control substance was a conventional corn hybrid which has a similar genetic background to MON 87427 and was not treated with herbicide.

Corn forage and grain of the test, control, and reference substances were collected from replicated plots at three United States sites during the 2008 growing season. Data from one control and one reference replicate were unavailable from site IARL. Reference substances were distributed as follows across sites:

Site ARNE	Site IARL	Site ILWY
Crows C6501	Asgrow RX708	Asgrow RX715
Midwest Genetics 87801	Dekalb DKC60-15	Dekalb DKC61-50
Fielder's Choice 7864	Midwest Genetics G7944	Midland 7B15
Fontanelle 5797	NC + 4443	NK N69-P9

Components with greater than fifty percent of observations below the assay's limit of quantitation (LOQ) were excluded from analysis. Excluded components are presented in Listing 1. Otherwise, results below the LOQ were assigned a value equal to half the LOQ. The following component was assigned values:

		Obs. Below LOQ				
Component	Units	N	(%)	Total N	LOQ	Value Assigned
Grain Fatty Acid						
22:0 Behenic	% fw	5	6.3	79	0.0040	0.0020

Individual samples assigned a value are presented in Listing 2.

The following formulas were used for re-expression of corn composition data for statistical analysis:

Component	From (X)	To	Formula ¹
Proximates (excluding Moisture), Fiber, Antinutrients	% fw	% dw	X/d
Minerals (Calcium, Magnesium, Phosphorus, Potassium, Sodium)	ppm fw	% dw	$(X/d) \times 10^{-4}$
Grain Minerals (Copper, Iron, Manganese, Zinc)	ppm fw	mg/kg dw	X/d
Vitamin A, Vitamin B1	mg/100g fw	mg/kg dw	$(X/d) \times 10$

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(cont.)

Component	From (X)	To	Formula
Vitamin E	mg/g fw	mg/kg dw	$(X/d) \times 10^3$
Folic Acid, Niacin, Vitamin B2, Vitamin B6	$\mu\text{g/g fw}$	mg/kg dw	X/d
Secondary Metabolites	ppm fw	$\mu\text{g/g dw}$	X/d
Fatty Acids (FA)	% fw	% Total FA	$(100)X_j/\Sigma X$, for each FA_j where ΣX is over all the FA
Amino Acids (AA)	mg/g fw	% dw	$(X/d) \times 10^{-1}$
¹ 'X' is the individual sample value; 'd' is the fraction of the sample that is dry matter.			

2. Statistical Methods

The purpose of this study is to compare the composition of the test substance, treated with glyphosate, to a conventional control which has a genetic background representative of the test substance.

The SAS¹ GLM procedure was applied to all data (test, control and reference) to detect potential outliers in the dataset by screening studentized PRESS residuals. Substance, site and replication effects were included in the model.

A PRESS residual² is the difference between any value and its predicted value from a statistical model that excludes the data point. The studentized version scales these residuals so that the values tend to have a standard normal distribution when outliers are absent. Thus, most values are expected to be between ± 3 . Extreme data points that are also outside of the ± 6 studentized PRESS residual range are considered for exclusion, as outliers, from the final analyses. The following results had PRESS residual values outside of the ± 6 range:

Site ID	Rep	Substance	Component	Sample ID	Value	PRESS Std Residual
Grain Fatty Acid (% Total FA)						
ILWY	1	Asgrow RX715	16:0 Palmitic	10007662	12.0033	8.8765
ILWY	1	Asgrow RX715	18:1 Oleic	10007662	30.8266	17.6734
ILWY	1	Asgrow RX715	18:2 Linoleic	10007662	53.1964	-21.2788
ILWY	1	Asgrow RX715	18:3 Linolenic	10007662	1.3395	8.3483
ILWY	1	Asgrow RX715	20:1 Eicosenoic	10007662	0.2723	7.5684
ILWY	3	Asgrow RX715	22:0 Behenic	10007659	0.0650	-6.4028

None of the identified values were removed from further analysis because they were not extreme values.

All corn compositional components were statistically analyzed using a mixed model analysis of variance with the SAS MIXED procedure. The three replicated sites were

analyzed both separately and combined. Individual replicated site analyses used model (1).

$$(1) Y_{ij} = U + T_i + B_j + e_{ij},$$

where Y_{ij} = unique individual observation, U = overall mean, T_i = substance effect, B_j = random block effect, and e_{ij} = residual error.

Combined site analyses used model (2).

$$(2) Y_{ijk} = U + T_i + L_j + B(L)_{jk} + LT_{ij} + e_{ijk},$$

where Y_{ijk} = unique individual observation, U = overall mean, T_i = substance effect, L_j = random site effect, $B(L)_{jk}$ = random block within site effect, LT_{ij} = random site by substance interaction effect, and e_{ijk} = residual error.

A tolerance interval is an interval that one can claim, with a specified degree of confidence, contains at least a specified proportion, p , of an entire sampled population for the parameter measured.

For each compositional component, 99% tolerance intervals were calculated that are expected to contain, with 95% confidence, 99% of the quantities expressed in the population of commercial conventional substances. Each estimate was based upon the average of all observations per unique reference substance. Because negative quantities are not possible, negative calculated lower tolerance bounds were set to zero.

3. Statistical Results

SAS software was used to generate all summary statistics and perform all analyses. Report tables present p-values from SAS as either <0.001 or the actual value truncated to three decimal places.

Components with a statistically significant comparison ($p < 0.05$) for each test substance vs. the parental control are summarized in Table 1. Test vs. control statistical results are further summarized in Tables 2 through 17. For each component, least-square means, standard errors (S.E.), and the range of observed values are presented for each substance. Mean differences, standard errors of the differences, the range of observed differences, 95% confidence intervals for the mean differences and the significance probability are presented for each comparison. In addition, the range of the observed reference values and 99% tolerance intervals are presented.

Numbers of significant comparisons ($p < 0.05$) observed are summarized as follows:

	No. of Significant Comparisons vs. Parental Control			
Site:	ARNE	IARL	ILWY	Combined
Comparisons Tested:	62	62	62	62
MON 87427 (Treated)	12	17	4	7

4. References

1. SAS Software Release 9.2 (TS1M0). Copyright (c) 2002-2008 by SAS Institute Inc., Cary, NC, USA.
2. Belsley, D. A., Kuh, E., Welsch, R. E. 1980. Regression Diagnostics: Identifying Influential Data and Sources of Collinearity. John Wiley & Sons, New York.

Table 1. Summary of Differences (p<0.05) for the Comparison of Corn Component Levels for MON 87427 (Glyphosate-Treated) vs. the Parental Control

Analytical Component (Units) ¹	Test ² Mean ³	Control ⁴ Mean	Mean Difference (Test minus Control)		Test Range	Conventional Tolerance Interval ⁵
			Mean Difference (% of Control)	Significance (p-Value)		
Statistical Differences Observed in Combined-Site Analysis						
Grain Proximate (% dw)						
Total Fat	3.50	3.69	-5.09	0.036	3.13 - 3.83	2.12, 5.35
Grain Fatty Acid (% Total FA)						
16:0 Palmitic	10.91	10.54	3.52	<0.001	10.44 - 11.52	6.42, 15.23
18:0 Stearic	1.97	1.90	3.67	0.038	1.81 - 2.17	0.87, 2.88
18:1 Oleic	24.28	23.52	3.22	0.010	22.84 - 26.62	11.30, 43.27
18:2 Linoleic	60.84	62.06	-1.96	0.002	57.61 - 62.70	41.35, 74.78
20:0 Arachidic	0.42	0.41	4.00	0.005	0.37 - 0.48	0.15, 0.67
Grain Anti-nutrient (% dw)						
Phytic Acid	0.96	1.02	-5.92	0.008	0.87 - 1.04	0.73, 1.23

Table 1. Summary of Differences (p<0.05) for the Comparison of Corn Component Levels for MON 87427 (Glyphosate-Treated) vs. the Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean ³	Control ⁴ Mean	Mean Difference (Test minus Control)		Test Range	Conventional Tolerance Interval ⁵
			Mean Difference (% of Control)	Significance (p-Value)		
Statistical Differences Observed in More than One Individual Site						
Grain Fatty Acid (% Total FA)						
16:0 Palmitic Site ARNE	11.49	10.99	4.53	<0.001	11.47 - 11.52	6.42, 15.23
16:0 Palmitic Site IARL	10.72	10.44	2.66	0.007	10.58 - 10.85	6.42, 15.23
16:0 Palmitic Site ILWY	10.54	10.21	3.25	<0.001	10.44 - 10.65	6.42, 15.23
18:1 Oleic Site ARNE	26.34	25.35	3.93	<0.001	26.16 - 26.62	11.30, 43.27
18:1 Oleic Site IARL	22.91	21.95	4.41	0.002	22.84 - 22.98	11.30, 43.27
18:1 Oleic Site ILWY	23.58	23.24	1.44	0.043	23.29 - 23.78	11.30, 43.27
18:2 Linoleic Site ARNE	57.94	59.56	-2.72	<0.001	57.61 - 58.13	41.35, 74.78
18:2 Linoleic Site IARL	62.57	63.90	-2.09	<0.001	62.49 - 62.70	41.35, 74.78

Table 1. Summary of Differences (p<0.05) for the Comparison of Corn Component Levels for MON 87427 (Glyphosate-Treated) vs. the Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean ³	Control ⁴ Mean	Mean Difference (Test minus Control)		Test Range	Conventional Tolerance Interval ⁵
			Mean Difference (% of Control)	Significance (p-Value)		
Statistical Differences Observed in More than One Individual Site						
Grain Fatty Acid (% Total FA)						
18:2 Linoleic Site ILWY	62.01	62.72	-1.13	0.005	61.68 - 62.32	41.35, 74.78
Grain Amino Acid (% dw)						
Methionine Site ARNE	0.29	0.27	6.48	0.043	0.28 - 0.29	0.11, 0.29
Methionine Site IARL	0.23	0.25	-7.29	0.018	0.22 - 0.23	0.11, 0.29
Grain Fatty Acid (% Total FA)						
18:3 Linolenic Site ARNE	1.15	1.19	-3.92	0.033	1.13 - 1.17	0.78, 1.52
18:3 Linolenic Site IARL	1.24	1.20	3.35	0.014	1.22 - 1.26	0.78, 1.52
Grain Vitamin (mg/kg dw)						
Vitamin B2 Site ARNE	3.27	2.36	38.30	0.004	3.05 - 3.56	0, 4.47
Vitamin B2 Site IARL	1.41	1.93	-26.71	0.042	1.17 - 1.60	0, 4.47

Table 1. Summary of Differences (p<0.05) for the Comparison of Corn Component Levels for MON 87427 (Glyphosate-Treated) vs. the Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean ³	Control ⁴ Mean	Mean Difference (Test minus Control)		Test Range	Conventional Tolerance Interval ⁵
			Mean Difference (% of Control)	Significance (p-Value)		
Statistical Differences Observed in One Individual Site						
Grain Proximate (% dw)						
Carbohydrates Site IARL	84.24	83.11	1.36	0.047	83.60 - 84.96	80.77, 89.46
Moisture (% fw) Site IARL	10.93	10.40	5.13	0.043	10.90 - 11.00	7.56, 14.80
Protein Site IARL	10.60	11.73	-9.64	0.019	9.91 - 11.35	5.79, 13.43
Grain Fiber (% dw)						
Acid Detergent Fiber Site ILWY	3.78	3.05	23.75	0.020	3.33 - 4.27	1.84, 4.39
Grain Amino Acid (% dw)						
Arginine Site IARL	0.48	0.53	-9.19	0.033	0.45 - 0.49	0.24, 0.68
Cystine Site IARL	0.24	0.26	-5.95	0.012	0.24 - 0.25	0.14, 0.30
Serine Site IARL	0.49	0.56	-11.21	0.037	0.46 - 0.51	0.24, 0.66

