SUMMARY

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for public release after registration)

STUDY TITLE

Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9 (Protocols 080137 and 080139)

DATA REQUIREMENTS

Not Applicable

AUTHOR(S)

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STUDY COMPLETED ON

30-June-2009

PERFORMING LABORATORY

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LABORATORY STUDY ID

090084

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The soluble, extractable AAD-1 protein was measured using a quantitative enzyme-linked immunosorbent assay (ELISA) method in corn leaf, pollen, root, forage, whole plant, and grain. Average expression values ranged from 2.87 ng/mg dry weight in R1 stage root to 127 ng/mg in pollen tissue. Expression values were similar for all the sprayed treatments as well as for the plots sprayed and unsprayed with 2,4-D and quizalofop herbicides.

Compositional analyses, including proximates, minerals, amino acids, fatty acids, vitamins, anti-nutrients, and secondary metabolites were conducted to investigate the equivalency of DAS-40278-9 AAD-1 corn (with or without herbicide treatments) to the control. Results for DAS-40278-9 AAD-1 composition samples were all statistically indistinguishable from the control line and/or within literature ranges for conventional corn. In conclusion, DAS-40278-9 AAD-1 composition was equivalent to conventional corn. In addition, no biologically meaningful differences were observed from analysis of the agronomic data collected from control and DAS-40278-9 AAD-1 corn plots.

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Not Applicable

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STATEMENT OF NO DATA CONFIDENTIALITY CLAIMS

Compound: AAD-1 Corn

Title: Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9 (Protocols 080137 and 080139)

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Company: Dow AgroSciences LLC

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Date: 22-Jun-2009

*In the United States, the above statement supersedes all other statements of confidentiality that may occur elsewhere in this report.

THIS DATA MAY BE CONSIDERED CONFIDENTIAL IN COUNTRIES OUTSIDE THE UNITED STATES.

STATEMENT OF COMPLIANCE WITH GOOD LABORATORY PRACTICE STANDARDS

Title: Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9 (Protocols 080137 and 080139)

Study Initiation Date: 19-May-2008

This report represents data generated after the effective date of the EPA FIFRA Good Laboratory Practice Standards.

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Title 40 Code of Federal Regulations Part 160
FEDERAL REGISTER, August 17, 1989

Organisation for Economic Co-Operation and Development
ENV/MC/CHEM (98)17, Paris January 26, 1998

This study does not meet requirements of 40 CFR Part 160.

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QUALITY ASSURANCE STATEMENT

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This report has been reviewed by the Quality Assurance Unit and has been verified as a true and accurate representation of the data collected.

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Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9 (Protocols 080137 and 080139)

ABSTRACT

Field expression, nutrient composition, and agronomic trials of a non-transgenic control and a hybrid corn line containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) were conducted in 2008 at six sites located in Iowa, Illinois (2 sites), Indiana, Nebraska and Ontario, Canada. This report summarizes the expression levels of AAD-1 protein in leaf, pollen, root, forage, whole plant, and grain, the results of agronomic determinations, and compositional analysis of forage and grain samples from the control and DAS-40278-9 AAD-1 corn.

The soluble, extractable AAD-1 protein was measured using a quantitative enzyme-linked immunosorbent assay (ELISA) method in corn leaf, pollen, root, forage, whole plant, and grain. Average expression values ranged from 2.87 ng/mg dry weight in R1 stage root to 127 ng/mg in pollen tissue. Expression values were similar for all the sprayed treatments as well as for the plots sprayed and unsprayed with 2,4-D and quizalofop herbicides.

Compositional analyses, including proximates, minerals, amino acids, fatty acids, vitamins, anti-nutrients, and secondary metabolites were conducted to investigate the equivalency of DAS-40278-9 AAD-1 corn (with or without herbicide treatments) to the control. Results for DAS-40278-9 AAD-1 composition samples were all statistically indistinguishable from the control line and/or within literature ranges for conventional corn. In conclusion, DAS-40278-9 AAD-1 composition was equivalent to conventional corn. In addition, no biologically meaningful differences were observed from analysis of the agronomic data collected from control and DAS-40278-9 AAD-1 corn plots.

INTRODUCTION

Corn has been modified by the insertion of the *aad*-1 gene from *Sphingobium herbicidovorans* which encodes the aryloxyalkanoate dioxygenase (AAD-1) protein. The trait confers tolerance to 2,4-dichlorophenoxyacetic acid and aryloxyphenoxypropionate (commonly referred to as "fop" herbicides such as quizalofop) herbicides and may be used as a selectable marker during plant transformation and in breeding nurseries. Transformation of corn with a DNA fragment from the plasmid pDAS1740 was carried forward, through breeding, to produce event DAS-40278-9, which is the focus of this study.

The purpose of this study was to determine the levels of AAD-1 protein found in corn tissues. In addition, compositional analysis was performed on corn forage and grain to investigate the equivalency between the isogenic non-transformed corn line and the transgenic corn line DAS-40278-9 (unsprayed, sprayed with 2,4-D, sprayed with quizalofop, and sprayed with 2,4-D and quizalofop). Agronomic characteristics of the isogenic non-transformed corn line were also compared to the DAS-40278-9 corn.

Field expression, composition, and agronomic trials were conducted at six test sites located within the major corn-producing regions of the U.S and Canada. These sites represent regions of diverse agronomic practices and environmental conditions. The trials were located in Iowa, Illinois (2 sites), Indiana, Nebraska and Ontario, Canada.

EXPERIMENTAL

Test Substances

The test substance was hybrid seed containing the DAS-40278-9 event. The hybrid seed, ZQ07LQ570715, was made from a cross between near converted DAS-40278-9 event inbred

(BC3S1) and another Dow AgroSciences parental inbred. The BC3S1 inbred seed was produced by backcrossing event DAS-40278-9 for 3 generations with inbred line XHH13 followed by one generation of self pollination (BC3S1). The test substance and treatments are listed in the table below.

Test Entry	ID Numbers	Description
2	ZQ07LQ570715	AAD-1 unsprayed
3	ZQ07LQ570715	AAD-1 sprayed w/ quizalofop
4	ZQ07LQ570715	AAD-1 sprayed w/ 2,4-D
5	ZQ07LQ570715	AAD-1 sprayed w/ 2,4-D and quizalofop

Control Substance

The control substance was conventional hybrid seed of the same genetic background as the test substance line, but it did not contain the DAS-40278-9 event. The control substance used for this study is listed in the table below.

Test Entry	ID Number	Description
1	ZQ07LQ573115	Non-AAD-1 Control

Test System

The test system for this study was corn plants produced from the genetically modified and control corn seed grown at locations within the major corn growing regions of the U.S. and Canada. The six field testing facilities, Richland, IA; Carlyle, IL; Wyoming, IL; Rockville, IN; York, NE; and Branchton, Ontario, Canada (referred to as IA, IL1, IL2, IN, NE and ON) represent regions of diverse agronomic practices and environmental conditions for corn (Appendix C, Table 1 and Appendix D, Table 1). An additional site was planted in Denton, TX but this site was not used in this study since it was planted late and did not mature due to high temperatures.

The test and control corn seed was planted at a seeding rate of approximately 24 seeds per row with seed spacing within each row of approximately 10 inches (25 cm). At each site, 4 replicate plots of each treatment were established, with each plot consisting of 2-25 ft rows. Plots were arranged in a randomized complete block (RCB) design, with a unique randomization at each site. Each corn plot was bordered by 2 rows of a non-transgenic maize hybrid of similar maturity. The entire trial site was surrounded by a minimum of 12 rows (or 30 ft) of a non-transgenic maize hybrid of similar relative maturity.

Appropriate insect, weed, and disease control practices were applied to produce an agronomically acceptable crop. Appendix C, Table 2 and Appendix D, Table 2 lists the maintenance chemicals used at each site. Average monthly maximum and minimum temperatures along with rainfall and irrigation are shown in Appendix C, Table 3 and Appendix D, Table 3. During the field portion of this study, temperatures and rainfall were in the ranges typically encountered in corn production.

Herbicide Applications

Herbicide treatments were applied with a spray volume of approximately 20 gallons per acre (187 L/ha). These applications were designed to replicate maximum label rate commercial practices.

Herbicide	TSN	Concentration
Weedar 64	026491-0006	39%, 3.76 lb ae[a] /gal, 451 g ae/l
Assure II	106155	10.2%, 0.87 lb ai[b] /gal, 104 g ai/l

[a] ae = acid equivalent.
[b] ai = active ingredient.

2,4-D (Weedar 64) was applied as 3 broadcast over-the-top applications to Test Entries 4 and 5 (seasonal total of 3 lb ae/A). Individual applications were at pre-emergence and approximately

V4 and V8 –V8.5 stages. Individual target application rates were 1.0 lb ae/A for Weedar 64, or 1120 g ae/ha. Actual application rates ranged from 1093 – 1231 g ae/A (Appendix C Table 4 and Appendix D Table 4).

Quizalofop (Assure II) was applied as a single broadcast over-the-top application to Test Entries 3 and 5. Application timing was at approximately V6 growth stage. The target application rate was 0.0825 lb ai/A for Assure II, or 92 g ai/ha. Actual application rates ranged from 90.8 – 103 g ai/ha (Appendix C Table 4 and Appendix D Table 4).

Agronomic Data Collection

Agronomic characteristics were recorded for all test entries within Blocks 2, 3, and 4 at each location. The following characteristics were measured:

Trait	Evaluation Timing	Description of Data
Early Population	V1 and V4	Number of plants emerged per plot.
Seedling Vigor	V4	Visual estimate of average vigor of emerged plants per plot
Plant Vigor/Injury	Approximately 1-2 weeks after applications	Injury from herbicide applications.
Time to Silking	Approximately 50% Silking	The number of accumulated heat units from the time of planting until approximately 50% of the plants have emerged silks.
Time to Pollen	Approximately 50% Pollen shed	The number of accumulated heat units from the time of planting until approximately 50% of the plants are shedding pollen
Pollen Viability	Approximately 50%	Evaluation of pollen color and shape over time
Plant Height	Approximately R6	Height to the tip of the tassel
Ear Height	Approximately R6	Height to the base of the primary ear
Stalk Lodging	Approximately R6	Visual estimate of percent of plants in the plot with stalks broken below the primary ear
Root Lodging	Approximately R6	Visual estimate of percent of plants in the plot leaning approximately 30º or more in the first ~1/2 meter above the soil surface

Final Population	Approximately R6	The number of plants remaining per plot
Days to Maturity	Approximately R6	The number of accumulated heat units from the time of planting until approximately 50% of the plants have reached physiological maturity.
Stay Green	Approximately R6	Overall plant health
Disease Incidence	Approximately R6	Visual estimate of foliar disease incidence
Insect Damage	Approximately R6	Visual estimate of insect damage

Heat Unit = ((MAX temp + MIN temp) / 2) – 50°F

Sample Collection

Samples for expression and composition analysis were collected as per the following table (for sampling dates for each site, see Appendix C, Table 5 and Appendix D, Table 5). Samples of forage, stover and grain were also collected for residue analysis and will be reported in a separate report.

Block	Tissue	Approx. Growth Stage[a]	Sample Size	Samples per Entry: Control Entry 1	Samples per Entry: Test Entries 2-5
1 (expression)	Leaf	V2-4	3 leaves	3	3
	Leaf	V9	3 leaves	3	3
	Pollen[b]	R1	1 plant	3	3
	Root[b]	R1	1 plant	3	3
	Leaf[b]	R1	1 leaf	3	3
	Forage	R4	2 plants[c]	3	3
	Whole Plant	R6	2 plants[c]	3	3
	Grain	R6-Maturity	1 ear	3	3
Block	Tissue	Growth Stage[a]	Sample Size	Control Entry 1	Test Entries 2-5
2 – 4 (composition)	Forage	R4	3 plants[c]	1	1
	Grain	R6-Maturity	5 ears	1	1

[a] Approximate growth stage.
[b] The pollen, root, and leaf samples collected at R1 collected from the same plant.
[c] Two plants chopped, combined and sub-sampled for expression, or 3 plants for composition.

Field Sample Storage, Shipping and Processing

Each sample was assigned a unique number that was used for identification and tracking. Samples were grouped together according to matrix, treatment number, and site (sample group number or SGN). All samples were shipped frozen to Dow AgroSciences by overnight shipping. Appendix B, Table 6 contains sample identifiers along with dates of sampling, shipping, and receipt of samples at Dow AgroSciences (DAS).

Upon receipt at Dow AgroSciences, samples were inspected for physical condition and were found to be either cold or frozen and in good condition. Samples were logged into the computerized Regulatory Laboratories Information Management System (RLIMS). All expression samples were stored in temperature-monitored freezers at approximately -80 °C, being removed only for required sample preparation and analysis. Composition samples were stored at approximately -20 °C at Dow AgroSciences, until frozen shipment to Covance Laboratories, Madison, WI.

Samples of corn tissues were prepared for expression analysis by coarse grinding, lyophilizing and fine-grinding (if necessary) with a Geno/Grinder (Certiprep, Metuchen, New Jersey). No additional preparation was required for pollen.

Analytical Standards for Expression Analysis

The analytical standard used for calibration curves during expression analysis was AAD-1 microbial protein, TSN 105930, 0.1805 mg/mL (1).

Determination of AAD-1 Protein in Corn Samples

Samples of corn were analyzed for the amount of AAD-1 protein using the Dow AgroSciences validated method GRM 07.19 (2). In this method, the soluble extractable AAD-1 protein is quantified using an enzyme-linked immunosorbent assay (ELISA) kit purchased from Beacon Analytical System, Inc.

In the analytical method, the AAD-1 protein was extracted from corn tissues with a phosphate buffered saline solution containing the detergent Tween-20 (PBST) containing 0.5% Bovine Serum Albumin (BSA). For pollen, the protein was extracted with a 0.5% PBST/BSA buffer containing 1 mg/mL of sodium ascorbate and 2% protease inhibitor cocktail. The plant tissue and pollen extracts were centrifuged; the aqueous supernatant was collected, diluted with appropriate buffer if necessary, and analyzed using an AAD-1 ELISA kit in a sandwich format. Briefly, an aliquot of the diluted sample and a biotinylated anti-AAD-1 monoclonal antibody are incubated in the wells of a microtiter plate coated with an immobilized anti-AAD-1 monoclonal antibody. These antibodies bind with AAD-1 protein in the wells and form a "sandwich" with AAD-1 protein bound between soluble and the immobilized antibodies. The unbound samples and conjugate are then removed from the plate by washing with PBST. An excess amount of streptavidin-enzyme (alkaline phosphatase) conjugate is added to the wells for incubation. At the end of the incubation period, the unbound reagents were removed from the plate by washing. Subsequent addition of an enzyme substrate generated a colored product. Since the AAD-1 was bound in the antibody sandwich, the level of color development was related to the concentration of AAD-1 in the sample (i.e., lower residue concentrations result in lower color development). The absorbance at 405 nm was measured using a Molecular Devices V-max or Spectra Max 190 plate reader. A calibration curve was generated and the AAD-1 concentration in unknown samples was calculated from the polynomial regression equation using Soft-MAX Pro™ software which was compatible with the plate reader. Samples were analyzed in duplicate wells with the average concentration of the duplicate wells being reported.

<u>Limit of Detection/Quantitation for Corn Samples</u>

The limit of detection (LOD) and limit of quantitation (LOQ) for corn tissues were determined during the method validation for the method described above. Samples were reported as not detectable (ND) if the absorbance was less than the lowest standard absorbance at the minimum matrix dilution. Reported sample concentrations that are less than the method LOQ values (shown in table below) have lower precision than results reported above the LOQ values (3).

Matrix	LOD[a]	LOQ
Leaf	0.2	0.4
Root	0.2	0.4
Pollen	0.2	0.4
Forage	0.2	0.4
Grain	0.2	0.4
Whole plant	0.2	0.4

[a] Units of ng protein/mg sample weight.

Compositional Analysis

Samples of corn forage and grain were analyzed at Covance Laboratories Inc. for nutrient content with a variety of tests. The analyses performed for forage included ash, total fat, moisture, protein, carbohydrate, crude fiber, acid detergent fiber, neutral detergent fiber, calcium and phosphorus. The analyses performed for grain included proximates (ash, total fat, moisture, protein, carbohydrate, crude fiber, acid detergent fiber), neutral detergent fiber (NDF), minerals, amino acids, fatty acids, vitamins, secondary metabolites and anti-nutrients. The results of the nutritional analysis for corn forage and grain were compared with values reported in literature [Watson, 1982 (4); Watson, 1984 (5); ILSI Crop Composition Database, 2006 (6); OECD Consensus Document on Compositional Considerations for maize, 2002 (7); and Codex Alimentarius Commission 2001 (8)]. A summarization of the compositional data used for comparison can be found in Appendix A, Table 1-8.

Statistical Treatment

Mean calculations, standard deviations, and regression analysis were performed for the expression analyses. Acceptance criteria of the calibration curves for each ELISA plate was detailed in the analytical method report for the method described above.

Analysis of variance was conducted across the field sites for the composition and agronomic data using a mixed model (SAS Version 8; SAS Institute 1999(9)). Entry was considered a fixed effect, and location, block within location, location-by-entry, and entry-by-block within location were designated as random effects. Analysis at individual locations was done in an analogous manner with entry as a fixed effect, and block and entry-by-block as random effects. Significant differences were declared at the 95% confidence level. Data were not rounded off for statistical analysis. The significance of an overall treatment effect was estimated using an F-test. Paired contrasts were made between unsprayed AAD-1 (unsprayed), AAD-1 sprayed with quizalofop (AAD-1 + quizalofop), AAD-1 sprayed with 2,4-D (AAD-1 + 2,4-D) and AAD-1 sprayed with both quizalofop and 2,4-D (AAD-1 + both) transgenic entries and the control entry using T-tests.

Due to the large number of contrasts made in this study, multiplicity was an issue. Multiplicity is an issue when a large number of comparisons are made in a single study to look for unexpected effects. Under these conditions, the probability of falsely declaring differences based on comparison-wise p-values is very high ($1-0.95^{\text{number of comparisons}}$). In this study there were four comparisons per analyte (66 quantitated analytes for composition and 22 analyzed observation types for agronomics), resulting in 264 comparisons made in the across-site composition analysis and 88 comparisons for agronomics. Therefore, the probability of declaring one or more false differences based on unadjusted p-values was >99.99% for composition ($1-0.95^{264}$) and 99% for agronomics ($1-0.95^{88}$.)

One method to account for multiplicity is to adjust p-vales to control the experiment-wise error rate (probability that all declared differences are significant), but when many comparisons are made in a study, the power for detecting specific effects can be reduced significantly. An alternative with much greater power is to adjust p-values to control the probability that each declared difference is significant. This can be accomplished using False Discovery Rate (FDR) procedures (10). Therefore the p-values from the compositional analyses and the agronomics evaluations were each adjusted using FDR to improve discrimination of true differences among treatments from random effects (false positives).

RESULTS AND DISCUSSION

Agronomic Results

An analysis of the agronomic data collected from the control, AAD-1 unsprayed, AAD-1 + 2,4-D, AAD-1 + quizalofop, and AAD-1 + both entries was conducted. For the across-site analysis, no statistically significant differences were observed for early population (V1 and V4), vigor, final population, crop injury, time to silking, time to pollen shed, stalk lodging, root lodging, disease incidence, insect damage, days to maturity, plant height, and pollen viability (shape and color) values in the across location summary analysis (Table 1). For stay green and ear height, significant paired t-tests were observed between the control and the AAD-1 + quizalofop entries, but were not accompanied by significant overall treatment effects or FDR adjusted p-values. Results for individual locations can be found in Appendix B, Tables 1- 6.

Expression Analysis Results

The corn matrices of leaf (V2-V4, V9 and R1), root (R1), pollen, forage, whole plant (R6) and grain were analyzed for expression levels of AAD-1 protein. Protein concentrations in the matrices (ng /mg) are expressed on a dry tissue weight basis. The AAD-1 protein concentration was reported as not detected (ND) if the sample absorbance was less than the lowest calibration standard absorbance at the lowest matrix dilution.

A summary of the AAD-1 protein concentrations (averaged across sites) in the various corn matrices is shown in Table 2. AAD-1 average protein concentration ranged from 2.87 ng/mg dry weight in R1 stage root to 127 ng/mg in pollen. Expression results for the unsprayed and sprayed plots were similar. The AAD-1 protein was not detected in any control samples, with the exception of one control root sample from the IN site. Results for individual samples can be found in Appendix C and D.

Composition Analysis Results

A summary of the composition results across locations can be found in Tables 3-10. Composition results by individual location are found in Appendix E., Tables 1-8, and the composition sub-reports from Covance can be found in Appendices C and D.

Proximate, Fiber and Mineral Analysis of Forage

An analysis of the protein, fat, ash, moisture, carbohydrate, ADF, NDF, calcium and phosphorus in corn forage samples from the control, unsprayed AAD-1, AAD-1 + quizalofop, AAD-1 + 2,4-D and AAD-1 + both entries was performed. A summary of the results across all locations is shown in Table 3, and the results reported by individual field site are shown in Appendix E., Table 1. Results for carbohydrates were calculated using computerized spreadsheets, which used more significant figures than those displayed. For the across-site and individual-site analysis, all proximate, fiber and mineral mean values were within literature ranges. No statistical differences were observed in the across-site analysis between the control and transgenic entries for moisture, ADF, NDF, calcium and phosphorus. For protein and ash, significant paired t-tests were observed for the unsprayed AAD-1 (protein), the AAD-1 + quizalofop (protein), and AAD-1 + both (ash), but were not accompanied by significant overall treatment effects or FDR adjusted p-values. For fat, both a significant paired t-test and adjusted p-value was observed for AAD-1 + quizalofop compared with the control, but a significant overall treatment effect was not observed. For carbohydrates, a statistically significant overall treatment effect, paired t-test and FDR adjusted p-value was observed between the AAD-1 + quizalofop and the control. Also for carbohydrates, a significant paired t-test for the unsprayed AAD-1 entry was observed, but without a significant FDR adjusted p-value. These differences are not biologically meaningful since all across-site results for these analytes were within the reported literature ranges for corn, and differences from the control were small (<23 %).

Proximate and Fiber Analysis of Grain

A summary of the results for proximates (protein, fat, ash, moisture, cholesterol and carbohydrates) and fiber (ADF, NDF and total dietary fiber) in corn grain across all locations is shown in Table 4, and the results reported by individual field site are shown in Appendix E. Table 2. All results for proximates and fiber were within literature ranges, and no significant differences in the across-site analysis were observed between the control and transgenic entries for fat, ash, NDF and total dietary fiber. For moisture, a significant overall treatment effect was observed, but not accompanied by significant paired t-tests or FDR adjusted p-values. For ADF, a significant paired t-test was observed for AAD-1 + both, but no significant overall treatment effect or FDR adjusted p-value was seen. For both protein and carbohydrates, significant pair-tests, adjusted p-values and overall treatment effects were found for the unsprayed AAD-1, AAD-1 + quizalofop, and AAD-1 + both. Since these differences were small (< 12%) and all values were within literature ranges, the differences are not biologically meaningful.

Mineral Analysis of Grain

An analysis of corn grain samples for the minerals calcium, chromium, copper, iodine, iron, magnesium, manganese, molybdenum, phosphorus, potassium, selenium, sodium, and zinc was performed. A summary of the results across all locations is shown in Table 5, and the results reported by individual field site are shown in Appendix E Table 3. All results were within the reported literature ranges. For the across-site analysis, no significant differences were observed for calcium, copper, iron, and potassium. Mean results for chromium, iodine, selenium and sodium were below the limit of quantitation of the method. For magnesium and phosphorus, significant paired t-tests were observed for the unsprayed AAD-1 and the AAD-1 + quizalofop entries, but were not accompanied by significant overall treatment effects or FDR adjusted p-values. For manganese and molybdenum, a significant paired t-test was observed for the unsprayed AAD-1, but a significant FDR adjusted p-value and overall treatment effect was not found. For the AAD-1 + both entry, a significant paired t-test was observed for zinc, but a significant FDR adjusted p-value or overall treatment effect was not present. Additionally, these differences from the control were small (< 13%), and all values were within literature ranges, when available.

Amino Acid Analysis of Grain

Corn samples were analyzed for amino acid content in the control, unsprayed AAD-1, AAD-1 + quizalofop, AAD-1 + 2,4-D and AAD-1 + both corn, and a summary of the results over all locations and by individual field site are shown in Tables 6 and Appendix E Table 4, respectively. Levels of all amino acids were within the reported literature ranges, and no significant differences in the across-site analysis were observed for arginine, lysine, and tyrosine. Significant differences were observed for several of the amino acids in the across-site analysis. In these instances, the amino acid content of the control was lower than the AAD-1 transgenic lines, which may be related to the overall lower protein content in the control grain compared with the AAD-1 lines. For the unsprayed AAD-1 entry, significant overall treatment effects along with significant paired t-tests and FDR adjusted p-values were found for all amino acids except arginine, glycine, lysine, tryptophan and tyrosine. For the AAD-1 + quizalofop entry, significant overall treatment effects along with significant paired t-tests and FDR adjusted p-values were found for all amino acids except arginine, cysteine, glycine, lysine, tryptophan and tyrosine. For the AAD-1 + 2,4-D entry, significant overall treatment effects along with significant paired t-tests (with significant FDR adjusted p-values) were found for all amino acids except arginine, aspartic acid, glycine, histidine, lysine, tyrosine and valine. For the AAD-1 + both entry, significant overall treatment effects along with significant paired t-tests and FDR adjusted p-values were found for all amino acids except arginine, glycine, lysine, serine, tryptophan and tyrosine. Although there were many differences observed for amino acids, the differences were small (< 15%), not observed across all sites, and all mean values were within reported literature ranges.

Fatty Acid Analysis of Grain

An analysis of corn grain samples for fatty acids was performed. A summary of the results across all locations is shown in Table 7, and the results reported by individual field site are shown in Appendix E Table 5. All results for the control, unsprayed AAD-1, AAD-1 + quizalofop, AAD-1 + 2,4-D and AAD-1 + both corn grain samples analyzed for these fatty acids were within the published literature ranges. Results for caprylic (8:0), capric (10:0), lauric (12:0), myristic (14:0), myristoleic (14:1), pentadecanoic (15:0), pentadecenoic (15:1), palmitoleic (16:1), heptadecanoic (17:0), heptadecenoic (17:1), gamma linolenic (18:3), eicosadienoic (20:2), eicosatrienoic (20:3), and arachidonic (20:4) were below the method LOQ. In the across-site analysis, no significant differences were observed for 16:0 palmitic, 18:0 stearic, 18:2 linoleic, 18:3 linolenic, and 20:0 arachidic. For 18:1 oleic and 20:1 eicosenoic, significant paired t-tests were observed for the unsprayed AAD-1 (18:1) and the AAD-1 + 2,4-D (18:1 and 20:1) entries, but were not accompanied by significant overall treatment effects or FDR adjusted p-values. For 22:0 behenic, a significant overall treatment effect and significant paired t-tests for AAD-1 + 2,4-D and AAD-1 + both were found, but significant FDR adjusted p-values were not present.

Vitamin Analysis of Grain

The levels of vitamin A, B1, B2, B5, B6, B12, C, D, E, niacin, and folic acid in corn grain samples from the control, unsprayed AAD-1, AAD-1 + quizalofop, AAD-1 + 2,4-D and AAD-1 + both corn entries were determined. A summary of the results across all locations is shown in Table 8, and the results reported by individual field site are shown in Appendix E Table 6. Mean results for vitamins B12, D and E were below the LOQ of the analytical methods used. All mean results reported for vitamins were similar to reported literature values, when available. Results for the vitamins without reported literature ranges (vitamins B5 and C) were similar to control values obtained (< 22% difference from control). For the across-site analysis, no statistical differences were observed, with the exception of vitamins B1, C and niacin. Significant paired t-tests for Vitamins B1 were observed between the control and unsprayed AAD-1, AAD-1 + quizalofop, and AAD-1 + both, but were not accompanied by significant overall treatment effects or FDR adjusted p-values. For vitamin C, a significant overall treatment effect was observed along with significant paired t-tests and FDR adjusted p-values for AAD-1 + quizalofop and AAD-1 + 2,4-D. Similarly for niacin, a significant overall treatment effect was observed along with significant paired t-tests and FDR adjusted p-values for AAD-1 + quizalofop and AAD-1 + both. A significant paired t-test for the AAD-1 + 2,4-D was also found for niacin for the AAD-1 + 2,4-D entry, but was not accompanied by a significant overall treatment effect or FDR adjusted p-value. Since the differences were not observed across sites and values were within literature ranges (when available), the differences are not biologically meaningful.

Anti-Nutrient and Secondary Metabolite Analysis of Grain

The secondary metabolite (coumaric acid, ferulic acid, furfural and inositol) and anti-nutrient (phytic acid, raffinose, and trypsin inhibitor) levels in corn grain samples from the control, unsprayed AAD-1, AAD-1 + quizalofop, AAD-1 + 2,4-D and AAD-1 + both corn entries were determined. A summary of the results across all locations is shown in Table 9 and 10, and the results reported by individual field site are shown in Appendix E Tables 7 and 8.

For the across-site analysis, all values were within literature ranges. No significant differences between the AAD-1 entries and the control entry results were observed in the across-site analysis for inositol and trypsin inhibitor. Results for furfural and raffinose were below the method's limit of quantitation. Significant paired t-tests were observed for coumaric acid (unsprayed AAD-1, AAD-1 + 2,4-D and AAD-1 + both), and ferulic acid (AAD-1 + quizalofop and AAD-1 + both). These differences were not accompanied by significant overall treatment effects or FDR adjusted p-values and were similar to the control (< 10% difference). A significant overall treatment effect, paired t-test, and FDR adjusted p-value was found for phytic acid (unsprayed AAD-1). Since all results were within literature ranges and similar to the control (<11% difference), these differences are not biologically meaningful.

Composition Summary

All site mean values for the control, unsprayed AAD-1, AAD-1 + quizalofop, AAD-1 + 2,4-D and AAD-1 + both entry samples were within literature ranges for corn (see Figures 1-7). A limited number of significant differences between unsprayed AAD-1, AAD-1 + quizalofop, AAD-1 + 2,4-D or AAD-1 + both corn and the control were observed, but the differences were not biologically meaningful because they were small and the results were within ranges found for commercial corn. Plots of the composition results do not indicate any biologically-meaningful treatment-related compositional differences among unsprayed AAD-1, AAD-1 + quizalofop, AAD-1 + 2,4-D or AAD-1 + both corn and the control corn line (Figures 1-7). In conclusion, unsprayed AAD-1, AAD-1 + quizalofop, AAD-1 + 2,4-D and AAD-1 + both corn composition results confirm equivalence of AAD-1 (Event DAS 40278-9) corn to conventional corn lines.

ARCHIVING

The final report and all raw data (including verified and signed copies) associated with this study will be filed in the Dow AgroSciences facility archives, Indianapolis, Indiana upon issuing the final report.

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Table 1. Summary Analysis of Agronomic Characteristics Results Across Locations for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Control

Analyte	Overall Trt. Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Early population V1 (no. of plants)	(0.351)	42.8	41.3 (0.303, 0.819)	41.7 (0.443, 0.819)	41.9 (0.556, 0.819)	44.1 (0.393, 0.819)
Early population V4 (no. of plants)	(0.768)	43.1	43.3 (0.883, 0.984)	43.7 (0.687, 0.863)	44.3 (0.423, 0.819)	44.8 (0.263, 0.819)
Seedling Vigor[d]	(0.308)	7.69	7.39 (0.197, 0.819)	7.36 (0.161, 0.819)	7.58 (0.633, 0.819)	7.78 (0.729, 0.889)
Final population (number of plants)	(0.873)	40.1	39.6 (0.747, 0.889)	39.7 (0.802, 0.924)	39.9 (0.943, 1.00)	41.1 (0.521, 0.819)
Crop Injury – 1st app.[e]	NA[1]	0	0	0	0	0
Crop Injury – 2nd app.[e]	(0.431)	0	0 (1.00, 1.00)	0 (1.00, 1.00)	0 (1.00, 1.00)	0.28 (0.130, 0.819)
Crop Injury – 3rd app.[e]	NA	0	0	0	0	0
Crop Injury – 4th app.[e]	NA	0	0	0	0	0
Time to Silking (heat units)[f]	(0.294)	1291	1291 (0.996, 1.00)	1293 (0.781, 0.917)	1304 (0.088, 0.819)	1300 (0.224, 0.819)
Time to Pollen Shed (heat units)[f]	(0.331)	1336	1331 (0.564, 0.819)	1342 (0.480, 0.819)	1347 (0.245, 0.819)	1347 (0.245, 0.819)
Pollen Shape 0 minutes (%)[g]	(0.872)	10.9	10.9 (0.931, 1.00)	11.3 (0.546, 0.819)	11.4 (0.439, 0.819)	11.3 (0.605, 0.819)
Pollen Shape 30 minutes (%)	(0.486)	49.2	50.8 (0.618, 0.819)	46.4 (0.409, 0.819)	48.1 (0.739, 0.889)	51.9 (0.409, 0.819)
Pollen Shape 60 minutes (%)	(0.724)	74.4	74.7 (0.809, 0.924)	73.6 (0.470, 0.819)	73.9 (0.629, 0.819)	75.0 (0.629, 0.819)
Pollen Shape 120 minutes (%)	(0.816)	82.6	82.6 (1.00, 1.00)	82.6 (1.00, 1.00)	82.6 (1.00, 1.00)	82.5 (0.337, 0.819)

Table 1. (Cont.) Summary Analysis of Agronomic Characteristics Results Across Locations for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Control

Analyte	Overall Trt. Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Pollen Color 0 minutes (%)[h]	(0.635)	12.3	12.6 (0.652, 0.832)	12.7 (0.600, 0.819)	13.3 (0.185, 0.819)	13.2 (0.237, 0.819)
Pollen Color 30 minutes (%)	(0.524)	51.9	52.5 (0.850, 0.960)	48.9 (0.306, 0.819)	50.3 (0.573, 0.819)	53.6 (0.573, 0.819)
Pollen Color 60 minutes (%)	(0.332)	75.3	75.9 (0.612, 0.819)	74.2 (0.315, 0.819)	74.2 (0.315, 0.819)	75.9 (0.612, 0.819)
Pollen Color 120 minutes (%)	NA	84.0	84.0	84.0	84.0	84.0
Stalk Lodging (%)	(0.261)	5.11	5.22 (0.356, 0.819)	5.00 (0.356, 0.819)	5.00 (0.356, 0.819)	5.00 (0.356, 0.819)
Root Lodging (%)	(0.431)	0.44	0.17 (0.457, 0.819)	0.72 (0.457, 0.819)	0.17 (0.457, 0.819)	0.11 (0.373, 0.819)
Stay Green[i]	(0.260)	4.67	4.28 (0.250, 0.819)	3.92 (**0.034**[m], 0.819)	4.17 (0.144, 0.819)	4.11 (0.106, 0.819)
Disease Incidence[j]	(0.741)	6.42	6.22 (0.383, 0.819)	6.17 (0.265, 0.819)	6.17 (0.265, 0.819)	6.17 (0.265, 0.819)
Insect Damage[k]	(0.627)	7.67	7.78 (0.500, 0.819)	7.78 (0.500, 0.819)	7.72 (0.736, 0.889)	7.56 (0.500, 0.819)
Days to Maturity (heat units)[f]	(0.487)	2411	2413 (0.558, 0.819)	2415 (0.302, 0.819)	2416 (0.185, 0.819)	2417 (0.104, 0.819)
Plant Height (cm)	(0.676)	294	292 (0.206, 0.819)	290 (0.209, 0.819)	291 (0.350, 0.819)	291 (0.286, 0.819)

Table 1. (Cont.) Summary Analysis of Agronomic Characteristics Results Across Locations for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Control

Analyte	Overall Trt. Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Ear Height (cm)	(0.089)	124	121 (0.089, 0.819)	118 (**0.018**[m], 0.786)	121 (0.214, 0.819)	118 (**0.016**[m], 0.786)

[a] Overall treatment effect estimated using an F-test.
[b] Comparison of the sprayed and unsprayed treatments to the control using a t-test.
[c] P-values adjusted using a False Discovery Rate (FDR) procedure.
[d] Visual estimate on 1-9 scale; 9 = tall plants with large robust leaves.
[e] 0-100% scale; with 0 = no injury and 100 = dead plant.
[f] The number of heat units that have accumulated from the time of planting.
[g] 0-100% scale; with % pollen grains with collapsed walls.
[h] 0-100% scale; with % pollen grains with intense yellow color.
[i] Visual estimate on 1-9 scale with 1 no visible green tissue.
[j] Visual estimate on 1-9 scale with 1 being poor disease resistance.
[k] Visual estimate on 1-9 scale with 1 being poor insect resistance.
[l] NA = statistical analysis not performed since no variability across replicates or treatment.
[m] Statistical difference indicated by P-Value <0.05.