Table 1. Summary of Differences (p<0.05) for the Comparison of Corn Component Levels for MON 87427 (Glyphosate-Treated) vs. the Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean ³	Control ⁴ Mean	Mean Difference (Test minus Control)		Test Range	Conventional Tolerance Interval ⁵
			Mean Difference (% of Control)	Significance (p-Value)		
Statistical Differences Observed in One Individual Site						
Grain Amino Acid (% dw)						
Tryptophan Site ARNE	0.062	0.052	19.32	0.006	0.059 - 0.064	0.032, 0.069
Grain Fatty Acid (% Total FA)						
18:0 Stearic Site ARNE	2.17	2.04	6.43	0.002	2.16 - 2.17	0.87, 2.88
20:0 Arachidic Site ARNE	0.48	0.46	4.63	0.002	0.47 - 0.48	0.15, 0.67
22:0 Behenic Site ARNE	0.21	0.19	11.00	0.007	0.21 - 0.23	0, 0.32
Grain Mineral						
Calcium (% dw) Site ARNE	0.0077	0.0067	14.03	0.024	0.0075 - 0.0079	0.0019, 0.0076
Zinc (mg/kg dw) Site IARL	23.54	26.51	-11.20	0.010	22.45 - 24.61	11.46, 30.37
Grain Vitamin (mg/kg dw)						
Folic Acid Site IARL	0.36	0.45	-19.59	0.020	0.31 - 0.40	0.11, 0.61

Table 1. Summary of Differences (p<0.05) for the Comparison of Corn Component Levels for MON 87427 (Glyphosate-Treated) vs. the Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean ³	Control ⁴ Mean	Mean Difference (Test minus Control)		Test Range	Conventional Tolerance Interval ⁵
			Mean Difference (% of Control)	Significance (p-Value)		
Statistical Differences Observed in One Individual Site						
Grain Anti-nutrient (% dw)						
Raffinose Site ARNE	0.11	0.13	-18.51	0.031	0.11 - 0.11	0.024, 0.29
Forage Proximate (% dw)						
Carbohydrates Site IARL	86.46	84.12	2.78	0.029	86.21 - 86.75	80.13, 94.05
Moisture (% fw) Site IARL	69.90	74.71	-6.44	0.008	67.70 - 71.20	51.70, 86.22
Protein Site IARL	7.03	8.63	-18.59	0.037	6.75 - 7.40	1.34, 11.57

¹dw = dry weight; fw = fresh weight; FA = fatty acid.²Test refers to MON 87427 (Glyphosate-Treated).³Mean = least-square mean.⁴Control refers to the non-biotechnology derived, conventional parental control.⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional substances. Negative limits set to zero.

Table 2. Statistical Summary of Combined-Site Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Proximate (% dw)						
Ash	1.58 (0.036) (1.43 - 1.81)	1.56 (0.038) (1.48 - 1.67)	0.013 (0.042) (-0.14 - 0.14)	-0.074, 0.099	0.765	1.13, 1.97 (1.18 - 1.82)
Carbohydrates	84.88 (0.56) (83.60 - 86.33)	84.51 (0.57) (82.96 - 85.76)	0.37 (0.33) (-0.87 - 1.63)	-0.40, 1.14	0.305	80.77, 89.46 (82.26 - 87.17)
Moisture (% fw)	11.62 (0.46) (10.90 - 13.30)	11.41 (0.46) (10.20 - 12.40)	0.22 (0.21) (-0.30 - 1.10)	-0.27, 0.71	0.337	7.56, 14.80 (9.31 - 12.70)
Protein	10.05 (0.63) (8.46 - 11.35)	10.26 (0.63) (8.62 - 11.92)	-0.21 (0.38) (-1.50 - 1.20)	-1.08, 0.66	0.594	5.79, 13.43 (8.07 - 12.13)
Total Fat	3.50 (0.13) (3.13 - 3.83)	3.69 (0.13) (3.47 - 3.98)	-0.19 (0.075) (-0.52 - 0.11)	-0.36, -0.015	0.036	2.12, 5.35 (2.90 - 4.30)
Fiber (% dw)						
Acid Detergent Fiber	3.37 (0.23) (2.67 - 4.27)	3.19 (0.23) (2.80 - 3.54)	0.18 (0.27) (-0.27 - 1.09)	-0.43, 0.79	0.521	1.84, 4.39 (2.29 - 4.27)

Table 2. Statistical Summary of Combined-Site Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Fiber (% dw)						
Neutral Detergent Fiber	10.00 (0.51) (9.17 - 10.97)	10.12 (0.51) (9.21 - 11.27)	-0.12 (0.24) (-0.90 - 0.98)	-0.68, 0.43	0.628	5.69, 11.81 (7.06 - 10.66)
Total Dietary Fiber	13.00 (0.37) (12.13 - 14.35)	13.05 (0.37) (12.64 - 13.75)	-0.044 (0.24) (-0.67 - 1.07)	-0.53, 0.44	0.854	8.67, 15.32 (10.25 - 14.30)
Amino Acid (% dw)						
Alanine	0.75 (0.061) (0.61 - 0.89)	0.76 (0.061) (0.55 - 0.90)	-0.0061 (0.033) (-0.15 - 0.080)	-0.082, 0.069	0.857	0.32, 1.12 (0.58 - 0.98)
Arginine	0.48 (0.024) (0.40 - 0.55)	0.49 (0.025) (0.39 - 0.56)	-0.010 (0.015) (-0.079 - 0.065)	-0.040, 0.020	0.501	0.24, 0.68 (0.34 - 0.57)
Aspartic Acid	0.64 (0.041) (0.54 - 0.71)	0.64 (0.042) (0.48 - 0.73)	-0.0025 (0.025) (-0.099 - 0.064)	-0.059, 0.054	0.920	0.34, 0.92 (0.52 - 0.78)
Cystine	0.24 (0.010) (0.21 - 0.27)	0.24 (0.010) (0.21 - 0.26)	-0.0022 (0.0068) (-0.015 - 0.020)	-0.018, 0.013	0.750	0.14, 0.30 (0.18 - 0.26)

Table 2. Statistical Summary of Combined-Site Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Amino Acid (% dw)						
Glutamic Acid	1.87 (0.15) (1.53 - 2.24)	1.89 (0.15) (1.38 - 2.28)	-0.020 (0.077) (-0.35 - 0.20)	-0.20, 0.16	0.801	0.77, 2.84 (1.46 - 2.49)
Glycine	0.38 (0.018) (0.34 - 0.43)	0.38 (0.018) (0.31 - 0.42)	0.0012 (0.0098) (-0.038 - 0.033)	-0.021, 0.024	0.906	0.23, 0.52 (0.32 - 0.43)
Histidine	0.30 (0.013) (0.27 - 0.34)	0.30 (0.013) (0.23 - 0.34)	-0.0014 (0.0081) (-0.045 - 0.033)	-0.018, 0.015	0.867	0.16, 0.39 (0.22 - 0.33)
Isoleucine	0.35 (0.026) (0.29 - 0.42)	0.36 (0.027) (0.26 - 0.42)	-0.0018 (0.014) (-0.081 - 0.039)	-0.035, 0.032	0.901	0.16, 0.53 (0.27 - 0.46)
Leucine	1.23 (0.11) (0.97 - 1.52)	1.25 (0.11) (0.89 - 1.56)	-0.022 (0.060) (-0.29 - 0.13)	-0.16, 0.12	0.725	0.43, 1.95 (0.93 - 1.69)
Lysine	0.30 (0.012) (0.27 - 0.33)	0.30 (0.013) (0.25 - 0.33)	-0.0020 (0.0072) (-0.024 - 0.026)	-0.018, 0.014	0.782	0.19, 0.40 (0.26 - 0.34)

Table 2. Statistical Summary of Combined-Site Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Amino Acid (% dw)						
Methionine	0.24 (0.019) (0.20 - 0.29)	0.24 (0.019) (0.20 - 0.27)	0.00043 (0.0094) (-0.015 - 0.024)	-0.021, 0.022	0.964	0.11, 0.29 (0.17 - 0.25)
Phenylalanine	0.51 (0.040) (0.40 - 0.60)	0.52 (0.040) (0.38 - 0.61)	-0.0088 (0.023) (-0.10 - 0.052)	-0.063, 0.045	0.714	0.23, 0.75 (0.39 - 0.66)
Proline	0.90 (0.067) (0.74 - 1.08)	0.90 (0.067) (0.65 - 1.06)	-0.0045 (0.032) (-0.15 - 0.12)	-0.078, 0.069	0.889	0.40, 1.24 (0.66 - 1.07)
Serine	0.47 (0.033) (0.38 - 0.52)	0.48 (0.033) (0.36 - 0.58)	-0.011 (0.022) (-0.063 - 0.052)	-0.062, 0.040	0.625	0.24, 0.66 (0.38 - 0.59)
Threonine	0.35 (0.020) (0.29 - 0.39)	0.35 (0.020) (0.28 - 0.39)	-0.0022 (0.013) (-0.042 - 0.033)	-0.032, 0.028	0.871	0.20, 0.46 (0.28 - 0.41)
Tryptophan	0.054 (0.0032) (0.045 - 0.064)	0.053 (0.0033) (0.042 - 0.065)	0.00070 (0.0032) (-0.015 - 0.013)	-0.0067, 0.0081	0.835	0.032, 0.069 (0.039 - 0.063)

Table 2. Statistical Summary of Combined-Site Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Amino Acid (% dw)						
Tyrosine	0.29 (0.029) (0.18 - 0.38)	0.30 (0.029) (0.21 - 0.39)	-0.0041 (0.026) (-0.12 - 0.11)	-0.057, 0.048	0.874	0.077, 0.45 (0.11 - 0.43)
Valine	0.48 (0.029) (0.41 - 0.55)	0.49 (0.029) (0.37 - 0.56)	-0.0015 (0.017) (-0.089 - 0.049)	-0.040, 0.037	0.930	0.25, 0.67 (0.38 - 0.58)
Fatty Acid (% Total FA)						
16:0 Palmitic	10.91 (0.26) (10.44 - 11.52)	10.54 (0.26) (10.15 - 11.08)	0.37 (0.065) (0.14 - 0.59)	0.22, 0.52	<0.001	6.42, 15.23 (9.13 - 12.33)
18:0 Stearic	1.97 (0.091) (1.81 - 2.17)	1.90 (0.091) (1.77 - 2.07)	0.070 (0.028) (-0.028 - 0.18)	0.0048, 0.13	0.038	0.87, 2.88 (1.54 - 2.38)
18:1 Oleic	24.28 (0.92) (22.84 - 26.62)	23.52 (0.92) (21.74 - 25.71)	0.76 (0.23) (0.13 - 1.20)	0.23, 1.28	0.010	11.30, 43.27 (21.39 - 34.71)
18:2 Linoleic	60.84 (1.28) (57.61 - 62.70)	62.06 (1.28) (59.18 - 64.09)	-1.22 (0.29) (-1.69 - -0.46)	-1.88, -0.55	0.002	41.35, 74.78 (49.38 - 63.16)