Table 2. Summary of Mean Concentration Levels of AAD-1 Protein Measured in the AAD-1 Unsprayed, AAD-1 + Quizalofop, AAD-1 + 2,4-D and AAD-1 + Quizalofop and 2,4-D in Maize Tissues

Corn Tissue	Treatment	AAD-1 ng/mg Tissue Dry Weight		
		Mean	Std. Dev.	Range
V2-V4 Leaf	AAD-1 Unsprayed	13.4	8.00	1.98-29.9
	AAD-1 + Quizalofop	13.3	6.89	4.75-24.5
	AAD-1 + 2,4-D	14.2	7.16	4.98-26.7
	AAD-1 + Quizalofop and 2,4-D	12.3	7.09	4.07-22.5
V9 Leaf	AAD-1 Unsprayed	5.96	2.50	2.67-10.9
	AAD-1 + Quizalofop	5.38	1.84	2.52-9.15
	AAD-1 + 2,4-D	6.37	2.41	3.03-10.9
	AAD-1 + Quizalofop and 2,4-D	6.52	2.38	3.11-11.1
R1 Leaf	AAD-1 Unsprayed	5.57	1.66	3.47-9.34
	AAD-1 + Quizalofop	5.70	1.63	2.70-7.78
	AAD-1 + 2,4-D	5.99	1.90	2.40-9.42
	AAD-1 + Quizalofop and 2,4-D	6.06	2.27	1.55-10.2
Pollen	AAD-1 Unsprayed	127	36.2	56.3-210
	AAD-1 + Quizalofop	108	29.9	52.2-146
	AAD-1 + 2,4-D	113	30.2	37.5-137
	AAD-1 + Quizalofop and 2,4-D	112	32.6	45.4-162
R1 Root	AAD-1 Unsprayed	2.92	1.87	0.42-6.10
	AAD-1 + Quizalofop	3.09	1.80	0.56-6.06
	AAD-1 + 2,4-D	3.92	2.03	0.91-7.62
	AAD-1 + Quizalofop and 2,4-D	2.87	1.23	1.09-5.56
R4 Forage	AAD-1 Unsprayed	6.87	2.79	2.37-12.1
	AAD-1 + Quizalofop	7.16	2.84	3.05-11.6
	AAD-1 + 2,4-D	7.32	2.46	2.36-10.6
	AAD-1 + Quizalofop and 2,4-D	6.84	2.31	2.25-10.3
Whole plant	AAD-1 Unsprayed	4.53	2.55	0.78-8.88
	AAD-1 + Quizalofop	4.61	2.22	0.75-8.77
	AAD-1 + 2,4-D	5.16	2.53	0.83-10.2
	AAD-1 + Quizalofop and 2,4-D	4.55	1.77	1.30-8.21
Grain	AAD-1 Unsprayed	5.00	1.53	2.66-8.36
	AAD-1 + Quizalofop	4.63	1.51	1.07-6.84
	AAD-1 + 2,4-D	4.98	1.78	2.94-9.10
	AAD-1 + Quizalofop and 2,4-D	4.61	1.62	1.81-7.49

[a] ND = value less than the method LOD.
[b] Values in parentheses are between the method LOD and LOQ.

Table 3. Summary of the Proximate, Fiber and Mineral Analysis of Corn Forage from All Sites.

Proximate (% dry weight)	Literature Values[a]	Overall Treatment Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Protein	3.14-15.9	(0.054)	7.65	6.51 (**0.016**[e], 0.066)	6.41 (**0.010**[e], 0.051)	7.17 (0.285, 0.450)	7.13 (0.245, 0.402)
Fat	0.296-6.7	(0.068)	2.29	2.08 (0.202, 0.357)	1.78 (**0.005**[e], **0.028**[e])	2.10 (0.233, 0.391)	2.01 (0.093, 0.213)
Ash	1.3-10.5	(0.072)	3.90	3.84 (0.742, 0.859)	4.03 (0.525, 0.708)	3.99 (0.673, 0.799)	4.40 (**0.019**[e], 0.069)
Moisture	53.3-87.5	(0.819)	69.5	69.2 (0.651, 0.782)	69.5 (0.988, 0.988)	69.8 (0.699, 0.820)	70.0 (0.501, 0.687)
Carbohydrates	66.9-94.5	(**0.026**[e])	86.1	87.6 (**0.015**[e], 0.061)	87.8 (**0.006**[e], **0.034**[e])	86.8 (0.262, 0.424)	86.5 (0.538, 0.708)
Fiber (% dry weight)							
Acid Detergent Fiber (ADF)	16.1-47.4	(0.968)	26.5	26.6 (0.925, 0.970)	26.8 (0.833, 0.925)	26.0 (0.677, 0.800)	26.8 (0.851. 0.937)
Neutral Detergent Fiber (NDF)	20.3-63.7	(0.345)	41.6	43.6 (0.169, 0.322)	43.3 (0.242, 0.402)	41.3 (0.809, 0.911)	41.6 (0.978, 0.985)
Minerals (% dry weight)							
Calcium	0.071-0.6	(0.321)	0.212	0.203 (0.532, 0.708)	0.210 (0.930, 0.970)	0.215 (0.815, 0.911)	0.231 (0.150, 0.296)
Phosphorus	0.094-0.55	(0.163)	0.197	0.189 (0.198, 0.354)	0.202 (0.427, 0.615)	0.203 (0.288, 0.450)	0.200 (0.608, 0.762)

[a] Combined range from Appendix A.
[b] Overall treatment effect estimated using an F-test.
[c] Comparison of the transgenic treatments to the control using t-tests.
[d] P-values adjusted using a False Discovery Rate (FDR) procedure.
[e] Statistical difference indicated by P-Value <0.05.

Table 4. Summary of the Proximate and Fiber Analysis of Corn Grain from All Sites.

Proximate (% dry weight)	Literature Values[a]	Overall Treatment Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Protein	6-17.3	(**0.003**[e])	9.97	10.9 (**0.002**[e], **0.016**[e])	11.1 (**0.0004**[e], **0.013**[e])	10.5 (0.061, 0.161)	10.9 (**0.002**[e], **0.015**[e])
Fat	1.2-18.8	(0.369)	4.26	4.19 (0.238, 0.397)	4.16 (0.095, 0.215)	4.26 (0.955, 0.977)	4.22 (0.427, 0.615)
Ash	0.62-6.28	(0.553)	1.45	1.55 (0.178, 0.330)	1.52 (0.364, 0.557)	1.45 (0.982, 0.985)	1.51 (0.397, 0.587)
Moisture	6.1-40.5	(**0.038**[e])	25.1	25.5 (0.406, 0.594)	24.4 (0.056, 0.152)	24.5 (0.117, 0.254)	24.5 (0.114, 0.250)
Cholesterol	NR[f]	NA[g]	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Carbohydrate	63.3-89.8	(**0.005**[e])	84.3	83.3 (**0.002**[e], **0.015**[e])	83.2 (**0.001**[e], **0.013**[e])	83.8 (0.074, 0.185)	83.4 (**0.003**[e], **0.019**[e])
Fiber (% dry weight)							
Acid Detergent Fiber (ADF)	1.82-11.3	(0.247)	4.23	3.94 (0.130, 0.269)	3.99 (0.197, 0.354)	3.89 (0.078, 0.193)	3.82 (**0.035**[e], 0.106)
Neutral Detergent Fiber (NDF)	5.59-22.6	(0.442)	10.6	10.3 (0.455, 0.638)	9.89 (0.120, 0.254)	9.90 (0.121, 0.254)	10.3 (0.552, 0.708)
Total Dietary Fiber	8.3-35.3	(0.579)	13.4	12.8 (0.164, 0.313)	12.9 (0.195, 0.353)	13.1 (0.487, 0.679)	12.9 (0.215, 0.370)

[a] Combined range from Appendix A.
[b] Overall treatment effect estimated using an F-test.
[c] Comparison of the transgenic treatments to the control using t-tests.
[d] P-values adjusted using a False Discovery Rate (FDR) procedure.
[e] Statistical difference indicated by P-Value <0.05.
[f] NR = not reported.
[g] NA= statistical analysis was not performed since a majority of the data was < LOQ.

Table 5. Summary of the Mineral Analysis of Corn Grain from All Sites.

Minerals (mg/100g dry wt.)	Literature Values[a]	Overall Treatment Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Calcium	1.27-100	(0.493)	4.05	4.21 (0.146, 0.289)	4.12 (0.505, 0.687)	4.04 (0.944, 0.977)	4.06 (0.898, 0.957)
Chromium	0.006-0.016	NA[e]	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Copper	0.073-1.85	(0.963)	0.144	0.151 (0.655, 0.782)	0.146 (0.890, 0.957)	0.141 (0.817, 0.911)	0.149 (0.749, 0.863)
Iodine	7.3-81	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Iron	0.1-10	(0.333)	2.49	2.60 (0.086, 0.206)	2.56 (0.310, 0.482)	2.51 (0.801, 0.911)	2.59 (0.145, 0.289)
Magnesium	59.4-1000	(0.072)	122	129 (**0.010**[f], 0.051)	128 (**0.017**[f], 0.066)	126 (0.145, 0.289)	127 (0.070, 0.177)
Manganese	0.07-5.4	(0.099)	0.525	0.551 (**0.025**[f], 0.082)	0.524 (0.884, 0.957)	0.526 (0.942, 0.977)	0.532 (0.505, 0.687)
Molybdenum	NR	(0.143)	261	229 (**0.020**[f], 0.072)	236 (0.067, 0.173)	244 (0.206, 0.362)	234 (0.046, 0.132)
Phosphorus	147-750	(0.102)	289	303 (**0.012**[f], 0.057)	300 (**0.035**[f], 0.106)	299 (0.055, 0.150)	298 (0.085, 0.206)
Potassium	181-720	(0.453)	362	368 (0.330, 0.510)	359 (0.655, 0.782)	364 (0.722, 0.839)	357 (0.454, 0.638)
Selenium	0.001-0.1	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Sodium	0-150	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Zinc	0.65-3.72	(0.166)	2.26	2.32 (0.183, 0.336)	2.34 (0.108, 0.238)	2.29 (0.627, 0.768)	2.37 (**0.027**[f], 0.085)

[a] Combined range from Appendix A.
[b] Overall treatment effect estimated using an F-test.
[c] Comparison of the transgenic treatments to the control using t-tests.
[d] P-values adjusted using a False Discovery Rate (FDR) procedure.
[e] NA= statistical analysis was not performed since a majority of the data was < LOQ.
[f] Statistical difference indicated by P-Value <0.05.

Table 6. Summary of the Amino Acid Analysis of Corn Grain from All Sites.

Amino Acids (% dry weight)	Literature Values[a]	Overall Treatment Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Alanine	0.44-1.39	**(0.002[e])**	0.806	0.901 **(0.0005[e], 0.013[e])**	0.900 **(0.0005[e], 0.013[e])**	0.863 (**0.021[e]**, 0.074)	0.894 **(0.001[e], 0.013[e])**
Arginine	0.12-0.64	(0.371)	0.486	0.499 (0.286, 0.450)	0.505 (0.139, 0.283)	0.487 (0.929, 0.970)	0.484 (0.897, 0.957)
Aspartic Acid	0.34-1.21	**(0.010[e])**	0.712	0.768 **(0.002[e], 0.015[e])**	0.764 **(0.003[e], 0.021[e])**	0.743 (0.060, 0.160)	0.762 **(0.004[e], 0.027[e])**
Cysteine	0.08-0.51	**(0.033[e])**	0.213	0.225 **(0.009[e], 0.050[e])**	0.223 (**0.020[e]**, 0.072)	0.223 (**0.018[e]**, 0.067)	0.226 **(0.005[e], 0.028[e])**
Glutamic Acid	0.97-3.54	**(0.001[e])**	1.97	2.22 **(0.0003[e], 0.013[e])**	2.21 **(0.0004[e], 0.013[e])**	2.12 (**0.017[e]**, 0.067)	2.20 **(0.001[e], 0.013[e])**
Glycine	0.18-0.54	(0.052)	0.383	0.397 (**0.018[e]**, 0.067)	0.398 (**0.013[e]**, 0.059)	0.390 (0.217, 0.371)	0.397 (**0.016[e]**, 0.066)
Histidine	0.14-0.43	**(0.005[e])**	0.283	0.303 **(0.001[e], 0.013[e])**	0.302 **(0.002[e], 0.014[e])**	0.295 (0.036, 0.109)	0.302 **(0.002[e], 0.014[e])**
Isoleucine	0.18-0.71	**(0.003[e])**	0.386	0.427 **(0.001[e], 0.014[e])**	0.427 **(0.001[e], 0.014[e])**	0.410 (**0.044[e]**, 0.127)	0.431 **(0.001[e], 0.013[e])**
Leucine	0.64-2.49	**(0.001[e])**	1.35	1.54 **(0.0003[e], 0.013[e])**	1.54 **(0.0003[e], 0.013[e])**	1.47 (**0.013[e]**, 0.059)	1.53 **(0.001[e], 0.013[e])**
Lysine	0.05-0.56	(0.211)	0.310	0.315 (0.210, 0.367)	0.316 (0.128, 0.265)	0.309 (0.879, 0.956)	0.316 (0.102, 0.226)
Methionine	0.10-0.47	**(0.003[e])**	0.195	0.209 **(0.001[e], 0.013[e])**	0.209 **(0.001[e], 0.013[e])**	0.205 (**0.014[e]**, 0.061)	0.208 **(0.001[e], 0.014[e])**
Phenylalanine	0.24-0.93	**(0.002[e])**	0.551	0.617 **(0.001[e], 0.013[e])**	0.619 **(0.001[e], 0.013[e])**	0.592 (**0.023[e]**, 0.077)	0.615 **(0.001[e], 0.013[e])**
Proline	0.46-1.63	**(0.002[e])**	0.910	1.01 **(0.0004[e], 0.013[e])**	1.01 **(0.001[e], 0.013[e])**	0.975 (**0.012[e]**, 0.059)	0.997 **(0.001[e], 0.014[e])**
Serine	0.24-0.91	**(0.009[e])**	0.498	0.550 **(0.002[e], 0.014[e])**	0.550 **(0.001[e], 0.014[e])**	0.529 (**0.042[e]**, 0.122)	0.536 (**0.015[e]**, 0.061)

Table 6. (Cont.) Summary of the Amino Acid Analyisis of Corn Grain from All Sites.

Amino Acids (% dry weight)	Literature Values[a]	Overall Treatment Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Threonine	0.22-0.67	(**0.005**[e])	0.364	0.394 (**0.001**[e], **0.014**[e])	0.394 (**0.001**[e], **0.013**[e])	0.384 (**0.023**[e], 0.077)	0.390 (**0.003**[e], **0.020**[e])
Tryptophan	0.03-0.22	(0.088)	0.052	0.055 (0.067, 0.173)	0.056 (**0.025**[e], 0.082)	0.056 (**0.014**[e], 0.060)	0.056 (**0.029**[e], 0.092)
Tyrosine	0.10-0.79	(0.390)	0.336	0.355 (0.535, 0.708)	0.375 (0.214, 0.370)	0.339 (0.907, 0.964)	0.314 (0.500, 0.687)
Valine	0.21-0.86	(**0.005**[e])	0.495	0.537 (**0.002**[e], **0.014**[e])	0.538 (**0.002**[e], **0.014**[e])	0.519 (0.054, 0.148)	0.538 (**0.001**[e], **0.014**[e])

[a] Combined range from Appendix A.
[b] Overall treatment effect estimated using an F-test.
[c] Comparison of the transgenic treatments to the control using t-tests.
[d] P-values adjusted using a False Discovery Rate (FDR) procedure.
[e] Statistical difference indicated by P-Value <0.05.

Table 7. Summary of the Fatty Acid Analysis of Corn Grain from All Sites.

Fatty Acids (% total fatty acids)[a]	Literature Values[b]	Overall Treatment Effect (Pr>F)[c]	Control	Unsprayed (P-value,[d] Adj. P)[e]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
8:0 Caprylic	0.13–0.34	NA[f]	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
10:0 Capric	ND	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
12:0 Lauric	ND–0.687	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
14:0 Myristic	ND-0.3	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
16:0 Palmitic	7–20.7	(0.559)	9.83	9.89 (0.618, 0.763)	9.95 (0.280, 0.445)	9.78 (0.617, 0.763)	9.90 (0.544, 0.708)
16:1 Palmitoleic	ND–1.0	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
17:0 Heptadecanoic	ND–0.11	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	ND– 0.1	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
18:0 Stearic	ND-3.4	(0.561)	2.04	1.98 (0.119, 0.254)	2.01 (0.437, 0.626)	2.00 (0.259, 0.421)	2.02 (0.598, 0.756)
18:1 Oleic	17.4 - 46	(0.076)	31.3	30.4 (**0.013**[g], 0.059)	30.8 (0.178, 0.329)	30.4 (**0.015**[g], 0.061)	30.7 (0.092, 0.213)
18:2 Linoleic	34.0-70	(0.474)	47.5	48.3 (0.189, 0.345)	48.4 (0.144, 0.289)	48.0 (0.453, 0.638)	48.5 (0.119, 0.254)
18:3 Gamma Linolenic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ

Table 7. (Cont.) Summary of the Fatty Acid Analysis of Corn Grain from All Sites.

Fatty Acids (% total fatty acids)[a]	Literature Values[b]	Overall Treatment Effect (Pr>F)[c]	Control	Unsprayed (P-value,[d] Adj. P)[e]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
18:3 Linolenic	ND-2.25	(0.479)	1.04	1.05 (0.537, 0.708)	1.06 (0.202, 0.357)	1.04 (0.842, 0.932)	1.06 (0.266, 0.428)
20:0 Arachidic	0.1-2	(0.379)	0.400	0.386 (0.061, 0.161)	0.393 (0.341, 0.525)	0.390 (0.153, 0.297)	0.390 (0.175, 0.328)
20:1 Eicosenoic	0.17–1.92	(0.107)	0.232	0.226 (0.089, 0.210)	0.230 (0.497, 0.687)	0.223 (**0.013**[g], 0.059)	0.227 (0.121, 0.254)
20:2 Eicosadienoic	ND–0.53	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	0.275	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	0.465	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
22:0 Behenic	ND–0.5	(**0.044**[g])	0.136	0.088 (0.093, 0.213)	0.076 (0.887, 0.957)	0.086 (**0.011**[g], 0.054)	0.108 (**0.023**[g], 0.077)

a Results converted from units of % dry weight to % fatty acids.
b Combined range from Appendix A.
c Overall treatment effect estimated using an F-test.
d Comparison of the transgenic treatments to the control using t-tests.
e P-values adjusted using a False Discovery Rate (FDR) procedure.
f NA= statistical analysis was not performed since a majority of the data was < LOQ.
g Statistical difference indicated by P-Value <0.05.

Table 8. Summary of Vitamin Analysis of Corn Grain from All Sites.

Vitamins (mg/kg dry weight)	Literature Values[a]	Overall Treatment Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Beta Carotene (Vitamin A)	0.19 – 46.8	(0.649)	1.80	1.85 (0.372, 0.566)	1.80 (0.967, 0.983)	1.82 (0.770, 0.883)	1.87 (0.221, 0.376)
Vitamin B1 (Thiamin)	1.3 - 40	(0.068)	3.47	3.63 (**0.041**[e], 0.121)	3.67 (**0.013**[e], 0.059)	3.54 (0.375, 0.567)	3.64 (**0.032**[e], 0.100)
Vitamin B2 (Riboflavin)	0.25 - 5.6	(0.803)	2.15	2.05 (0.443, 0.631)	2.08 (0.600, 0.756)	1.99 (0.227, 0.383)	2.07 (0.543, 0.708)
Vitamin B5 (Pantothenic acid)	NR[f]	(0.820)	5.28	5.17 (0.623, 0.766)	5.09 (0.391, 0.582)	5.29 (0.968, 0.983)	5.10 (0.424, 0.615)
Vitamin B6 (Pyridoxine)	3.68 – 11.3	(0.431)	6.52	6.57 (0.859, 0.938)	6.66 (0.652, 0.782)	6.66 (0.652, 0.782)	7.08 (0.088, 0.210)
Vitamin B12	NR	NA[g]	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Vitamin C	NR	(**0.018**[e])	22.4	21.2 (0.268, 0.429)	17.5 (**0.005**[e], **0.028**[e])	18.0 (**0.004**[e], **0.026**[e])	20.4 (0.068, 0.173)
Vitamin D	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Vitamin E (alpha Tocopherol)	1.5 - 68.7	(0.558)	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Niacin (Nicotinic acid,Vit. B3)	9.3 - 70	(**0.013**[e])	26.1	24.2 (0.050, 0.140)	22.9 (**0.002**[e], **0.017**[e])	23.7 (**0.018**[e], 0.067)	22.9 (**0.002**[e], **0.016**[e])
Folic Acid	0.15 - 683	(0.881)	0.594	0.588 (0.779, 0.890)	0.574 (0.403, 0.592)	0.592 (0.931, 0.970)	0.597 (0.916, 0.970)

[a] Combined range from Appendix A.
[b] Overall treatment effect estimated using an F-test.
[c] Comparison of the transgenic treatments to the control using t-tests.
[d] P-values adjusted using a False Discovery Rate (FDR) procedure.
[e] Statistical difference indicated by P-Value <0.05.
[f] NR = not reported.
[g] NA= statistical analysis was not performed since a majority of the data was < LOQ.

Table 9. Summary of Secondary Metabolite Analysis of Corn Grain from All Sites.

Secondary Metabolite (% dry weight)	Literature Values[a]	Overall Treatment Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Coumaric Acid	0.003-0.058	(0.119)	0.021	0.020 (**0.038**[e], 0.113)	0.020 (0.090, 0.211)	0.019 (**0.022**[e], 0.074)	0.020 (**0.029**[e], 0.091)
Ferulic Acid	0.02-0.389	(0.077)	0.208	0.199 (0.051, 0.141)	0.196 (**0.010**[e], 0.051)	0.200 (0.080, 0.196)	0.197 (**0.019**[e], 0.069)
Furfural	0.0003-0.0006	NA[f]	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Inositol	0.0089-0.377	(0.734)	0.218	0.224 (0.548, 0.708)	0.218 (0.973, 0.984)	0.213 (0.612, 0.763)	0.211 (0.526, 0.708)

[a] Combined range from Appendix A.
[b] Overall treatment effect estimated using an F-test.
[c] Comparison of the transgenic treatments to the control using t-tests.
[d] P-values adjusted using a False Discovery Rate (FDR) procedure.
[e] Statistical difference indicated by P-Value <0.05.
[f] NA= statistical analysis was not performed since a majority of the data was < LOQ.

Table 10. Summary of Anti-Nutrient Analysis of Corn Grain from All Sites.

Anti-Nutrient (% dry weight)	Literature Values[a]	Overall Treatment Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Phytic Acid	0.11-1.57	(**0.046**[e])	0.727	0.806 (**0.003**[e], **0.020**[e])	0.767 (0.099, 0.224)	0.755 (0.245, 0.402)	0.761 (0.158, 0.304)
Raffinose	0.02-0.32	NA[f]	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Trypsin Inhibitor (TIU/mg)	1.09-7.18	(0.742)	5.08	5.10 (0.954, 0.977)	4.87 (0.631, 0.770)	5.45 (0.387, 0.582)	5.18 (0.813, 0.911)

[a] Combined range from Appendix A.
[b] Overall treatment effect estimated using an F-test.
[c] Comparison of the transgenic treatments to the control using t-tests.
[d] P-values adjusted using a False Discovery Rate (FDR) procedure.
[e] Statistical difference indicated by P-Value <0.05.
[f] NA= statistical analysis was not performed since a majority of the data was < LOQ.

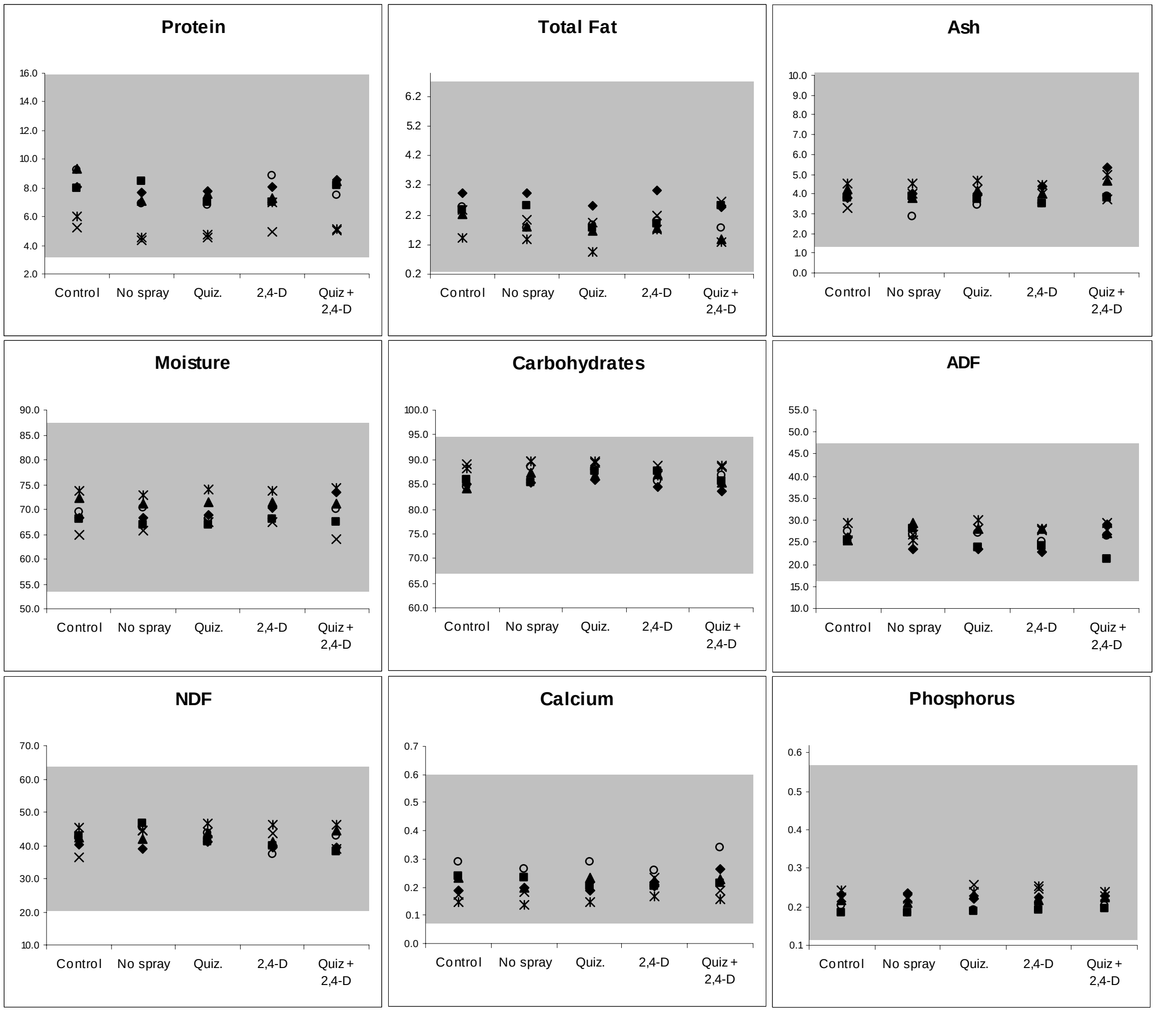

Figure 1. Proximates, fiber and minerals (percent dry-weight for all analytes) in non-transgenic (control), and Event DAS-40278-9 Corn Forage. Values at each location shown: diamond = IA, square = IL1, triangle = IL2, X = IN, star = NE, and circle = ON. Literature ranges are shaded (Waston (1982), and ILSI Database (2006)).

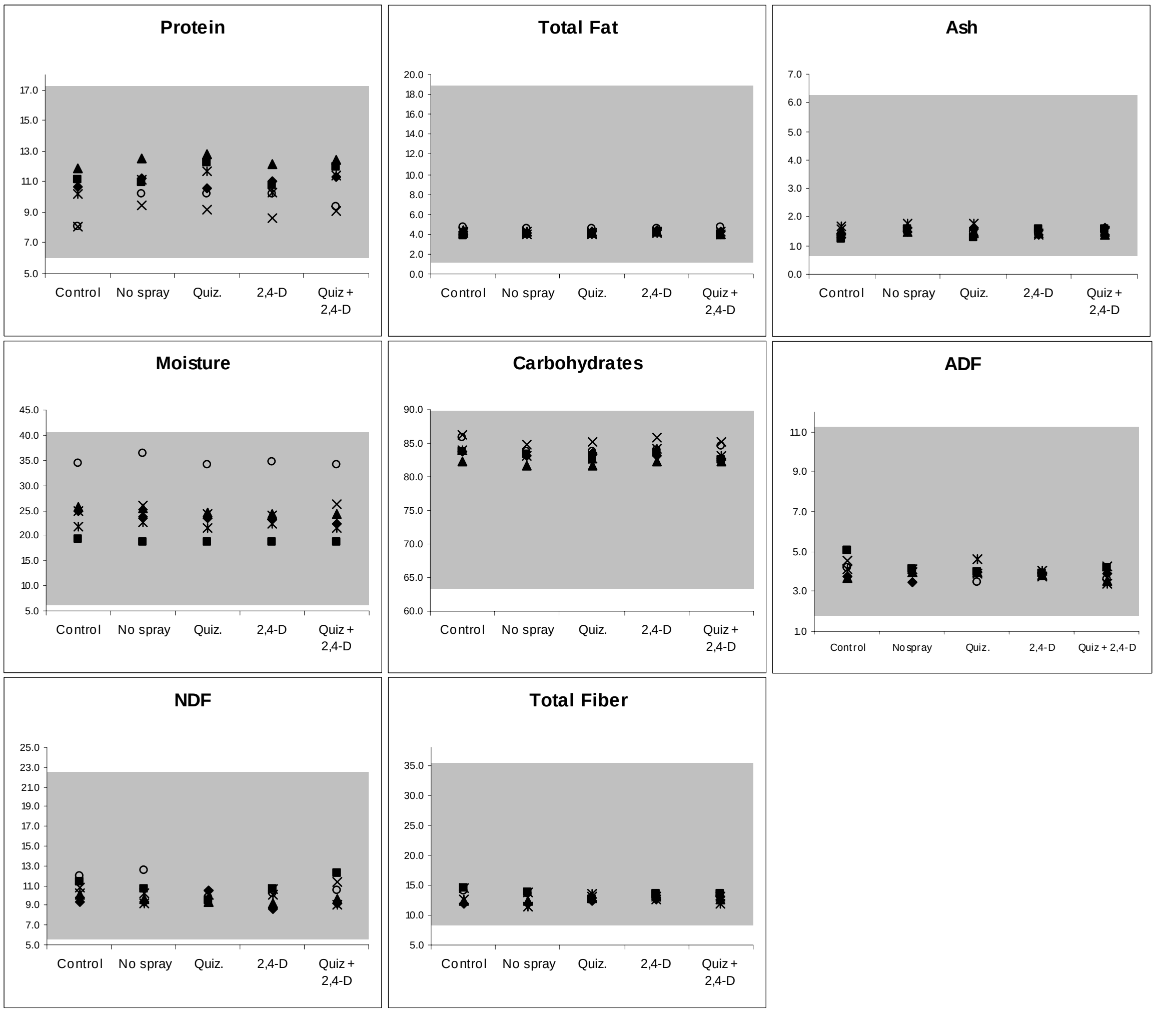

Figure 2. Proximates and fiber (percent dry-weight for all analytes) in non-transgenic (control), and Event DAS-40278-9 Corn Grain. Values at each location shown: diamond = IA, square = IL1, triangle = IL2, X = IN, star = NE, and circle = ON. Literature ranges are shaded (Watson (1982), Watson (1987), OECD (2002); and ILSI Database (2006)). Grain was also analyzed for cholesterol, but results were less than the limit of quantitation.