Table 2. Statistical Summary of Combined-Site Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Fatty Acid (% Total FA)						
18:3 Linolenic	1.20 (0.014) (1.13 - 1.26)	1.20 (0.014) (1.18 - 1.22)	-0.0012 (0.015) (-0.088 - 0.043)	-0.035, 0.033	0.935	0.78, 1.52 (0.97 - 1.35)
20:0 Arachidic	0.42 (0.030) (0.37 - 0.48)	0.41 (0.030) (0.37 - 0.46)	0.016 (0.0043) (-0.0022 - 0.034)	0.0063, 0.026	0.005	0.15, 0.67 (0.32 - 0.53)
20:1 Eicosenoic	0.21 (0.0080) (0.19 - 0.23)	0.21 (0.0080) (0.20 - 0.23)	-0.00097 (0.0017) (-0.0049 - 0.0033)	-0.0049, 0.0029	0.583	0.12, 0.36 (0.21 - 0.31)
22:0 Behenic	0.17 (0.018) (0.14 - 0.23)	0.16 (0.018) (0.14 - 0.20)	0.0076 (0.0050) (-0.0099 - 0.031)	-0.0039, 0.019	0.167	0, 0.32 (0.057 - 0.23)
Mineral						
Calcium (% dw)	0.0060 (0.00063) (0.0048 - 0.0079)	0.0055 (0.00063) (0.0046 - 0.0076)	0.00049 (0.00033) (-0.00037 - 0.0017)	-0.00027, 0.0013	0.176	0.0019, 0.0076 (0.0038 - 0.0068)
Copper (mg/kg dw)	1.63 (0.11) (1.21 - 2.07)	1.71 (0.12) (1.49 - 1.99)	-0.085 (0.11) (-0.42 - 0.18)	-0.33, 0.16	0.458	0.17, 3.48 (1.10 - 2.62)

Table 2. Statistical Summary of Combined-Site Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Mineral						
Iron (mg/kg dw)	23.61 (0.78) (22.21 - 25.84)	23.03 (0.79) (20.66 - 25.57)	0.58 (0.61) (-2.12 - 2.11)	-0.82, 1.98	0.368	11.42, 28.01 (16.55 - 24.10)
Magnesium (% dw)	0.13 (0.0033) (0.13 - 0.14)	0.13 (0.0033) (0.12 - 0.14)	-0.00021 (0.0034) (-0.0062 - 0.010)	-0.0080, 0.0076	0.952	0.080, 0.16 (0.11 - 0.15)
Manganese (mg/kg dw)	7.91 (1.06) (5.52 - 9.40)	8.07 (1.06) (4.89 - 9.82)	-0.16 (0.27) (-0.83 - 0.83)	-0.71, 0.39	0.567	0, 12.67 (4.00 - 9.17)
Phosphorus (% dw)	0.34 (0.0034) (0.32 - 0.35)	0.34 (0.0036) (0.33 - 0.35)	-0.0071 (0.0050) (-0.020 - 0.0053)	-0.018, 0.0040	0.185	0.24, 0.42 (0.28 - 0.37)
Potassium (% dw)	0.40 (0.0074) (0.38 - 0.42)	0.40 (0.0077) (0.38 - 0.43)	-0.0045 (0.0073) (-0.029 - 0.021)	-0.019, 0.010	0.546	0.24, 0.54 (0.33 - 0.46)
Zinc (mg/kg dw)	22.67 (1.06) (20.99 - 25.42)	23.99 (1.07) (21.65 - 28.08)	-1.32 (1.00) (-5.63 - 3.29)	-3.62, 0.99	0.225	11.46, 30.37 (17.30 - 25.45)

Table 2. Statistical Summary of Combined-Site Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Vitamin (mg/kg dw)						
Folic Acid	0.36 (0.025) (0.28 - 0.43)	0.39 (0.025) (0.29 - 0.49)	-0.030 (0.030) (-0.097 - 0.078)	-0.099, 0.040	0.347	0.11, 0.61 (0.24 - 0.57)
Niacin	27.22 (2.15) (22.56 - 33.37)	27.71 (2.18) (22.61 - 33.26)	-0.48 (1.34) (-3.30 - 2.66)	-3.22, 2.26	0.722	7.89, 49.83 (20.63 - 43.08)
Vitamin A	1.01 (0.050) (0.88 - 1.21)	0.96 (0.051) (0.76 - 1.16)	0.057 (0.043) (-0.094 - 0.21)	-0.029, 0.14	0.186	0.38, 1.68 (0.58 - 1.50)
Vitamin B1	2.97 (0.19) (2.58 - 3.41)	2.88 (0.20) (2.48 - 3.41)	0.084 (0.16) (-0.44 - 0.45)	-0.28, 0.45	0.606	2.21, 3.65 (2.41 - 3.48)
Vitamin B2	2.09 (0.37) (1.17 - 3.56)	1.93 (0.37) (1.32 - 2.58)	0.16 (0.33) (-0.72 - 1.23)	-0.59, 0.92	0.630	0, 4.47 (1.28 - 3.29)
Vitamin B6	7.48 (0.60) (5.91 - 8.69)	7.71 (0.60) (5.67 - 9.61)	-0.23 (0.41) (-1.40 - 1.76)	-1.16, 0.70	0.589	2.57, 12.07 (5.24 - 10.29)

Table 2. Statistical Summary of Combined-Site Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Vitamin (mg/kg dw)						
Vitamin E	13.14 (2.09) (7.04 - 17.44)	13.46 (2.10) (10.13 - 18.10)	-0.31 (0.86) (-6.54 - 4.52)	-2.05, 1.43	0.718	0, 25.61 (6.67 - 17.34)

¹dw = dry weight; fw = fresh weight; FA = fatty acid.²Test refers to MON 87427 (Glyphosate-Treated).³Mean (S.E.) = least-square mean (standard error).⁴Control refers to the non-biotechnology derived, conventional parental control.⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional substances. Negative limits set to zero.

Table 3. Statistical Summary of Combined-Site Corn Grain Anti-nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Anti-nutrient (% dw)						
Phytic Acid	0.96 (0.031) (0.87 - 1.04)	1.02 (0.031) (0.94 - 1.12)	-0.060 (0.022) (-0.12 - 0.032)	-0.10, -0.016	0.008	0.73, 1.23 (0.82 - 1.07)
Raffinose	0.14 (0.028) (0.098 - 0.21)	0.15 (0.029) (0.11 - 0.21)	-0.0054 (0.0082) (-0.028 - 0.025)	-0.024, 0.013	0.524	0.024, 0.29 (0.092 - 0.21)

¹dw = dry weight.²Test refers to MON 87427 (Glyphosate-Treated).³Mean (S.E.) = least-square mean (standard error).⁴Control refers to the non-biotechnology derived, conventional parental control.⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional substances. Negative limits set to zero.

Table 4. Statistical Summary of Combined-Site Corn Grain Secondary Metabolites for MON 87427 (Glyphosate-Treated) vs. Parental Control

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Secondary Metabolite (µg/g dw)						
Ferulic Acid	2348.63 (58.17) (2188.55 - 2559.19)	2387.92 (60.24) (2236.10 - 2500.00)	-39.29 (81.45) (-171.29 - 209.93)	-221.69, 143.10	0.640	1070.41, 2955.86 (1588.35 - 2630.98)
p-Coumaric Acid	204.94 (17.45) (166.11 - 260.43)	205.00 (17.54) (162.58 - 252.26)	-0.060 (8.82) (-28.53 - 32.92)	-20.17, 20.05	0.994	58.74, 313.97 (124.16 - 250.30)

¹dw = dry weight.²Test refers to MON 87427 (Glyphosate-Treated).³Mean (S.E.) = least-square mean (standard error).⁴Control refers to the non-biotechnology derived, conventional parental control.⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional substances. Negative limits set to zero.

Table 5. Statistical Summary of Combined-Site Corn Forage Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Proximate (% dw)						
Ash	4.73 (0.23) (4.39 - 5.13)	4.86 (0.23) (3.99 - 5.84)	-0.13 (0.19) (-0.74 - 0.66)	-0.53, 0.27	0.508	2.66, 6.48 (3.70 - 5.95)
Carbohydrates	87.23 (0.90) (86.21 - 89.23)	86.69 (0.91) (83.80 - 88.92)	0.54 (0.49) (-1.59 - 2.61)	-0.46, 1.54	0.277	80.13, 94.05 (83.23 - 90.37)
Moisture (% fw)	68.71 (2.30) (62.70 - 73.10)	69.76 (2.32) (64.10 - 75.00)	-1.05 (1.06) (-5.90 - 5.70)	-3.50, 1.40	0.350	51.70, 86.22 (61.00 - 76.00)
Protein	6.44 (0.75) (4.48 - 7.40)	6.78 (0.76) (5.17 - 8.94)	-0.34 (0.39) (-2.00 - 1.26)	-1.25, 0.57	0.413	1.34, 11.57 (4.37 - 9.31)
Total Fat	1.60 (0.17) (1.09 - 1.85)	1.69 (0.18) (0.58 - 2.28)	-0.092 (0.25) (-1.11 - 1.18)	-0.65, 0.46	0.720	0.44, 3.33 (0.78 - 3.16)
Fiber (% dw)						
Acid Detergent Fiber	24.96 (0.97) (21.08 - 29.00)	26.74 (1.03) (20.27 - 32.16)	-1.78 (1.42) (-8.15 - 3.58)	-4.65, 1.09	0.216	14.84, 38.51 (21.33 - 35.92)

Table 5. Statistical Summary of Combined-Site Corn Forage Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Fiber (% dw)						
Neutral Detergent Fiber	39.79 (1.32) (36.14 - 43.70)	38.12 (1.38) (33.07 - 43.43)	1.67 (1.76) (-1.55 - 4.79)	-2.32, 5.65	0.368	25.12, 54.99 (29.68 - 60.16)
Mineral						
Calcium (% dw)	0.19 (0.010) (0.14 - 0.22)	0.19 (0.011) (0.15 - 0.25)	-0.0083 (0.011) (-0.063 - 0.036)	-0.031, 0.014	0.455	0.075, 0.29 (0.10 - 0.24)
Phosphorus (% dw)	0.24 (0.021) (0.20 - 0.31)	0.24 (0.021) (0.19 - 0.31)	-0.0050 (0.013) (-0.074 - 0.038)	-0.032, 0.022	0.708	0.063, 0.37 (0.16 - 0.31)

¹dw = dry weight; fw = fresh weight.²Test refers to MON 87427 (Glyphosate-Treated).³Mean (S.E.) = least-square mean (standard error).⁴Control refers to the non-biotechnology derived, conventional parental control.⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional substances. Negative limits set to zero.

Table 6. Statistical Summary of Site ARNE Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Proximate (% dw)						
Ash	1.51 (0.029) (1.43 - 1.58)	1.51 (0.029) (1.48 - 1.57)	0.00040 (0.039) (-0.047 - 0.042)	-0.090, 0.091	0.992	1.13, 1.97 (1.18 - 1.82)
Carbohydrates	84.46 (0.29) (84.03 - 84.78)	84.73 (0.29) (84.16 - 85.12)	-0.27 (0.41) (-0.87 - 0.62)	-1.22, 0.69	0.537	80.77, 89.46 (82.26 - 87.17)
Moisture (% fw)	11.40 (0.16) (11.20 - 11.70)	11.60 (0.16) (11.30 - 11.90)	-0.20 (0.16) (-0.30 - -0.10)	-0.56, 0.16	0.233	7.56, 14.80 (9.31 - 12.70)
Protein	10.84 (0.33) (10.47 - 11.33)	10.22 (0.33) (9.91 - 10.62)	0.62 (0.47) (-0.15 - 1.20)	-0.45, 1.70	0.217	5.79, 13.43 (8.07 - 12.13)
Total Fat	3.18 (0.11) (3.13 - 3.23)	3.54 (0.11) (3.47 - 3.65)	-0.36 (0.16) (-0.52 - -0.24)	-0.72, 0.0014	0.050	2.12, 5.35 (2.90 - 4.30)
Fiber (% dw)						
Acid Detergent Fiber	3.34 (0.16) (3.15 - 3.49)	3.41 (0.16) (3.27 - 3.54)	-0.064 (0.21) (-0.27 - 0.22)	-0.54, 0.41	0.766	1.84, 4.39 (2.29 - 4.27)

Table 6. Statistical Summary of Site ARNE Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Fiber (% dw)						
Neutral Detergent Fiber	10.41 (0.22) (10.16 - 10.92)	10.88 (0.22) (10.32 - 11.27)	-0.47 (0.30) (-0.90 - -0.16)	-1.17, 0.23	0.162	5.69, 11.81 (7.06 - 10.66)
Total Dietary Fiber	13.28 (0.18) (13.14 - 13.51)	13.23 (0.18) (12.67 - 13.75)	0.046 (0.25) (-0.24 - 0.52)	-0.53, 0.63	0.860	8.67, 15.32 (10.25 - 14.30)
Amino Acid (% dw)						
Alanine	0.81 (0.029) (0.78 - 0.83)	0.75 (0.029) (0.72 - 0.77)	0.065 (0.042) (0.054 - 0.080)	-0.032, 0.16	0.160	0.32, 1.12 (0.58 - 0.98)
Arginine	0.53 (0.021) (0.49 - 0.55)	0.52 (0.021) (0.48 - 0.56)	0.0067 (0.029) (-0.068 - 0.065)	-0.061, 0.074	0.825	0.24, 0.68 (0.34 - 0.57)
Aspartic Acid	0.70 (0.020) (0.68 - 0.71)	0.65 (0.020) (0.62 - 0.68)	0.049 (0.028) (0.036 - 0.056)	-0.017, 0.11	0.126	0.34, 0.92 (0.52 - 0.78)
Cystine	0.26 (0.0055) (0.25 - 0.27)	0.25 (0.0055) (0.24 - 0.25)	0.013 (0.0078) (0.0054 - 0.020)	-0.0053, 0.031	0.142	0.14, 0.30 (0.18 - 0.26)

Table 6. Statistical Summary of Site ARNE Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Amino Acid (% dw)						
Glutamic Acid	1.99 (0.076) (1.90 - 2.04)	1.86 (0.076) (1.78 - 1.92)	0.14 (0.11) (0.12 - 0.17)	-0.11, 0.38	0.244	0.77, 2.84 (1.46 - 2.49)
Glycine	0.43 (0.0087) (0.42 - 0.43)	0.40 (0.0087) (0.39 - 0.42)	0.022 (0.012) (0.011 - 0.032)	-0.0067, 0.050	0.116	0.23, 0.52 (0.32 - 0.43)
Histidine	0.31 (0.0084) (0.30 - 0.31)	0.30 (0.0084) (0.28 - 0.31)	0.011 (0.012) (0.00008 - 0.019)	-0.016, 0.039	0.366	0.16, 0.39 (0.22 - 0.33)
Isoleucine	0.38 (0.015) (0.37 - 0.40)	0.36 (0.015) (0.33 - 0.37)	0.029 (0.021) (0.022 - 0.035)	-0.019, 0.077	0.195	0.16, 0.53 (0.27 - 0.46)
Leucine	1.32 (0.058) (1.24 - 1.36)	1.22 (0.058) (1.16 - 1.27)	0.099 (0.082) (0.078 - 0.13)	-0.091, 0.29	0.264	0.43, 1.95 (0.93 - 1.69)
Lysine	0.33 (0.0055) (0.32 - 0.33)	0.32 (0.0055) (0.31 - 0.33)	0.011 (0.0078) (-0.0011 - 0.019)	-0.0075, 0.029	0.215	0.19, 0.40 (0.26 - 0.34)

Table 6. Statistical Summary of Site ARNE Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Amino Acid (% dw)						
Methionine	0.29 (0.0052) (0.28 - 0.29)	0.27 (0.0052) (0.26 - 0.27)	0.017 (0.0073) (0.011 - 0.024)	0.00064, 0.034	0.043	0.11, 0.29 (0.17 - 0.25)
Phenylalanine	0.55 (0.020) (0.53 - 0.57)	0.51 (0.020) (0.49 - 0.53)	0.038 (0.029) (0.026 - 0.049)	-0.028, 0.10	0.220	0.23, 0.75 (0.39 - 0.66)
Proline	0.96 (0.033) (0.91 - 0.98)	0.91 (0.033) (0.86 - 0.95)	0.050 (0.047) (0.029 - 0.073)	-0.059, 0.16	0.318	0.40, 1.24 (0.66 - 1.07)
Serine	0.51 (0.018) (0.49 - 0.52)	0.48 (0.018) (0.46 - 0.50)	0.029 (0.025) (0.015 - 0.052)	-0.029, 0.088	0.280	0.24, 0.66 (0.38 - 0.59)
Threonine	0.38 (0.010) (0.38 - 0.39)	0.36 (0.010) (0.35 - 0.37)	0.026 (0.014) (0.015 - 0.033)	-0.0072, 0.059	0.108	0.20, 0.46 (0.28 - 0.41)
Tryptophan	0.062 (0.0019) (0.059 - 0.064)	0.052 (0.0019) (0.051 - 0.053)	0.010 (0.0027) (0.0061 - 0.013)	0.0037, 0.016	0.006	0.032, 0.069 (0.039 - 0.063)

Table 6. Statistical Summary of Site ARNE Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Amino Acid (% dw)						
Tyrosine	0.33 (0.038) (0.25 - 0.38)	0.32 (0.038) (0.25 - 0.36)	0.0090 (0.054) (-0.12 - 0.11)	-0.12, 0.13	0.872	0.077, 0.45 (0.11 - 0.43)
Valine	0.53 (0.017) (0.51 - 0.54)	0.49 (0.017) (0.46 - 0.51)	0.032 (0.023) (0.021 - 0.041)	-0.022, 0.086	0.210	0.25, 0.67 (0.38 - 0.58)
Fatty Acid (% Total FA)						
16:0 Palmitic	11.49 (0.056) (11.47 - 11.52)	10.99 (0.056) (10.88 - 11.08)	0.50 (0.080) (0.38 - 0.59)	0.31, 0.68	<0.001	6.42, 15.23 (9.13 - 12.33)
18:0 Stearic	2.17 (0.021) (2.16 - 2.17)	2.04 (0.021) (1.99 - 2.07)	0.13 (0.030) (0.093 - 0.18)	0.063, 0.20	0.002	0.87, 2.88 (1.54 - 2.38)
18:1 Oleic	26.34 (0.14) (26.16 - 26.62)	25.35 (0.14) (25.06 - 25.71)	1.00 (0.17) (0.88 - 1.20)	0.61, 1.38	<0.001	11.30, 43.27 (21.39 - 34.71)
18:2 Linoleic	57.94 (0.16) (57.61 - 58.13)	59.56 (0.16) (59.18 - 59.82)	-1.62 (0.21) (-1.69 - -1.57)	-2.11, -1.13	<0.001	41.35, 74.78 (49.38 - 63.16)

Table 6. Statistical Summary of Site ARNE Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Fatty Acid (% Total FA)						
18:3 Linolenic	1.15 (0.014) (1.13 - 1.17)	1.19 (0.014) (1.18 - 1.22)	-0.047 (0.018) (-0.088 - -0.017)	-0.089, -0.0047	0.033	0.78, 1.52 (0.97 - 1.35)
20:0 Arachidic	0.48 (0.0035) (0.47 - 0.48)	0.46 (0.0035) (0.45 - 0.46)	0.021 (0.0050) (0.0092 - 0.030)	0.0096, 0.033	0.002	0.15, 0.67 (0.32 - 0.53)
20:1 Eicosenoic	0.22 (0.0024) (0.22 - 0.23)	0.23 (0.0024) (0.22 - 0.23)	-0.0013 (0.0034) (-0.0045 - 0.0025)	-0.0091, 0.0065	0.711	0.12, 0.36 (0.21 - 0.31)
22:0 Behenic	0.21 (0.0042) (0.21 - 0.23)	0.19 (0.0042) (0.18 - 0.20)	0.021 (0.0059) (0.0054 - 0.031)	0.0075, 0.035	0.007	0, 0.32 (0.057 - 0.23)
Mineral						
Calcium (% dw)	0.0077 (0.00024) (0.0075 - 0.0079)	0.0067 (0.00024) (0.0060 - 0.0076)	0.00095 (0.00034) (-0.00009 - 0.0017)	0.00016, 0.0017	0.024	0.0019, 0.0076 (0.0038 - 0.0068)
Copper (mg/kg dw)	1.86 (0.074) (1.59 - 2.07)	1.84 (0.074) (1.78 - 1.89)	0.022 (0.10) (-0.19 - 0.18)	-0.22, 0.26	0.835	0.17, 3.48 (1.10 - 2.62)

Table 6. Statistical Summary of Site ARNE Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Mineral						
Iron (mg/kg dw)	24.12 (0.84) (23.45 - 24.69)	23.57 (0.84) (22.10 - 25.57)	0.55 (1.19) (-2.12 - 2.11)	-2.20, 3.29	0.657	11.42, 28.01 (16.55 - 24.10)
Magnesium (% dw)	0.13 (0.0041) (0.13 - 0.14)	0.12 (0.0041) (0.12 - 0.13)	0.0057 (0.0058) (-0.00043 - 0.010)	-0.0076, 0.019	0.348	0.080, 0.16 (0.11 - 0.15)
Manganese (mg/kg dw)	8.74 (0.27) (8.42 - 9.31)	8.86 (0.27) (8.33 - 9.31)	-0.12 (0.38) (-0.46 - 0.092)	-1.00, 0.76	0.760	0, 12.67 (4.00 - 9.17)
Phosphorus (% dw)	0.33 (0.0070) (0.33 - 0.34)	0.34 (0.0070) (0.33 - 0.35)	-0.0060 (0.0099) (-0.020 - 0.0053)	-0.029, 0.017	0.558	0.24, 0.42 (0.28 - 0.37)
Potassium (% dw)	0.40 (0.0086) (0.39 - 0.40)	0.40 (0.0086) (0.39 - 0.41)	-0.0035 (0.012) (-0.013 - 0.0029)	-0.032, 0.024	0.777	0.24, 0.54 (0.33 - 0.46)
Zinc (mg/kg dw)	23.24 (0.63) (21.98 - 25.42)	22.06 (0.63) (21.65 - 22.40)	1.18 (0.89) (-0.41 - 3.29)	-0.89, 3.24	0.224	11.46, 30.37 (17.30 - 25.45)

Table 6. Statistical Summary of Site ARNE Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Vitamin (mg/kg dw)						
Folic Acid	0.38 (0.025) (0.34 - 0.43)	0.41 (0.025) (0.35 - 0.47)	-0.030 (0.036) (-0.097 - 0.073)	-0.11, 0.052	0.423	0.11, 0.61 (0.24 - 0.57)
Niacin	25.77 (2.47) (24.92 - 27.18)	26.05 (2.47) (24.52 - 28.52)	-0.28 (3.49) (-3.30 - 2.66)	-8.33, 7.78	0.938	7.89, 49.83 (20.63 - 43.08)
Vitamin A	0.95 (0.056) (0.88 - 0.99)	0.87 (0.056) (0.76 - 0.98)	0.078 (0.079) (0.013 - 0.21)	-0.10, 0.26	0.349	0.38, 1.68 (0.58 - 1.50)
Vitamin B1	2.90 (0.14) (2.83 - 2.93)	2.53 (0.14) (2.48 - 2.60)	0.37 (0.20) (0.33 - 0.45)	-0.085, 0.83	0.097	2.21, 3.65 (2.41 - 3.48)
Vitamin B2	3.27 (0.17) (3.05 - 3.56)	2.36 (0.17) (2.18 - 2.58)	0.91 (0.23) (0.62 - 1.23)	0.38, 1.43	0.004	0, 4.47 (1.28 - 3.29)
Vitamin B6	8.50 (0.31) (8.21 - 8.69)	8.92 (0.31) (8.23 - 9.61)	-0.42 (0.45) (-1.40 - 0.36)	-1.45, 0.60	0.367	2.57, 12.07 (5.24 - 10.29)

Table 6. Statistical Summary of Site ARNE Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Vitamin (mg/kg dw)						
Vitamin E	16.71 (0.85) (16.01 - 17.44)	17.76 (0.85) (17.47 - 18.10)	-1.06 (1.20) (-2.09 - -0.27)	-3.82, 1.71	0.405	0, 25.61 (6.67 - 17.34)

¹dw = dry weight; fw = fresh weight; FA = fatty acid.²Test refers to MON 87427 (Glyphosate-Treated).³Mean (S.E.) = least-square mean (standard error).⁴Control refers to the non-biotechnology derived, conventional parental control.⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional substances. Negative limits set to zero.