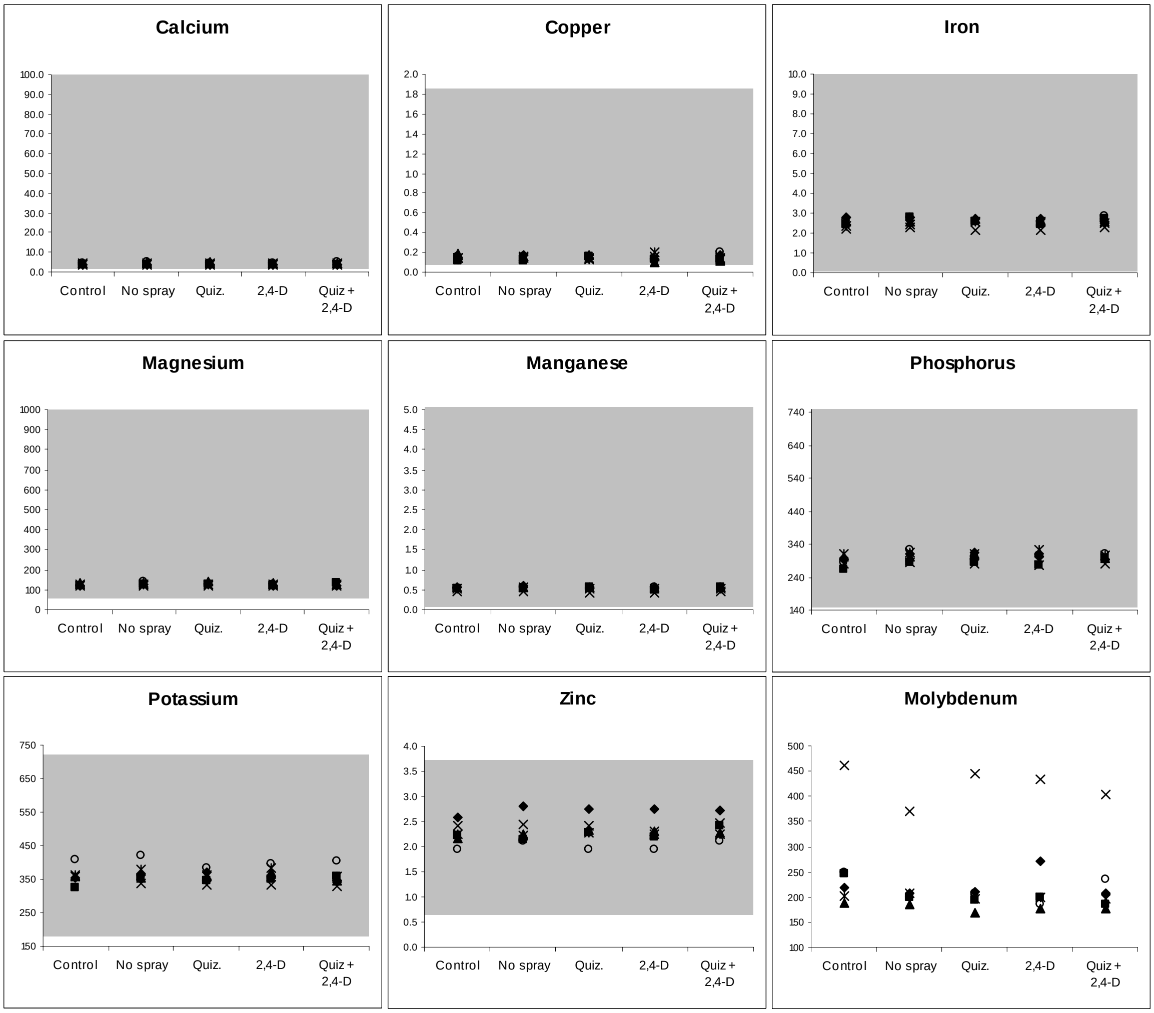

Figure 3. Minerals (mg/100g) in non-transgenic (control), and Event DAS-40278-9 Corn Grain. Values at each location shown: diamond = IA, square = IL1, triangle = IL2, X = IN, star = NE, and circle = ON. Literature ranges are shaded (Watson (1982), Watson (1987), OECD (2002); and ILSI Database (2006)). Grain was also analyzed for chromium, iodine, selenium and sodium, but results were less than the limit of quantitation.

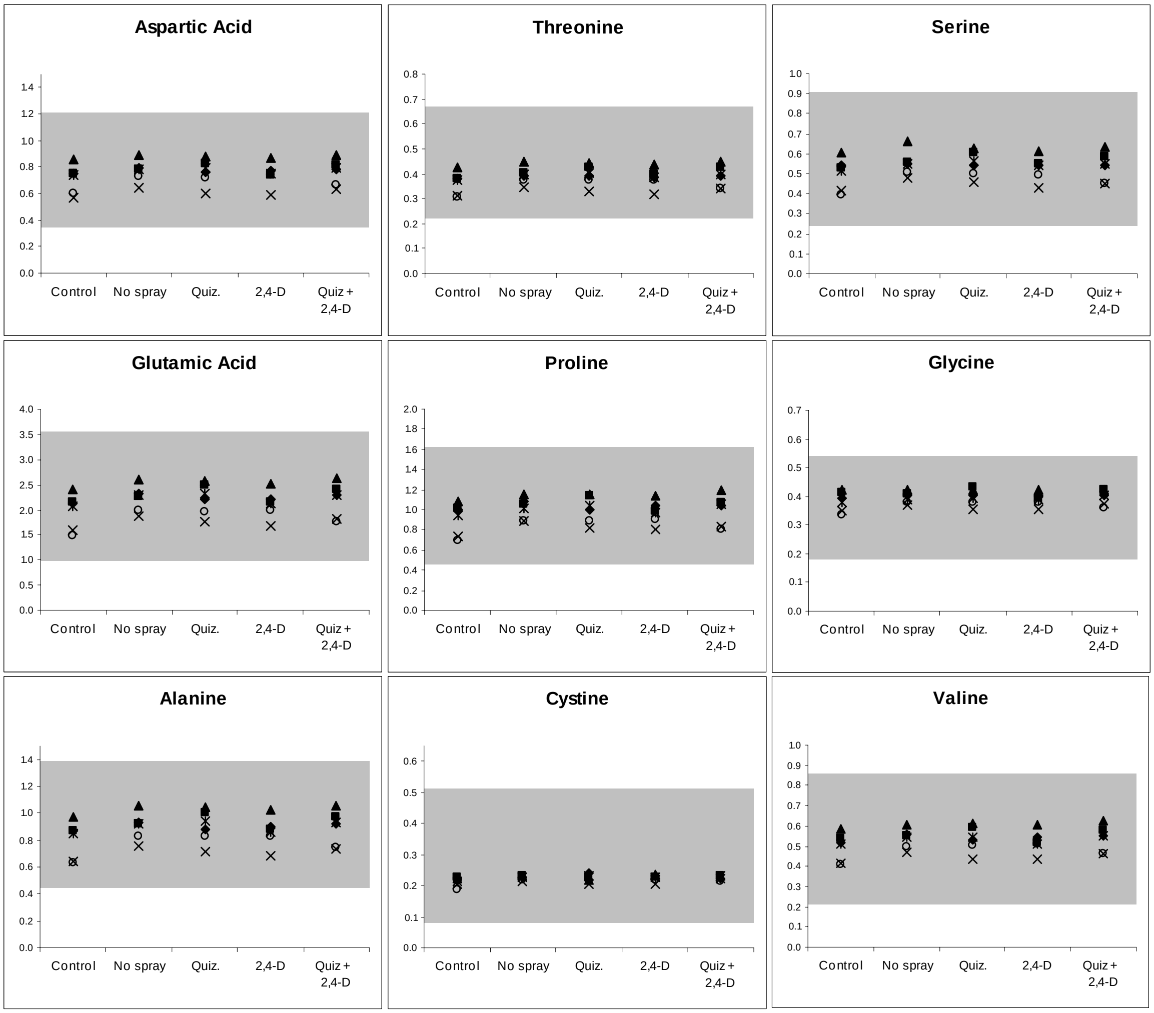

Figure 4. Amino acids (percent dry-weight) in non-transgenic (control), and Event DAS-40278-9 Corn Grain. Values at each location shown: diamond = IA, square = IL1, triangle = IL2, X = IN, star = NE, and circle = ON. Literature ranges are shaded (Watson (1982), OECD (2002); and ILSI Database (2006)).

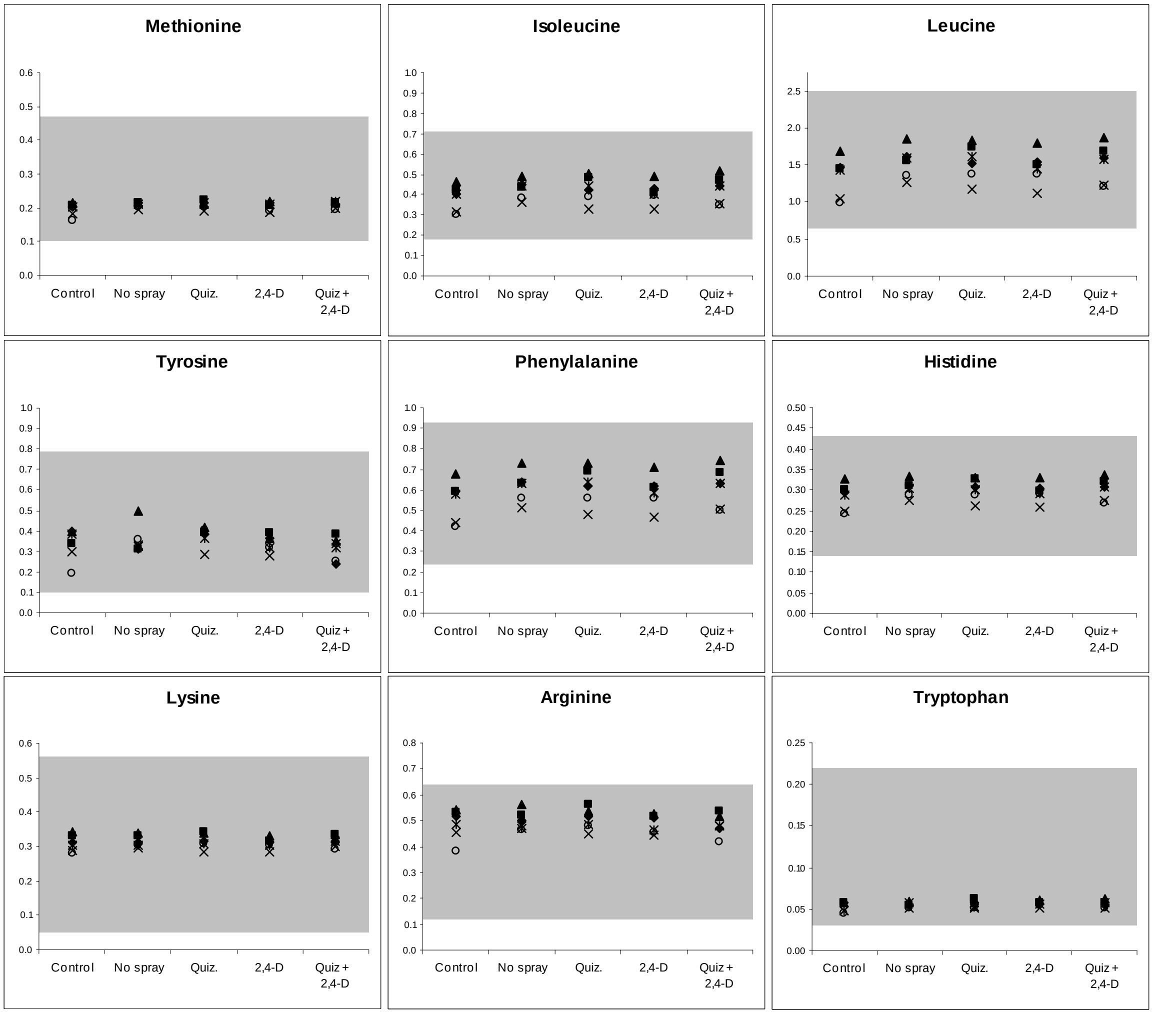

Figure 4. (Cont.) Amino acids (percent dry-weight) in non-transgenic (control), and Event DAS-40278-9 Corn Grain. Values at each location shown: diamond = IA, square = IL1, triangle = IL2, X = IN, star = NE, and circle = ON. Literature ranges are shaded (Watson (1982), OECD (2002); and ILSI Database (2006)).

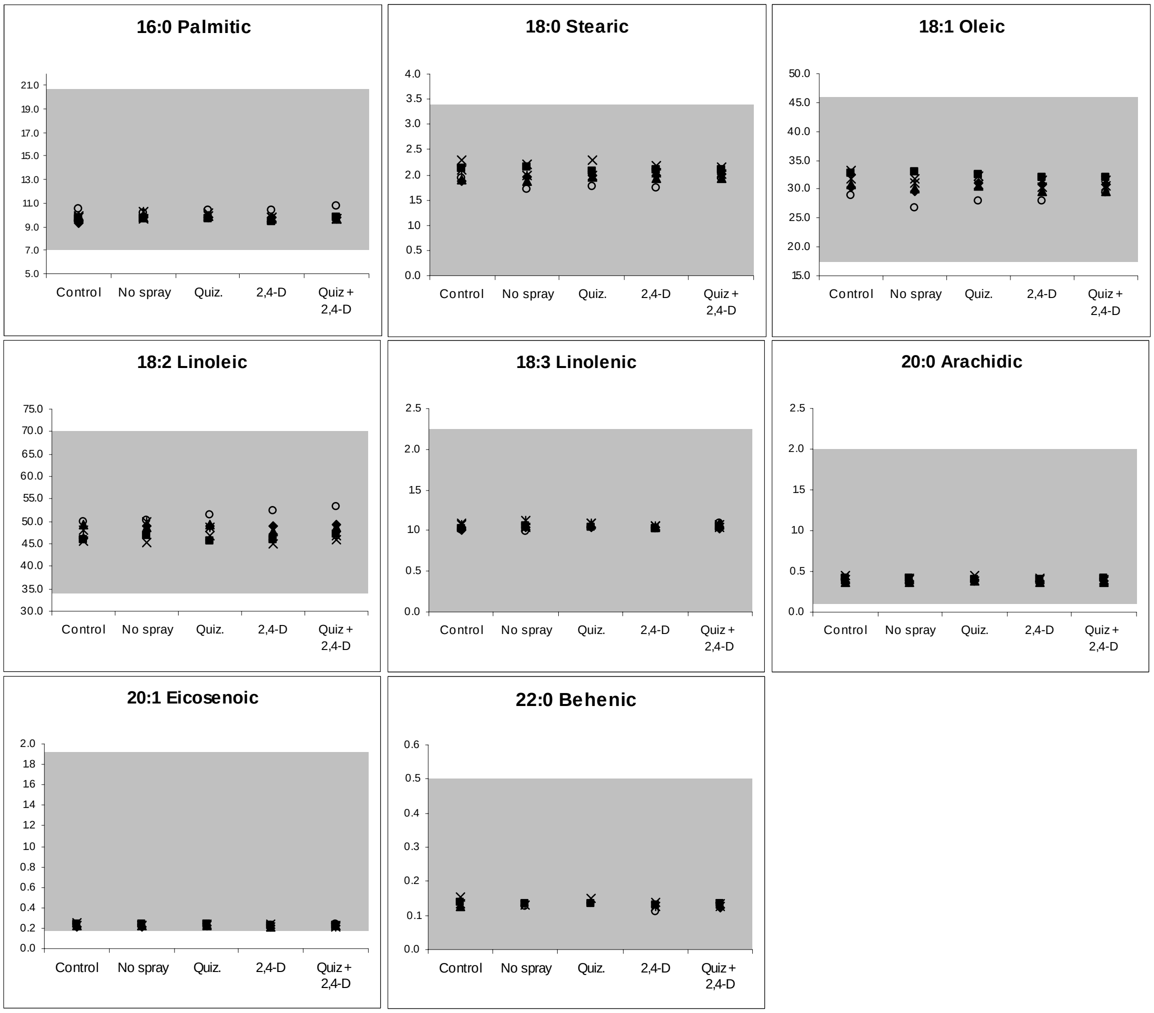

Figure 5. Fatty acids (percent of total fatty acids) in non-transgenic (control), and Event DAS-40278-9 Corn Grain. Values at each location shown: diamond = IA, square = IL1, triangle = IL2, X = IN, star = NE, and circle = ON. Literature ranges are shaded (Watson (1982), Codex (2001); and ILSI Database (2006)). Grain was also analyzed for C8:0, C10:0, C12:0, C14:0, C14:1, C15:0, C15:1, C16:1, C17:0, C17:1, C18:3 gamma, C20:2, C20:3 and C20:4, but levels were below level of quantitation.

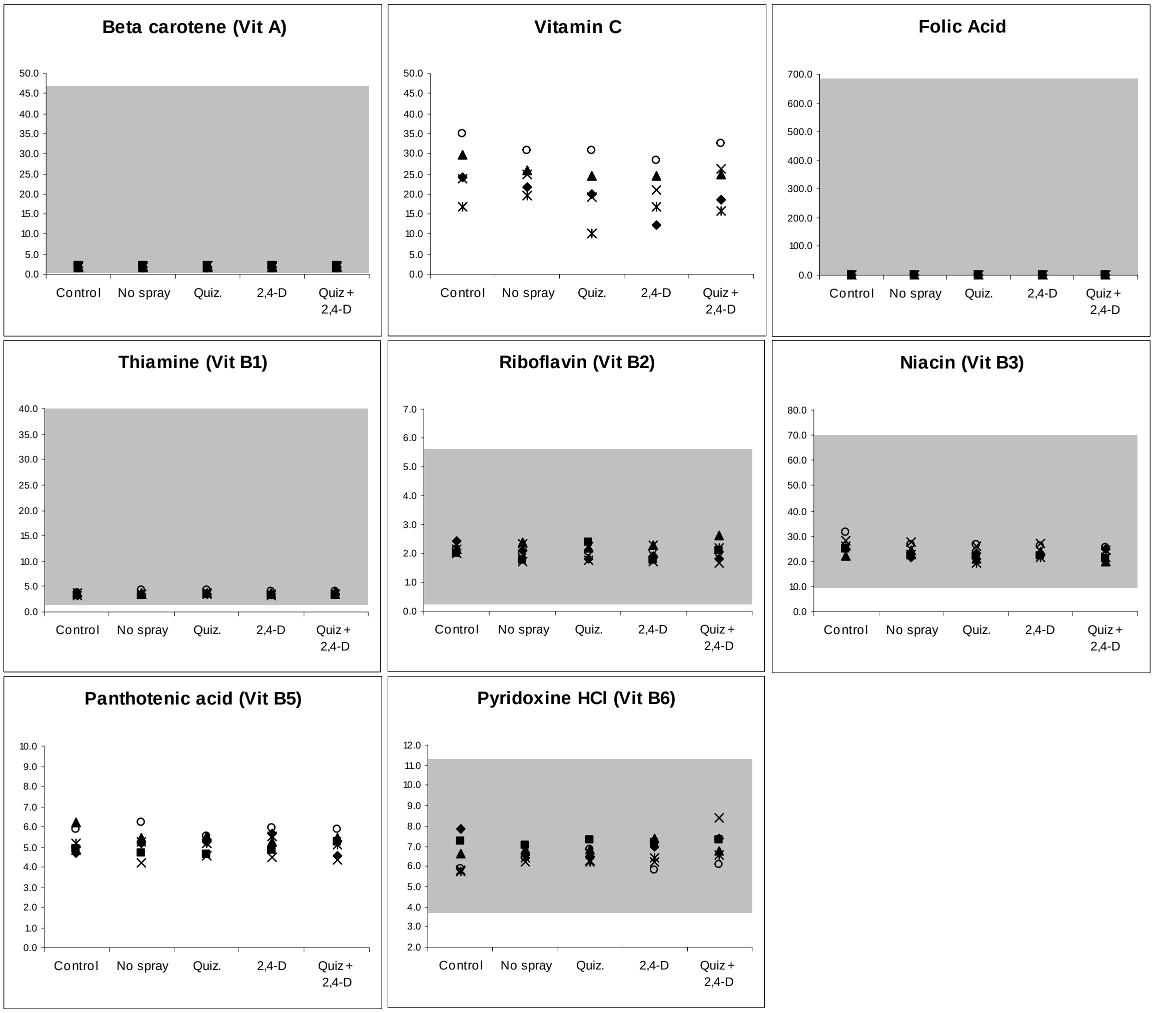

Figure 6. Vitamins (mg/kg dry weight or mg/kg) in non-transgenic (control), and Event DAS-40278-9 Corn Grain. Values at each location shown: diamond = IA, square = IL1, triangle = IL2, X = IN, star = NE, and circle = ON. Literature ranges are shaded (Watson (1982), Watson (1987), OECD (2002); and ILSI Database (2006)). Grain was also analyzed for Vitamin E, Vitamin B12, and Vitamin D, but results were less than the limit of quantitation.

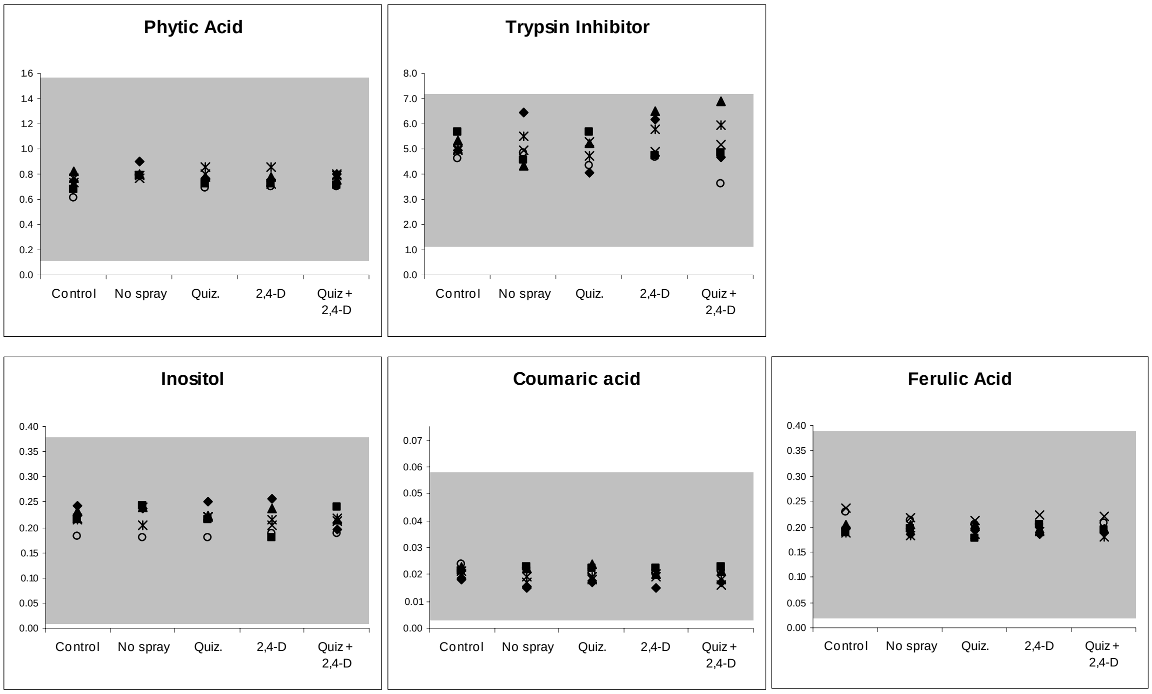

Figure 7. Anti-nutrients and secondary metabolites (% dry weight) in non-transgenic (control), and Event DAS-40278-9 Corn Grain. Values at each location shown: diamond = IA, square = IL1, triangle = IL2, X = IN, star = NE, and circle = ON. Literature ranges are shaded (OECD (2002); and ILSI Database (2006)). Grain was also analyzed for furfural and raffinose, but results were less than the limit of quantitation.

Appendix A—Composition Literature Ranges

Appendix A Table 1. Literature Ranges for Proximates, Fiber, and Minerals in Forage.

	Literature Reference (% Dry weight)		
Analyte	Watson (1982)	ILSI Version 3.0 (2006)	Combined Ranges
Protein	3.5 - 15.9	3.14 - 11.6	3.14 - 15.9
Total Fat	0.7 - 6.7	0.296 - 4.57	0.296 - 6.7
Ash	1.3 - 10.5	1.53 - 9.64	1.3 - 10.5
Moisture	53.3 – 87.5	55.3 – 80.4	53.3 – 87.5
Carbohydrates[a]	66.9 - 94.5	76.4 – 92.1	66.9 - 94.5
ADF	30 (average)	16.1 – 47.4	16.1 – 47.4
NDF	51 (average)	20.3 - 63.7	20.3 - 63.7
Total Dietary Fiber	19 - 42	35.9 – 62.8	19 – 62.8
Minerals (mg/100g dry wt.)			
Calcium	200 - 600	71.4 – 576.8	71.4 - 600
Phosphorus	150 - 550	93.6 – 370.4	93.6 - 550

[a] Carbohydrates are calculated as the percentage of dry weight = 100% total dry weight - % protein - % fat - % ash.

[b] NR = not reported

Appendix A Table. 2. Literature Ranges for Proximates and Fiber in Grain

	Literature Reference (% Dry weight)				
Analyte	Watson (1982)	Watson (1987)	OECD (2002)	ILSI Version 3.0 (2006)	Combined Ranges
Protein	8 - 14	6 - 12	6 - 12.7	6.15 – 17.3	6 – 17.3
Total Fat	1.2 - 18.8	3.1 - 5.7	3.1 - 5.8	1.74 - 5.82	1.2 - 18.8
Ash	1.1 - 3.9	1.1 - 3.9	1.1 - 3.9	0.62 - 6.28	0.62 - 6.28
Moisture	7 - 23	7 - 23	7 - 23	6.1 – 40.5	6.1 – 40.5
Cholesterol				NR	
Carbohydrate[a]	63.3 - 89.7	78.4 - 89.8	82.2 - 82.9	77.4 - 89.5	63.3 - 89.8
ADF	3.0 - 4.3	3.3 - 4.3	3.0 - 4.3	1.82 - 11.3	1.82 - 11.3
NDF	8.3 - 11.9	8.3 - 11.9	8.3 - 11.9	5.59 - 22.6	5.59 - 22.6
Total Dietary Fiber	8.3- 11.9	NR[b]	NR[b]	8.85 – 35.3	8.3 – 35.3

[a] Carbohydrates are calculated as the percentage of dry weight = 100% total dry weight - % protein - % fat - % ash.

[b] NR = not reported

Appendix A Table 3. Literature Ranges for Minerals in Grain

	Literature Reference (mg/100g)				
Analyte	Watson (1982)	Watson (1987)	OECD (2002)	ILSI Version 3.0 (2006)	Combined Ranges
Calcium	10 – 100	10 – 100	3 - 100	1.27 – 20.8	1.27 - 100
Copper	0.09 – 1.0	0.09 – 1.0	0.09 – 1.0	0.073 – 1.85	0.073 – 1.85
Iodine	7.3 - 81	7.3 - 81	NR	NR	7.3 - 81
Iron	0.1 - 10	0.1 - 10	0.1 - 10	1.04 – 4.91	0.1 – 10
Magnesium	90 - 1000	90 - 1000	82 - 1000	59.4 – 194	59.4 - 1000
Manganese	0.07 – 5.4	0.07 – 5.4	NR[a]	0.169 – 1.43	0.07 – 5.4
Phosphorus	260 - 750	260 - 750	234 - 750	147 – 533.0	147 - 750
Potassium	320 - 720	320 - 720	320 - 720	181 - 603	181 - 720
Sodium	0 - 150	0 - 150	0 - 150	0.017 – 73.1	0 - 150
Zinc	1.2 – 3.0	1.2 – 3.0	1.2 – 3.0	0.65- 3.72	0.65 - 3.72
Chromium	0.006 – 0.016	0.006 – 0.016	NR	NR	0.006 – 0.016
Molybdenum	NR	NR	NR	NR	NR
Selenium	0.0045	0.001 – 0.1	0.001 – 0.1	0.005 – 0.075	0.001 – 0.1

[a] NR = not reported

Appendix A Table 4. Literature Ranges for Amino Acids in Grain

	Literature Reference (% Dry weight)			
Analyte	Watson (1982)	OECD (2002)	ILSI Version 3.0 (2006)	Combined Ranges
Aspartic Acid	0.58 - 0.72	0.48 - 0.85	0.34 – 1.21	0.34 –1.21
Threonine	0.29 - 0.39	0.27 - 0.58	0.22 - 0.67	0.22 - 0.67
Serine	0.42 - 0.55	0.35 - 0.91	0.24 - 0.77	0.24 - 0.91
Glutamic Acid	1.24 - 1.96	1.25 - 2.58	0.97 - 3.54	0.97 - 3.54
Proline	0.66 - 1.03	0.63 - 1.36	0.46 - 1.63	0.46 - 1.63
Glycine	0.26 - 0.47	0.26 - 0.49	0.18- 0.54	0.18- 0.54
Alanine	0.64 - 0.99	0.56 - 1.04	0.44 - 1.39	0.44 - 1.39
Cysteine	0.12 - 0.16	0.08 - 0.32	0.13 - 0.51	0.08 - 0.51
Valine	0.21 - 0.52	0.21 -0.85	0.27 - 0.86	0.21 - 0.86
Methionine	0.10 - 0.21	0.10 - 0.46	0.12 - 0.47	0.10 - 0.47
Isoleucine	0.26 - 0.40	0.22 - 0.71	0.18 - 0.69	0.18 - 0.71
Leucine	0.78 - 1.52	0.79 - 2.41	0.64 - 2.49	0.64 - 2.49
Tyrosine	0.29 - 0.47	0.26 - 0.79	0.10 - 0.64	0.10 - 0.79
Phenylalanine	0.29 - 0.57	0.29 - 0.64	0.24 - 0.93	0.24 - 0.93
Histidine	0.2 - 0.28	0.15 - 0.38	0.14 - 0.43	0.14 - 0.43
Lysine	0.2 - 0.38	0.05 - 0.55	0.17 - 0.67	0.05 - 0.56
Arginine	0.29 - 0.59	0.22 - 0.64	0.12 - 0.64	0.12 - 0.64
Tryptophan	0.05 - 0.12	0.04 - 0.13	0.03 - 0.22	0.03 - 0.22

Appendix A Table 5. Literature Ranges for Fatty Acids in Grain

	Literature Reference (% Total fatty acids)			
Analyte	Watson (1982)	Codex Alimentarius Commission (2001)[a]	ILSI Version 3.0 (2006)	Combined Ranges
8:0 Caprylic	NR[b]	ND	0.13 – 0.34	0.13 – 0.34
10:0 Capric	NR	ND	NR	ND
12:0 Lauric	NR	ND-0.3	0.687	ND – 0.687
14:0 Myristic	NR	ND-0.3	0.14-0.28	ND-0.3
14:1 Myristoleic	NR	NR	NR	NR
15:0 Pentadecanoic	NR	NR	NR	NR
15:1 Pentadecenoic	NR	NR	NR	NR
16:0 Palmitic	7 - 19	8.6 - 16.5	7.94 – 20.7	7 – 20.7
16:1 Palmitoleic	1.0	ND – 0.5	0.095 – 0.45	ND – 1.0
17:0 Heptadecanoic	NR	ND – 0.1	0.078 – 0.11	ND – 0.11
17:1 Heptadecenoic	NR	ND – 0.1	NR	ND – 0.1
18:0 Stearic	1 – 3	ND - 3.3	1.02 – 3.40	ND - 3.4
18:1 Oleic	20 - 46	20.0 - 42.2	17.4 - 40.2	17.4 - 46
18:2 Linoleic	35 - 70	34.0 - 65.6	36.2 – 66.5	34.0 - 70
18:3 Linolenic	0.8 - 2	ND - 2.0	0.57 – 2.25	ND - 2.25
20:0 Arachidic	0.1 - 2	0.3 – 1.0	0.28 – 0.97	0.1 - 2
20:1 Eicosenoic	NR[a]	0.2 – 0.6	0.17 – 1.92	0.17 – 1.92
20:2 Eicosadienoic	NR	ND – 0.1	0.12 – 0.53	ND – 0.53
20:3 Eicosatrienoic	NR	NR	0.275	0.275
20:4 Arachidonic	NR	NR	0.465	0.465
22:0 Behenic	NR[a]	ND - 0.5	0.11 – 0.35	ND – 0.5

[a] Data reported for maize oil.
[b] NR = not reported

Appendix A Table 6. Literature Ranges for Vitamins in Grain

	Literature Reference (ppm-Dry weight)				
Analyte	Watson (1982)	Watson (1987)	OECD (2002)	ILSI Version 3.0 (2006)	Combined Ranges
Beta Carotene (Vitamin A)	2.5 (Average)	2.5 (Average)	0.49 – 2.18	0.19 – 46.8	0.19 – 46.8
Vitamin B1 (Thiamin)	3.0 - 8.6	3.0 - 8.6	2.3 - 8.6	1.3 - 40	1.3 – 40
Vitamin B2 (Riboflavin)	0.25 - 5.6	0.25 - 5.6	0.25 - 5.6	0.50 – 2.36	0.25 - 5.6
Vitamin B5 (Pantothenic acid)	NR[a]	NR	NR	NR	NR
Vitamin B6 (Pyridoxine)	9.6	5.3	4.6 - 9.6	3.68 – 11.3	3.68 – 11.3
Vitamin B12	NR	NR	NR	NR	NR
Vitamin C	NR	NR	NR	NR	NR
Vitamin D	NR	NR	NR	NR	NR
Vitamin E (alpha Tocopherol)	3.0 – 25	17 - 47 IU/kg[b]	NR	1.5 - 68.7	1.5 - 68.7
Niacin (Nicotinic acid,Vit. B3)	9.3 - 70	9.3 - 70	9.3 – 70	10.4 – 46.9	9.3 - 70
Folic Acid	100 - 683	0.3 (Average)	0.17 – 0.46	0.15 - 1.46	0.15 - 683

[a] NR = not reported.
[b] IU = 1 mg of standard DL-α tocopherol.