Table 7. Statistical Summary of Site ARNE Corn Grain Anti-nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Anti-nutrient (% dw)						
Phytic Acid	0.89 (0.029) (0.87 - 0.89)	0.97 (0.029) (0.94 - 1.00)	-0.080 (0.036) (-0.12 - -0.054)	-0.16, 0.0038	0.058	0.73, 1.23 (0.82 - 1.07)
Raffinose	0.11 (0.0066) (0.11 - 0.11)	0.13 (0.0066) (0.13 - 0.14)	-0.024 (0.0094) (-0.028 - -0.023)	-0.046, -0.0028	0.031	0.024, 0.29 (0.092 - 0.21)

¹dw = dry weight.²Test refers to MON 87427 (Glyphosate-Treated).³Mean (S.E.) = least-square mean (standard error).⁴Control refers to the non-biotechnology derived, conventional parental control.⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional substances. Negative limits set to zero.

Table 8. Statistical Summary of Site ARNE Corn Grain Secondary Metabolites for MON 87427 (Glyphosate-Treated) vs. Parental Control

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Secondary Metabolite (µg/g dw)						
Ferulic Acid	2475.67 (73.70) (2342.34 - 2559.19)	2416.91 (73.70) (2315.55 - 2500.00)	58.76 (104.23) (-92.83 - 209.93)	-181.59, 299.11	0.588	1070.41, 2955.86 (1588.35 - 2630.98)
p-Coumaric Acid	243.80 (9.78) (227.48 - 260.43)	245.08 (9.78) (233.83 - 252.26)	-1.28 (11.70) (-21.68 - 9.66)	-28.27, 25.71	0.915	58.74, 313.97 (124.16 - 250.30)

¹dw = dry weight.²Test refers to MON 87427 (Glyphosate-Treated).³Mean (S.E.) = least-square mean (standard error).⁴Control refers to the non-biotechnology derived, conventional parental control.⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional substances. Negative limits set to zero.

Table 9. Statistical Summary of Site ARNE Corn Forage Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Proximate (% dw)						
Ash	4.60 (0.27) (4.39 - 4.76)	4.56 (0.27) (3.99 - 5.09)	0.043 (0.34) (-0.33 - 0.66)	-0.74, 0.82	0.901	2.66, 6.48 (3.70 - 5.95)
Carbohydrates	87.05 (0.78) (86.68 - 87.25)	86.93 (0.78) (85.44 - 88.52)	0.12 (1.11) (-1.27 - 1.24)	-2.43, 2.67	0.915	80.13, 94.05 (83.23 - 90.37)
Moisture (% fw)	70.73 (1.29) (68.50 - 73.10)	69.37 (1.29) (67.40 - 72.30)	1.37 (1.82) (-3.80 - 5.70)	-2.83, 5.57	0.474	51.70, 86.22 (61.00 - 76.00)
Protein	6.84 (0.55) (6.65 - 7.02)	6.40 (0.55) (5.40 - 7.18)	0.44 (0.72) (-0.17 - 1.26)	-1.22, 2.10	0.560	1.34, 11.57 (4.37 - 9.31)
Total Fat	1.52 (0.28) (1.45 - 1.56)	2.12 (0.28) (1.98 - 2.28)	-0.60 (0.35) (-0.74 - -0.42)	-1.40, 0.20	0.120	0.44, 3.33 (0.78 - 3.16)
Fiber (% dw)						
Acid Detergent Fiber	24.14 (1.62) (21.78 - 26.97)	27.26 (1.62) (25.49 - 28.84)	-3.11 (2.13) (-7.07 - -0.46)	-8.02, 1.79	0.181	14.84, 38.51 (21.33 - 35.92)

Table 9. Statistical Summary of Site ARNE Corn Forage Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Fiber (% dw)						
Neutral Detergent Fiber	38.71 (1.43) (37.17 - 41.50)	34.61 (1.43) (33.07 - 36.71)	4.10 (1.92) (3.13 - 4.79)	-0.33, 8.54	0.065	25.12, 54.99 (29.68 - 60.16)
Mineral						
Calcium (% dw)	0.19 (0.011) (0.18 - 0.21)	0.18 (0.011) (0.15 - 0.20)	0.018 (0.013) (-0.0016 - 0.034)	-0.012, 0.047	0.207	0.075, 0.29 (0.10 - 0.24)
Phosphorus (% dw)	0.24 (0.016) (0.20 - 0.27)	0.22 (0.016) (0.19 - 0.23)	0.022 (0.020) (0.013 - 0.038)	-0.025, 0.068	0.316	0.063, 0.37 (0.16 - 0.31)

¹dw = dry weight; fw = fresh weight.²Test refers to MON 87427 (Glyphosate-Treated).³Mean (S.E.) = least-square mean (standard error).⁴Control refers to the non-biotechnology derived, conventional parental control.⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional substances. Negative limits set to zero.

Table 10. Statistical Summary of Site IARL Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Proximate (% dw)						
Ash	1.57 (0.069) (1.46 - 1.76)	1.56 (0.084) (1.53 - 1.60)	0.0092 (0.11) (-0.14 - -0.031)	-0.25, 0.27	0.934	1.13, 1.97 (1.18 - 1.82)
Carbohydrates	84.24 (0.32) (83.60 - 84.96)	83.11 (0.39) (82.96 - 83.33)	1.13 (0.47) (0.63 - 1.63)	0.017, 2.25	0.047	80.77, 89.46 (82.26 - 87.17)
Moisture (% fw)	10.93 (0.14) (10.90 - 11.00)	10.40 (0.17) (10.20 - 10.60)	0.53 (0.22) (0.30 - 0.80)	0.020, 1.05	0.043	7.56, 14.80 (9.31 - 12.70)
Protein	10.60 (0.30) (9.91 - 11.35)	11.73 (0.35) (11.41 - 11.92)	-1.13 (0.38) (-1.50 - -0.57)	-2.02, -0.24	0.019	5.79, 13.43 (8.07 - 12.13)
Total Fat	3.60 (0.058) (3.56 - 3.66)	3.65 (0.071) (3.59 - 3.71)	-0.046 (0.092) (-0.055 - 0.0098)	-0.26, 0.17	0.635	2.12, 5.35 (2.90 - 4.30)
Fiber (% dw)						
Acid Detergent Fiber	2.98 (0.22) (2.67 - 3.31)	3.13 (0.27) (3.02 - 3.23)	-0.15 (0.34) (-0.063 - 0.078)	-0.96, 0.67	0.684	1.84, 4.39 (2.29 - 4.27)

Table 10. Statistical Summary of Site IARL Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Fiber (% dw)						
Neutral Detergent Fiber	9.34 (0.13) (9.17 - 9.43)	9.26 (0.16) (9.21 - 9.26)	0.079 (0.19) (-0.092 - 0.22)	-0.38, 0.54	0.693	5.69, 11.81 (7.06 - 10.66)
Total Dietary Fiber	12.46 (0.29) (12.13 - 12.68)	12.72 (0.35) (12.64 - 12.81)	-0.26 (0.46) (-0.67 - -0.070)	-1.34, 0.82	0.585	8.67, 15.32 (10.25 - 14.30)
Amino Acid (% dw)						
Alanine	0.82 (0.035) (0.74 - 0.89)	0.90 (0.042) (0.89 - 0.90)	-0.084 (0.051) (-0.15 - -0.017)	-0.21, 0.037	0.143	0.32, 1.12 (0.58 - 0.98)
Arginine	0.48 (0.015) (0.45 - 0.49)	0.53 (0.017) (0.51 - 0.53)	-0.048 (0.018) (-0.079 - -0.016)	-0.091, -0.0051	0.033	0.24, 0.68 (0.34 - 0.57)
Aspartic Acid	0.67 (0.026) (0.62 - 0.71)	0.73 (0.031) (0.72 - 0.73)	-0.061 (0.038) (-0.099 - -0.024)	-0.15, 0.030	0.156	0.34, 0.92 (0.52 - 0.78)
Cystine	0.24 (0.0036) (0.24 - 0.25)	0.26 (0.0042) (0.26 - 0.26)	-0.015 (0.0046) (-0.015 - -0.011)	-0.026, -0.0044	0.012	0.14, 0.30 (0.18 - 0.26)

Table 10. Statistical Summary of Site IARL Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Amino Acid (% dw)						
Glutamic Acid	2.05 (0.092) (1.85 - 2.24)	2.26 (0.11) (2.20 - 2.28)	-0.21 (0.13) (-0.35 - -0.047)	-0.53, 0.11	0.161	0.77, 2.84 (1.46 - 2.49)
Glycine	0.38 (0.012) (0.36 - 0.40)	0.39 (0.014) (0.39 - 0.39)	-0.018 (0.018) (-0.038 - 0.0035)	-0.060, 0.024	0.344	0.23, 0.52 (0.32 - 0.43)
Histidine	0.31 (0.012) (0.29 - 0.34)	0.34 (0.015) (0.33 - 0.34)	-0.022 (0.018) (-0.045 - 0.0030)	-0.065, 0.020	0.251	0.16, 0.39 (0.22 - 0.33)
Isoleucine	0.38 (0.019) (0.34 - 0.42)	0.42 (0.023) (0.41 - 0.42)	-0.036 (0.029) (-0.081 - 0.0093)	-0.10, 0.032	0.249	0.16, 0.53 (0.27 - 0.46)
Leucine	1.38 (0.065) (1.23 - 1.52)	1.55 (0.079) (1.52 - 1.56)	-0.17 (0.095) (-0.29 - -0.042)	-0.40, 0.052	0.112	0.43, 1.95 (0.93 - 1.69)
Lysine	0.29 (0.0093) (0.29 - 0.30)	0.31 (0.011) (0.31 - 0.31)	-0.015 (0.015) (-0.024 - -0.0085)	-0.049, 0.020	0.346	0.19, 0.40 (0.26 - 0.34)