Appendix A Table 7. Literature Ranges for Secondary Metabolites Grain

Analyte	Literature Reference (% Dry weight)		
	OECD (2002)	ILSI Version 3.0 (2006)	Combined Ranges
Inositol	NR[a]	0.0089 - 0.377	0.0089 - 0.377
Furfural	NR[a]	0.0003 - 0.0006	0.0003 - 0.0006
P-Coumaric Acid	0.003 - 0.03	0.0053 - 0.058	0.003 - 0.058
Ferulic Acid	0.02 - 0.3	0.029- 0.389	0.02 - 0.389

[a] NR = not reported

Appendix A Table 8. Literature Ranges for Anti-Nutrients in Grain

Analyte	Literature Reference (% Dry weight or as indicated)		
	OECD (2002)	ILSI - Version 3.0 (2006)	Combined Ranges
Phytic acid	0.45 - 1.0	0.11 - 1.57	0.11 - 1.57
Raffinose	0.21 - 0.31	0.02 - 0.32	0.02 - 0.32
Trypsin Inhibitor (TIU/mg)[a]	NR[b]	1.09 - 7.18	1.09 - 7.18

[a] Abbreviation: TIU, trypsin inhibitor units
[b] NR = not reported

Appendix B—Agronomic Characteristics from Individual Sites (IA, IL1, IL2, IN, NE and ON)

Appendix B Table 1. Agronomic Characteristics for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Control at the IA Site

Analyte	Overall Trt. Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Early population V1 (no. of plants)	(0.716)	47.0	45.3 (0.465, 0.832)	45.0 (0.384, 0.790)	44.0 (0.204, 0.742)	46.0 (0.657, 0.934)
Early population V4 (no. of plants)	(0.914)	45.3	45.3 (1.00, 1.00)	45.3 (1.00, 1.00)	44.3 (0.645, 0.934)	46.3 (0.645, 0.934)
Seedling Vigor[d]	(0.147)	7.3	6.7 (0.195, 0.742)	7.7 (0.500, 0.877)	6.7 (0.195, 0.742)	7.7 (0.500, 0.877)
Final population (number of plants)	(0.772)	44.3	44.0 (0.825, 1.00)	43.0 (0.388, 0.790)	43.3 (0.513, 0.882)	44.7 (0.825, 1.00)
Crop Injury – 1st app.[e]	NA[l]	0	0	0	0	0
Crop Injury – 2nd app.[e]	NA	0	0	0	0	0
Crop Injury – 3rd app.[e]	NA	0	0	0	0	0
Crop Injury – 4th app.[e]	NA	0	0	0	0	0
Time to Silking (heat units)[f]	(**0.001**[m])	1281.8	1272.5 (0.296, 0.790)	1281.8 (1.00, 1.00)	1317.6 (**0.003**[m], **0.010**[m])	1317.6 (**0.003**[m] **0.010**[m])
Time to Pollen Shed (heat units)[f]	(**0.001**[m])	1335.3	1326.4 (0.296, 0.790)	1335.3 (1.00, 1.00)	1372.0 (**0.002**[m], 0.090)	1372.0 (**0.002**[m], 0.090)
Pollen Shape 0 minutes (%)[g]	(0.356)	3.7	4.3 (0.368, 0.790)	3.7 (1.00, 1.00)	4.0 (0.646, 0.934)	5.0 (0.093, 0.636)
Pollen Shape 30 minutes (%)	(**0.018**[m])	43.3	40.0 (0.678, 0.952)	20.0 (**0.017**[m], 0.288)	23.3 (**0.033**[m], 0.393)	50.0 (0.414, 0.792)
Pollen Shape 60 minutes (%)	(0.802)	85.0	88.3 (0.586, 0.928)	83.3 (0.784, 1.00)	81.7 (0.586, 0.928)	86.7 (0.784, 1.00)
Pollen Shape 120 minutes (%)	NA	100	100	100	100	100
Pollen Color 0 minutes (%)[h]	(0.382)	5.0	6.3 (0.195, 0.742)	5.0 (1.00, 1.00)	5.0 (1.00, 1.00)	6.3 (0.195, 0.742)

Appendix B Table 1. (Cont.) Agronomic Characteristics for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Control at the IA Site

Analyte	Overall Trt. Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Pollen Color 30 minutes (%)	(0.098)	45.0	40.0 (0.594, 0.928)	28.3 (0.101, 0.636)	25.0 (0.057, 0.561)	50.0 (0.594, 0.928)
Pollen Color 60 minutes (%)	(0.421)	85.0	88.3 (0.552, 0.923)	83.3 (0.764, 1.00)	80.0 (0.379, 0.790)	90.0 (0.379, 0.790)
Pollen Color 120 minutes (%)	NA	100	100	100	100	100
Stalk Lodging (%)	NA	0	0	0	0	0
Root Lodging (%)	NA	0	0	0	0	0
Stay Green[i]	(**0.004**[m])	4.0	2.3 (**0.002**[m], 0.090)	2.0 (**0.001**[m], 0.068)	2.7 (**0.006**[m], 0.158)	2.3 (**0.002**[m], 0.090)
Disease Incidence[j]	NA	8	7	7	7	7
Insect Damage[k]	NA	9	9	9	9	9
Days to Maturity (heat units)[f]	NA	2372.9	2372.9	2372.9	2372.9	2372.9
Plant Height (cm)	(0.368)	293.1	287.7 (0.182, 0.742)	287.6 (0.171, 0.742)	286.2 (0.099, 0.636)	286.0 (0.088, 0.636)
Ear Height (cm)	(0.687)	113.4	112.5 (0.770, 1.00)	110.8 (0.402, 0.780)	109.3 (0.202, 0.742)	111.1 (0.468, 0.834)

a Overall treatment effect estimated using an F-test.
b Comparison of the sprayed and unsprayed treatments to the control using a t-test.
c P-values adjusted using a False Discovery Rate (FDR) procedure.
d Visual estimate on 1-9 scale; 9 = tall plants with large robust leaves.
e 0-100% scale; with 0 = no injury and 100 = dead plant.
f The number of heat units that have accumulated from the time of planting.
g 0-100% scale; with % pollen grains with collapsed walls.
h 0-100% scale; with % pollen grains with intense yellow color.
i Visual estimate on 1-9 scale with 1 no visible green tissue.
j Visual estimate on 1-9 scale with 1 being poor disease resistance.
k Visual estimate on 1-9 scale with 1 being poor insect resistance.
l NA = statistical analysis not performed since no variability across replicates or treatment.
m Statistical difference indicated by P-Value <0.05.

Appendix B Table 2. Agronomic Characteristics for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Control at the IL1 Site

Analyte	Overall Trt. Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Early population V1 (no. of plants)	(0.603)	46.3	47.7 (0.224, 0.742)	46.3 (1.00, 1.00)	46.7 (0.750, 1.00)	47.3 (0.352, 0.790)
Early population V4 (no. of plants)	(0.603)	46.3	47.7 (0.224, 0.742)	46.3 (1.00, 1.00)	46.7 (0.751, 1.00)	47.3 (0.352, 0.790)
Seedling Vigor[d]	(0.255)	7.0	7.0 (1.00, 1.00)	6.0 (0.111, 0.646)	7.3 (0.567, 0.923)	7.0 (1.00, 1.00)
Final population (number of plants)	(0.621)	42.7	45.0 (0.177, 0.742)	43.0 (0.838, 1.00)	44.0 (0.423, 0.803)	43.3 (0.684, 0.956)
Crop Injury – 1st app.[e]	NA[l]	0	0	0	0	0
Crop Injury – 2nd app.[e]	NA	0	0	0	0	0
Crop Injury – 3rd app.[e]	NA	0	0	0	0	0
Crop Injury – 4th app.[e]	NA	0	0	0	0	0
Time to Silking (heat units)[f]	NA	1331.2	1331.2	1357.6	1357.6	1357.6
Time to Pollen Shed (heat units)[f]	(**0.028**[m])	1431.9	1413.6 (0.266, 0.771)	1468.6 (**0.044**[m], 0.471)	1413.6 (0.266, 0.771)	1450.3 (0.266, 0.771)
Pollen Shape 0 minutes (%)[g]	NA	30	30	30	30	30
Pollen Shape 30 minutes (%)	(0.461)	51.7	51.7 (1.00, 1.00)	51.7 (1.00, 1.00)	55.0 (0.153, 0.709)	53.3 (0.452, 0.818)
Pollen Shape 60 minutes (%)	(0.356)	81.7	83.3 (0.368, 0.790)	80.0 (0.368, 0.790)	81.7 (1.00, 1.00)	80.0 (0.368, 0.790)
Pollen Shape 120 minutes (%)	NA	100	100	100	100	100
Pollen Color 0 minutes (%)[h]	(0.519)	26.7	26.7 (1.00, 1.00)	30.0 (0.153, 0.709)	28.3 (0.452, 0.818)	28.3 (0.452, 0.818)
Pollen Color 30 minutes (%)	(**0.001**[m])	55.0	51.7 (**0.033**[m], 0.393)	51.7 (**0.033**[m], 0.393)	60.0 (**0.005**[m], 0.158)	55.0 (1.00, 1.00)

Appendix B Table 2. (Cont.) Agronomic Characteristics for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Control at the IL1 Site

Analyte	Overall Trt. Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Pollen Color 60 minutes (%)	NA	80	80	80	80	80
Pollen Color 120 minutes (%)	NA	100	100	100	100	100
Stalk Lodging (%)	(0.585)	0.7	0.7 (1.00, 1.00)	0 (0.296, 0.790)	0 (0.296, 0.790)	0 (0.296, 0.790)
Root Lodging (%)	(0.302)	2.7	1 (0.387, 0.790)	4.3 (0.387, 0.790)	1 (0.387, 0.790)	0.7 (0.304, 0.790)
Stay Green[i]	(0.183)	6.3	4.3 (0.061, 0.569)	4.3 (0.061, 0.569)	6 (0.726, 0.987)	5.3 (0.308, 0.790)
Disease Incidence[j]	(0.703)	4.7	4 (0.383, 0.790)	4.3 (0.657, 0.934)	4.3 (0.657, 0.934)	5 (0.657, 0.934)
Insect Damage[k]	(0.461)	6.0	6.0 (1.00, 1.00)	6.7 (0.233, 0.742)	5.7 (0.537, 0.909)	6.0 (1.00, 1.00)
Days to Maturity (heat units)[f]	NA	2778	2778	2801.1	2801.1	2808.3
Plant Height (cm)	(0.472)	283	284 (0.704, 0.974)	276 (0.186, 0.742)	282 (0.907, 1.00)	282 (0.930, 1.00)
Ear Height (cm)	(0.130)	122	122 (0.818, 1.00)	115 (**0.042**[m], 0.471)	122 (0.963, 1.00)	119 (0.393, 0.790)

a Overall treatment effect estimated using an F-test.
b Comparison of the sprayed and unsprayed treatments to the control using a t-test.
c P-values adjusted using a False Discovery Rate (FDR) procedure.
d Visual estimate on 1-9 scale; 9 = tall plants with large robust leaves.
e 0-100% scale; with 0 = no injury and 100 = dead plant.
f The number of heat units that have accumulated from the time of planting.
g 0-100% scale; with % pollen grains with collapsed walls.
h 0-100% scale; with % pollen grains with intense yellow color.
i Visual estimate on 1-9 scale with 1 no visible green tissue.
j Visual estimate on 1-9 scale with 1 being poor disease resistance.
k Visual estimate on 1-9 scale with 1 being poor insect resistance.
l NA = statistical analysis not performed since no variability across replicates or treatments.
m Statistical difference indicated by P-Value <0.05.

Appendix B Table 3. Agronomic Characteristics for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Control at the IL2 Site

Analyte	Overall Trt. Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Early population V1 (no. of plants)	(0.151)	35.7	37.0 (0.568, 0.923)	38.3 (0.268, 0.771)	39.0 (0.175, 0.742)	42.0 (**0.022**[m], 0.333)
Early population V4 (no. of plants)	(**0.043**[m])	36.3	38.7 (0.217, 0.742)	38.7 (0.217, 0.742)	41.3 (**0.021**[m], 0.325)	42.7 (**0.007**[m], 0.158)
Seedling Vigor[d]	NA[l]	9	9	9	9	9
Final population (number of plants)	(0.163)	25	25 (0.898, 1.00)	23 (0.528, 0.899)	22 (0.269, 0.771)	29 (0.152, 0.709)
Crop Injury – 1st app.[e]	NA[l]	0	0	0	0	0
Crop Injury – 2nd app.[e]	NA	0	0	0	0	0
Crop Injury – 3rd app.[e]	NA	0	0	0	0	0
Crop Injury – 4th app.[e]	NA	0	0	0	0	0
Time to Silking (heat units)[f]	NA	1228	1228	1228	1228	1228
Time to Pollen Shed (heat units)[f]	(0.188)	1243	1243 (1.00, 1.00)	1243 (1.00, 1.00)	1253 (0.056, 0.561)	1248 (0.296, 0.790)
Pollen Shape 0 minutes (%)[g]	NA	0	0	0	0	0
Pollen Shape 30 minutes (%)	NA	0	0	0	0	0
Pollen Shape 60 minutes (%)	NA	0	0	0	0	0
Pollen Shape 120 minutes (%)	NA	0	0	0	0	0
Pollen Color 0 minutes (%)[h]	NA	5	5	5	5	5
Pollen Color 30 minutes (%)	NA	5	5	5	5	5

Appendix B Table 3. (Cont.) Agronomic Characteristics for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Control at the IL2 Site

Analyte	Overall Trt. Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Pollen Color 60 minutes (%)	NA	7	7	7	7	7
Pollen Color 120 minutes (%)	NA	7	7	7	7	7
Stalk Lodging (%)	NA	30	30	30	30	30
Root Lodging (%)	NA	0	0	0	0	0
Stay Green[i]	NA	8	8	8	8	8
Disease Incidence[j]	NA	7	7	7	7	7
Insect Damage[k]	NA	7	7	7	7	7
Days to Maturity (heat units)[f]	NA	2082	2082	2082	2082	2082
Plant Height (cm)	(0.109)	295.9	297.4 (0.712, 0.979)	294.7 (0.755, 1.00)	285.9 (**0.033**[m], 0.393)	294.9 (0.805, 1.00)
Ear Height (cm)	(0.458)	144.2	142.8 (0.569, 0.923)	144.6 (0.896, 1.00)	140.2 (0.144, 0.709)	142.1 (0.406, 0.790)

a Overall treatment effect estimated using an F-test.
b Comparison of the sprayed and unsprayed treatments to the control using a t-test.
c P-values adjusted using a False Discovery Rate (FDR) procedure.
d Visual estimate on 1-9 scale; 9 = tall plants with large robust leaves.
e 0-100% scale; with 0 = no injury and 100 = dead plant.
f The number of heat units that have accumulated from the time of planting.
g 0-100% scale; with % pollen grains with collapsed walls.
h 0-100% scale; with % pollen grains with intense yellow color.
i Visual estimate on 1-9 scale with 1 no visible green tissue.
j Visual estimate on 1-9 scale with 1 being poor disease resistance.
k Visual estimate on 1-9 scale with 1 being poor insect resistance.
l NA = statistical analysis not performed since no variability across replicates or treatments.
m Statistical difference indicated by P-Value <0.05.

Appendix B Table 4. Agronomic Characteristics for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Control at the IN Site

Analyte	Overall Trt. Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Early population V1 (no. of plants)	(0.580)	41.0	33.0 (0.241, 0.753)	37.7 (0.612, 0.928)	39.3 (0.798, 1.00)	43.3 (0.721, 0.985)
Early population V4 (no. of plants)	(0.580)	41.0	33.0 (0.241, 0.753)	37.7 (0.612, 0.928)	39.3 (0.798, 1.00)	43.3 (0.721, 0.985)
Seedling Vigor[d]	(0.927)	7.5	7.0 (0.573, 0.923)	7.2 (0.705, 0.974)	7.5 (1.00, 1.00)	7.7 (0.849, 1.00)
Final population (number of plants)	(0.596)	40.0	31.0 (0.190, 0.742)	36.7 (0.610, 0.928)	38.3 (0.797, 1.00)	40.3 (0.959, 1.00)
Crop Injury – 1st app.[e]	NA[1]	0	0	0	0	0
Crop Injury – 2nd app.[e]	(0.461)	0	0 (1.00, 1.00)	0 (1.00, 1.00)	0 (1.00, 1.00)	1.7 (0.153, 0.709)
Crop Injury – 3rd app.[e]	NA	0	0	0	0	0
Crop Injury – 4th app.[e]	NA	0	0	0	0	0
Time to Silking (heat units)[f]	(0.461)	1327	1319 (0.233, 0.742)	1327 (1.00, 1.00)	1327 (1.00, 1.00)	1319 (0.233, 0.742)
Time to Pollen Shed (heat units)[f]	(0.461)	1410	1401 (0.233, 0.742)	1410 (1.00, 1.00)	1410 (1.00, 1.00)	1401 (0.233, 0.742)
Pollen Shape 0 minutes (%)[g]	(0.964)	25.0	25.0 (1.00, 1.00)	26.7 (0.646, 0.934)	26.7 (0.646, 0.934)	25.0 (1.00, 1.00)
Pollen Shape 30 minutes (%)	(0.289)	53.3	56.7 (0.233, 0.742)	53.3 (1.00, 1.00)	56.7 (0.233, 0.742)	58.3 (0.089, 0.636)
Pollen Shape 60 minutes (%)	NA	90	90	90	90	90
Pollen Shape 120 minutes (%)	NA	100	100	100	100	100
Pollen Color 0 minutes (%)[h]	(0.140)	26.7	25.0 (0.368, 0.790)	26.7 (1.00, 1.00)	28.3 (0.368, 0.790)	30.0 (0.093, 0.636)

Appendix B Table 4. (Cont.) Agronomic Characteristics for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Control at the IN Site

Analyte	Overall Trt. Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Pollen Color 30 minutes (%)	(0.377)	53.3	58.3 (0.111, 0.646)	56.7 (0.266, 0.771)	53.3 (1.00, 1.00)	55.0 (0.567, 0.923)
Pollen Color 60 minutes (%)	(0.811)	85.0	88.3 (0.323, 0.790)	85.0 (1.00, 1.00)	86.7 (0.612, 0.928)	86.7 (0.612, 0.928)
Pollen Color 120 minutes (%)	NA	100	100	100	100	100
Stalk Lodging (%)	(0.461)	0	0.7 (0.153, 0.709)	0 (1.00, 1.00)	0 (1.00, 1.00)	0 (1.00, 1.00)
Root Lodging (%)	NA	0	0	0	0	0
Stay Green[i]	(0.240)	2.7	3.0 (0.204, 0.742)	2.5 (0.510, 0.881)	2.7 (1.00, 1.00)	3.0 (0.205, 0.742)
Disease Incidence[j]	(0.461)	4.2	4.0 (0.612, 0.928)	3.7 (0.153, 0.709)	3.7 (0.153, 0.709)	4.0 (0.612, 0.928)
Insect Damage[k]	NA	9	9	9	9	9
Days to Maturity (heat units)[f]	(0.461)	2535	2548 (0.132, 0.709)	2535 (1.00, 1.00)	2542 (0.402, 0.790)	2542 (0.402, 0.790)
Plant Height (cm)	(0.952)	277.6	278.8 (0.636, 0.934)	269.8 (0.519, 0.888)	270.5 (0.559, 0.923)	275.1 (0.833, 1.00)
Ear Height (cm)	(0.577)	107.9	107.2 (0.562, 0.923)	101.6 (0.317, 0.790)	111.2 (0.591, 0.928)	105.3 (0.675, 0.952)

a Overall treatment effect estimated using an F-test.
b Comparison of the sprayed and unsprayed treatments to the control using a t-test.
c P-values adjusted using a False Discovery Rate (FDR) procedure.
d Visual estimate on 1-9 scale; 9 = tall plants with large robust leaves.
e 0-100% scale; with 0 = no injury and 100 = dead plant.
f The number of heat units that have accumulated from the time of planting.
g 0-100% scale; with % pollen grains with collapsed walls.
h 0-100% scale; with % pollen grains with intense yellow color.
i Visual estimate on 1-9 scale with 1 no visible green tissue.
j Visual estimate on 1-9 scale with 1 being poor disease resistance.
k Visual estimate on 1-9 scale with 1 being poor insect resistance.
l NA = statistical analysis not performed since no variability across replicates or treatments.

Appendix B Table 5. Agronomic Characteristics for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Control at the NE Site

Analyte	Overall Trt. Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Early population V1 (no. of plants)	(0.179)	44.0	43.3 (0.657, 0.934)	41.0 (0.072, 0.591)	40.7 (0.050, 0.521)	41.7 (0.145, 0.709)
Early population V4 (no. of plants)	(0.173)	43.7	43.3 (0.821, 1.00)	40.7 (0.069, 0.591)	40.7 (0.069, 0.591)	41.3 (0.140, 0.709)
Seedling Vigor[d]	(0.219)	7.7	8.0 (0.368, 0.790)	7.3 (0.368, 0.790)	7.3 (0.368, 0.790)	8.0 (0.368, 0.790)
Final population (number of plants)	(0.074)	43.7	41.3 (0.122, 0.689)	39.3 (**0.012**[m], 0.237)	39.7 (**0.018**[m], 0.296)	41.0 (0.084, 0.636)
Crop Injury – 1st app.[e]	NA[l]	0	0	0	0	0
Crop Injury – 2nd app.[e]	NA	0	0	0	0	0
Crop Injury – 3rd app.[e]	NA	0	0	0	0	0
Crop Injury – 4th app.[e]	NA	0	0	0	0	0
Time to Silking (heat units)[f]	(0.188)	1314	1299 (0.105, 0.636)	1299 (0.105, 0.636)	1314 (1.00, 1.00)	1299 (0.105, 0.636)
Time to Pollen Shed (heat units)[f]	(**<.0001**[m])	1314	1291 (**0.0003**[m], 0.0520)	1314 (1.00, 1.00)	1341 (**0.0001**[m], **0.0346**[m])	1314 (1.00, 1.00)
Pollen Shape 0 minutes (%)[g]	(0.865)	6.7	5.0 (0.406, 0.790)	6.7 (1.00, 1.00)	6.7 (1.00, 1.00)	6.7 (1.00, 1.00)
Pollen Shape 30 minutes (%)	(0.643)	46.7	56.7 (0.172, 0.742)	53.3 (0.347, 0.790)	53.3 (0.347, 0.790)	50.0 (0.631, 0.934)
Pollen Shape 60 minutes (%)	(0.461)	90.0	86.7 (0.369, 0.790)	88.3 (0.646, 0.934)	90.0 (1.00, 1.00)	93.3 (0.368, 0.790)
Pollen Shape 120 minutes (%)	(0.865)	95.7	95.7 (1.00, 1.00)	95.7 (1.00, 1.00)	95.7 (1.00, 1.00)	95.0 (0.406, 0.790)
Pollen Color 0 minutes (%)[h]	(0.364)	10.0	11.7 (0.452, 0.818)	8.3 (0.452, 0.818)	11.7 (0.452, 0.818)	8.3 (0.452, 0.818)

Appendix B Table 5. (Cont.) Agronomic Characteristics for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Control at the NE Site

Analyte	Overall Trt. Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Pollen Color 30 minutes (%)	(0.493)	56.7	63.3 (0.266, 0.771)	53.3 (0.567, 0.923)	60.0 (0.567, 0.923)	56.7 (1.00, 1.00)
Pollen Color 60 minutes (%)	(0.188)	95.0	91.7 (0.105, 0.636)	90.0 (**0.026**[m], 0.351)	91.7 (0.105, 0.636)	91.7 (0.105, 0.636)
Pollen Color 120 minutes (%)	NA	97	97	97	97	97
Stalk Lodging (%)	NA	0	0	0	0	0
Root Lodging (%)	NA	0	0	0	0	0
Stay Green[i]	(0.307)	5.7	6.0 (0.694, 0.966)	5.0 (0.438, 0.818)	4.3 (0.141, 0.709)	4.7 (0.256, 0.771)
Disease Incidence[j]	(0.239)	6.7	7.7 (0.072, 0.591)	7.7 (0.072, 0.591)	7.0 (0.509, 0.881)	7.0 (0.509, 0.881)
Insect Damage[k]	(0.143)	7.0	7.7 (0.233, 0.742)	7.0 (1.00, 1.00)	7.7 (0.233, 0.742)	6.3 (0.233, 0.742)
Days to Maturity (heat units)[f]	NA	2498	2498	2498	2498	2498
Plant Height (cm)	(0.847)	304.8	300.0 (0.412, 0.792)	304.8 (1.00, 1.00)	302.8 (0.847, 0.729)	305.7 (0.885, 1.00)
Ear Height (cm)	(0.711)	124.3	117.2 (0.212, 0.742)	119.2 (0.356, 0.790)	118.3 (0.289, 0.790)	119.5 (0.387, 0.790)

[a] Overall treatment effect estimated using an F-test.
[b] Comparison of the sprayed and unsprayed treatments to the control using a t-test.
[c] P-values adjusted using a False Discovery Rate (FDR) procedure.
[d] Visual estimate on 1-9 scale; 9 = tall plants with large robust leaves.
[e] 0-100% scale; with 0 = no injury and 100 = dead plant.
[f] The number of heat units that have accumulated from the time of planting.
[g] 0-100% scale; with % pollen grains with collapsed walls.
[h] 0-100% scale; with % pollen grains with intense yellow color.
[i] Visual estimate on 1-9 scale with 1 no visible green tissue.
[j] Visual estimate on 1-9 scale with 1 being poor disease resistance.
[k] Visual estimate on 1-9 scale with 1 being poor insect resistance.
[l] NA = statistical analysis not performed since no variability across replicates or treatments.
[m] Statistical difference indicated by P-Value <0.05.

Appendix B Table 6. Agronomic Characteristics for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Control at the ON Site

Analyte	Overall Trt. Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Early population V4 (no. of plants)	(**0.022**[m])	46.0	52.0 (**0.024**[m], 0.337)	53.7 (**0.007**[m], 0.158)	53.7 (**0.007**[m], 0.158)	48.0 (0.379, 0.790)
Seedling Vigor[d]	(0.641)	7.7	6.7 (0.225, 0.742)	7.0 (0.406, 0.790)	7.7 (1.00, 1.00)	7.3 (0.673, 0.952)
Final population (number of plants)	(**0.029**[m])	44.7	51.3 (**0.016**[m], 0.288)	52.7 (**0.007**[m], 0.158)	52.3 (**0.008** [m], 0.168)	48.0 (0.168, 0.742)
Crop Injury – 1st app.[e]	NA[l]	0	0	0	0	0
Crop Injury – 2nd app.[e]	NA	0	0	0	0	0
Crop Injury – 3rd app.[e]	NA	0	0	0	0	0
Crop Injury – 4th app.[e]	NA	0	0	0	0	0
Time to Silking (heat units)[f]	(0.330)	1262.4	1296.0 (0.078, 0.606)	1263.3 (0.958, 1.00)	1276.8 (0.413, 0.792)	1277.7 (0.384, 0.790)
Time to Pollen Shed (heat units)[f]	(0.529)	1281.6	1308.5 (0.138, 0.709)	1284.0 (0.888, 1.00)	1291.2 (0.574, 0.923)	1295.1 (0.434, 0.818)
Pollen Shape 0 minutes (%)[g]	(0.664)	0.3	1.0 (0.341, 0.790)	1.0 (0.341, 0.790)	1.3 (0.167, 0.742)	1.0 (0.341, 0.790)
Pollen Shape 30 minutes (%)	NA	100	100	100	100	100
Pollen Shape 60 minutes (%)	NA	100	100	100	100	100
Pollen Shape 120 minutes (%)	NA	100	100	100	100	100
Pollen Color 0 minutes (%)[h]	(0.664)	0.3	1.0 (0.341, 0.790)	1.0 (0.341, 0.790)	1.3 (0.167, 0.742)	1.0 (0.341, 0.790)
Pollen Color 30 minutes (%)	(0.825)	96.7	96.7 (1.00, 1.00)	98.3 (0.622, 0.934)	98.3 (0.622, 0.934	100.0 (0.335, 0.790)

Appendix B Table 6. (Cont.) Agronomic Characteristics for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Control at the ON Site

Analyte	Overall Trt. Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
Pollen Color 60 minutes (%)	NA	100	100	100	100	100
Pollen Color 120 minutes (%)	NA	100	100	100	100	100
Stalk Lodging (%)	NA	0	0	0	0	0
Root Lodging (%)	NA	0	0	0	0	0
Stay Green[i]	(0.371)	1.3	2.0 (0.118, 0.674)	1.7 (0.406, 0.790)	1.3 (1.00, 1.00)	1.3 (1.00, 1.00)
Disease Incidence[j]	(**0.028**[m])	8.0	7.7 (0.266, 0.771)	7.3 (**0.044**[m], 0.471)	8.0 (1.00, 1.00)	7.0 (**0.007**[m], 0.158)
Insect Damage[k]	NA	8	8	8	8	8
Days to Maturity (heat units)[f]	(1.00)	2200.6	2200.6 (1.00, 1.00)	2200.6 (1.00, 1.00)	2200.6 (1.00, 1.00)	2200.6 (1.00, 1.00)
Plant Height (cm)	(0.489)	312.1	299.5 (0.345, 0.790)	309.4 (0.836, 1.00)	321.2 (0.487, 0.863)	302.3 (0.456, 0.822)
Ear Height (cm)	(0.391)	130.3	120.2 (0.278, 0.790)	119.4 (0.246, 0.762)	125.4 (0.585, 0.928)	112.6 (0.076, 0.606)

[a] Overall treatment effect estimated using an F-test.
[b] Comparison of the sprayed and unsprayed treatments to the control using a t-test.
[c] P-values adjusted using a False Discovery Rate (FDR) procedure.
[d] Visual estimate on 1-9 scale; 9 = tall plants with large robust leaves.
[e] 0-100% scale; with 0 = no injury and 100 = dead plant.
[f] The number of heat units that have accumulated from the time of planting.
[g] 0-100% scale; with % pollen grains with collapsed walls.
[h] 0-100% scale; with % pollen grains with intense yellow color.
[i] Visual estimate on 1-9 scale with 1 no visible green tissue.
[j] Visual estimate on 1-9 scale with 1 being poor disease resistance.
[k] Visual estimate on 1-9 scale with 1 being poor insect resistance.
[l] NA = statistical analysis not performed since no variability across replicates or treatments.
[m] Statistical difference indicated by P-Value <0.05.

Dow Appendix C—Report for Protocol 080137

SUMMARY

(In accordance with 40 CFR part 152, this summary is available
for public release after registration)

STUDY TITLE

Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9

DATA REQUIREMENTS

Not Applicable

AUTHOR(S)

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STUDY COMPLETED ON

29-June-2009

PERFORMING LABORATORY

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LABORATORY STUDY ID

080137

Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9

SUMMARY

Field expression, nutrient composition and agronomic trials of a non-transgenic control and a hybrid corn line containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) were conducted in 2008 at five sites located in the states of Iowa, Illinois (2 sites), Indiana and Nebraska. This report summarizes the expression levels of AAD-1 protein in leaf, pollen, root, forage, whole plant, and grain, plus the results of agronomic determinations, and compositional analysis of forage and grain samples from the control and AAD-1.

The soluble, extractable AAD-1 protein was measured using a quantitative enzyme-linked immunosorbent assay (ELISA) method in corn leaf, pollen, root, forage, whole plant, and grain. Average expression values ranged from 3.12 ng/mg dry weight in R1 stage root to 133.5 ng/mg in pollen tissue. Expression values were similar for the all sprayed treatments as well as for the plots sprayed and unsprayed with 2,4-D and quizalofop herbicides.

Compositional analyses, including proximates, minerals, amino acids, fatty acids, vitamins, anti-nutrients, and secondary metabolites were conducted at Covance Laboratories.

STUDY TITLE

Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9

DATA REQUIREMENTS

Not Applicable

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STUDY COMPLETED ON

29-June-2009

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LABORATORY STUDY ID

080137

STATEMENT OF NO DATA CONFIDENTIALITY CLAIMS

Compound: AAD-1 Corn

Title: Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9

No claim of confidentiality, on any basis whatsoever, is made for any information contained in this document. I acknowledge that information not designated as within the scope of FIFRA sec. 10(d)(1)(A), (B), or (C) and which pertains to a registered or previously registered pesticide is not entitled to confidential treatment and may be released to the public, subject to the provisions regarding disclosure to multinational entities under FIFRA sec. 10(g).

Company: Dow AgroSciences LLC

Company Agent: L. A. Tagliani

Title: Regulatory Manager

Signature: L. A. Tagliani

Date: 19-Jun-2009

*In the United States, the above statement supersedes all other statements of confidentiality that may occur elsewhere in this report.

THIS DATA MAY BE CONSIDERED CONFIDENTIAL IN COUNTRIES OUTSIDE THE UNITED STATES.

STATEMENT OF COMPLIANCE WITH GOOD LABORATORY PRACTICE STANDARDS

Title: Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9

Study Initiation Date: 19-May-2008

This report represents data generated after the effective date of the EPA FIFRA Good Laboratory Practice Standards.

United States Environmental Protection Agency
Title 40 Code of Federal Regulations Part 160
FEDERAL REGISTER, August 17, 1989

Organisation for Economic Co-Operation and Development
ENV/MC/CHEM(98)17, Paris January 26, 1998

All aspects of this study were conducted in accordance with the requirements for Good Laboratory Practice Standards, 40 CFR 160, except for the following: at some sites documentation is incomplete by GLP standards for climatological data, irrigation data, field history, pesticide maintenance, sample weights, soil property and crop information. The test substance was not characterized according to GLP. The statistical analysis of the data was conducted using SAS software, version 9.1, which was not validated according to GLP. In addition, GLP compliance exceptions are listed on page 3 of the Covance composition report.

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29-June-2009
Study Completion Date

Dow AgroSciences Quality Assurance Unit
Good Laboratory Practice Statement Page

Study ID: 080137

Title: Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD1) - Event DAS-40278-9

Study Initiation Date: 19-May-2008 **Study Completion Date:** 29-Jun-2009

GLP Quality Assurance Inspections

Date of GLP Inspection(s)	Date Reported to the Study Director and to Management	Phases of the Study which received a GLP Inspection by the Quality Assurance Unit
16-May-2008	19-May-2008	Protocol Review
13-Jun-2008	4-Sep-2008	Planting (080137/NE, Ag Research Associates)
17-Jun-2008	20-Jun-2008	V2-V4 Leaf sample event from Block 1 (expression) (080137IA, BARC)
23-Jun-2008	21-Jul-2008	Sampling (080137IN, Alvey Ag. Research)
30-Jun-2008	3-Jul-2008	Sampling (080137IL1, Alvey Ag. Research)
30-Jun-2008	3-Jul-2008	Sampling (080137IL2, Alvey Ag. Research)
8-Aug-2008	9-Oct-2008	In-Progress Inspection report; Expression Samples - R1 (080137NE, Ag Research Associates)
3-Sep-2008	11-Sep-2008	R4 forage expression, composition and residue sample events (080137IA, BARC)
16-Dec-2008	16-Dec-2008	ELISA Analysis of Root and Grain Samples from 080137NE Trial
12-Dec-2008	16-Dec-2008	Final Data Audit (080137IL2, Alvey Ag. Research)
7-Dec-2008	12-Dec-2008	Field trial notebook, supporting data and Excel spreadsheet (080137IA, BARC)
19-Dec-2008	19-Dec-2008	Final Book Review (080137IL1, Alvey Ag Research)
7-Feb-2009	10-Feb-2009	Final Data Audit (080137IN, Alvey Ag. Research)

22, 23, 24-Jun-09	29-Jun-09	Report and Raw Data Review; Test Substance Container and Sample Verification

AUDITS CONDUCTED BY COVANCE ARE TO BE FOUND IN APPENDIX D, COVANCE SUB-REPORT PAGE 64

QUALITY ASSURANCE STATEMENT:

The Quality Assurance Unit has reviewed the final study report and has determined that the report reflects the raw data generated during the conduct of this study.

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29. Jun. 2009
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STUDY PERSONNEL

Title: Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9

Principle Field Investigators:

Site ID	Facility
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080137IL1	Tim Boeker Alvey Ag Research Carlyle, IL
080137IL2	Justin Pollard Alvey Ag Research Wyoming, IL
080137IN	John Bailey Alvey Ag Research Rockville, IN
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Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9

ABSTRACT

Field expression, agronomics and composition trials of a non-transgenic control and a hybrid corn line containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) were conducted in 2008 at five sites located in the states of Iowa, Illinois (2 sites), Indiana and Nebraska. This report summarizes the expression levels of AAD-1 protein in leaf, pollen, root, forage, whole plant, and grain, plus the results of agronomic determinations, and compositional analysis of forage and grain samples from the control and AAD-1.

The soluble, extractable AAD-1 protein was measured using a quantitative enzyme-linked immunosorbent assay (ELISA) method in corn leaf, pollen, root, forage, whole plant, and grain. Average expression values ranged from 3.12 ng/mg dry weight in R1 stage root to 133.5 ng/mg in pollen tissue. Expression values were similar for the all sprayed treatments as well as for the plots sprayed and unsprayed with 2,4-D and quizalofop herbicides.

Compositional analyses, including proximates, minerals, amino acids, fatty acids, vitamins, anti-nutrients, and secondary metabolites were conducted at Covance Laboratories.

INTRODUCTION

Corn has been modified by the insertion of the *aad*-1 gene from *Sphingobium herbicidovorans* which encodes the aryloxyalkanoate dioxygenase (AAD-1) protein. The trait confers tolerance to 2,4-dichlorophenoxyacetic acid and aryloxyphenoxypropionate (commonly referred to as "fop" herbicides such as quizalofop) herbicides and may be used as a selectable marker during plant transformation and in breeding nurseries. Transformation of corn with a linear DNA fragment from the plasmid pDAS1740 was carried forward, through breeding, to produce event DAS-40278-9, which is the focus of this study.

The purpose of this study was to determine the levels of AAD-1 protein found in corn tissues. In addition, compositional analysis was performed on corn forage and grain from isogenic non-transformed corn line and the transgenic corn line DAS-40278-9 (unsprayed, sprayed with 2,4-D, sprayed with quizalofop, and sprayed with 2,4-D and quizalofop). Agronomic characteristics of the isogenic non-transformed corn line and the DAS-40278-9 corn were also determined.

Field expression, composition, and agronomic trials were conducted at five test sites located within the major corn-producing regions of the U.S. These sites represent regions of diverse agronomic practices and environmental conditions. The trials were located in Iowa, Illinois (2 sites), Indiana and Nebraska. Study amendments and deviations are listed in Appendix A, Table 1 of this report.

EXPERIMENTAL

Test Substances

The test substance was hybrid seed containing the DAS-40278-9 event. The hybrid seed, ZQ07LQ570715, was made from a cross between near converted DAS-40278-9 event inbred (BC3S1) and another Dow AgroSciences parental inbred. The BC3S1 inbred seed was produced by backcrossing event DAS-40278-9 for 3 generations with inbred line XHH13 followed by one generation of self pollination (BC3S1). The test substance and treatments are listed in the table below.

Test Entry	ID Numbers	Description
2	ZQ07LQ570715	AAD-1 unsprayed
3	ZQ07LQ570715	AAD-1 sprayed w/ quizalofop
4	ZQ07LQ570715	AAD-1 sprayed w/ 2,4-D
5	ZQ07LQ570715	AAD-1 sprayed w/ 2,4-D and quizalofop

Control Substance

The control substance was conventional hybrid seed of the same genetic background as the test substance line, but it did not contain the DAS-40278-9 event. The control substance used for this study is listed in the table below.

Test Entry	ID Number	Description
1	ZQ07LQ573115	Non-AAD-1 Control

Test System

The test system for this study was corn plants produced from the genetically modified and control corn seed grown at locations within the major corn growing regions of the U.S. The five field testing facilities, Richland, IA; Carlyle, IL; Wyoming, IL; Rockville, IN; and York, NE (referred to as IA, IL1, IL2, IN, and NE) represent regions of diverse agronomic practices and environmental conditions for corn (Appendix B, Table 1). An additional site was planted in Denton, TX but was not used in this study since the site was planted late and did not mature due to high temperatures.

The test and control corn seed was planted at a seeding rate of approximately 24 seeds per row with seed spacing within each row of approximately 10 inches (25 cm). At each site, 4 replicate plots of each treatment were established, with each plot consisting of 2-25 ft rows. Plots were arranged in a randomized complete block (RCB) design, with a unique randomization at each site. Each corn plot was bordered by 2 rows of a non-transgenic maize hybrid of similar maturity. The entire trial site was surrounded by a minimum of 12 rows (or 30 ft) of a non-transgenic maize hybrid of similar relative maturity.

Appropriate insect, weed, and disease control practices were applied to produce an agronomical acceptable crop. Appendix B, Table 2 lists the maintenance chemicals used at each site. Average monthly maximum and minimum temperatures along with rainfall and irrigation are shown in Appendix B, Table 3. During the field portion of this study, temperatures and rainfall were in the ranges typically encountered in corn production.

Herbicide Applications

Herbicide treatments were applied with a spray volume of approximately 20 gallons per acre (187 L/ha). These applications were designed to replicate maximum label rate commercial practices.

Herbicide	TSN	Concentration
Weedar 64	026491-0006	39%, 3.76 lb ae[a] /gal, 451 g ae/l
Assure II	106155	10.2%, 0.87 lb ai[b] /gal, 104 g ai/l

[a] ae = acid equivalent.
[b] ai = active ingredient.

2,4-D (Weedar 64) was applied as 3 broadcast over-the-top applications to Test Entries 4 and 5 (seasonal total of 3 lb ae/A). Individual applications were at pre-emergence and approximately V4 and V8 –V8.5 stages. Individual target application rates were 1.0 lb ae/A for Weedar 64, or 1120 g ae/ha. Actual application rates ranged from 1093 – 1158 g ae/A (Appendix B Table 4).

Quizalofop (Assure II) was applied as a single broadcast over-the-top application to Test Entries 3 and 5. Application timing was at approximately V6 growth stage. The target application rate was 0.0825 lb ai/A for Assure II, or 92 g ai/ha. Actual application rates ranged from 90.8 – 103 g ai/ha (Appendix B Table 4).

Agronomic Data Collection

Agronomic characteristics were recorded for all test entries within Blocks 2, 3, and 4 at each location. The following characteristics were measured:

Trait	Evaluation Timing	Description of Data
Early Population	V1 and V4	Number of plants emerged per plot.
Seedling Vigor	V4	Visual estimate of average vigor of emerged plants per plot
Plant Vigor/Injury	Approximately 1-2 weeks after applications	Injury from herbicide applications.
Time to Silking	Approximately 50% silking	The number of accumulated heat units from the time of planting until approximately 50% of the plants have emerged silks.
Time to Pollen Shed	Approximately 50% pollen shed	The number of accumulated heat units from the time of planting until approximately 50% of the plants are shedding pollen
Pollen Viability	Approximately 50% pollen shed	Evaluation of pollen color and shape over time
Plant Height	Approximately R6	Height to the tip of the tassel
Ear Height	Approximately R6	Height to the base of the primary ear
Stalk Lodging	Approximately R6	Visual estimate of percent of plants in the plot with stalks broken below the primary ear
Root Lodging	Approximately R6	Visual estimate of percent of plants in the plot leaning approximately 30º or more in the first ~1/2 meter above the soil surface
Final Population	Approximately R6	The number of plants remaining per plot
Days to Maturity	Approximately R6	The number of accumulated heat units from the time of planting until approximately 50% of the plants have reached physiological maturity.
Stay Green	Approximately R6	Overall plant health
Disease Incidence	Approximately R6	Visual estimate of foliar disease incidence
Insect Damage	Approximately R6	Visual estimate of insect damage

Heat Unit = ((MAX temp + MIN temp) / 2) – 50°F

Sample Collection

Samples for expression and composition analysis were collected as per the following table (for sampling dates for each site, see Appendix B, Table 5). Samples of forage, stover and grain were also collected for residue analysis and will be reported in a separate report. All samples were placed into a freezer or on dry ice within 30 minutes of collection.

Block	Tissue	Approx. Growth Stage[a]	Sample Size	Samples per Entry Control Entry 1	Samples per Entry Test Entries 2-5
1 (expression)	Leaf	V2-4	3 leaves	3	3
	Leaf	V9	3 leaves	3	3
	Pollen[b]	R1	1 plant	3	3
	Root[b]	R1	1 plant	3	3
	Leaf[b]	R1	1 leaf	3	3
	Forage	R4	2 plants[c]	3	3
	Whole Plant	R6	2 plants[c]	3	3
	Grain	R6-Maturity	1 ear	3	3
Block	**Tissue**	**Growth Stage[a]**	**Sample Size**	**Control Entry 1**	**Test Entries 2-5**
2 – 4 (composition)	Forage	R4	3 plants[c]	1	1
	Grain	R6-Maturity	5 ears	1	1

[a] Approximate growth stage.
[b] The pollen, root, and leaf samples collected at R1 collected from the same plant.
[c] Two plants chopped, combined and sub-sampled for expression, or 3 plants for composition.

Field Sample Storage, Shipping and Processing

Each sample was assigned a unique number that was used for identification and tracking. Samples were grouped together according to matrix, treatment number, and site (sample group number or SGN). All samples were shipped frozen to Dow AgroSciences by overnight shipping.

Appendix B, Table 6 contains sample identifiers along with dates of sampling, shipping, and receipt of samples at Dow AgroSciences (DAS).

Upon receipt at Dow AgroSciences, samples were inspected for physical condition and were found to be either cold or frozen and in good condition. Samples were logged into the computerized Regulatory Laboratories Information Management System (RLIMS). All expression samples were stored in temperature-monitored freezers at approximately -80 °C, being removed only for required sample preparation and analysis. Composition samples were stored at approximately -20 °C at Dow AgroSciences, until frozen shipment to Covance Laboratories, Madison, WI.

Samples of corn tissues were prepared for expression analysis by coarse grinding, lyophilizing and fine-grinding (if necessary) with a Geno/Grinder (Certiprep, Metuchen, New Jersey). No additional preparation was required for pollen.

Analytical Standards for Expression Analysis

The analytical standard used for calibration curves during expression analysis was AAD-1 microbial protein, TSN 105930, 0.1805 mg/mL (1).

Determination of AAD-1 Protein in Corn Samples

Samples of corn were analyzed for the amount of AAD-1 protein using the Dow AgroSciences validated method 07.19 (2). In this method, the soluble extractable AAD-1 protein is quantified using an enzyme-linked immunosorbent assay (ELISA) kit purchased from Beacon Analytical System, Inc.

In the analytical method, the AAD-1 protein was extracted from corn tissues with a phosphate buffered saline solution containing the detergent Tween-20 (PBST) containing 0.5% Bovine

Serum Albumin (BSA). For pollen, the protein was extracted with a 0.5% PBST/BSA buffer containing 1 mg/mL of sodium ascorbate and 2% protease inhibitor cocktail. The plant tissue and pollen extracts were centrifuged; the aqueous supernatant was collected, diluted with appropriate buffer if necessary, and analyzed using an AAD-1 ELISA kit in a sandwich format. The kit used the following steps. An aliquot of the diluted sample and a biotinylated anti-AAD-1 monoclonal antibody are incubated in the wells of a microtiter plate coated with an immobilized anti-AAD-1 monoclonal antibody. These antibodies bind with AAD-1 protein in the wells and form a "sandwich" with AAD-1 protein bound between soluble and the immobilized antibody. The unbound samples and conjugate are then removed from the plate by washing with PBST. An excess amount of streptavidin-enzyme (alkaline phosphatase) conjugate is added to the wells for incubation. At the end of the incubation period, the unbound reagents were removed from the plate by washing. Subsequent addition of an enzyme substrate generated a colored product. Since the AAD-1 was bound in the antibody sandwich, the level of color development was related to the concentration of AAD-1 in the sample (i.e., lower residue concentrations result in lower color development). The absorbance at 405 nm was measured using a Molecular Devices V-max or Spectra Max 190 plate reader. A calibration curve was generated and the AAD-1 concentration in unknown samples was calculated from the polynomial regression equation using Soft-MAX Pro™ software which was compatible with the plate reader. Samples were analyzed in duplicate wells with the average concentration of the duplicate wells being reported.

Limit of Detection/Quantitation for Corn Samples

The limit of detection (LOD) and limit of quantitation (LOQ) for corn tissues were determined during the method validation for the method described above. Samples were reported as not detectable (ND) if the absorbance was less than the lowest standard absorbance at the minimum matrix dilution. Reported sample concentrations that are less than the method LOQ values (shown in table below) have lower precision than results reported above the LOQ values (3).

Matrix	LOD[a]	LOQ
Leaf	0.2	0.4
Root	0.2	0.4
Pollen	0.2	0.4
Forage	0.2	0.4
Grain	0.2	0.4
Whole plant	0.2	0.4

[a] Units of ng protein/mg sample weight.

Compositional Analysis

Samples of corn forage and grain were analyzed at Covance Laboratories Inc. for nutrient content with a variety of tests. The analyses performed for forage included ash, total fat, moisture, protein, carbohydrate, crude fiber, acid detergent fiber, neutral detergent fiber, calcium and phosphorus. The analyses performed for grain included proximates (ash, total fat, moisture, protein, carbohydrate, crude fiber, acid detergent fiber, neutral detergent fiber), minerals, amino acids, fatty acids, vitamins, secondary metabolites and anti-nutrients.

Statistical Treatment

For the agronomic, expression and composition data, mean calculations, standard deviations, and regression analysis were performed. Acceptance criteria of the calibration curves for each ELISA plate was detailed in the analytical method report for the method described above.

RESULTS AND DISCUSSION

Agronomic Results

Agronomic data was collected from the control, AAD-1 unsprayed, AAD-1 sprayed with 2,4-D, AAD-1 sprayed with quizalofop, and AAD-1 sprayed with both 2,4-D and quizalofop. Mean results of each determination across all sites can be found in Table 1.

Expression Analysis Results

The corn matrices of leaf (V2-V4, V9 and R1), root (R1), pollen, forage, whole plant (R6) and grain were analyzed for expression levels of AAD-1 protein. Protein concentrations in the matrices (ng /mg) are expressed on a dry tissue weight basis. The AAD-1 protein concentration was reported as not detected (ND) if the sample absorbance was less than the lowest calibration standard absorbance at the lowest matrix dilution.

A summary of the AAD-1 protein concentrations (averaged across sites) in the various corn matrices is shown in Table 2. AAD-1 average protein concentration ranged from 3.12 ng/mg dry weight in R1 stage root to 133.5 ng/mg in pollen. Expression results for the unsprayed and sprayed plots were similar. The AAD-1 protein was not detected in any control samples, with the exception of one control root sample from the IN site. Results for individual samples can be found in Appendix C, Tables 1-8.

Composition Analysis Results

A summary of the composition analysis results for each individual sample can be found in the Covance analytical sub-report in Appendix D.

ARCHIVING

The final report and all raw data (including verified and signed copies) associated with this study will be filed in the Dow AgroSciences facility archives, Indianapolis, Indiana upon issuing the final report.

REFERENCES

1. AAD-1 Protein Standard TSN 105930 Certificate of Analysis, 2009, unpublished data of Dow AgroSciences.

2. Shan, G., Tyler, D., "Determination of AAD-1 Protein in Maize Tissues by Enzyme-Linked Immunosorbent Assay", GRM 07.19, unpublished method of Dow AgroSciences LLC.

3. Keith, L. H.; Crummett, W.; Deegan, J., Jr.; Libby, R. A.; Taylor, J. K.; Wentler, G., Principles of Environmental Analysis, *Anal. Chem.* **1983**, *55*, 2210-2218.

Table 1. Summary of Agronomic Characteristics Results Across Locations for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Non-Transgenic Control.

Analyte[a]	Control	Unsprayed	Sprayed Quizalofop	Sprayed 2,4-D	Sprayed Both
Early population V1 (number of plants)	42.8	41.3	41.7	41.9	44.1
Early population V4 (number of plants)	42.5	41.6	41.7	42.5	44.2
Seedling Vigor[b]	7.70	7.53	7.43	7.57	7.87
Final population (number of plants)	39.1	37.2	37.1	37.5	39.7
Crop Injury – 1st app.[c]	0	0	0	0	0
Crop Injury – 2nd app.[c]	0	0	0	0	0.3
Crop Injury – 3rd app.[c]	0	0	0	0	0
Crop Injury – 4th app.[c]	0	0	0	0	0
Time to Silking (heat units)[d]	1296	1290	1299	1309	1304
Time to Pollen Shed (heat units)[d]	1347	1335	1354	1358	1357
Pollen Shape 0 minutes (%)[e]	13.1	12.9	13.4	13.5	13.3
Pollen Shape 30 minutes (%)	39.0	41.0	35.7	37.7	42.3
Pollen Shape 60 minutes (%)	69.3	69.7	68.3	68.7	70.0
Pollen Shape 120 minutes (%)	79.1	79.1	79.1	79.1	79.0
Pollen Color 0 minutes (%)[f]	14.7	14.9	15.0	15.7	15.6
Pollen Color 30 minutes (%)	43.0	43.7	39.0	40.7	44.3

Table 1. (Cont.) Summary of Agronomic Characteristics Results Across Locations for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Non-Transgenic Control.

Analyte[a]	Control	Unsprayed	Sprayed Quizalofop	Sprayed 2,4-D	Sprayed Both
Pollen Color 60 minutes (%)	70.4	71.1	69.1	69.1	71.1
Pollen Color 120 minutes (%)	80.8	80.8	80.8	80.8	80.8
Stalk Lodging (%)	6.13	6.27	6.00	6.00	6.00
Root Lodging (%)	0.53	0.20	0.87	0.20	0.13
Stay Green[g]	5.33	4.73	4.37	4.73	4.67
Disease Incidence[h]	6.10	5.93	5.93	5.80	6.00
Insect Damage[i]	7.60	7.73	7.73	7.67	7.47
Days to Maturity (heat units)[d]	2453	2456	2458	2459	2461
Plant Height (cm)	291	290	287	286	289
Ear Height (cm)	122	121	118	120	119

[a] Average of 3 determinations for each treatment.
[b] Visual estimate on 1-9 scale; 9 = tall plants with large robust leaves.
[c] 0-100% scale; with 0 = no injury and 100 = dead plant.
[d] The number of heat units that have accumulated from the time of planting.
[e] 0-100% scale; with % pollen grains with collapsed walls.
[f] 0-100% scale; with % pollen grains with intense yellow color.
[g] Visual estimate on 1-9 scale with 1 no visible green tissue.
[h] Visual estimate on 1-9 scale with 1 being poor disease resistance.
[i] Visual estimate on 1-9 scale with 1 being poor insect resistance.

Table 2. Summary of Mean Concentration Levels of AAD-1 Protein Measured in the AAD-1 Unsprayed, AAD-1 + Quizalofop, AAD-1 + 2,4-D and AAD-1 + Quizalofop and 2,4-D in Maize Tissues

Corn Tissue	Treatment	AAD-1 ng/mg Tissue Dry Weight		
		Mean	Std. Dev.	Range
V2-V4 Leaf	AAD-1 Unsprayed	13.9	8.67	1.98-29.9
	AAD-1 + Quizalofop	13.6	7.53	4.75-24.5
	AAD-1 + 2,4-D	15.1	7.52	4.98-26.8
	AAD-1 + Quizalofop and 2,4-D	13.2	7.38	4.07-22.5
V9 Leaf	AAD-1 Unsprayed	5.62	2.58	2.67-10.9
	AAD-1 + Quizalofop	5.08	1.84	2.52-9.15
	AAD-1 + 2,4-D	6.25	2.62	3.03-10.9
	AAD-1 + Quizalofop and 2,4-D	6.34	2.58	3.11-11.1
R1 Leaf	AAD-1 Unsprayed	5.82	1.72	3.47-9.34
	AAD-1 + Quizalofop	5.56	1.72	2.70-7.78
	AAD-1 + 2,4-D	5.87	2.06	2.40-9.42
	AAD-1 + Quizalofop and 2,4-D	6.30	2.42	1.55-10.2
Pollen	AAD-1 Unsprayed	133.5	32.8	93.3-210.0
	AAD-1 + Quizalofop	120.2	18.1	94.4-145.9
	AAD-1 + 2,4-D	117.3	24.0	50.5-137.4
	AAD-1 + Quizalofop and 2,4-D	112.1	36.6	45.4-161.8
R1 Root	AAD-1 Unsprayed	3.22	1.91	0.42-6.10
	AAD-1 + Quizalofop	3.33	1.85	0.56-6.06
	AAD-1 + 2,4-D	4.45	1.79	0.91-7.62
	AAD-1 + Quizalofop and 2,4-D	3.12	1.17	1.09-5.56
R4 Forage	AAD-1 Unsprayed	6.79	2.96	2.37-12.1
	AAD-1 + Quizalofop	7.28	2.99	3.05-11.6
	AAD-1 + 2,4-D	7.09	2.63	2.36-10.6
	AAD-1 + Quizalofop and 2,4-D	6.55	2.43	2.25-10.3
Whole plant	AAD-1 Unsprayed	4.81	2.68	0.78-8.88
	AAD-1 + Quizalofop	4.54	2.42	0.75-8.77
	AAD-1 + 2,4-D	5.08	2.77	0.83-10.2
	AAD-1 + Quizalofop and 2,4-D	4.63	1.91	1.30-8.21
Grain	AAD-1 Unsprayed	4.65	1.32	2.66-6.96
	AAD-1 + Quizalofop	4.39	1.50	1.07-6.72
	AAD-1 + 2,4-D	4.72	1.66	2.94-9.10
	AAD-1 + Quizalofop and 2,4-D	4.52	1.77	1.81-7.49

Appendix A—Study Protocol Amendments and Deviations

Appendix A. Table 1. Study Amendments and Deviations.

Protocol Amendments	**Description**
1	Document that a different TSN supply of Weedar 64 was used for the study.
2	Additional USDA notification numbers were added to protocol.
3	Assay results of Weedar were added to the protocol. USDA notifications updated in the protocol.
4	Analytical details for protein expression analysis were added to protocol.
5	Due to poor growing conditions, TX site did not mature and will be removed from the study.
6	Analytical details for compositional analysis were added to the protocol.
7	Additional details for compositional analysis were added to the protocol.
8	Analytical details for residue analysis were added to the protocol.
9	Additional details for compositional analysis were added to the protocol.
10	Documented a change to the principal investigator at Covance.
11	Documents that residue analysis for quizalofop will be performed at Dow AgroSciences, Indianapolis.
12	Documents that residue analysis will be reported in a separate non-GLP report.

Protocol Deviations	
1	Some samples were received at DAS and lyophilized prior to documentation of sample preparation details.
2	At IA, IL1, IN and NE sites, another DAS regulated trial was placed adjacent to this trial. In these cases a minimum of a 4 row border was placed between trials, with 12 border rows surrounding the entire trial area. Also, moisture content of grain collected for compositional analysis was changed to <25%.

Field Site Deviations	
080137NE	Field book was not returned to the study director within approximately 6 weeks of the last sample shipment.

Appendix B—Field Information

Appendix B Table 1. Field Site Information

Site	Field Investigator	Site Location	Soil Type
080137IA	David Bennett, Bennett Agricultural Research Corp.	Jefferson County Richland, IA	Taintor Silty Clay Loam
080137IL1	Tim Boeker, Alvey Ag Research	Clinton County Carlyle, IL	Hoyleton Darmstadt Silt Loam
080137IL2	Justin Pollard, Alvey Ag Research	Stark County, Wyoming, IL	Elburn Silt Loam
080137IN	John Bailey, Alvey Ag Research	Parke County Rockville, IN	Ragsdale Silty Loam
080137NE	Matt Krause, Ag Research Associates	York County York, NE	Hasting Silt Loam
080137TX[a]	Tim Case, Ag Research Associates	Denton, TX	

[a] Due to poor growing conditions (extreme heat causing stunting and poor pollination, followed by flooding), the crop did not mature properly and this site was removed from the study.

Appendix B Table 2. Maintenance Chemical Use

Site	Chemical	Date	Rate	Units	Purpose
IA	Degree Xtra	2-Jun-08	3.5	Qt/A	Herbicide
	Atrazine	2-Jun-08	0.75	Lb/A	Herbicide
	Force 3G	2-Jun-08	4.4	Lb/A	Insecticide
	Nitrogen	21-Jan-08	8	Lb/A	Fertilizer
	P_2O_5	21-Jan-08	40	Lb/A	Fertilizer
	K_2O	21-Jan-08	150	Lb/A	Fertilizer
	32% UAN	2-Jun-08	155	Lb/A	Fertilizer
IL1	Bicep	11-Jun-08	2.2	Qt/A	Herbicide
	Warrior	11-Jun-08	3.0	Oz/A	Insecticide
	Gramoxone	11-Jun-08	1.0	Pt/A	Herbicide
	34-0-0	29-Apr-08	450	Lb/A	Fertilizer
IL2	28% UAN	28-May-08	70	Gal/A	Fertilizer
	Force 3G	12-Jun-08	4.4	Lb/A	Insecticide
	Lexar	15-Jun-08	3.5	Qt/A	Herbicide
	Warrior	24-Jul-08	3.2	Oz/A	Insecticide
IN	Bicep II Magnum	6-Jun-08	2	Qt/A	Herbicide
	82-0-0	5-May-08	200	Lb/A	Fertilizer
	9-23-30	5-May-08	200	Lb/A	Fertilizer
NE	34-0-0	15-May-08	441	Lb/A	Fertilizer
	Lexar SL	14-Jun-08	2.78	Lb/A	Herbicide
	Buccaneer	14-Jun-08	1.00	Lb/A	Herbicide

Appendix B Table 3. Climatological Data

Site	Month 2008	Temperature, °F Max	Temperature, °F Min	Historical Temp.,°F[a] Max	Historical Temp.,°F[a] Min	Rainfall inches	Irrig. inches	Hist. Rainfall,[a] inches
IA	June	80.9	61.4	81.6	60.8	9.28	0	4.92
	July	83.4	64.6	87.2	66.0	8.40	0	3.31
	August	81.9	60.6	85.3	63.8	3.95	0	4.61
	Sept.	74.8	54.1	78.3	52.5	6.71	0	2.67
	Oct.	63.8	40.7	65.2	43.0	1.74	0	3.77
IL1	June	85.4	66.1	82.4	63.6	5.3	0	4.99
	July	86.9	66.8	86.7	68.3	6.5	0	4.15
	August	85.3	63.3	86.1	66.6	1.6	0	3.44
	Sept.	79.3	58.1	81.0	58.5	5.1	0	3.03
	October	68.3	45.3	68.0	46.7	3.2	0	3.38
	November	50.9	33.7	55.8	37.1	1.7	0	3.52
IL2	June	82.1	59.3	81.4	61.4	3.16	0	3.33
	July	83.8	59.8	86.0	66.2	5.12	0	2.84
	August	82.2	55.8	84.1	64.8	1.71	0	3.46
	Sept.	76.7	52.4	78.6	55.7	9.79	0	2.1
	October	63.9	38.2	65.0	44.4	1.80	0	2.47
	November	47.3	28.3	52.5	34.4	1.15	0	2.53
IN	May	68.2	48.6	74.6	52.2	5.67	0	4.86
	June	83.0	63.1	81.8	60.4	9.27	0	5.00
	July	83.3	63.8	84.0	63.6	6.84	0	4.67
	August	82.1	59.5	84.4	62.7	1.13	0	3.79
	Sept.	79.4	56.1	79.8	54.0	4.57	0	3.32
	October	66.8	42.8	66.2	43.4	1.87	0	3.95
NE	June	84	59	83	61	6.19	0.5	3.57
	July	89	64	89	67	3.32	2.0	2.80
	August	86	59	87	65	0.14	2.8	3.05
	Sept.	79	50	80	54	5.79	0	2.10
	October	67	39	67	42	8.12	0	1.78
	Nov.	66	33	53	30	1.55	0	1.21

[a] Historical data is 10 year averages for IA, IL1, IL2, IN and NE.

Appendix B Table 4. Herbicide Application Rate and Timing

Site Code	Herbicide	Application No.	Rate of Application g ae/ha[a]	Date	Approx. Crop Stage
IA	Weedar 64	1	1136	05-Jun-08	Preemergence
	Weedar 64	2	1120	23-Jun-08	V4
	Assure II	3	92.7	01-Jul-08	V6
	Weedar 64	4	1111	08-Jul-08	V8.5
IL1	Weedar 64	1	1129	12-Jun-08	Preemergence
	Weedar 64	2	1136	01-Jul-08	V4
	Assure II	3	90.8	09-Jul-08	V6
	Weedar 64	4	1101	17-Jul-08	V8
IL2	Weedar 64	1	1096, 1143[b]	15-Jun-08	Preemergence
	Weedar 64	2	1109, 1136	30-Jun-08	V4
	Assure II	3	90.9, 92.6	09-Jul-08	V6
	Weedar 64	4	1127, 1135	14-Jul-08	V8
IN	Weedar 64	1	1153, 1143[b]	29-May-09	Preemergence
	Weedar 64	2	1132, 1151	24-Jun-08	V4
	Assure II	3	96.0, 93.1	01-Jul-08	V6
	Weedar 64	4	1158, 1142	11-Jul-08	V8
NE	Weedar 64	1	1108, 1103[b]	16-Jun-08	Preemergence
	Weedar 64	2	1093, 1114	03-Jul-08	V4
	Assure II	3	93.7, 94.5	10-Jul-08	V6
	Weedar 64	4	1134, 1143	19-Jul-08	V8

[a] For Weedar 64 - Target application of 1120 g ae/ha. For Assure – Target application of 92 g ai/ha.

[b] Reported individually for Entries 4 and 5 for Weedar 64, and Entries 3 and 5 for Assure II.

Appendix B Table 5. Sampling Information

Site	Planting Date	Sampling Date	DAP[a]	Commodity
IA	02-Jun-08	17-Jun-08	15	V2-4 Leaf
		09-Jul-08	37	V9 Leaf
		03-Aug-08	62	Pollen
		03-Aug-08	62	R1 Root
		03-Aug-08	62	R1 Leaf
		03-Sep-08	93	R4 Forage
		29-Oct-08	149	R6 Whole plant
		29-Oct-08	149	Grain
		03-Sep-08	93	Comp Forage
		29-Oct-08	149	Comp Grain
		03-Sep-08	93	Residue Forage
		29-Oct-08	149	Residue Grain
		29-Oct-08	149	Residue Stover
IL1	11-Jun-08	30-Jun-08	19	V2-4 Leaf
		23-Jul-08	42	V9 Leaf
		5-Aug-08[b]	55	Pollen
		5-Aug-08[b]	55	R1 Root
		5-Aug-08[b]	55	R1 Leaf
		10-Sep-08	91	R4 Forage
		10-Nov-08	152	R6 Whole plant
		10-Nov-08	152	Grain
		10-Sep-08	91	Comp Forage
		10-Nov-08	152	Comp Grain
		10-Sep-08	91	Residue Forage
		10-Nov-08	152	Residue Grain
		10-Nov-08	152	Residue Stover
IL2	12-Jun-08	30-Jun-08	18	V2-4 Leaf
		17-Jul-08	35	V9 Leaf
		11-Aug-08	60	Pollen
		11-Aug-08	60	R1 Root
		11-Aug-08	60	R1 Leaf
		08-Sep-08	88	R4 Forage
		09-Oct-08	119	R6 Whole plant
		03-Nov-08	144	Grain
		09-Sep-08	89	Comp Forage
		18-Nov-08	159	Comp Grain
		09-Sep-08	89	Residue Forage
		03-Nov-08	144	Residue Grain
		03-Nov-08	144	Residue Stover

Appendix B Table 5 (Cont.). Sampling Information

Site	Planting Date	Sampling Date	DAP[a]	Commodity
IN	29-May-08	23-Jun-08	25	V2-4 Leaf
		14-Jul-08	46	V9 Leaf
		01-Aug-08	64	Pollen
		01-Aug-08	64	R1 Root
		01-Aug-08	64	R1 Leaf
		05-Sep-08	99	R4 Forage
		09-Oct-08	133	R6 Whole plant
		09-Oct-08	133	Grain
		05-Sep-08	99	Comp Forage
		09-Oct-08	133	Comp Grain
		05-Sep-08	99	Residue Forage
		09-Oct-08	133	Residue Grain
		09-Oct-08	133	Residue Stover
NE	13-Jun-08	07-Jul-08	24	V2-4 Leaf
		22-Jul-08	39	V9 Leaf
		08-Aug-08	56	Pollen
		08-Aug-08	56	R1 Root
		08-Aug-08	56	R1 Leaf
		03-Sep-08	82	R4 Forage
		12-Nov-08	152	R6 Whole plant
		12-Nov-08	152	Grain
		29-Aug-08	77	Comp Forage
		12-Nov-08	152	Comp Grain
		29-Aug-08	77	Residue Forage
		12-Nov-08	152	Residue Grain
		12-Nov-08	152	Residue Stover

[a] DAP = Days after planting.
[b] R1 Pollen, leaf and root sampled between 5-Aug-08 through 7-Aug-08.