Table 10. Statistical Summary of Site IARL Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Amino Acid (% dw)						
Methionine	0.23 (0.0038) (0.22 - 0.23)	0.25 (0.0046) (0.24 - 0.25)	-0.018 (0.0059) (-0.015 - -0.013)	-0.032, -0.0040	0.018	0.11, 0.29 (0.17 - 0.25)
Phenylalanine	0.55 (0.025) (0.50 - 0.60)	0.61 (0.030) (0.60 - 0.61)	-0.059 (0.038) (-0.10 - -0.011)	-0.15, 0.030	0.162	0.23, 0.75 (0.39 - 0.66)
Proline	1.00 (0.039) (0.91 - 1.08)	1.07 (0.047) (1.06 - 1.06)	-0.074 (0.055) (-0.15 - 0.023)	-0.20, 0.055	0.217	0.40, 1.24 (0.66 - 1.07)
Serine	0.49 (0.017) (0.46 - 0.51)	0.56 (0.021) (0.52 - 0.58)	-0.062 (0.024) (-0.063 - -0.062)	-0.12, -0.0047	0.037	0.24, 0.66 (0.38 - 0.59)
Threonine	0.36 (0.010) (0.34 - 0.37)	0.38 (0.013) (0.38 - 0.39)	-0.029 (0.016) (-0.042 - -0.016)	-0.066, 0.0085	0.109	0.20, 0.46 (0.28 - 0.41)
Tryptophan	0.053 (0.0035) (0.049 - 0.058)	0.057 (0.0043) (0.050 - 0.065)	-0.0049 (0.0056) (-0.015 - 0.0080)	-0.018, 0.0083	0.408	0.032, 0.069 (0.039 - 0.063)

Table 10. Statistical Summary of Site IARL Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Amino Acid (% dw)						
Tyrosine	0.32 (0.023) (0.28 - 0.35)	0.36 (0.029) (0.32 - 0.39)	-0.039 (0.036) (-0.11 - 0.00062)	-0.13, 0.047	0.314	0.077, 0.45 (0.11 - 0.43)
Valine	0.51 (0.022) (0.47 - 0.55)	0.55 (0.027) (0.54 - 0.56)	-0.039 (0.035) (-0.089 - 0.010)	-0.12, 0.043	0.298	0.25, 0.67 (0.38 - 0.58)
Fatty Acid (% Total FA)						
16:0 Palmitic	10.72 (0.053) (10.58 - 10.85)	10.44 (0.063) (10.44 - 10.46)	0.28 (0.074) (0.14 - 0.39)	0.10, 0.45	0.007	6.42, 15.23 (9.13 - 12.33)
18:0 Stearic	1.84 (0.018) (1.81 - 1.86)	1.79 (0.022) (1.77 - 1.79)	0.052 (0.027) (0.034 - 0.054)	-0.012, 0.12	0.095	0.87, 2.88 (1.54 - 2.38)
18:1 Oleic	22.91 (0.13) (22.84 - 22.98)	21.95 (0.16) (21.74 - 22.15)	0.97 (0.20) (0.83 - 1.10)	0.49, 1.45	0.002	11.30, 43.27 (21.39 - 34.71)
18:2 Linoleic	62.57 (0.14) (62.49 - 62.70)	63.90 (0.17) (63.72 - 64.09)	-1.34 (0.22) (-1.59 - -1.01)	-1.87, -0.81	<0.001	41.35, 74.78 (49.38 - 63.16)

Table 10. Statistical Summary of Site IARL Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Fatty Acid (% Total FA)						
18:3 Linolenic	1.24 (0.0078) (1.22 - 1.26)	1.20 (0.0096) (1.20 - 1.20)	0.040 (0.012) (0.019 - 0.043)	0.011, 0.069	0.014	0.78, 1.52 (0.97 - 1.35)
20:0 Arachidic	0.38 (0.0035) (0.37 - 0.39)	0.37 (0.0043) (0.37 - 0.37)	0.011 (0.0055) (0.0017 - 0.010)	-0.0021, 0.024	0.087	0.15, 0.67 (0.32 - 0.53)
20:1 Eicosenoic	0.20 (0.0016) (0.19 - 0.20)	0.20 (0.0020) (0.20 - 0.20)	-0.0016 (0.0026) (-0.0049 - -0.0018)	-0.0077, 0.0045	0.546	0.12, 0.36 (0.21 - 0.31)
22:0 Behenic	0.15 (0.0027) (0.14 - 0.15)	0.15 (0.0033) (0.15 - 0.15)	-0.00002 (0.0040) (-0.0045 - 0.00034)	-0.0094, 0.0093	0.995	0, 0.32 (0.057 - 0.23)
Mineral						
Calcium (% dw)	0.0055 (0.00020) (0.0054 - 0.0057)	0.0049 (0.00024) (0.0046 - 0.0053)	0.00054 (0.00031) (0.00007 - 0.00084)	-0.00019, 0.0013	0.121	0.0019, 0.0076 (0.0038 - 0.0068)
Copper (mg/kg dw)	1.36 (0.18) (1.21 - 1.56)	1.55 (0.23) (1.49 - 1.61)	-0.19 (0.29) (-0.30 - 0.070)	-0.88, 0.50	0.537	0.17, 3.48 (1.10 - 2.62)

Table 10. Statistical Summary of Site IARL Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Mineral						
Iron (mg/kg dw)	24.21 (0.67) (22.67 - 25.84)	23.52 (0.77) (23.15 - 23.83)	0.70 (0.82) (-0.48 - 2.01)	-1.23, 2.63	0.419	11.42, 28.01 (16.55 - 24.10)
Magnesium (% dw)	0.13 (0.0025) (0.13 - 0.13)	0.13 (0.0030) (0.13 - 0.13)	-0.0050 (0.0036) (-0.0055 - -0.0040)	-0.014, 0.0036	0.208	0.080, 0.16 (0.11 - 0.15)
Manganese (mg/kg dw)	9.35 (0.39) (9.26 - 9.40)	9.78 (0.47) (9.51 - 9.82)	-0.42 (0.56) (-0.43 - -0.11)	-1.76, 0.91	0.477	0, 12.67 (4.00 - 9.17)
Phosphorus (% dw)	0.33 (0.0060) (0.32 - 0.35)	0.34 (0.0073) (0.34 - 0.35)	-0.014 (0.0091) (-0.018 - -0.0067)	-0.035, 0.0076	0.170	0.24, 0.42 (0.28 - 0.37)
Potassium (% dw)	0.38 (0.010) (0.38 - 0.39)	0.40 (0.012) (0.38 - 0.41)	-0.013 (0.016) (-0.029 - -0.0011)	-0.050, 0.023	0.419	0.24, 0.54 (0.33 - 0.46)
Zinc (mg/kg dw)	23.54 (0.55) (22.45 - 24.61)	26.51 (0.67) (24.94 - 28.08)	-2.97 (0.86) (-5.63 - -0.34)	-5.01, -0.93	0.010	11.46, 30.37 (17.30 - 25.45)

Table 10. Statistical Summary of Site IARL Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Vitamin (mg/kg dw)						
Folic Acid	0.36 (0.024) (0.31 - 0.40)	0.45 (0.028) (0.42 - 0.49)	-0.088 (0.029) (-0.088 - -0.058)	-0.16, -0.018	0.020	0.11, 0.61 (0.24 - 0.57)
Niacin	24.74 (1.48) (22.56 - 27.27)	24.08 (1.62) (22.61 - 27.52)	0.65 (1.35) (-0.24 - 1.78)	-2.55, 3.86	0.643	7.89, 49.83 (20.63 - 43.08)
Vitamin A	0.98 (0.042) (0.94 - 1.03)	0.89 (0.052) (0.83 - 0.95)	0.086 (0.067) (-0.0013 - 0.21)	-0.071, 0.24	0.236	0.38, 1.68 (0.58 - 1.50)
Vitamin B1	2.73 (0.17) (2.58 - 3.03)	2.94 (0.21) (2.90 - 3.02)	-0.21 (0.25) (-0.44 - 0.14)	-0.80, 0.38	0.423	2.21, 3.65 (2.41 - 3.48)
Vitamin B2	1.41 (0.13) (1.17 - 1.60)	1.93 (0.16) (1.89 - 1.96)	-0.51 (0.21) (-0.72 - -0.36)	-1.00, -0.024	0.042	0, 4.47 (1.28 - 3.29)
Vitamin B6	7.11 (0.57) (5.91 - 8.29)	7.51 (0.68) (6.51 - 8.14)	-0.39 (0.78) (-0.60 - 0.15)	-2.23, 1.45	0.630	2.57, 12.07 (5.24 - 10.29)

Table 10. Statistical Summary of Site IARL Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Vitamin (mg/kg dw)						
Vitamin E	11.09 (1.18) (8.48 - 13.58)	10.93 (1.45) (10.67 - 11.19)	0.17 (1.87) (-2.70 - 0.55)	-4.25, 4.59	0.931	0, 25.61 (6.67 - 17.34)

¹dw = dry weight; fw = fresh weight; FA = fatty acid.²Test refers to MON 87427 (Glyphosate-Treated).³Mean (S.E.) = least-square mean (standard error).⁴Control refers to the non-biotechnology derived, conventional parental control.⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional substances. Negative limits set to zero.

Table 11. Statistical Summary of Site IARL Corn Grain Anti-nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Anti-nutrient (% dw)						
Phytic Acid	0.98 (0.025) (0.89 - 1.03)	1.00 (0.030) (0.98 - 1.02)	-0.023 (0.039) (0.010 - 0.032)	-0.12, 0.070	0.576	0.73, 1.23 (0.82 - 1.07)
Raffinose	0.11 (0.0043) (0.098 - 0.12)	0.11 (0.0051) (0.11 - 0.11)	0.0036 (0.0059) (-0.0073 - 0.013)	-0.010, 0.017	0.560	0.024, 0.29 (0.092 - 0.21)

¹dw = dry weight.²Test refers to MON 87427 (Glyphosate-Treated).³Mean (S.E.) = least-square mean (standard error).⁴Control refers to the non-biotechnology derived, conventional parental control.⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional substances. Negative limits set to zero.

Table 12. Statistical Summary of Site IARL Corn Grain Secondary Metabolites for MON 87427 (Glyphosate-Treated) vs. Parental Control

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Secondary Metabolite (µg/g dw)						
Ferulic Acid	2253.00 (92.22) (2188.55 - 2289.56)	2377.76 (112.69) (2293.99 - 2460.85)	-124.75 (141.79) (-171.29 - -13.09)	-460.02, 210.52	0.408	1070.41, 2955.86 (1588.35 - 2630.98)
p-Coumaric Acid	177.78 (10.27) (166.11 - 195.51)	178.58 (12.58) (162.58 - 194.63)	-0.81 (16.14) (-28.53 - 32.92)	-38.97, 37.35	0.961	58.74, 313.97 (124.16 - 250.30)

¹dw = dry weight.²Test refers to MON 87427 (Glyphosate-Treated).³Mean (S.E.) = least-square mean (standard error).⁴Control refers to the non-biotechnology derived, conventional parental control.⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional substances. Negative limits set to zero.