Appendix B Table 6. Dates of Sampling, Shipping, and Receipt

Site	Matrix	SGN[a]	Sampling Date	Shipped Date	Received at DAS Date
IA	V2-4 Leaf	080137-001	17-Jun-08	17-Jun-08	18-Jun-08
	V9 Leaf	080137-002	09-Jul-08	09-Jul-08	10-Jul-08
	Pollen	080137-003	03-Aug-08	05-Aug-08	06-Aug-08
	R1 Root	080137-004	03-Aug-08	05-Aug-08	06-Aug-08
	R1 Leaf	080137-005	03-Aug-08	05-Aug-08	06-Aug-08
	R4 Forage	080137-006	03-Sep-08	03-Sep-08	04-Sep-08
	R6 Whole plant	080137-007	29-Oct-08	29-Oct-08	30-Oct-08
	Grain	080137-008	29-Oct-08	29-Oct-08	30-Oct-08
	Comp[b] Forage	080137-009	03-Sep-08	03-Sep-08	04-Sep-08
	Comp Grain	080137-010	29-Oct-08	03-Nov-08	04-Nov-08
	Residue Forage	080137-011	03-Sep-08	03-Sep-08	04-Sep-08
	Residue Grain	080137-012	29-Oct-08	29-Oct-08	30-Oct-08
	Residue Stover	080137-013	29-Oct-08	29-Oct-08	30-Oct-08
IL1	V2-4 Leaf	080137-014	30-Jun-08	30-Jun-08	01-Jul-08
	V9 Leaf	080137-015	23-Jul-08	23-Jul-08	24-Jul-08
	Pollen	080137-016	05-Aug-08[c]	12-Aug-08	13-Aug-08
	R1 Root	080137-017	05-Aug-08[c]	12-Aug-08	13-Aug-08
	R1 Leaf	080137-018	05-Aug-08[c]	12-Aug-08	13-Aug-08
	R4 Forage	080137-019	10-Sep-08	10-Sep-08	11-Sep-08
	R6 Whole plant	080137-020	10-Nov-08	12-Nov-08	13-Nov-08
	Grain	080137-021	10-Nov-08	12-Nov-08	13-Nov-08
	Comp Forage	080137-022	10-Sep-08	10-Sep-08	11-Sep-08
	Comp Grain	080137-023	10-Nov-08	12-Nov-08	13-Nov-08
	Residue Forage	080137-024	10-Sep-08	10-Sep-08	11-Sep-08
	Residue Grain	080137-025	10-Nov-08	12-Nov-08	13-Nov-08
	Residue Stover	080137-026	10-Nov-08	12-Nov-08	13-Nov-08
IL2	V2-4 Leaf	080137-053	30-Jun-08	30-Jun-08	01-Jul-08
	V9 Leaf	080137-054	17-Jul-08	17-Jul-08	18-Jul-08
	Pollen	080137-055	11-Aug-08	11-Aug-08	12-Aug-08
	R1 Root	080137-056	11-Aug-08	11-Aug-08	12-Aug-08
	R1 Leaf	080137-057	11-Aug-08	11-Aug-08	12-Aug-08
	R4 Forage	080137-058	08-Sep-08	08-Sep-08	09-Sep-08
	R6 Whole plant	080137-059	09-Oct-08	09-Oct-08	10-Oct-08
	Grain	080137-060	03-Nov-08	03-Nov-08	04-Nov-08
	Comp Forage	080137-061	09-Sep-08	09-Sep-08	10-Sep-08

Appendix B Table 6. (Cont.) Dates of Sampling, Shipping, and Receipt

Site	Matrix	SGN[a]	Sampling Date	Shipped Date	Received at DAS Date
IL2	Comp Grain	080137-062	18-Nov-08	18-Nov-08	19-Nov-08
	Residue Forage	080137-063	09-Sep-08	09-Sep-08	10-Sep-08
	Residue Grain	080137-064	03-Nov-08	03-Nov-08	04-Nov-08
	Residue Stover	080137-065	03-Nov-08	03-Nov-08	04-Nov-08
IN	V2-4 Leaf	080137-027	23-Jun-08	25-Jun-08	26-Jun-08
	V9 Leaf	080137-028	14-Jul-08	15-Jul-08	16-Jul-08
	Pollen	080137-029	01-Aug-08	04-Aug-08[d]	04-Aug-08
	R1 Root	080137-030	01-Aug-08	04-Aug-08[d]	04-Aug-08
	R1 Leaf	080137-031	01-Aug-08	04-Aug-08[d]	04-Aug-08
	R4 Forage	080137-032	05-Sep-08	05-Sep-08[d]	05-Sep-08
	R6 Whole plant	080137-033	09-Oct-08	09-Oct-08[d]	09-Oct-08
	Grain	080137-034	09-Oct-08	09-Oct-08[d]	09-Oct-08
	Comp[b] Forage	080137-035	05-Sep-08	05-Sep-08[d]	05-Sep-08
	Comp Grain	080137-036	09-Oct-08	09-Oct-08[d]	09-Oct-08
	Residue Forage	080137-037	05-Sep-08	05-Sep-08[d]	05-Sep-08
	Residue Grain	080137-038	09-Oct-08	09-Oct-08[d]	09-Oct-08
	Residue Stover	080137-039	09-Oct-08	09-Oct-08[d]	09-Oct-08
NE	V2-4 Leaf	080137-040	07-Jul-08	08-Jul-08	09-Jul-08
	V9 Leaf	080137-041	22-Jul-08	22-Jul-08	23-Jul-08
	Pollen	080137-042	08-Aug-08	13-Aug-08	14-Aug-08
	R1 Root	080137-043	08-Aug-08	13-Aug-08	14-Aug-08
	R1 Leaf	080137-044	08-Aug-08	13-Aug-08	14-Aug-08
	R4 Forage	080137-045	03-Sep-08	04-Sep-08	05-Sep-08
	R6 Whole plant	080137-046	12-Nov-08	13-Nov-08	14-Nov-08
	Grain	080137-047	12-Nov-08	13-Nov-08	14-Nov-08
	Comp Forage	080137-048	29-Aug-08	02-Sep-08	03-Sep-08
	Comp Grain	080137-049	12-Nov-08	13-Nov-08	14-Nov-08
	Residue Forage	080137-050	29-Aug-08	02-Sep-08	03-Sep-08
	Residue Grain	080137-051	12-Nov-08	13-Nov-08	14-Nov-08
	Residue Stover	080137-052	12-Nov-08	13-Nov-08	14-Nov-08

[a] SGN = Sample Group Number.
[b] Samples for composition testing.
[c] R1 Pollen, leaf and root sampled between 5-Aug-08 through 7-Aug-08.
[d] Samples hand-delivered to DAS.

Appendix C—Protein Expression Data from Individual Samples

Appendix C Table 1. Expression Levels of AAD-1 Protein in Maize V2-V4 Leaf

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-001-0001	IA Control	29-Oct-08	15	1.5	2	ND[b]	ND
080137-001-0002	IA Control	29-Oct-08	15	1.5	2	ND	ND
080137-001-0003	IA Control	29-Oct-08	15	1.5	2	ND	ND
080137-014-0001	IL1 Control	29-Oct-08	15	1.5	2	ND	ND
080137-014-0002	IL1 Control	29-Oct-08	15	1.5	2	ND	ND
080137-014-0003	IL1 Control	29-Oct-08	15	1.5	2	ND	ND
080137-027-0001	IN Control	31-Oct-08	15	1.5	2	ND	ND
080137-027-0002	IN Control	31-Oct-08	15	1.5	2	ND	ND
080137-027-0003	IN Control	31-Oct-08	15	1.5	2	ND	ND
080137-040-0001	NE Control	31-Oct-08	15	1.5	2	ND	ND
080137-040-0002	NE Control	31-Oct-08	15	1.5	2	ND	ND
080137-040-0003	NE Control	31-Oct-08	15	1.5	2	ND	ND
080137-053-0001	IL2 Control	31-Oct-08	15	1.5	2	ND	ND
080137-053-0002	IL2 Control	31-Oct-08	15	1.5	2	ND	ND
080137-053-0003	IL2 Control	31-Oct-08	15	1.5	2	ND	ND
080137-001-0004	IA AAD-1 Unsprayed	29-Oct-08	15	1.5	10	200.52	20.05
080137-001-0005	IA AAD-1 Unsprayed	29-Oct-08	15	1.5	10	298.62	29.86
080137-001-0006	IA AAD-1 Unsprayed	29-Oct-08	15	1.5	10	259.03	25.90
080137-014-0004	IL1 AAD-1 Unsprayed	29-Oct-08	15	1.5	10	68.02	6.80
080137-014-0005	IL1 AAD-1 Unsprayed	29-Oct-08	15	1.5	10	120.63	12.06
080137-014-0006	IL1 AAD-1 Unsprayed	29-Oct-08	15	1.5	10	83.26	8.33
080137-027-0004	IN AAD-1 Unsprayed	31-Oct-08	15	1.5	10	245.69	24.57
080137-027-0005	IN AAD-1 Unsprayed	31-Oct-08	15	1.5	10	212.48	21.25
080137-027-0006	IN AAD-1 Unsprayed	31-Oct-08	15	1.5	10	177.73	17.77
080137-040-0004	NE AAD-1 Unsprayed	31-Oct-08	15	1.5	10	47.09	4.71
080137-040-0005	NE AAD-1 Unsprayed	31-Oct-08	15	1.5	10	19.75	1.98
080137-040-0006	NE AAD-1 Unsprayed	31-Oct-08	15	1.5	10	49.75	4.97
080137-053-0004	IL2 AAD-1 Unsprayed	31-Oct-08	15	1.5	10	95.22	9.52
080137-053-0005	IL2 AAD-1 Unsprayed	31-Oct-08	15	1.5	10	115.71	11.57
080137-053-0006	IL2 AAD-1 Unsprayed	31-Oct-08	15	1.5	10	98.84	9.88
						Mean =	13.9
						Std dev. =	8.67
080137-001-0007	IA AAD-1 + Quizalofop	29-Oct-08	15	1.5	10	189.81	18.98
080137-001-0008	IA AAD-1 + Quizalofop	29-Oct-08	15	1.5	10	244.96	24.50
080137-001-0009	IA AAD-1 + Quizalofop	29-Oct-08	15	1.5	10	236.47	23.65
080137-014-0007	IL1 AAD-1 + Quizalofop	29-Oct-08	15	1.5	10	51.86	5.19
080137-014-0008	IL1 AAD-1 + Quizalofop	29-Oct-08	15	1.5	10	92.35	9.23
080137-014-0009	IL1 AAD-1 + Quizalofop	29-Oct-08	15	1.5	10	115.97	11.60
080137-027-0007	IN AAD-1 + Quizalofop	31-Oct-08	15	1.5	10	213.67	21.37

Appendix C Table 1. (Cont.) Expression Levels of AAD-1 Protein in Maize V2-V4 Leaf

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-027-0008	IN AAD-1 + Quizalofop	31-Oct-08	15	1.5	10	214.54	21.45
080137-027-0009	IN AAD-1 + Quizalofop	31-Oct-08	15	1.5	10	225.69	22.57
080137-040-0007	NE AAD-1 + Quizalofop	19-Dec-08	15	1.5	2and10[c]	59.56	5.96
080137-040-0008	NE AAD-1 + Quizalofop	31-Oct-08	15	1.5	10	59.08	5.91
080137-040-0009	NE AAD-1 + Quizalofop	31-Oct-08	15	1.5	10	47.53	4.75
080137-053-0007	IL2 AAD-1 + Quizalofop	31-Oct-08	15	1.5	10	78.51	7.85
080137-053-0008	IL2 AAD-1 + Quizalofop	31-Oct-08	15	1.5	10	94.58	9.46
080137-053-0009	IL2 AAD-1 + Quizalofop	31-Oct-08	15	1.5	10	121.10	12.11
						Mean =	13.6
						Std dev. =	7.53
080137-001-0010	IA AAD-1 + 2,4-D	29-Oct-08	15	1.5	10	267.45	26.75
080137-001-0011	IA AAD-1 + 2,4-D	29-Oct-08	15	1.5	10	206.65	20.66
080137-001-0012	IA AAD-1 + 2,4-D	29-Oct-08	15	1.5	10	256.46	25.65
080137-014-0010	IL1 AAD-1 + 2,4-D	29-Oct-08	15	1.5	10	136.42	13.64
080137-014-0011	IL1 AAD-1 + 2,4-D	29-Oct-08	15	1.5	10	102.77	10.28
080137-014-0012	IL1 AAD-1 + 2,4-D	29-Oct-08	15	1.5	10	101.13	10.11
080137-027-0010	IN AAD-1 + 2,4-D	31-Oct-08	15	1.5	10	246.70	24.67
080137-027-0011	IN AAD-1 + 2,4-D	31-Oct-08	15	1.5	10	212.75	21.27
080137-027-0012	IN AAD-1 + 2,4-D	31-Oct-08	15	1.5	10	200.13	20.01
080137-040-0010	NE AAD-1 + 2,4-D	31-Oct-08	15	1.5	10	59.27	5.93
080137-040-0011	NE AAD-1 + 2,4-D	31-Oct-08	15	1.5	10	49.77	4.98
080137-040-0012	NE AAD-1 + 2,4-D	31-Oct-08	15	1.5	10	49.89	4.99
080137-053-0010	IL2 AAD-1 + 2,4-D	31-Oct-08	15	1.5	10	115.88	11.59
080137-053-0011	IL2 AAD-1 + 2,4-D	31-Oct-08	15	1.5	10	126.31	12.63
080137-053-0012	IL2 AAD-1 + 2,4-D	31-Oct-08	15	1.5	10	132.58	13.26
						Mean =	15.1
						Std dev. =	7.52
080137-001-0013	IA AAD-1 + 2,4-D & Quizalofop	29-Oct-08	15	1.5	10	194.67	19.47
080137-001-0014	IA AAD-1 + 2,4-D & Quizalofop	29-Oct-08	15	1.5	10	212.49	21.25
080137-001-0015	IA AAD-1 + 2,4-D & Quizalofop	29-Oct-08	15	1.5	10	222.07	22.21
080137-014-0013	IL1 AAD-1 + 2,4-D & Quizalofop	29-Oct-08	15	1.5	10	83.18	8.32
080137-014-0014	IL1 AAD-1 + 2,4-D & Quizalofop	29-Oct-08	15	1.5	10	61.11	6.11
080137-014-0015	IL1 AAD-1 + 2,4-D & Quizalofop	29-Oct-08	15	1.5	10	79.54	7.95
080137-027-0013	IN AAD-1 + 2,4-D & Quizalofop	31-Oct-08	15	1.5	10	216.18	21.62
080137-027-0014	IN AAD-1 + 2,4-D & Quizalofop	31-Oct-08	15	1.5	10	213.15	21.31
080137-027-0015	IN AAD-1 + 2,4-D & Quizalofop	31-Oct-08	15	1.5	10	224.57	22.46
080137-040-0013	NE AAD-1 + 2,4-D & Quizalofop	31-Oct-08	15	1.5	10	45.72	4.57
080137-040-0014	NE AAD-1 + 2,4-D & Quizalofop	31-Oct-08	15	1.5	10	41.53	4.15
080137-040-0015	NE AAD-1 + 2,4-D & Quizalofop	31-Oct-08	15	1.5	10	40.70	4.07

Appendix C Table 1. (Cont.) Expression Levels of AAD-1 Protein in Maize V2-V4 Leaf

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-053-0013	IL2 AAD-1 + 2,4-D & Quizalofop	31-Oct-08	15	1.5	10	104.10	10.41
080137-053-0014	IL2 AAD-1 + 2,4-D & Quizalofop	31-Oct-08	15	1.5	10	108.50	10.85
080137-053-0015	IL2 AAD-1 + 2,4-D & Quizalofop	31-Oct-08	15	1.5	10	129.78	12.98
						Mean =	13.2
						Std dev. =	7.38

[a] Results (ng/mg) AAD-1 on dry weight basis = $\frac{\text{Result (ng/mL)}}{\text{Sample Weight (mg)/Sample Vol. (mL)}}$

[b] ND = Below the lowest standard at the minimum matrix dilution.

[c] Average of multiple dilutions of single sample.

Appendix C Table 2. Expression Levels of AAD-1 Protein in Maize V9 Leaf

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-002-0001	IA Control	11-Nov-08	15	1.5	2	ND[b]	ND
080137-002-0002	IA Control	11-Nov-08	15	1.5	2	ND	ND
080137-002-0003	IA Control	11-Nov-08	15	1.5	2	ND	ND
080137-015-0001	IL1 Control	11-Nov-08	15	1.5	2	ND	ND
080137-015-0002	IL1 Control	11-Nov-08	15	1.5	2	ND	ND
080137-015-0003	IL1 Control	11-Nov-08	15	1.5	2	ND	ND
080137-028-0001	IN Control	13-Nov-08	15	1.5	2	ND	ND
080137-028-0002	IN Control	13-Nov-08	15	1.5	2	ND	ND
080137-028-0003	IN Control	13-Nov-08	15	1.5	2	ND	ND
080137-041-0001	NE Control	13-Nov-08	15	1.5	2	ND	ND
080137-041-0002	NE Control	13-Nov-08	15	1.5	2	ND	ND
080137-041-0003	NE Control	13-Nov-08	15	1.5	2	ND	ND
080137-054-0001	IL2 Control	3-Nov-08	15	1.5	2	ND	ND
080137-054-0002	IL2 Control	3-Nov-08	15	1.5	2	ND	ND
080137-054-0003	IL2 Control	3-Nov-08	15	1.5	2	ND	ND[c]
		19-Dec-08	15	1.5	2	ND	
080137-002-0004	IA AAD-1 Unsprayed	11-Nov-08	15	1.5	5	58.20	5.82
080137-002-0005	IA AAD-1 Unsprayed	11-Nov-08	15	1.5	5	37.69	3.77
080137-002-0006	IA AAD-1 Unsprayed	11-Nov-08	15	1.5	5	40.20	4.02
080137-015-0004	IL1 AAD-1 Unsprayed	11-Nov-08	15	1.5	5	30.94	3.09
080137-015-0005	IL1 AAD-1 Unsprayed	11-Nov-08	15	1.5	5	36.40	3.64
080137-015-0006	IL1 AAD-1 Unsprayed	11-Nov-08	15	1.5	5	31.88	3.19
080137-028-0004	IN AAD-1 Unsprayed	13-Nov-08	15	1.5	5	88.26	8.83
080137-028-0005	IN AAD-1 Unsprayed	13-Nov-08	15	1.5	5	64.76	6.48
080137-028-0006	IN AAD-1 Unsprayed	13-Nov-08	15	1.5	5	73.85	7.38
080137-041-0004	NE AAD-1 Unsprayed	13-Nov-08	15	1.5	5	43.08	4.31
080137-041-0005	NE AAD-1 Unsprayed	13-Nov-08	15	1.5	5	44.95	4.50
080137-041-0006	NE AAD-1 Unsprayed	13-Nov-08	15	1.5	5	26.68	2.67
080137-054-0004	IL2 AAD-1 Unsprayed	3-Nov-08	15	1.5	10	109.26	10.93
080137-054-0005	IL2 AAD-1 Unsprayed	3-Nov-08	15	1.5	10	97.72	9.77
080137-054-0006	IL2 AAD-1 Unsprayed	3-Nov-08	15	1.5	10	58.43	5.84
						Mean =	5.62
						Std dev. =	2.58
080137-002-0007	IA AAD-1 + Quizalofop	11-Nov-08	15	1.5	5	58.69	5.87
080137-002-0008	IA AAD-1 + Quizalofop	11-Nov-08	15	1.5	5	50.11	5.01
080137-002-0009	IA AAD-1 + Quizalofop	11-Nov-08	15	1.5	5	44.26	4.43
080137-015-0007	IL1 AAD-1 + Quizalofop	11-Nov-08	15	1.5	5	32.64	3.26
080137-015-0008	IL1 AAD-1 + Quizalofop	11-Nov-08	15	1.5	5	47.66	4.77
080137-015-0009	IL1 AAD-1 + Quizalofop	11-Nov-08	15	1.5	5	41.21	4.12

Appendix C Table 2. (Cont.) Expression Levels of AAD-1 Protein in Maize V9 Leaf

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-028-0007	IN AAD-1 + Quizalofop	13-Nov-08	15	1.5	5	55.21	5.52
080137-028-0008	IN AAD-1 + Quizalofop	13-Nov-08	15	1.5	5	57.26	5.73
080137-028-0009	IN AAD-1 + Quizalofop	13-Nov-08	15	1.5	5	57.59	5.76
080137-041-0007	NE AAD-1 + Quizalofop	13-Nov-08	15	1.5	5	27.80	2.78
080137-041-0008	NE AAD-1 + Quizalofop	13-Nov-08	15	1.5	5	25.23	2.52
080137-041-0009	NE AAD-1 + Quizalofop	13-Nov-08	15	1.5	5	30.59	3.06
080137-054-0007	IL2 AAD-1 + Quizalofop	3-Nov-08	15	1.5	10	91.46	9.15
080137-054-0008	IL2 AAD-1 + Quizalofop	3-Nov-08	15	1.5	10	66.95	6.69
080137-054-0009	IL2 AAD-1 + Quizalofop	3-Nov-08	15	1.5	10	74.78	7.48
						Mean =	5.08
						Std dev. =	1.84
080137-002-0010	IA AAD-1 + 2,4-D	11-Nov-08	15	1.5	5	55.47	5.55
080137-002-0011	IA AAD-1 + 2,4-D	11-Nov-08	15	1.5	5	86.02	8.60
080137-002-0012	IA AAD-1 + 2,4-D	11-Nov-08	15	1.5	5	73.96	7.40
080137-015-0010	IL1 AAD-1 + 2,4-D	11-Nov-08	15	1.5	5	45.49	4.55
080137-015-0011	IL1 AAD-1 + 2,4-D	11-Nov-08	15	1.5	5	33.90	3.39
080137-015-0012	IL1 AAD-1 + 2,4-D	11-Nov-08	15	1.5	5	31.36	3.14
080137-028-0010	IN AAD-1 + 2,4-D	13-Nov-08	15	1.5	5	56.40	5.64
080137-028-0011	IN AAD-1 + 2,4-D	13-Nov-08	15	1.5	5	84.02	8.40
080137-028-0012	IN AAD-1 + 2,4-D	13-Nov-08	15	1.5	5	69.11	6.91
080137-041-0010	NE AAD-1 + 2,4-D	13-Nov-08	15	1.5	5	41.46	4.15
080137-041-0011	NE AAD-1 + 2,4-D	13-Nov-08	15	1.5	5	35.61	3.56
080137-041-0012	NE AAD-1 + 2,4-D	13-Nov-08	15	1.5	5	30.32	3.03
080137-054-0010	IL2 AAD-1 + 2,4-D	3-Nov-08	15	1.5	10	93.70	9.37
080137-054-0011	IL2 AAD-1 + 2,4-D	3-Nov-08	15	1.5	10	108.91	10.89
080137-054-0012	IL2 AAD-1 + 2,4-D	3-Nov-08	15	1.5	10	92.34	9.23
						Mean =	6.25
						Std dev. =	2.62
080137-002-0013	IA AAD-1 + 2,4-D & Quizalofop	11-Nov-08	15	1.5	5	83.33	8.33
080137-002-0014	IA AAD-1 + 2,4-D & Quizalofop	11-Nov-08	15	1.5	5	82.23	8.22
080137-002-0015	IA AAD-1 + 2,4-D & Quizalofop	11-Nov-08	15	1.5	5	81.93	8.19
080137-015-0013	IL1 AAD-1 + 2,4-D & Quizalofop	11-Nov-08	15	1.5	5	41.60	4.16
080137-015-0014	IL1 AAD-1 + 2,4-D & Quizalofop	11-Nov-08	15	1.5	5	59.02	5.90
080136-015-0015	IL1 AAD-1 + 2,4-D & Quizalofop	11-Nov-08	15	1.5	5	44.61	4.46
080137-028-0013	IN AAD-1 + 2,4-D & Quizalofop	13-Nov-08	15	1.5	5	58.45	5.85
080137-028-0014	IN AAD-1 + 2,4-D & Quizalofop	13-Nov-08	15	1.5	5	54.44	5.44
080137-028-0015	IN AAD-1 + 2,4-D & Quizalofop	13-Nov-08	15	1.5	5	44.63	4.46
080137-041-0013	NE AAD-1 + 2,4-D & Quizalofop	13-Nov-08	15	1.5	5	34.06	3.41
080137-041-0014	NE AAD-1 + 2,4-D & Quizalofop	13-Nov-08	15	1.5	5	31.10	3.11

Appendix C Table 2. (Cont.) Expression Levels of AAD-1 Protein in Maize V9 Leaf

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-041-0015	NE AAD-1 + 2,4-D & Quizalofop	13-Nov-08	15	1.5	5	34.79	3.48
080137-054-0013	IL2 AAD-1 + 2,4-D & Quizalofop	3-Nov-08	15	1.5	10	111.39	11.14
080137-054-0014	IL2 AAD-1 + 2,4-D & Quizalofop	3-Nov-08	15	1.5	10	96.60	9.66
080137-054-0015	IL2 AAD-1 + 2,4-D & Quizalofop	3-Nov-08	15	1.5	10	92.11	9.21
						Mean =	6.34
						Std dev. =	2.58

[a] Results (ng/mg) AAD-1 on dry weight basis = $\frac{\text{Result (ng/mL)}}{\text{Sample Weight (mg)/Sample Vol. (mL)}}$

[b] ND = Below the lowest standard at the minimum matrix dilution.

[c] Average of duplicate analyses (multiple weighings of sample).

Appendix C Table 3. Expression Levels of AAD-1 Protein in Maize R1 Leaf

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-005-0001	IA Control	14-Nov-08	15	1.5	2	ND[b]	ND
080137-005-0002	IA Control	14-Nov-08	15	1.5	2	ND	ND
080137-005-0003	IA Control	14-Nov-08	15	1.5	2	ND	ND
080137-018-0001	IL1 Control	14-Nov-08	15	1.5	2	ND	ND
080137-018-0002	IL1 Control	14-Nov-08	15	1.5	2	ND	ND
080137-018-0003	IL1 Control	14-Nov-08	15	1.5	2	ND	ND
080137-031-0001	IN Control	17-Nov-08	15	1.5	2	ND	ND
080137-031-0002	IN Control	17-Nov-08	15	1.5	2	ND	ND
080137-031-0003	IN Control	17-Nov-08	15	1.5	2	ND	ND
080137-044-0001	NE Control	17-Nov-08	15	1.5	2	ND	ND
080137-044-0002	NE Control	17-Nov-08	15	1.5	2	ND	ND
080137-044-0003	NE Control	17-Nov-08	15	1.5	2	ND	ND
080137-057-0001	IL2 Control	20-Nov-08	15	1.5	2	ND	ND
080137-057-0002	IL2 Control	20-Nov-08	15	1.5	2	ND	ND
080137-057-0003	IL2 Control	20-Nov-08	15	1.5	2	ND	ND
080137-005-0004	IA AAD-1 Unsprayed	14-Nov-08	15	1.5	5	40.76	4.08
080137-005-0005	IA AAD-1 Unsprayed	14-Nov-08	15	1.5	5	38.33	3.83
080137-005-0006	IA AAD-1 Unsprayed	14-Nov-08	15	1.5	5	49.13	4.91
080137-018-0004	IL1 AAD-1 Unsprayed	14-Nov-08	15	1.5	5	55.28	5.53
080137-018-0005	IL1 AAD-1 Unsprayed	14-Nov-08	15	1.5	5	51.27	5.13
080137-018-0006	IL1 AAD-1 Unsprayed	14-Nov-08	15	1.5	5	34.73	3.47
080137-031-0004	IN AAD-1 Unsprayed	17-Nov-08	15	1.5	5	48.20	4.82
080137-031-0005	IN AAD-1 Unsprayed	17-Nov-08	15	1.5	5	64.80	6.48
080137-031-0006	IN AAD-1 Unsprayed	17-Nov-08	15	1.5	5	66.10	6.61
080137-044-0004	NE AAD-1 Unsprayed	17-Nov-08	15	1.5	5	44.34	4.43
080137-044-0005	NE AAD-1 Unsprayed	17-Nov-08	15	1.5	5	74.68	7.47
080137-044-0006	NE AAD-1 Unsprayed	17-Nov-08	15	1.5	5	83.71	8.37
080137-057-0004	IL2 AAD-1 Unsprayed	20-Nov-08	15	1.5	5	71.52	7.15
080137-057-0005	IL2 AAD-1 Unsprayed	20-Nov-08	15	1.5	5	93.36	9.34
080137-057-0006	IL2 AAD-1 Unsprayed	20-Nov-08	15	1.5	5	56.62	5.66
						Mean =	5.82
						Std dev. =	1.72
080137-005-0007	IA AAD-1 + Quizalofop	14-Nov-08	15	1.5	5	49.23	4.92
080137-005-0008	IA AAD-1 + Quizalofop	14-Nov-08	15	1.5	5	37.94	3.79
080137-005-0009	IA AAD-1 + Quizalofop	14-Nov-08	15	1.5	5	51.04	5.10
080137-018-0007	IL1 AAD-1 + Quizalofop	14-Nov-08	15	1.5	5	26.97	2.70
080137-018-0008	IL1 AAD-1 + Quizalofop	14-Nov-08	15	1.5	5	30.59	3.06
080137-018-0009	IL1 AAD-1 + Quizalofop	14-Nov-08	15	1.5	5	32.34	3.23
080137-031-0007	IN AAD-1 + Quizalofop	17-Nov-08	15	1.5	5	61.45	6.14

Appendix C Table 3. (Cont.) Expression Levels of AAD-1 Protein in Maize R1 Leaf

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-031-0008	IN AAD-1 + Quizalofop	17-Nov-08	15	1.5	5	61.09	6.11
080137-031-0009	IN AAD-1 + Quizalofop	17-Nov-08	15	1.5	5	71.96	7.20
080137-044-0007	NE AAD-1 + Quizalofop	17-Nov-08	15	1.5	5	77.82	7.78
080137-044-0008	NE AAD-1 + Quizalofop	17-Nov-08	15	1.5	5	72.18	7.22
080137-044-0009	NE AAD-1 + Quizalofop	17-Nov-08	15	1.5	5	76.41	7.64
080137-057-0007	IL2 AAD-1 + Quizalofop	20-Nov-08	15	1.5	5	65.26	6.53
080137-057-0008	IL2 AAD-1 + Quizalofop	20-Nov-08	15	1.5	5	66.75	6.67
080137-057-0009	IL2 AAD-1 + Quizalofop	20-Nov-08	15	1.5	5	52.28	5.23
						Mean =	5.56
						Std dev. =	1.72
080137-005-0010	IA AAD-1 + 2,4-D	14-Nov-08	15	1.5	5	45.00	4.50
080137-005-0011	IA AAD-1 + 2,4-D	14-Nov-08	15	1.5	5	40.11	4.01
080137-005-0012	IA AAD-1 + 2,4-D	14-Nov-08	15	1.5	5	46.78	4.68
080137-018-0010	IL1 AAD-1 + 2,4-D	14-Nov-08	15	1.5	5	39.95	4.00
080137-018-0011	IL1 AAD-1 + 2,4-D	19-Dec-08	15	1.5	5	28.15	2.81
080137-018-0012	IL1 AAD-1 + 2,4-D	19-Dec-08	15	1.5	5	24.00	2.40
080137-031-0010	IN AAD-1 + 2,4-D	17-Nov-08	15	1.5	5	63.81	6.38
080137-031-0011	IN AAD-1 + 2,4-D	17-Nov-08	15	1.5	5	59.28	5.93
080137-031-0012	IN AAD-1 + 2,4-D	17-Nov-08	15	1.5	5	62.97	6.30
080137-044-0010	NE AAD-1 + 2,4-D	17-Nov-08	15	1.5	5	81.17	8.12
080137-044-0011	NE AAD-1 + 2,4-D	17-Nov-08	15	1.5	5	94.18	9.42
080137-044-0012	NE AAD-1 + 2,4-D	17-Nov-08	15	1.5	5	77.76	7.78
080137-057-0010	IL2 AAD-1 + 2,4-D	20-Nov-08	15	1.5	5	76.35	7.63
080137-057-0011	IL2 AAD-1 + 2,4-D	20-Nov-08	15	1.5	5	65.13	6.51
080137-057-0012	IL2 AAD-1 + 2,4-D	20-Nov-08	15	1.5	5	75.30	7.53
						Mean =	5.87
						Std dev. =	2.06
080137-005-0013	IA AAD-1 + 2,4-D & Quizalofop	14-Nov-08	15	1.5	5	49.94	4.99
080137-005-0014	IA AAD-1 + 2,4-D & Quizalofop	14-Nov-08	15	1.5	5	63.11	6.31
080137-005-0015	IA AAD-1 + 2,4-D & Quizalofop	14-Nov-08	15	1.5	5	53.51	5.35
080137-018-0013	IL1 AAD-1 + 2,4-D & Quizalofop	19-Dec-08	15	1.5	5	15.54	1.55
080137-018-0014	IL1 AAD-1 + 2,4-D & Quizalofop	14-Nov-08	15	1.5	5	20.48	2.05
080137-018-0015	IL1 AAD-1 + 2,4-D & Quizalofop	19-Dec-08	15	1.5	5	36.67	3.67
080137-031-0013	IN AAD-1 + 2,4-D & Quizalofop	17-Nov-08	15	1.5	5	84.22	8.42
080137-031-0014	IN AAD-1 + 2,4-D & Quizalofop	17-Nov-08	15	1.5	5	83.66	8.37
080137-031-0015	IN AAD-1 + 2,4-D & Quizalofop	17-Nov-08	15	1.5	5	68.14	6.81
080137-044-0013	NE AAD-1 + 2,4-D & Quizalofop	17-Nov-08	15	1.5	5	79.34	7.93
080137-044-0014	NE AAD-1 + 2,4-D & Quizalofop	17-Nov-08	15	1.5	5	102.08	10.21
080137-044-0015	NE AAD-1 + 2,4-D & Quizalofop	17-Nov-08	15	1.5	5	66.82	6.68

Appendix C Table 3. (Cont.) Expression Levels of AAD-1 Protein in Maize R1 Leaf

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-057-0013	IL2 AAD-1 + 2,4-D & Quizalofop	20-Nov-08	15	1.5	5	68.26	6.83
080137-057-0014	IL2 AAD-1 + 2,4-D & Quizalofop	20-Nov-08	15	1.5	5	72.48	7.25
080137-057-0015	IL2 AAD-1 + 2,4-D & Quizalofop	20-Nov-08	15	1.5	5	81.40	8.14
						Mean =	6.30
						Std dev. =	2.42

[a] Results (ng/mg) AAD-1 on dry weight basis = $\frac{\text{Result (ng/mL)}}{\text{Sample Weight (mg)/Sample Vol. (mL)}}$

[b] ND = Below the lowest standard at the minimum matrix dilution.

Appendix C Table 4. Expression Levels of AAD-1 Protein in Maize Pollen

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-003-0001	IA Control	25-Nov-08	15	1.5	2	ND[b]	ND
080137-003-0002	IA Control	no sample[c]	NA	NA	NA	NA	NA
080137-003-0003	IA Control	25-Nov-08	15	1.5	2	ND	ND
080137-016-0001	IL1 Control	25-Nov-08	15	1.5	2	ND	ND
080137-016-0002	IL1 Control	25-Nov-08	15	1.5	2	ND	ND
080137-016-0003	IL1 Control	25-Nov-08	15	1.5	2	ND	ND
080137-029-0001	IN Control	25-Nov-08	15	1.5	2	ND	ND
080137-029-0002	IN Control	25-Nov-08	15	1.5	2	ND	ND
080137-029-0003	IN Control	25-Nov-08	15	1.5	2	2.47	ND[d]
		19-Dec-08	15	1.5	2	ND	
080137-042-0001	NE Control	no sample	NA	NA	NA	NA	NA
080137-042-0002	NE Control	no sample	NA	NA	NA	NA	NA
080137-042-0003	NE Control	no sample	NA	NA	NA	NA	NA
080137-055-0001	080137IL2 Control	1-Dec-08	15	1.5	2	ND	ND
080137-055-0002	080137IL2 Control	1-Dec-08	15	1.5	2	ND	ND
080137-055-0003	080137IL2 Control	1-Dec-08	15	1.5	2	ND	ND
080137-003-0004	IA AAD-1 Unsprayed	25-Nov-08	15	1.5	100	993.43	99.34
080137-003-0005	IA AAD-1 Unsprayed	25-Nov-08	15	1.5	100	933.40	93.34
080137-003-0006	IA AAD-1 Unsprayed	25-Nov-08	15	1.5	100	1070.63	107.06
080137-016-0004	IL1 AAD-1 Unsprayed	25-Nov-08	15	1.5	100	1264.55	126.46
080137-016-0005	IL1 AAD-1 Unsprayed	25-Nov-08	15	1.5	100	1225.06	122.51
080137-016-0006	IL1 AAD-1 Unsprayed	19-Dec-08	15	1.5	100	1003.63	100.36
080137-029-0004	IN AAD-1 Unsprayed	25-Nov-08	15	1.5	100	1533.96	153.40
080137-029-0005	IN AAD-1 Unsprayed	25-Nov-08	15	1.5	100	1589.82	158.98
080137-029-0006	IN AAD-1 Unsprayed	25-Nov-08	15	1.5	100	1500.61	150.06
080137-042-0004	NE AAD-1 Unsprayed	25-Nov-08	15	1.5	100	2100.08	210.01
080137-042-0005	NE AAD-1 Unsprayed	25-Nov-08	15	1.5	100	1143.99	114.40
080137-042-0006	NE AAD-1 Unsprayed	25-Nov-08	15	1.5	100	1570.28	157.03
080137-055-0004	080137IL2 AAD-1 Unsprayed	no sample	NA	NA	NA	NA	NA
080137-055-0005	080137IL2 AAD-1 Unsprayed	1-Dec-08	15	1.5	100	1421.73	142.17
080137-055-0006	080137IL2 AAD-1 Unsprayed	no sample	NA	NA	NA	NA	NA
						Mean =	133.5
						Std dev. =	32.8
080137-003-0007	IA AAD-1 + Quizalofop	25-Nov-08	15	1.5	100	1458.92	145.89
080137-003-0008	IA AAD-1 + Quizalofop	no sample	NA	NA	NA	NA	NA
080137-003-0009	IA AAD-1 + Quizalofop	no sample	NA	NA	NA	NA	NA
080137-016-0007	IL1 AAD-1 + Quizalofop	25-Nov-08	15	1.5	100	1107.98	110.80
080137-016-0008	IL1 AAD-1 + Quizalofop	25-Nov-08	15	1.5	100	1163.33	116.33
080137-016-0009	IL1 AAD-1 + Quizalofop	25-Nov-08	15	1.5	100	943.74	94.37

Appendix C Table 4. (Cont.) Expression Levels of AAD-1 Protein in Maize Pollen

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-029-0007	IN AAD-1 + Quizalofop	no sample	NA	NA	NA	NA	NA
080137-029-0008	IN AAD-1 + Quizalofop	25-Nov-08	15	1.5	100	1008.90	100.89
080137-029-0009	IN AAD-1 + Quizalofop	25-Nov-08	15	1.5	100	1199.24	119.92
080137-042-0007	NE AAD-1 + Quizalofop	25-Nov-08	15	1.5	100	1441.78	144.18
080137-042-0008	NE AAD-1 + Quizalofop	25-Nov-08	15	1.5	100	1150.18	115.02
080137-042-0009	NE AAD-1 + Quizalofop	no sample	NA	NA	NA	NA	NA
080137-055-0007	080137IL2 AAD-1 + Quizalofop	no sample	NA	NA	NA	NA	NA
080137-055-0008	080137IL2 AAD-1 + Quizalofop	no sample	NA	NA	NA	NA	NA
080137-055-0009	080137IL2 AAD-1 + Quizalofop	1-Dec-08	15	1.5	100	1348.34	134.83
						Mean =	120.2
						Std dev. =	18.1
080137-003-0010	IA AAD-1 + 2,4-D	19-Dec-08	15	1.5	100	504.65	50.46
080137-003-0011	IA AAD-1 + 2,4-D	25-Nov-08	15	1.5	100	1059.77	105.98
080137-003-0012	IA AAD-1 + 2,4-D	25-Nov-08	15	1.5	100	1107.47	110.75
080137-016-0010	IL1 AAD-1 + 2,4-D	25-Nov-08	15	1.5	100	1319.33	131.93
080137-016-0011	IL1 AAD-1 + 2,4-D	25-Nov-08	15	1.5	100	1277.89	127.79
080137-016-0012	IL1 AAD-1 + 2,4-D	25-Nov-08	15	1.5	100	1042.66	104.27
080137-029-0010	IN AAD-1 + 2,4-D	25-Nov-08	15	1.5	100	1339.71	133.97
080137-029-0011	IN AAD-1 + 2,4-D	25-Nov-08	15	1.5	100	1374.32	137.43
080137-029-0012	IN AAD-1 + 2,4-D	25-Nov-08	15	1.5	100	1350.53	135.05
080137-042-0010	NE AAD-1 + 2,4-D	no sample	NA	NA	NA	NA	NA
080137-042-0011	NE AAD-1 + 2,4-D	no sample	NA	NA	NA	NA	NA
080137-042-0012	NE AAD-1 + 2,4-D	25-Nov-08	15	1.5	100	1274.52	127.45
080137-055-0010	080137IL2 AAD-1 + 2,4-D	1-Dec-08	15	1.5	100	1166.26	116.63
080137-055-0011	080137IL2 AAD-1 + 2,4-D	no sample	NA	NA	NA	NA	NA
080137-055-0012	080137IL2 AAD-1 + 2,4-D	1-Dec-08	15	1.5	100	1263.87	126.39
						Mean =	117.3
						Std dev. =	24.0
080137-003-0013	IA AAD-1 + 2,4-D and Quizalofop	25-Nov-08	15	1.5	100	1304.60	130.46
080137-003-0014	IA AAD-1 + 2,4-D and Quizalofop	no sample	NA	NA	NA	NA	NA
080137-003-0015	IA AAD-1 + 2,4-D and Quizalofop	25-Nov-08	15	1.5	100	1134.29	113.43
080137-016-0013	IL1 AAD-1 + 2,4-D and Quizalofop	25-Nov-08	15	1.5	100	491.65	47.16[d]
		19-Dec-08	15	1.5	100	451.55	
080137-016-0014	IL1 AAD-1 + 2,4-D and Quizalofop	19-Dec-08	15	1.5	100	453.52	45.35
080137-016-0015	IL1 AAD-1 + 2,4-D and Quizalofop	25-Nov-08	15	1.5	100	758.13	75.81
080137-029-0013	IN AAD-1 + 2,4-D and Quizalofop	25-Nov-08	15	1.5	100	1300.54	130.05
080137-029-0014	IN AAD-1 + 2,4-D and Quizalofop	25-Nov-08	15	1.5	100	1299.71	129.97
080137-029-0015	IN AAD-1 + 2,4-D and Quizalofop	25-Nov-08	15	1.5	100	1617.96	161.80
080137-042-0013	NE AAD-1 + 2,4-D and Quizalofop	no sample	NA	NA	NA	NA	NA

Appendix C Table 4. (Cont.) Expression Levels of AAD-1 Protein in Maize Pollen

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-042-0014	NE AAD-1 + 2,4-D and Quizalofop	25-Nov-08	15	1.5	100	1142.41	114.24
080137-042-0015	NE AAD-1 + 2,4-D and Quizalofop	no sample	NA	NA	NA	NA	NA
080137-055-0013	IL2 AAD-1 + 2,4-D and Quizalofop	1-Dec-08	15	1.5	100	1237.70	123.77
080137-055-0014	IL2 AAD-1 + 2,4-D and Quizalofop	1-Dec-08	15	1.5	100	1358.38	135.84
080137-055-0015	IL2 AAD-1 + 2,4-D and Quizalofop	1-Dec-08	15	1.5	100	1367.43	136.74
						Mean =	112.1
						Std dev. =	36.6

[a] Results (ng/mg) AAD-1 on dry weight basis = $\frac{\text{Result (ng/mL)}}{\text{Sample Weight (mg)/Sample Vol. (mL)}}$

[b] ND = Below the lowest standard at the minimum matrix dilution.
[c] Not enough sample available for analysis.
[d] Average of duplicate analyses (multiple weighings of sample).

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Appendix C Table 5. Expression Levels of AAD-1 Protein in Maize R1 Root

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-004-0001	IA Control	3-Dec-08	15	1.5	2	ND[b]	ND
080137-004-0002	IA Control	3-Dec-08	15	1.5	2	ND	ND
080137-004-0003	IA Control	3-Dec-08	15	1.5	2	ND	ND
080137-017-0001	IL1 Control	3-Dec-08	15	1.5	2	ND	ND
080137-017-0002	IL1 Control	3-Dec-08	15	1.5	2	ND	ND
080137-017-0003	IL1 Control	3-Dec-08	15	1.5	2	ND	ND
080137-030-0001	IN Control	19-Dec-08	15	1.5	2and4[c]	19.85	1.99
080137-030-0002	IN Control	3-Dec-08	15	1.5	2	ND	ND
080137-030-0003	IN Control	3-Dec-08	15	1.5	2	ND	ND
080137-043-0001	NE Control	3-Dec-08	15	1.5	2	ND	ND
080137-043-0002	NE Control	3-Dec-08	15	1.5	2	ND	ND
080137-043-0003	NE Control	3-Dec-08	15	1.5	2	ND	ND
080137-056-0001	IL2 Control	16-Dec-08	15	1.5	2	ND	ND
080137-056-0002	IL2 Control	16-Dec-08	15	1.5	2	ND	ND
080137-056-0003	IL2 Control	16-Dec-08	15	1.5	2	ND	ND
080137-004-0004	IA AAD-1 Unsprayed	3-Dec-08	15	1.5	2	10.34	1.03
080137-004-0005	IA AAD-1 Unsprayed	3-Dec-08	15	1.5	2	37.77	3.78
080137-004-0006	IA AAD-1 Unsprayed	3-Dec-08	15	1.5	2	44.58	4.46
080137-017-0004	IL1 AAD-1 Unsprayed	3-Dec-08	15	1.5	4	32.17	3.22
080137-017-0005	IL1 AAD-1 Unsprayed	3-Dec-08	15	1.5	4	5.95	0.59
080137-017-0006	IL1 AAD-1 Unsprayed	3-Dec-08	15	1.5	4	23.49	2.35
080137-030-0004	IN AAD-1 Unsprayed	3-Dec-08	15	1.5	4	58.05	5.80
080137-030-0005	IN AAD-1 Unsprayed	3-Dec-08	15	1.5	4	36.27	3.63
080137-030-0006	IN AAD-1 Unsprayed	3-Dec-08	15	1.5	4	38.85	3.88
080137-043-0004	NE AAD-1 Unsprayed	19-Dec-08	15	1.5	2	4.24	0.42
080137-043-0005	NE AAD-1 Unsprayed	3-Dec-08	15	1.5	4	12.88	1.29
080137-043-0006	NE AAD-1 Unsprayed	3-Dec-08	15	1.5	4	16.02	1.60
080137-056-0004	IL2 AAD-1 Unsprayed	16-Dec-08	15	1.5	5	61.00	6.10
080137-056-0005	IL2 AAD-1 Unsprayed	16-Dec-08	15	1.5	5	51.22	5.12
080137-056-0006	IL2 AAD-1 Unsprayed	16-Dec-08	15	1.5	5	50.56	5.06
						Mean =	3.22
						Std dev. =	1.91
080137-004-0007	IA AAD-1 + Quizalofop	3-Dec-08	15	1.5	2	29.75	2.98
080137-004-0008	IA AAD-1 + Quizalofop	3-Dec-08	15	1.5	2	14.06	1.41
080137-004-0009	IA AAD-1 + Quizalofop	3-Dec-08	15	1.5	2	51.89	5.19
080137-017-0007	IL1 AAD-1 + Quizalofop	3-Dec-08	15	1.5	4	22.81	2.28
080137-017-0008	IL1 AAD-1 + Quizalofop	3-Dec-08	15	1.5	4	28.21	2.82
080137-017-0009	IL1 AAD-1 + Quizalofop	3-Dec-08	15	1.5	4	17.97	1.80
080137-030-0007	IN AAD-1 + Quizalofop	3-Dec-08	15	1.5	4	60.58	6.06

Appendix C Table 5. (Cont.) Expression Levels of AAD-1 Protein in Maize R1 Root

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-030-0008	IN AAD-1 + Quizalofop	3-Dec-08	15	1.5	4	45.28	4.53
080137-030-0009	IN AAD-1 + Quizalofop	3-Dec-08	15	1.5	4	58.61	5.86
080137-043-0007	NE AAD-1 + Quizalofop	3-Dec-08	15	1.5	4	21.43	2.14
080137-043-0008	NE AAD-1 + Quizalofop	3-Dec-08	15	1.5	4	5.64	0.56
080137-043-0009	NE AAD-1 + Quizalofop	19-Dec-08	15	1.5	2	6.10	0.61
080137-056-0007	IL2 AAD-1 + Quizalofop	16-Dec-08	15	1.5	5	38.29	3.83
080137-056-0008	IL2 AAD-1 + Quizalofop	16-Dec-08	15	1.5	5	49.09	4.91
080137-056-0009	IL2 AAD-1 + Quizalofop	16-Dec-08	15	1.5	5	49.55	4.96
						Mean =	3.33
						Std dev. =	1.85
080137-004-0010	IA AAD-1 + 2,4-D	3-Dec-08	15	1.5	2	58.48	5.85
080137-004-0011	IA AAD-1 + 2,4-D	3-Dec-08	15	1.5	2	50.61	5.06
080137-004-0012	IA AAD-1 + 2,4-D	3-Dec-08	15	1.5	2	57.64	5.76
080137-017-0010	IL1 AAD-1 + 2,4-D	3-Dec-08	15	1.5	4	29.17	2.92
080137-017-0011	IL1 AAD-1 + 2,4-D	3-Dec-08	15	1.5	4	57.04	5.70
080137-017-0012	IL1 AAD-1 + 2,4-D	3-Dec-08	15	1.5	4	53.79	5.38
080137-030-0010	IN AAD-1 + 2,4-D	19-Dec-08	15	1.5	4	27.71	2.77
080137-030-0011	IN AAD-1 + 2,4-D	3-Dec-08	15	1.5	4	73.77	7.62[d]
		19-Dec-08	15	1.5	4	78.70	
080137-030-0012	IN AAD-1 + 2,4-D	3-Dec-08	15	1.5	4	54.37	5.44
080137-043-0010	NE AAD-1 + 2,4-D	3-Dec-08	15	1.5	4	9.08	0.91
080137-043-0011	NE AAD-1 + 2,4-D	3-Dec-08	15	1.5	4	20.94	2.09
080137-043-0012	NE AAD-1 + 2,4-D	3-Dec-08	15	1.5	4	36.19	3.62
080137-056-0010	IL2 AAD-1 + 2,4-D	16-Dec-08	15	1.5	5	59.33	5.93
080137-056-0011	IL2 AAD-1 + 2,4-D	16-Dec-08	15	1.5	5	32.85	3.28
080137-056-0012	IL2 AAD-1 + 2,4-D	16-Dec-08	15	1.5	5	44.59	4.46
						Mean =	4.45
						Std dev. =	1.79
080137-004-0013	IA AAD-1 + 2,4-D and Quizalofop	3-Dec-08	15	1.5	2	55.59	5.56
080137-004-0014	IA AAD-1 + 2,4-D and Quizalofop	3-Dec-08	15	1.5	2	22.37	2.24
080137-004-0015	IA AAD-1 + 2,4-D and Quizalofop	3-Dec-08	15	1.5	2	48.54	4.85
080137-017-0013	IL1 AAD-1 + 2,4-D and Quizalofop	3-Dec-08	15	1.5	4	22.80	2.28
080137-017-0014	IL1 AAD-1 + 2,4-D and Quizalofop	3-Dec-08	15	1.5	4	34.53	3.45
080137-017-0015	IL1 AAD-1 + 2,4-D and Quizalofop	3-Dec-08	15	1.5	4	33.45	3.35
080137-030-0013	IN AAD-1 + 2,4-D and Quizalofop	3-Dec-08	15	1.5	4	34.45	3.45
080137-030-0014	IN AAD-1 + 2,4-D and Quizalofop	3-Dec-08	15	1.5	4	30.04	3.00
080137-030-0015	IN AAD-1 + 2,4-D and Quizalofop	3-Dec-08	15	1.5	4	43.06	4.31
080137-043-0013	NE AAD-1 + 2,4-D and Quizalofop	3-Dec-08	15	1.5	4	17.27	1.73
080137-043-0014	NE AAD-1 + 2,4-D and Quizalofop	3-Dec-08	15	1.5	4	21.90	2.19

Appendix C Table 5. (Cont.) Expression Levels of AAD-1 Protein in Maize R1 Root

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-043-0015	NE AAD-1 + 2,4-D and Quizalofop	3-Dec-08	15	1.5	4	10.94	1.09
080137-056-0013	IL2 AAD-1 + 2,4-D and Quizalofop	16-Dec-08	15	1.5	5	27.12	2.71
080137-056-0014	IL2 AAD-1 + 2,4-D and Quizalofop	16-Dec-08	15	1.5	5	33.85	3.39
080137-056-0015	IL2 AAD-1 + 2,4-D and Quizalofop	16-Dec-08	15	1.5	5	32.80	3.28
						Mean =	3.12
						Std dev. =	1.17

[a] Results (ng/mg) AAD-1 on dry weight basis = $\frac{\text{Result (ng/mL)}}{\text{Sample Weight (mg)/Sample Vol. (mL)}}$

[b] ND = Below the lowest standard at the minimum matrix dilution.

[c] Average of multiple dilutions of single sample.

[d] Average of duplicate analyses (multiple weighings of sample).

Appendix C Table 6. Expression Levels of AAD-1 Protein in Maize R4 Forage

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-006-0001	IA Control	18-Dec-08	15	1.5	2	ND[b]	ND
080137-006-0002	IA Control	18-Dec-08	15	1.5	2	ND	ND
080137-006-0003	IA Control	18-Dec-08	15	1.5	2	ND	ND
080137-019-0001	IL1 Control	18-Dec-08	15	1.5	2	ND	ND
080137-019-0002	IL1 Control	18-Dec-08	15	1.5	2	ND	ND
080137-019-0003	IL1 Control	18-Dec-08	15	1.5	2	ND	ND
080137-032-0001	IN Control	17-Dec-08	15	1.5	2	ND	ND
080137-032-0002	IN Control	17-Dec-08	15	1.5	2	ND	ND
080137-032-0003	IN Control	17-Dec-08	15	1.5	2	ND	ND
080137-045-0001	NE Control	17-Dec-08	15	1.5	2	ND	ND
080137-045-0002	NE Control	17-Dec-08	15	1.5	2	ND	ND
080137-045-0003	NE Control	17-Dec-08	15	1.5	2	ND	ND
080137-058-0001	IL2 Control	17-Dec-08	15	1.5	2	ND	ND
080137-058-0002	IL2 Control	17-Dec-08	15	1.5	2	ND	ND
080137-058-0003	IL2 Control	17-Dec-08	15	1.5	2	ND	ND
080137-006-0004	IA AAD-1 Unsprayed	18-Dec-08	15	1.5	5	51.99	5.20
080137-006-0005	IA AAD-1 Unsprayed	18-Dec-08	15	1.5	5	44.77	4.48
080137-006-0006	IA AAD-1 Unsprayed	18-Dec-08	15	1.5	5	54.95	5.49
080137-019-0004	IL1 AAD-1 Unsprayed	18-Dec-08	15	1.5	5	79.49	7.95
080137-019-0005	IL1 AAD-1 Unsprayed	18-Dec-08	15	1.5	5	77.06	7.71
080137-019-0006	IL1 AAD-1 Unsprayed	18-Dec-08	15	1.5	5	61.93	6.19
080137-032-0004	IN AAD-1 Unsprayed	17-Dec-08	15	1.5	5	23.69	2.37
080137-032-0005	IN AAD-1 Unsprayed	17-Dec-08	15	1.5	5	24.76	2.48
080137-032-0006	IN AAD-1 Unsprayed	17-Dec-08	15	1.5	5	28.33	2.83
080137-045-0004	NE AAD-1 Unsprayed	17-Dec-08	15	1.5	5	82.69	8.27
080137-045-0005	NE AAD-1 Unsprayed	17-Dec-08	15	1.5	5	90.34	9.03
080137-045-0006	NE AAD-1 Unsprayed	17-Dec-08	15	1.5	5	96.42	9.64
080137-058-0004	IL2 AAD-1 Unsprayed	17-Dec-08	15	1.5	5	120.67	12.07
080137-058-0005	IL2 AAD-1 Unsprayed	17-Dec-08	15	1.5	5	103.99	10.40
080137-058-0006	IL2 AAD-1 Unsprayed	17-Dec-08	15	1.5	5	77.36	7.74
						Mean =	6.79
						Std dev. =	2.96
080137-006-0007	IA AAD-1 + Quizalofop	18-Dec-08	15	1.5	5	51.84	5.18
080137-006-0008	IA AAD-1 + Quizalofop	18-Dec-08	15	1.5	5	51.62	5.16
080137-006-0009	IA AAD-1 + Quizalofop	18-Dec-08	15	1.5	5	43.01	4.30
080137-019-0007	IL1 AAD-1 + Quizalofop	18-Dec-08	15	1.5	5	93.11	9.31
080137-019-0008	IL1 AAD-1 + Quizalofop	18-Dec-08	15	1.5	5	105.11	10.51
080137-019-0009	IL1 AAD-1 + Quizalofop	18-Dec-08	15	1.5	5	72.40	7.24
080137-032-0007	IN AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	32.58	3.26

Appendix C Table 6. (Cont.) Expression Levels of AAD-1 Protein in Maize R4 Forage

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-032-0008	IN AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	30.47	3.05
080137-032-0009	IN AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	44.41	4.44
080137-045-0007	NE AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	56.00	5.60
080137-045-0008	NE AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	107.34	10.73
080137-045-0009	NE AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	98.04	9.80
080137-058-0007	IL2 AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	116.34	11.63
080137-058-0008	IL2 AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	88.40	8.84
080137-058-0009	IL2 AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	101.26	10.13
						Mean =	7.28
						Std dev. =	2.99
080137-006-0010	IA AAD-1 + 2,4-D	18-Dec-08	15	1.5	5	55.42	5.54
080137-006-0011	IA AAD-1 + 2,4-D	18-Dec-08	15	1.5	5	66.44	6.64
080137-006-0012	IA AAD-1 + 2,4-D	18-Dec-08	15	1.5	5	56.83	5.68
080137-019-0010	IL1 AAD-1 + 2,4-D	18-Dec-08	15	1.5	5	72.70	7.27
080137-019-0011	IL1 AAD-1 + 2,4-D	18-Dec-08	15	1.5	5	93.62	9.36
080137-019-0012	IL1 AAD-1 + 2,4-D	18-Dec-08	15	1.5	5	106.23	10.62
080137-032-0010	IN AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	23.57	2.36
080137-032-0011	IN AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	33.59	3.36
080137-032-0012	IN AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	27.93	2.79
080137-045-0010	NE AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	95.34	9.53
080137-045-0011	NE AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	90.79	9.08
080137-045-0012	NE AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	82.30	8.23
080137-058-0010	IL2 AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	95.82	9.58
080137-058-0011	IL2 AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	83.89	8.39
080137-058-0012	IL2 AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	79.16	7.92
						Mean =	7.09
						Std dev. =	2.63
080137-006-0013	IA AAD-1 + 2,4-D and Quizalofop	18-Dec-08	15	1.5	5	52.65	5.27
080137-006-0014	IA AAD-1 + 2,4-D and Quizalofop	18-Dec-08	15	1.5	5	47.00	4.70
080137-006-0015	IA AAD-1 + 2,4-D and Quizalofop	18-Dec-08	15	1.5	5	43.50	4.35
080137-019-0013	IL1 AAD-1 + 2,4-D and Quizalofop	18-Dec-08	15	1.5	5	75.63	7.56
080137-019-0014	IL1 AAD-1 + 2,4-D and Quizalofop	18-Dec-08	15	1.5	5	87.45	8.75
080137-019-0015	IL1 AAD-1 + 2,4-D and Quizalofop	18-Dec-08	15	1.5	5	86.07	8.61
080137-032-0013	IN AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	22.50	2.25
080137-032-0014	IN AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	32.90	3.29
080137-032-0015	IN AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	36.55	3.66
080137-045-0013	NE AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	84.34	8.43
080137-045-0014	NE AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	81.30	8.13
080137-045-0015	NE AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	102.99	10.30

Appendix C Table 6. (Cont.) Expression Levels of AAD-1 Protein in Maize R4 Forage

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-058-0013	IL2 AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	80.23	8.02
080137-058-0014	IL2 AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	66.30	6.63
080137-058-0015	IL2 AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	83.25	8.33
						Mean =	6.55
						Std dev. =	2.43

[a] Results (ng/mg) AAD-1 on dry weight basis = $\frac{\text{Result (ng/mL)}}{\text{Sample Weight (mg)/Sample Vol. (mL)}}$

[b] ND = Below the lowest standard at the minimum matrix dilution.

Appendix C Table 7. Expression Levels of AAD-1 Protein in Maize R6 Whole Plant

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-007-0001	IA Control	17-Dec-08	15	1.5	2	ND[b]	ND
080137-007-0002	IA Control	17-Dec-08	15	1.5	2	ND	ND
080137-007-0003	IA Control	17-Dec-08	15	1.5	2	ND	ND
080137-020-0001	IL1 Control	19-Dec-08	15	1.5	2	ND	ND
080137-020-0002	IL1 Control	19-Dec-08	15	1.5	2	ND	ND
080137-020-0003	IL1 Control	17-Dec-08	15	1.5	2	ND	ND
080137-033-0001	IN Control	17-Dec-08	15	1.5	2	ND	ND
080137-033-0002	IN Control	17-Dec-08	15	1.5	2	ND	ND
080137-033-0003	IN Control	17-Dec-08	15	1.5	2	ND	ND
080137-046-0001	NE Control	17-Dec-08	15	1.5	2	ND	ND
080137-046-0002	NE Control	17-Dec-08	15	1.5	2	ND	ND
080137-046-0003	NE Control	17-Dec-08	15	1.5	2	ND	ND
080137-059-0001	IL2 Control	17-Dec-08	15	1.5	2	ND	ND
080137-059-0002	IL2 Control	17-Dec-08	15	1.5	2	ND	ND
080137-059-0003	IL2 Control	17-Dec-08	15	1.5	2	ND	ND
080137-007-0004	IA AAD-1 Unsprayed	17-Dec-08	15	1.5	5	25.84	2.58
080137-007-0005	IA AAD-1 Unsprayed	17-Dec-08	15	1.5	5	47.50	4.75
080137-007-0006	IA AAD-1 Unsprayed	17-Dec-08	15	1.5	5	56.04	5.60
080137-020-0004	IL1 AAD-1 Unsprayed	17-Dec-08	15	1.5	5	68.57	6.86
080137-020-0005	IL1 AAD-1 Unsprayed	19-Dec-08	15	1.5	5	53.86	5.39
080137-020-0006	IL1 AAD-1 Unsprayed	17-Dec-08	15	1.5	5	79.92	7.99
080137-033-0004	IN AAD-1 Unsprayed	17-Dec-08	15	1.5	5	22.73	2.27
080137-033-0005	IN AAD-1 Unsprayed	17-Dec-08	15	1.5	5	30.57	3.06
080137-033-0006	IN AAD-1 Unsprayed	17-Dec-08	15	1.5	5	40.54	4.05
080137-046-0004	NE AAD-1 Unsprayed	17-Dec-08	15	1.5	5	7.83	0.78
080137-046-0005	NE AAD-1 Unsprayed	17-Dec-08	15	1.5	5	18.36	1.84
080137-046-0006	NE AAD-1 Unsprayed	17-Dec-08	15	1.5	5	19.97	2.00
080137-059-0004	IL2 AAD-1 Unsprayed	17-Dec-08	15	1.5	5	88.77	8.88
080137-059-0005	IL2 AAD-1 Unsprayed	17-Dec-08	15	1.5	5	79.56	7.96
080137-059-0006	IL2 AAD-1 Unsprayed	17-Dec-08	15	1.5	5	81.54	8.15
						Mean =	4.81
						Std dev. =	2.68
080137-007-0007	IA AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	40.22	4.02
080137-007-0008	IA AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	44.16	4.42
080137-007-0009	IA AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	51.27	5.13
080137-020-0007	IL1 AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	62.24	6.22
080137-020-0008	IL1 AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	44.64	4.46
080137-020-0009	IL1 AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	50.64	5.06
080137-033-0007	IN AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	20.04	2.00

Appendix C Table 7. (Cont.) Expression Levels of AAD-1 Protein in Maize R6 Whole Plant

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-033-0008	IN AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	29.66	2.97
080137-033-0009	IN AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	38.57	3.86
080137-046-0007	NE AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	26.97	2.70
080137-046-0008	NE AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	7.50	0.75
080137-046-0009	NE AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	15.90	1.59
080137-059-0007	IL2 AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	80.11	8.01
080137-059-0008	IL2 AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	80.84	8.08
080137-059-0009	IL2 AAD-1 + Quizalofop	17-Dec-08	15	1.5	5	87.68	8.77
						Mean =	4.54
						Std dev. =	2.42
080137-007-0010	IA AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	46.63	4.66
080137-007-0011	IA AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	41.30	4.13
080137-007-0012	IA AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	52.26	5.23
080137-020-0010	IL1 AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	68.42	6.84
080137-020-0011	IL1 AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	37.16	3.72
080137-020-0012	IL1 AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	63.90	6.39
080137-033-0010	IN AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	21.10	2.11
080137-033-0011	IN AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	69.38	6.94
080137-033-0012	IN AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	56.17	5.62
080137-046-0010	NE AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	20.46	2.05
080137-046-0011	NE AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	12.16	1.22
080137-046-0012	NE AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	8.31	0.83
080137-059-0010	IL2 AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	75.30	7.53
080137-059-0011	IL2 AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	101.97	10.20
080137-059-0012	IL2 AAD-1 + 2,4-D	17-Dec-08	15	1.5	5	86.91	8.69
						Mean =	5.08
						Std dev. =	2.77
080137-007-0013	IA AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	32.86	3.29
080137-007-0014	IA AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	40.75	4.07
080137-007-0015	IA AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	44.78	4.48
080137-020-0013	IL1 AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	46.16	4.62
080137-020-0014	IL1 AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	58.80	5.88
080137-020-0015	IL1 AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	63.46	6.35
080137-033-0013	IN AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	30.38	3.04
080137-033-0014	IN AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	57.14	5.71
080137-033-0015	IN AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	51.66	5.17
080137-046-0013	NE AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	28.21	2.82
080137-046-0014	NE AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	12.97	1.30
080137-046-0015	NE AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	19.44	1.94

Appendix C Table 7. (Cont.) Expression Levels of AAD-1 Protein in Maize R6 Whole Plant

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-059-0013	IL2 AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	57.68	5.77
080137-059-0014	IL2 AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	67.54	6.75
080137-059-0015	IL2 AAD-1 + 2,4-D and Quizalofop	17-Dec-08	15	1.5	5	82.10	8.21
						Mean =	4.63
						Std dev. =	1.91

[a] Results (ng/mg) AAD-1 on dry weight basis = $\frac{\text{Result (ng/mL)}}{\text{Sample Weight (mg)/Sample Vol. (mL)}}$

[b] ND = Below the lowest standard at the minimum matrix dilution.