Table 13. Statistical Summary of Site IARL Corn Forage Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Proximate (% dw)						
Ash	4.81 (0.29) (4.49 - 5.10)	5.58 (0.35) (5.23 - 5.84)	-0.78 (0.43) (-0.74 - -0.74)	-1.81, 0.25	0.116	2.66, 6.48 (3.70 - 5.95)
Carbohydrates	86.46 (0.60) (86.21 - 86.75)	84.12 (0.72) (83.80 - 84.64)	2.34 (0.85) (2.11 - 2.61)	0.32, 4.35	0.029	80.13, 94.05 (83.23 - 90.37)
Moisture (% fw)	69.90 (1.03) (67.70 - 71.20)	74.71 (1.21) (73.60 - 75.00)	-4.81 (1.33) (-5.90 - -4.20)	-7.96, -1.66	0.008	51.70, 86.22 (61.00 - 76.00)
Protein	7.03 (0.40) (6.75 - 7.40)	8.63 (0.49) (8.32 - 8.94)	-1.60 (0.63) (-2.00 - -1.57)	-3.09, -0.12	0.037	1.34, 11.57 (4.37 - 9.31)
Total Fat	1.71 (0.32) (1.57 - 1.82)	1.61 (0.39) (1.19 - 2.04)	0.097 (0.50) (-0.30 - 0.63)	-1.10, 1.29	0.853	0.44, 3.33 (0.78 - 3.16)
Fiber (% dw)						
Acid Detergent Fiber	22.89 (2.31) (21.08 - 24.01)	26.21 (2.83) (20.27 - 32.16)	-3.32 (3.66) (-8.15 - 0.82)	-11.97, 5.32	0.393	14.84, 38.51 (21.33 - 35.92)

Table 13. Statistical Summary of Site IARL Corn Forage Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Fiber (% dw)						
Neutral Detergent Fiber	39.68 (2.27) (37.33 - 42.71)	39.33 (2.78) (38.88 - 39.77)	0.36 (3.59) (-1.55 - -0.76)	-8.12, 8.83	0.923	25.12, 54.99 (29.68 - 60.16)
Mineral						
Calcium (% dw)	0.16 (0.016) (0.14 - 0.18)	0.19 (0.019) (0.18 - 0.20)	-0.033 (0.025) (-0.049 - -0.042)	-0.093, 0.026	0.228	0.075, 0.29 (0.10 - 0.24)
Phosphorus (% dw)	0.27 (0.020) (0.25 - 0.31)	0.29 (0.024) (0.28 - 0.31)	-0.024 (0.031) (-0.063 - -0.031)	-0.098, 0.049	0.456	0.063, 0.37 (0.16 - 0.31)

¹dw = dry weight; fw = fresh weight.²Test refers to MON 87427 (Glyphosate-Treated).³Mean (S.E.) = least-square mean (standard error).⁴Control refers to the non-biotechnology derived, conventional parental control.⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional substances. Negative limits set to zero.

Table 14. Statistical Summary of Site ILWY Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Proximate (% dw)						
Ash	1.65 (0.053) (1.53 - 1.81)	1.62 (0.053) (1.55 - 1.67)	0.025 (0.067) (-0.051 - 0.14)	-0.13, 0.18	0.716	1.13, 1.97 (1.18 - 1.82)
Carbohydrates	85.94 (0.17) (85.55 - 86.33)	85.58 (0.17) (85.24 - 85.76)	0.36 (0.24) (-0.18 - 1.09)	-0.19, 0.91	0.169	80.77, 89.46 (82.26 - 87.17)
Moisture (% fw)	12.53 (0.21) (12.10 - 13.30)	12.17 (0.21) (11.90 - 12.40)	0.37 (0.29) (-0.30 - 1.10)	-0.31, 1.04	0.245	7.56, 14.80 (9.31 - 12.70)
Protein	8.71 (0.15) (8.46 - 8.86)	8.97 (0.15) (8.62 - 9.19)	-0.26 (0.21) (-0.73 - 0.19)	-0.75, 0.23	0.253	5.79, 13.43 (8.07 - 12.13)
Total Fat	3.72 (0.083) (3.62 - 3.83)	3.84 (0.083) (3.60 - 3.98)	-0.12 (0.12) (-0.33 - 0.11)	-0.39, 0.15	0.333	2.12, 5.35 (2.90 - 4.30)
Fiber (% dw)						
Acid Detergent Fiber	3.78 (0.18) (3.33 - 4.27)	3.05 (0.18) (2.80 - 3.18)	0.73 (0.25) (0.15 - 1.09)	0.15, 1.30	0.020	1.84, 4.39 (2.29 - 4.27)

Table 14. Statistical Summary of Site ILWY Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Fiber (% dw)						
Neutral Detergent Fiber	10.25 (0.33) (9.77 - 10.97)	10.27 (0.33) (9.99 - 10.59)	-0.014 (0.46) (-0.82 - 0.98)	-1.08, 1.05	0.975	5.69, 11.81 (7.06 - 10.66)
Total Dietary Fiber	13.26 (0.38) (12.63 - 14.35)	13.28 (0.38) (13.13 - 13.44)	-0.022 (0.51) (-0.64 - 1.07)	-1.20, 1.16	0.966	8.67, 15.32 (10.25 - 14.30)
Amino Acid (% dw)						
Alanine	0.62 (0.020) (0.61 - 0.63)	0.63 (0.020) (0.55 - 0.67)	-0.016 (0.029) (-0.067 - 0.075)	-0.082, 0.051	0.603	0.32, 1.12 (0.58 - 0.98)
Arginine	0.42 (0.017) (0.40 - 0.45)	0.43 (0.017) (0.39 - 0.45)	-0.0053 (0.020) (-0.035 - 0.015)	-0.051, 0.040	0.796	0.24, 0.68 (0.34 - 0.57)
Aspartic Acid	0.54 (0.016) (0.54 - 0.55)	0.55 (0.016) (0.48 - 0.59)	-0.0075 (0.022) (-0.049 - 0.064)	-0.059, 0.044	0.745	0.34, 0.92 (0.52 - 0.78)
Cystine	0.22 (0.0041) (0.21 - 0.22)	0.22 (0.0041) (0.21 - 0.23)	-0.0048 (0.0051) (-0.013 - 0.0072)	-0.017, 0.0070	0.375	0.14, 0.30 (0.18 - 0.26)

Table 14. Statistical Summary of Site ILWY Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Amino Acid (% dw)						
Glutamic Acid	1.55 (0.053) (1.53 - 1.58)	1.59 (0.053) (1.38 - 1.70)	-0.035 (0.074) (-0.18 - 0.20)	-0.21, 0.14	0.650	0.77, 2.84 (1.46 - 2.49)
Glycine	0.34 (0.0091) (0.34 - 0.35)	0.35 (0.0091) (0.31 - 0.37)	-0.0046 (0.012) (-0.028 - 0.033)	-0.032, 0.023	0.706	0.23, 0.52 (0.32 - 0.43)
Histidine	0.27 (0.0082) (0.27 - 0.27)	0.27 (0.0082) (0.23 - 0.29)	-0.00074 (0.011) (-0.018 - 0.033)	-0.027, 0.025	0.949	0.16, 0.39 (0.22 - 0.33)
Isoleucine	0.29 (0.011) (0.29 - 0.30)	0.30 (0.011) (0.26 - 0.32)	-0.0075 (0.015) (-0.033 - 0.039)	-0.043, 0.028	0.638	0.16, 0.53 (0.27 - 0.46)
Leucine	1.00 (0.036) (0.97 - 1.02)	1.03 (0.036) (0.89 - 1.10)	-0.028 (0.051) (-0.13 - 0.13)	-0.14, 0.088	0.591	0.43, 1.95 (0.93 - 1.69)
Lysine	0.27 (0.0078) (0.27 - 0.27)	0.28 (0.0078) (0.25 - 0.30)	-0.0041 (0.0094) (-0.021 - 0.026)	-0.026, 0.018	0.671	0.19, 0.40 (0.26 - 0.34)

Table 14. Statistical Summary of Site ILWY Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Amino Acid (% dw)						
Methionine	0.20 (0.0039) (0.20 - 0.21)	0.20 (0.0039) (0.20 - 0.21)	0.0012 (0.0055) (-0.0089 - 0.012)	-0.011, 0.014	0.829	0.11, 0.29 (0.17 - 0.25)
Phenylalanine	0.42 (0.014) (0.40 - 0.43)	0.43 (0.014) (0.38 - 0.46)	-0.015 (0.020) (-0.063 - 0.052)	-0.062, 0.032	0.474	0.23, 0.75 (0.39 - 0.66)
Proline	0.75 (0.028) (0.74 - 0.77)	0.76 (0.028) (0.65 - 0.83)	-0.015 (0.039) (-0.091 - 0.12)	-0.10, 0.075	0.717	0.40, 1.24 (0.66 - 1.07)
Serine	0.40 (0.014) (0.38 - 0.41)	0.41 (0.014) (0.36 - 0.43)	-0.011 (0.019) (-0.057 - 0.035)	-0.055, 0.033	0.590	0.24, 0.66 (0.38 - 0.59)
Threonine	0.30 (0.0079) (0.29 - 0.30)	0.31 (0.0079) (0.28 - 0.32)	-0.0074 (0.011) (-0.031 - 0.025)	-0.033, 0.018	0.524	0.20, 0.46 (0.28 - 0.41)
Tryptophan	0.047 (0.0030) (0.045 - 0.049)	0.051 (0.0030) (0.042 - 0.056)	-0.0042 (0.0031) (-0.011 - 0.0061)	-0.011, 0.0030	0.215	0.032, 0.069 (0.039 - 0.063)

Table 14. Statistical Summary of Site ILWY Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Amino Acid (% dw)						
Tyrosine	0.23 (0.032) (0.18 - 0.28)	0.23 (0.032) (0.21 - 0.24)	0.0053 (0.046) (-0.061 - 0.049)	-0.10, 0.11	0.909	0.077, 0.45 (0.11 - 0.43)
Valine	0.42 (0.014) (0.41 - 0.42)	0.42 (0.014) (0.37 - 0.45)	-0.0077 (0.020) (-0.044 - 0.049)	-0.054, 0.038	0.707	0.25, 0.67 (0.38 - 0.58)
Fatty Acid (% Total FA)						
16:0 Palmitic	10.54 (0.054) (10.44 - 10.65)	10.21 (0.054) (10.15 - 10.24)	0.33 (0.056) (0.28 - 0.40)	0.20, 0.46	<0.001	6.42, 15.23 (9.13 - 12.33)
18:0 Stearic	1.90 (0.018) (1.89 - 1.91)	1.88 (0.018) (1.82 - 1.93)	0.021 (0.025) (-0.028 - 0.096)	-0.037, 0.080	0.424	0.87, 2.88 (1.54 - 2.38)
18:1 Oleic	23.58 (0.12) (23.29 - 23.78)	23.24 (0.12) (23.17 - 23.39)	0.34 (0.14) (0.13 - 0.49)	0.012, 0.66	0.043	11.30, 43.27 (21.39 - 34.71)
18:2 Linoleic	62.01 (0.18) (61.68 - 62.32)	62.72 (0.18) (62.45 - 62.92)	-0.71 (0.19) (-0.89 - -0.46)	-1.15, -0.27	0.005	41.35, 74.78 (49.38 - 63.16)

Table 14. Statistical Summary of Site ILWY Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Fatty Acid (% Total FA)						
18:3 Linolenic	1.20 (0.012) (1.17 - 1.22)	1.20 (0.012) (1.19 - 1.21)	0.0051 (0.017) (-0.030 - 0.024)	-0.033, 0.044	0.767	0.78, 1.52 (0.97 - 1.35)
20:0 Arachidic	0.41 (0.0052) (0.40 - 0.42)	0.40 (0.0052) (0.38 - 0.41)	0.015 (0.0071) (-0.0022 - 0.034)	-0.0015, 0.031	0.068	0.15, 0.67 (0.32 - 0.53)
20:1 Eicosenoic	0.21 (0.0019) (0.20 - 0.21)	0.21 (0.0019) (0.21 - 0.21)	0 (0.0027) (-0.0045 - 0.0033)	-0.0062, 0.0062	0.999	0.12, 0.36 (0.21 - 0.31)
22:0 Behenic	0.15 (0.0036) (0.15 - 0.16)	0.15 (0.0036) (0.14 - 0.16)	0.00005 (0.0050) (-0.0099 - 0.016)	-0.011, 0.012	0.992	0, 0.32 (0.057 - 0.23)
Mineral						
Calcium (% dw)	0.0049 (0.00014) (0.0048 - 0.0050)	0.0049 (0.00014) (0.0047 - 0.0052)	0 (0.00019) (-0.00037 - 0.00030)	-0.00045, 0.00045	0.994	0.0019, 0.0076 (0.0038 - 0.0068)
Copper (mg/kg dw)	1.66 (0.093) (1.56 - 1.79)	1.75 (0.093) (1.63 - 1.99)	-0.086 (0.13) (-0.42 - 0.16)	-0.39, 0.22	0.530	0.17, 3.48 (1.10 - 2.62)

Table 14. Statistical Summary of Site ILWY Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Mineral						
Iron (mg/kg dw)	22.51 (0.41) (22.21 - 22.95)	21.84 (0.41) (20.66 - 22.49)	0.66 (0.57) (-0.019 - 1.55)	-0.66, 1.99	0.280	11.42, 28.01 (16.55 - 24.10)
Magnesium (% dw)	0.13 (0.0021) (0.13 - 0.13)	0.13 (0.0021) (0.13 - 0.14)	-0.0017 (0.0028) (-0.0062 - 0.0039)	-0.0082, 0.0047	0.550	0.080, 0.16 (0.11 - 0.15)
Manganese (mg/kg dw)	5.63 (0.32) (5.52 - 5.72)	5.74 (0.32) (4.89 - 6.49)	-0.10 (0.45) (-0.83 - 0.83)	-1.14, 0.94	0.829	0, 12.67 (4.00 - 9.17)
Phosphorus (% dw)	0.34 (0.0033) (0.34 - 0.35)	0.34 (0.0033) (0.34 - 0.35)	-0.0020 (0.0046) (-0.0049 - 0.00002)	-0.013, 0.0086	0.673	0.24, 0.42 (0.28 - 0.37)
Potassium (% dw)	0.41 (0.0074) (0.40 - 0.42)	0.41 (0.0074) (0.40 - 0.43)	0.0028 (0.010) (-0.017 - 0.021)	-0.021, 0.027	0.796	0.24, 0.54 (0.33 - 0.46)
Zinc (mg/kg dw)	21.25 (0.76) (20.99 - 21.56)	23.55 (0.76) (22.61 - 25.00)	-2.31 (1.07) (-3.44 - -1.62)	-4.78, 0.17	0.063	11.46, 30.37 (17.30 - 25.45)

Table 14. Statistical Summary of Site ILWY Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Vitamin (mg/kg dw)						
Folic Acid	0.33 (0.025) (0.28 - 0.39)	0.31 (0.025) (0.29 - 0.32)	0.024 (0.036) (-0.039 - 0.078)	-0.059, 0.11	0.529	0.11, 0.61 (0.24 - 0.57)
Niacin	31.16 (0.90) (28.72 - 33.37)	32.07 (0.90) (31.16 - 33.26)	-0.90 (1.27) (-3.06 - 0.23)	-3.83, 2.03	0.497	7.89, 49.83 (20.63 - 43.08)
Vitamin A	1.12 (0.058) (1.07 - 1.21)	1.10 (0.058) (1.07 - 1.16)	0.019 (0.082) (-0.094 - 0.14)	-0.17, 0.21	0.824	0.38, 1.68 (0.58 - 1.50)
Vitamin B1	3.28 (0.11) (3.08 - 3.41)	3.23 (0.11) (3.08 - 3.41)	0.052 (0.16) (-0.33 - 0.27)	-0.32, 0.43	0.755	2.21, 3.65 (2.41 - 3.48)
Vitamin B2	1.60 (0.10) (1.36 - 1.80)	1.51 (0.10) (1.32 - 1.70)	0.091 (0.15) (-0.35 - 0.34)	-0.25, 0.43	0.555	0, 4.47 (1.28 - 3.29)
Vitamin B6	6.83 (0.41) (6.51 - 7.43)	6.90 (0.41) (5.67 - 7.63)	-0.063 (0.58) (-1.11 - 1.76)	-1.40, 1.28	0.915	2.57, 12.07 (5.24 - 10.29)

Table 14. Statistical Summary of Site ILWY Corn Grain Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Vitamin (mg/kg dw)						
Vitamin E	11.63 (1.15) (7.04 - 14.65)	11.84 (1.15) (10.13 - 13.58)	-0.20 (1.63) (-6.54 - 4.52)	-3.97, 3.56	0.903	0, 25.61 (6.67 - 17.34)

¹dw = dry weight; fw = fresh weight; FA = fatty acid.²Test refers to MON 87427 (Glyphosate-Treated).³Mean (S.E.) = least-square mean (standard error).⁴Control refers to the non-biotechnology derived, conventional parental control.⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional substances. Negative limits set to zero.

Table 15. Statistical Summary of Site ILWY Corn Grain Anti-nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Anti-nutrient (% dw)						
Phytic Acid	1.02 (0.024) (1.00 - 1.04)	1.09 (0.024) (1.03 - 1.12)	-0.071 (0.034) (-0.11 - -0.032)	-0.15, 0.0081	0.072	0.73, 1.23 (0.82 - 1.07)
Raffinose	0.20 (0.0076) (0.19 - 0.21)	0.20 (0.0076) (0.18 - 0.21)	0.0046 (0.011) (-0.017 - 0.025)	-0.020, 0.029	0.671	0.024, 0.29 (0.092 - 0.21)

¹dw = dry weight.²Test refers to MON 87427 (Glyphosate-Treated).³Mean (S.E.) = least-square mean (standard error).⁴Control refers to the non-biotechnology derived, conventional parental control.⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional substances. Negative limits set to zero.

Table 16. Statistical Summary of Site ILWY Corn Grain Secondary Metabolites for MON 87427 (Glyphosate-Treated) vs. Parental Control

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Secondary Metabolite (µg/g dw)						
Ferulic Acid	2317.21 (50.54) (2243.74 - 2354.95)	2368.37 (50.54) (2236.10 - 2500.00)	-51.16 (41.17) (-145.05 - 7.64)	-146.09, 43.77	0.249	1070.41, 2955.86 (1588.35 - 2630.98)
p-Coumaric Acid	193.24 (4.64) (184.51 - 198.39)	191.67 (4.64) (183.88 - 203.20)	1.57 (4.42) (-6.38 - 10.46)	-8.63, 11.76	0.731	58.74, 313.97 (124.16 - 250.30)

¹dw = dry weight.²Test refers to MON 87427 (Glyphosate-Treated).³Mean (S.E.) = least-square mean (standard error).⁴Control refers to the non-biotechnology derived, conventional parental control.⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional substances. Negative limits set to zero.

Table 17. Statistical Summary of Site ILWY Corn Forage Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Proximate (% dw)						
Ash	4.79 (0.16) (4.53 - 5.13)	4.58 (0.16) (4.40 - 4.80)	0.21 (0.22) (-0.0096 - 0.33)	-0.31, 0.72	0.378	2.66, 6.48 (3.70 - 5.95)
Carbohydrates	88.18 (0.46) (87.27 - 89.23)	88.56 (0.46) (87.89 - 88.92)	-0.38 (0.47) (-1.59 - 0.31)	-1.45, 0.70	0.442	80.13, 94.05 (83.23 - 90.37)
Moisture (% fw)	65.50 (1.37) (62.70 - 67.90)	66.00 (1.37) (64.10 - 67.30)	-0.50 (1.54) (-1.40 - 1.30)	-4.04, 3.04	0.753	51.70, 86.22 (61.00 - 76.00)
Protein	5.46 (0.40) (4.48 - 6.17)	5.55 (0.40) (5.17 - 5.96)	-0.082 (0.50) (-1.48 - 0.66)	-1.23, 1.07	0.873	1.34, 11.57 (4.37 - 9.31)
Total Fat	1.57 (0.27) (1.09 - 1.85)	1.32 (0.27) (0.58 - 2.20)	0.25 (0.39) (-1.11 - 1.18)	-0.64, 1.14	0.535	0.44, 3.33 (0.78 - 3.16)
Fiber (% dw)						
Acid Detergent Fiber	27.86 (1.16) (26.42 - 29.00)	26.59 (1.16) (24.57 - 27.71)	1.27 (1.61) (-1.28 - 3.58)	-2.45, 4.99	0.452	14.84, 38.51 (21.33 - 35.92)

Table 17. Statistical Summary of Site ILWY Corn Forage Nutrients for MON 87427 (Glyphosate-Treated) vs. Parental Control (cont.)

Analytical Component (Units) ¹	Test ² Mean (S.E.) ³ (Range)	Control ⁴ Mean (S.E.) (Range)	Difference (Test minus Control)			Conventional Tolerance Interval ⁵ (Range)
			Mean (S.E.) (Range)	95% Confidence Interval	Significance (p-Value)	
Fiber (% dw)						
Neutral Detergent Fiber	40.98 (2.55) (36.14 - 43.70)	40.76 (2.55) (36.53 - 43.43)	0.22 (2.54) (-0.39 - 1.36)	-5.64, 6.08	0.933	25.12, 54.99 (29.68 - 60.16)
Mineral						
Calcium (% dw)	0.21 (0.013) (0.19 - 0.22)	0.22 (0.013) (0.18 - 0.25)	-0.011 (0.018) (-0.063 - 0.036)	-0.054, 0.032	0.568	0.075, 0.29 (0.10 - 0.24)
Phosphorus (% dw)	0.21 (0.017) (0.20 - 0.21)	0.23 (0.017) (0.19 - 0.27)	-0.019 (0.019) (-0.074 - 0.023)	-0.062, 0.025	0.345	0.063, 0.37 (0.16 - 0.31)

¹dw = dry weight; fw = fresh weight.²Test refers to MON 87427 (Glyphosate-Treated).³Mean (S.E.) = least-square mean (standard error).⁴Control refers to the non-biotechnology derived, conventional parental control.⁵With 95% confidence, interval contains 99% of the values expressed in the population of conventional substances. Negative limits set to zero.

**Listing 1. Components Excluded from Summary and Analysis Due to Excessive Observations
Below the Assay's Limit of Quantitation**

Tissue	Category	Component	(N) Below LOQ	(N) Total	(%)
Grain	Fatty Acid	10:0 Capric	79	79	100.0
		12:0 Lauric	79	79	100.0
		14:0 Myristic	79	79	100.0
		14:1 Myristoleic	79	79	100.0
		15:0 Pentadecanoic	79	79	100.0
		15:1 Pentadecenoic	79	79	100.0
		16:1 Palmitoleic	44	79	55.7
		17:0 Heptadecanoic	79	79	100.0
		17:1 Heptadecenoic	79	79	100.0
		18:3 Gamma Linolenic	79	79	100.0
		20:2 Eicosadienoic	79	79	100.0
		20:3 Eicosatrienoic	79	79	100.0

**Listing 1. Components Excluded from Summary and Analysis Due to Excessive Observations
Below the Assay's Limit of Quantitation (cont.)**

Tissue	Category	Component	(N) Below LOQ	(N) Total	(%)
Grain	Fatty Acid	20:4 Arachidonic	79	79	100.0
		8:0 Caprylic	79	79	100.0
	Mineral	Sodium	76	79	96.2
	Secondary Metabolite Furfural		79	79	100.0

Listing 2. Components with Observations Below the Assay's Limit of Quantitation Not Excluded from Summaries and Analysis

Tissue	Category	Component	Substance	Site	Rep	Original Value	Value Assigned
Grain	Fatty Acid	22:0 Behenic	Asgrow RX715	ILWY	3	< 0.00400	0.0020
			Dekalb DKC60-15	IARL	3	< 0.00400	0.0020
			Midwest Genetics G7944	IARL	1	< 0.00400	0.0020
				IARL	2	< 0.00400	0.0020
				IARL	3	< 0.00400	0.0020