Appendix C Table 8. Expression Levels of AAD-1 Protein in Maize Grain

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-008-0001	IA Control	11-Dec-08	15	1.5	2	ND[b]	ND
080137-008-0002	IA Control	11-Dec-08	15	1.5	2	ND	ND
080137-008-0003	IA Control	11-Dec-08	15	1.5	2	ND	ND
080137-021-0001	IL1 Control	11-Dec-08	15	1.5	2	ND	ND
080137-021-0002	IL1 Control	11-Dec-08	15	1.5	2	ND	ND
080137-021-0003	IL1 Control	11-Dec-08	15	1.5	2	ND	ND
080137-034-0001	IN Control	11-Dec-08	15	1.5	2	ND	ND
080137-034-0002	IN Control	11-Dec-08	15	1.5	2	ND	ND
080137-034-0003	IN Control	11-Dec-08	15	1.5	2	ND	ND
080137-047-0001	NE Control	11-Dec-08	15	1.5	2	ND	ND
080137-047-0002	NE Control	11-Dec-08	15	1.5	2	ND	ND
080137-047-0003	NE Control	11-Dec-08	15	1.5	2	ND	ND
080137-060-0001	IL2 Control	16-Dec-08	15	1.5	2	ND	ND
080137-060-0002	IL2 Control	16-Dec-08	15	1.5	2	ND	ND
080137-060-0003	IL2 Control	16-Dec-08	15	1.5	2	ND	ND
080137-008-0004	IA AAD-1 Unsprayed	11-Dec-08	15	1.5	5	63.27	6.33
080137-008-0005	IA AAD-1 Unsprayed	11-Dec-08	15	1.5	5	59.44	5.94
080137-008-0006	IA AAD-1 Unsprayed	11-Dec-08	15	1.5	5	52.88	5.29
080137-021-0004	IL1 AAD-1 Unsprayed	11-Dec-08	15	1.5	5	41.26	4.13
080137-021-0005	IL1 AAD-1 Unsprayed	11-Dec-08	15	1.5	5	37.75	3.77
080137-021-0006	IL1 AAD-1 Unsprayed	11-Dec-08	15	1.5	5	47.89	4.79
080137-034-0004	IN AAD-1 Unsprayed	11-Dec-08	15	1.5	5	29.52	2.95
080137-034-0005	IN AAD-1 Unsprayed	11-Dec-08	15	1.5	5	28.72	2.87
080137-034-0006	IN AAD-1 Unsprayed	11-Dec-08	15	1.5	5	39.66	3.97
080137-047-0004	NE AAD-1 Unsprayed	11-Dec-08	15	1.5	5	53.40	5.34
080137-047-0005	NE AAD-1 Unsprayed	11-Dec-08	15	1.5	5	69.57	6.96
080137-047-0006	NE AAD-1 Unsprayed	11-Dec-08	15	1.5	5	37.97	3.80
080137-060-0004	IL2 AAD-1 Unsprayed	16-Dec-08	15	1.5	5	51.95	5.19
080137-060-0005	IL2 AAD-1 Unsprayed	16-Dec-08	15	1.5	5	57.26	5.73
080137-060-0006	IL2 AAD-1 Unsprayed	16-Dec-08	15	1.5	5	26.60	2.66
						Mean =	4.65
						Std dev. =	1.32
080137-008-0007	IA AAD-1 + Quizalofop	11-Dec-08	15	1.5	5	43.41	4.34
080137-008-0008	IA AAD-1 + Quizalofop	11-Dec-08	15	1.5	5	51.69	5.17
080137-008-0009	IA AAD-1 + Quizalofop	11-Dec-08	15	1.5	5	55.74	5.57
080137-021-0007	IL1 AAD-1 + Quizalofop	11-Dec-08	15	1.5	5	35.02	3.50
080137-021-0008	IL1 AAD-1 + Quizalofop	11-Dec-08	15	1.5	5	39.14	3.91
080137-021-0009	IL1 AAD-1 + Quizalofop	11-Dec-08	15	1.5	5	59.79	5.98
080137-034-0007	IN AAD-1 + Quizalofop	11-Dec-08	15	1.5	5	34.21	3.42

Appendix C Table 8. (Cont.) Expression Levels of AAD-1 Protein in Maize Grain

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-034-0008	IN AAD-1 + Quizalofop	11-Dec-08	15	1.5	5	30.13	3.01
080137-034-0009	IN AAD-1 + Quizalofop	11-Dec-08	15	1.5	5	10.71	1.07
080137-047-0007	NE AAD-1 + Quizalofop	11-Dec-08	15	1.5	5	41.44	4.14
080137-047-0008	NE AAD-1 + Quizalofop	11-Dec-08	15	1.5	5	42.47	4.25
080137-047-0009	NE AAD-1 + Quizalofop	11-Dec-08	15	1.5	5	64.83	6.48
080137-060-0007	IL2 AAD-1 + Quizalofop	16-Dec-08	15	1.5	5	31.16	3.12
080137-060-0008	IL2 AAD-1 + Quizalofop	16-Dec-08	15	1.5	5	67.17	6.72
080137-060-0009	IL2 AAD-1 + Quizalofop	16-Dec-08	15	1.5	5	52.23	5.22
						Mean =	4.39
						Std dev. =	1.50
080137-008-0010	IA AAD-1 + 2,4-D	11-Dec-08	15	1.5	5	56.65	5.67
080137-008-0011	IA AAD-1 + 2,4-D	11-Dec-08	15	1.5	5	37.63	3.76
080137-008-0012	IA AAD-1 + 2,4-D	11-Dec-08	15	1.5	5	39.26	3.93
080137-021-0010	IL1 AAD-1 + 2,4-D	11-Dec-08	15	1.5	5	39.78	3.98
080137-021-0011	IL1 AAD-1 + 2,4-D	11-Dec-08	15	1.5	5	30.21	3.02
080137-021-0012	IL1 AAD-1 + 2,4-D	11-Dec-08	15	1.5	5	36.85	3.69
080137-034-0010	IN AAD-1 + 2,4-D	11-Dec-08	15	1.5	5	43.08	4.31
080137-034-0011	IN AAD-1 + 2,4-D	11-Dec-08	15	1.5	5	51.84	5.18
080137-034-0012	IN AAD-1 + 2,4-D	11-Dec-08	15	1.5	5	35.33	3.53
080137-047-0010	NE AAD-1 + 2,4-D	11-Dec-08	15	1.5	5	55.62	5.56
080137-047-0011	NE AAD-1 + 2,4-D	11-Dec-08	15	1.5	5	29.36	2.94
080137-047-0012	NE AAD-1 + 2,4-D	11-Dec-08	15	1.5	5	35.07	3.51
080137-060-0010	IL2 AAD-1 + 2,4-D	16-Dec-08	15	1.5	5	65.71	6.57
080137-060-0011	IL2 AAD-1 + 2,4-D	16-Dec-08	15	1.5	5	60.95	6.10
080137-060-0012	IL2 AAD-1 + 2,4-D	16-Dec-08	15	1.5	5	91.03	9.10
						Mean =	4.72
						Std dev. =	1.66
080137-008-0013	IA AAD-1 + 2,4-D and Quizalofop	11-Dec-08	15	1.5	5	47.35	4.74
080137-008-0014	IA AAD-1 + 2,4-D and Quizalofop	11-Dec-08	15	1.5	5	18.10	1.81
080137-008-0015	IA AAD-1 + 2,4-D and Quizalofop	19-Dec-08	15	1.5	5	46.24	4.62
080137-021-0013	IL1 AAD-1 + 2,4-D and Quizalofop	11-Dec-08	15	1.5	5	33.38	3.34
080137-021-0014	IL1 AAD-1 + 2,4-D and Quizalofop	11-Dec-08	15	1.5	5	37.90	3.79
080137-021-0015	IL1 AAD-1 + 2,4-D and Quizalofop	11-Dec-08	15	1.5	5	22.41	2.24
080137-034-0013	IN AAD-1 + 2,4-D and Quizalofop	11-Dec-08	15	1.5	5	35.39	3.54
080137-034-0014	IN AAD-1 + 2,4-D and Quizalofop	11-Dec-08	15	1.5	5	42.90	4.29
080137-034-0015	IN AAD-1 + 2,4-D and Quizalofop	11-Dec-08	15	1.5	5	28.22	2.82
080137-047-0013	NE AAD-1 + 2,4-D and Quizalofop	11-Dec-08	15	1.5	5	43.70	4.37
080137-047-0014	NE AAD-1 + 2,4-D and Quizalofop	11-Dec-08	15	1.5	5	42.70	4.27
080137-047-0015	NE AAD-1 + 2,4-D and Quizalofop	11-Dec-08	15	1.5	5	61.44	6.14

Appendix C Table 8. (Cont.) Expression Levels of AAD-1 Protein in Maize Grain

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080137-060-0013	IL2 AAD-1 + 2,4-D and Quizalofop	16-Dec-08	15	1.5	5	68.36	6.84
080137-060-0014	IL2 AAD-1 + 2,4-D and Quizalofop	16-Dec-08	15	1.5	5	74.28	7.43
080137-060-0015	IL2 AAD-1 + 2,4-D and Quizalofop	16-Dec-08	15	1.5	5	74.94	7.49
						Mean =	4.52
						Std dev. =	1.77

[a] Results (ng/mg) AAD-1 on dry weight basis = $\frac{\text{Result (ng/mL)}}{\text{Sample Weight (mg)/Sample Vol. (mL)}}$

[b] ND = Below the lowest standard at the minimum matrix dilution.

Appendix D—Covance Analytical Report, Covance 8200-535

COVANCE
THE DEVELOPMENT SERVICES COMPANY

Sub-Report

Study Title	Field Expression, Nutrient Composition Analysis, Residue Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD1) – Event DAS-40278-9
Study Director	A. M. Phillips Dow AgroSciences LLC
Sponsor	Dow AgroSciences LLC 9330 Zionsville Road Indianapolis, Indiana 46268
Principal Investigator	Jane Z. Sabbatini Covance Laboratories Inc.
Testing Site	Covance Laboratories Inc. 3301 Kinsman Boulevard Madison, WI 53704
Covance Study Identification	8200-535
Covance Client Identification	1002382
Sponsor Study Identification	080137
Version	Final
Sub-Report Issued	13 April 2009
Page Number	1 of 127

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COMPLIANCE STATEMENT

The study was conducted in compliance with the Environmental Protection Agency (EPA) FIFRA Good Laboratory Practice (GLP) Standards, Title 40 Code of Federal Regulations Part 160, effective October 16, 1989, and with the OECD GLP Standards with the following exceptions:

1. The reference standards used for compositional analysis were not listed in the protocol or characterized according to GLP standards.
2. Reserve samples from each batch of the reference standards were not retained.

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

Jane Z. Sabbatini | 13-Apr-2009

Jane Z. Sabbatini
Principal Investigator
Covance Laboratories Inc.

Date

QUALITY ASSURANCE STATEMENT

This report has been reviewed by the Quality Assurance Unit of Covance Laboratories Inc. and accurately reflects the raw data. The following study specific inspections were conducted and findings reported to the principal investigator (PI), study director (SD), and associated management.

Inspection Dates			Date Reported	Date Reported
From	To	Phase	to PI and PI Management	to SD and SD Management
14 Jan 2009	15 Jan 2009	Analytical Chemistry	19 Jan 2009	13 Apr 2009
09 Feb 2009	11 Feb 2009	Draft Report and Data Review	11 Feb 2009	13 Apr 2009
06 Mar 2009	10 Mar 2009	Draft Report and Data Review	11 Mar 2009	13 Apr 2009
17 Mar 2009	25 Mar 2009	Revised Draft Report and Data Review	25 Mar 2009	13 Apr 2009
07 Apr 2009	08 Apr 2009	Revised Draft Report and Data Review	09 Apr 2009	13 Apr 2009

K. Lea Hall [signature] 13 Apr 09

Representative
Quality Assurance Unit

Date

SIGNATURE

Jane Z. Sabbatini
Jane Z. Sabbatini
Principal Investigator
Covance Laboratories Inc.

13-Apr-2009
Date

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STUDY IDENTIFICATION

Study Title
Field Expression, Nutrient Composition Analysis, Residue Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD1) – Event DAS-40278-9

Purpose
The purpose of this portion of the study was to conduct compositional analyses of corn forage and grain products for use in Dow AgroSciences study 080137.

Sponsor
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Study Timetable

Study Initiation Date:	19 May, 2008
Study Completion Date:	13 April, 2009

MAJOR COMPUTER SYSTEMS

The major computer systems used for this portion of the study included, but were not limited to, the following systems:

- Balance (balance weight capture system)
- Waters Empower® Chromatography Manager (data acquisition and result calculation system)
- ICP WinLab32 (ICP spectrometry)
- Laboratory Information Management System (sample and assay tracking)
- The Metasys or REES Centron (monitor and document facility storage conditions)
- eNotes (official study communication system)
- MADCAP (dilution calculation system)
- Elan (ICP-MS)
- WINGZ (calculation of standard curve)
- UV-Visible ChemStation (data acquisition)
- Analyst® (Applied Biosystems)

SAMPLE RECEIPT AND HANDLING

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

TEST SAMPLES

Test Sample Identification

The test samples were corn forage and grain and each sample was identified with a unique Dow AgroSciences' sample identifier. The Covance LIMS numbers and the sponsor sample identifier were cross-referenced and are listed in Tables 1 and 2.

Storage Conditions

Upon receipt at Covance, the samples were stored in a freezer set to maintain –20 ±10°C. Reference standards were stored according to vendor specifications.

® Empower is a registered trademark of Waters Corporation

Summary of Sample Preparation
Each sample of corn forage and grain was weighed after receipt and was ground to a powder with liquid nitrogen using a Waring Blender prior to analyses.

Stability
Stability of the compositional analytes in the test samples was not determined in this portion of the study.

Disposition
Any remaining prepared dilutions or extractions of the test samples (if applicable) will be discarded at Covance. Any remaining sample volumes will be archived at Covance for one year or until the final disposition is directed by the Study Director. Any remaining reference standards may be used for other testing.

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

Reserve (Archive) Samples
Reserve samples were not required for this portion of the study.

EXPERIMENTAL DESIGN

Covance used approved analytical methods to determine the composition of the test samples. 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 reference standards were used in each assay for the analytical procedures and equipment calibrations. See Appendix A for reference standard identification (if applicable). Any additional analyses or re-analyses were documented and justified in the raw data. If additional processing was necessary, it was documented in the raw data.

The analytes required for the corn forage samples were as follows:

Analyte	Method Mnemonic[1]
Proximates:	
Crude Protein	PGEN
Fat	FAAH
Ash	ASHM
Moisture	M100

Neutral Detergent Fiber (NDF)	NDFE
Acid Detergent Fiber (ADF)	ADF
Minerals:	ICP2
Calcium, Phosphorus	

The analytes required for the corn grain samples were as follows:

Analyte	**Method Mnemonic[1]**
Proximates:	
Crude Protein	PGEN
Fat	FSOX
Ash	ASHM
Moisture	M100
Cholesterol	CHOK
Neutral Detergent Fiber (NDF)	NDFE
Acid Detergent Fiber (ADF)	ADF
Total Dietary Fiber	TDF
Minerals:	ICPS
Calcium, Copper, Iron, Magnesium, Manganese, Phosphorus, Potassium, Sodium, Zinc	
Iodine	IOL
Selenium, Chromium, Molybdenum	MS1
Fatty Acid Profile (C8-C22)	FAPM
Amino Acid Profile	TAA5
Phytic Acid	PHYT
Trypsin Inhibitor	TRIP
Courmaric Acid	ACID
Ferulic Acid	ACID
Furfural	FURF
Inositol	INOS
Raffinose	SUGT
Vitamine E (alpha tocopherol)	LCAT
Vitamin A (beta carotene)	BCLC
Vitamin B1 (Thiamin HCl)	BIDE
Vitamin B2 (Riboflavin)	B2FV
Vitamin B5 (Pantothenic Acid)	PANN
Viamin B6 (Pyridoxine HCl)	B6A
Viamin B12	B12F
Vitamin C (Ascorbic Acid)	VCF
Vitamin D	VDMS

Niacin (Nicotinic Acid)	NIAP
Folic Acid	FOAN

[1]Analytical methods are kept on file at Covance Laboratories Inc.
Carbohydrate (CHO) values were determined by calculation.

DRY WEIGHT CALCULATION

The calculation used to convert the analytical fresh weight results to dry weight results was as follows:

$$100\% - \%\text{Moisture} = DW\%$$
$$DW\% \div 100 = DWD$$
$$FWR \div DWD = DWR$$

DW - Dry Weight
DWD - Dry Weight Decimal
FWR - Fresh Weight Result
DWR - Dry Weight Result

CONTROL OF BIAS

The samples were treated identically in order to minimize assay bias. Samples were tested in a randomized order to minimize assay bias. Randomization method and details are documented in the study file.

STATISTICAL EVALUATIONS

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

MAINTENANCE OF RAW DATA AND RECORDS

All raw data, documentation, records, protocol, protocol amendments, and the final original sub-report generated as a result of this portion of the study will be transferred to Dow AgroSciences at the end of this portion of the study. Covance collected data in both paper and electronic formats. When electronic data was collected, Covance printed out a paper copy of the data which was defined as the finalized raw data. Covance has retained a copy of electronic data (CD) in their archives and will ship all finalized paper raw data to Dow AgroSciences at the conclusion of the study.

The following supporting records will be retained at Covance but will not be archived with the study data:

- Training records

- Storage temperature records
- Instrument calibration and maintenance records
- Durable media records
- Applicable Standard Operating Procedures (SOPs)
- Standard logbooks

The test samples, associated with this portion of the study, will be properly disposed of at the direction of the Study Director following receipt of the analytical results.

RESULTS

The results for all analytes for corn grain and forage are presented in Tables 1 and 2, respectively. The moisture results are presented in the table on a fresh-weight basis. The limits of quantitation (LOQs) listed in Appendix A and in the tables are also expressed on a fresh weight basis. All of the other corn grain and forage assay results are presented in the tables on a dry-weight basis.

Table 1
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0006	080137-023-0015	080137-049-0004
Covance LIMS Number	81200323	81200324	81200325
Proximate (%)			
Moisture (fresh weight)	25.5	20.0	22.3
Protein	8.43	11.7	11.2
Total Fat	4.09	4.20	3.86
Ash	1.53	1.40	1.30
Carbohydrates (calculated)	85.9	82.8	83.7
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	10.8	10.7	8.43
Acid Detergent Fiber (%)	3.85	4.36	3.75
Total Dietary Fiber (%)	15.0	13.6	12.0
Amino Acids (%)			
Aspartic Acid	0.570	0.794	0.788
Threonine	0.310	0.404	0.391
Serine	0.413	0.573	0.548
Glutamic Acid	1.57	2.35	2.24
Proline	0.779	1.08	1.04
Glycine	0.346	0.421	0.400
Alanine	0.638	0.946	0.906
Cystine	0.205	0.234	0.218
Valine	0.416	0.568	0.543
Methionine	0.185	0.223	0.210
Isoleucine	0.306	0.450	0.429
Leucine	1.04	1.61	1.53
Tyrosine	0.309	0.271	0.260
Phenylalanine	0.430	0.644	0.609
Lysine	0.283	0.333	0.315
Histidine	0.244	0.318	0.300
Arginine	0.454	0.515	0.472
Tryptophan	0.0545	0.0611	0.0600

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0006	080137-023-0015	080137-049-0004
Covance LIMS Number	81200323	81200324	81200325
**Trypsin Inhibitor (TIU/mg)	5.99	5.88	6.65
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.744	0.670	0.807
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	7.03	7.74	6.83
Beta carotene (mg/kg)	2.21	2.23	1.76
Minerals (mg/100g)			
Calcium	4.48	3.60	3.55
Copper	0.204	0.151	0.185
Iron	2.10	2.68	2.46
Magnesium	122	125	130
Manganese	0.470	0.584	0.550
Phosphorus	284	284	320
Potassium	334	365	389
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.67	2.35	2.33
Iodine	0.0415	< LOQ	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	191	< LOQ	943
Molybdenum	415	231	230
Thiamine Hydrochloride (mg/kg)	3.10	2.94	3.47
Riboflavin/Vitamin B2 (mg/kg)	1.79	2.33	2.92
Niacin/Vitamin B3 (mg/kg)	27.5	25.9	23.0
Pyridoxine HCl (mg/kg)	5.26	6.70	5.82
Folic Acid (mg/kg)	0.627	0.586	0.615
Panthotenic acid (mg/kg)	4.71	5.03	6.46
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	22.4	13.9	17.9
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.226	0.209	0.181
Inositol (%)	0.203	0.248	0.230
Coumaric acid (%)	0.0154	0.0219	0.0188

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0006	080137-023-0015	080137-049-0004
Covance LIMS Number	81200323	81200324	81200325
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.389	0.398	0.389
16:1 Palmitoleic	< LOQ	0.00520	0.00484
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0886	0.0849	0.0757
18:1 Oleic	1.23	1.35	1.17
18:2 Linoleic	1.80	1.96	1.85
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0430	0.0435	0.0425
20:0 Arachidic	0.0165	0.0166	0.0152
20:1 Eicosenoic	0.00877	0.00953	0.00879
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	< LOQ	0.00524	0.00497

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-062-0004	080137-023-0001	080137-023-0008
Covance LIMS Number	81200326	81200327	81200328
Proximate (%)			
Moisture (fresh weight)	25.4	19.1	18.7
Protein	13.1	11.3	12.5
Total Fat	4.09	4.15	3.83
Ash	1.34	1.09	1.25
Carbohydrates (calculated)	81.5	83.4	82.4
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	8.78	9.51	10.0
Acid Detergent Fiber (%)	3.42	3.92	4.28
Total Dietary Fiber (%)	13.2	12.2	12.7
Amino Acids (%)			
Aspartic Acid	0.920	0.770	0.843
Threonine	0.450	0.400	0.437
Serine	0.657	0.562	0.621
Glutamic Acid	2.67	2.25	2.53
Proline	1.20	1.03	1.15
Glycine	0.432	0.417	0.439
Alanine	1.09	0.907	1.02
Cystine	0.228	0.229	0.239
Valine	0.634	0.550	0.606
Methionine	0.210	0.208	0.230
Isoleucine	0.520	0.434	0.488
Leucine	1.90	1.53	1.76
Tyrosine	0.503	0.405	0.439
Phenylalanine	0.755	0.622	0.702
Lysine	0.347	0.333	0.348
Histidine	0.336	0.311	0.333
Arginine	0.567	0.550	0.582
Tryptophan	0.0634	0.0601	0.0664

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-062-0004	080137-023-0001	080137-023-0008
Covance LIMS Number	81200326	81200327	81200328
**Trypsin Inhibitor (TIU/mg)	3.55	5.15	5.60
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.747	0.702	0.738
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	7.00	7.42	8.29
Beta carotene (mg/kg)	1.86	2.05	1.92
Minerals (mg/100g)			
Calcium	4.88	3.49	3.70
Copper	0.128	0.114	0.125
Iron	2.64	2.65	2.61
Magnesium	133	131	132
Manganese	0.535	0.529	0.546
Phosphorus	299	279	293
Potassium	338	323	348
Sodium	13.9	13.7	< LOQ
Zinc	2.32	2.20	2.34
Iodine	< LOQ	< LOQ	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	< LOQ	< LOQ	< LOQ
Molybdenum	184	198	193
Thiamine Hydrochloride (mg/kg)	3.53	3.26	3.28
Riboflavin/Vitamin B2 (mg/kg)	2.86	2.71	2.57
Niacin/Vitamin B3 (mg/kg)	20.8	20.1	19.9
Pyridoxine HCl (mg/kg)	6.54	6.66	6.92
Folic Acid (mg/kg)	0.682	0.549	0.604
Panthotenic acid (mg/kg)	5.07	4.72	4.69
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	28.7	< LOQ	< LOQ
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.200	0.171	0.207
Inositol (%)	0.235	0.246	0.220
Coumaric acid (%)	0.0227	0.0214	0.0248

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-062-0004	080137-023-0001	080137-023-0008
Covance LIMS Number	81200326	81200327	81200328
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.414	0.408	0.365
16:1 Palmitoleic	< LOQ	0.00502	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0808	0.0921	0.0797
18:1 Oleic	1.29	1.42	1.21
18:2 Linoleic	1.97	1.99	1.73
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0453	0.0433	0.0391
20:0 Arachidic	0.0155	0.0182	0.0155
20:1 Eicosenoic	0.00924	0.0103	0.00883
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	< LOQ	0.00587	< LOQ

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-062-0014	080137-036-0003	080137-010-0005
Covance LIMS Number	81200329	81200330	81200331
Proximate (%)			
Moisture (fresh weight)	24.2	24.4	24.9
Protein	12.8	8.48	11.3
Total Fat	4.12	4.14	4.37
Ash	1.31	1.42	1.45
Carbohydrates (calculated)	81.8	86.0	83.0
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	8.98	9.42	7.94
Acid Detergent Fiber (%)	3.05	3.92	3.29
Total Dietary Fiber (%)	12.6	13.1	12.1
Amino Acids (%)			
Aspartic Acid	0.889	0.565	0.802
Threonine	0.442	0.306	0.399
Serine	0.645	0.405	0.551
Glutamic Acid	2.65	1.55	2.42
Proline	1.20	0.746	1.10
Glycine	0.417	0.351	0.410
Alanine	1.07	0.635	0.971
Cystine	0.232	0.200	0.241
Valine	0.621	0.414	0.577
Methionine	0.212	0.185	0.221
Isoleucine	0.511	0.308	0.474
Leucine	1.89	1.00	1.69
Tyrosine	0.484	0.291	0.236
Phenylalanine	0.741	0.417	0.663
Lysine	0.328	0.287	0.313
Histidine	0.332	0.243	0.318
Arginine	0.545	0.455	0.478
Tryptophan	0.0615	0.0507	0.0599

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-062-0014	080137-036-0003	080137-010-0005
Covance LIMS Number	81200329	81200330	81200331
**Trypsin Inhibitor (TIU/mg)	6.72	7.29	7.72
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.708	0.657	0.820
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	7.52	7.90	7.67
Beta carotene (mg/kg)	1.70	1.92	1.70
Minerals (mg/100g)			
Calcium	3.98	4.64	3.89
Copper	0.115	0.161	0.133
Iron	2.41	2.21	2.85
Magnesium	125	123	129
Manganese	0.532	0.447	0.617
Phosphorus	288	291	312
Potassium	330	378	360
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.16	2.57	2.84
Iodine	< LOQ	< LOQ	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	< LOQ	210	< LOQ
Molybdenum	179	511	226
Thiamine Hydrochloride (mg/kg)	3.88	2.99	3.60
Riboflavin/Vitamin B2 (mg/kg)	2.92	2.94	2.72
Niacin/Vitamin B3 (mg/kg)	12.8	30.2	24.4
Pyridoxine HCl (mg/kg)	5.96	5.67	6.64
Folic Acid (mg/kg)	0.600	0.603	0.598
Panthotenic acid (mg/kg)	5.61	4.99	5.39
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	23.7	22.1	24.9
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.198	0.243	0.181
Inositol (%)	0.194	0.194	0.186
Coumaric acid (%)	0.0230	0.0202	0.0149

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-062-0014	080137-036-0003	080137-010-0005
Covance LIMS Number	81200329	81200330	81200331
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.401	0.403	0.431
16:1 Palmitoleic	< LOQ	< LOQ	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0819	0.0925	0.0855
18:1 Oleic	1.24	1.36	1.33
18:2 Linoleic	1.98	1.87	2.16
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0437	0.0442	0.0458
20:0 Arachidic	0.0154	0.0184	0.0168
20:1 Eicosenoic	0.00891	0.0102	0.00967
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	< LOQ	0.00643	< LOQ

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-010-0011	080137-023-0007	080137-036-0013
Covance LIMS Number	81200332	81200333	81200334
Proximate (%)			
Moisture (fresh weight)	23.2	18.5	26.2
Protein	10.5	11.9	10.0
Total Fat	4.30	4.17	4.30
Ash	1.10	1.15	1.18
Carbohydrates (calculated)	84.1	82.8	84.6
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	8.32	8.13	12.2
Acid Detergent Fiber (%)	3.97	3.45	4.39
Total Dietary Fiber (%)	12.8	12.8	14.5
Amino Acids (%)			
Aspartic Acid	0.771	0.817	0.663
Threonine	0.387	0.407	0.352
Serine	0.530	0.571	0.476
Glutamic Acid	2.21	2.45	1.99
Proline	1.05	1.14	0.961
Glycine	0.406	0.421	0.386
Alanine	0.892	0.987	0.798
Cystine	0.238	0.234	0.234
Valine	0.543	0.595	0.499
Methionine	0.215	0.217	0.206
Isoleucine	0.431	0.485	0.390
Leucine	1.52	1.73	1.35
Tyrosine	0.426	0.280	0.363
Phenylalanine	0.607	0.677	0.543
Lysine	0.316	0.334	0.302
Histidine	0.307	0.323	0.290
Arginine	0.542	0.515	0.501
Tryptophan	0.0578	0.0553	0.0530

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-010-0011	080137-023-0007	080137-036-0013
Covance LIMS Number	81200332	81200333	81200334
**Trypsin Inhibitor (TIU/mg)	7.70	6.48	6.38
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.738	0.785	0.825
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	8.41	7.67	8.83
Beta carotene (mg/kg)	1.80	1.93	2.14
Minerals (mg/100g)			
Calcium	3.57	3.52	3.71
Copper	0.122	0.120	0.129
Iron	2.75	2.54	2.36
Magnesium	127	126	124
Manganese	0.586	0.547	0.473
Phosphorus	305	281	286
Potassium	359	340	332
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.83	2.25	2.41
Iodine	< LOQ	< LOQ	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	< LOQ	< LOQ	201
Molybdenum	214	188	374
Thiamine Hydrochloride (mg/kg)	3.49	3.36	3.59
Riboflavin/Vitamin B2 (mg/kg)	1.67	2.79	1.99
Niacin/Vitamin B3 (mg/kg)	24.5	21.6	24.9
Pyridoxine HCl (mg/kg)	6.68	7.80	9.69
Folic Acid (mg/kg)	0.579	0.520	0.641
Panthotenic acid (mg/kg)	6.22	4.80	4.96
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	< LOQ	< LOQ	23.3
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.188	0.129	0.210
Inositol (%)	0.240	0.204	0.228
Coumaric acid (%)	0.0163	0.0183	0.0141

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-010-0011	080137-023-0007	080137-036-0013
Covance LIMS Number	81200332	81200333	81200334
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.419	0.395	0.425
16:1 Palmitoleic	< LOQ	0.00494	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0859	0.0855	0.0935
18:1 Oleic	1.34	1.35	1.38
18:2 Linoleic	2.12	1.91	2.02
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0452	0.0432	0.0459
20:0 Arachidic	0.0167	0.0167	0.0178
20:1 Eicosenoic	0.00962	0.00957	0.0101
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00534	0.00531	0.00587

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-010-0002	080137-062-0015	080137-049-0013
Covance LIMS Number	81200335	81200336	81200337
Proximate (%)			
Moisture (fresh weight)	24.2	24.4	21.1
Protein	10.1	12.4	11.8
Total Fat	4.14	3.73	3.75
Ash	1.02	1.24	1.39
Carbohydrates (calculated)	84.7	82.7	83.1
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	9.88	9.87	9.44
Acid Detergent Fiber (%)	3.67	3.54	3.04
Total Dietary Fiber (%)	12.5	12.8	12.1
Amino Acids (%)			
Aspartic Acid	0.751	0.921	0.814
Threonine	0.373	0.440	0.398
Serine	0.507	0.615	0.553
Glutamic Acid	2.14	2.70	2.38
Proline	1.02	1.23	1.10
Glycine	0.397	0.421	0.401
Alanine	0.863	1.06	0.965
Cystine	0.220	0.224	0.234
Valine	0.529	0.640	0.568
Methionine	0.201	0.210	0.222
Isoleucine	0.422	0.534	0.460
Leucine	1.46	1.90	1.66
Tyrosine	0.377	0.290	0.378
Phenylalanine	0.591	0.747	0.650
Lysine	0.313	0.336	0.308
Histidine	0.298	0.332	0.309
Arginine	0.511	0.511	0.483
Tryptophan	0.0570	0.0581	0.0516

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-010-0002	080137-062-0015	080137-049-0013
Covance LIMS Number	81200335	81200336	81200337
**Trypsin Inhibitor (TIU/mg)	6.24	6.42	6.79
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.739	0.763	0.795
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	7.49	7.69	7.16
Beta carotene (mg/kg)	1.65	1.72	1.67
Minerals (mg/100g)			
Calcium	3.36	4.31	3.27
Copper	0.123	0.115	0.129
Iron	2.63	2.72	2.53
Magnesium	121	131	125
Manganese	0.553	0.561	0.523
Phosphorus	296	302	300
Potassium	367	344	343
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.51	2.46	2.21
Iodine	< LOQ	< LOQ	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	< LOQ	< LOQ	954
Molybdenum	220	175	208
Thiamine Hydrochloride (mg/kg)	3.11	4.48	3.50
Riboflavin/Vitamin B2 (mg/kg)	2.94	2.09	2.40
Niacin/Vitamin B3 (mg/kg)	25.6	25.7	21.3
Pyridoxine HCl (mg/kg)	8.17	6.84	6.70
Folic Acid (mg/kg)	0.716	0.694	0.691
Panthotenic acid (mg/kg)	4.85	5.00	4.71
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	21.6	28.4	15.7
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.198	0.200	0.183
Inositol (%)	0.216	0.197	0.231
Coumaric acid (%)	0.0173	0.0217	0.0191

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-010-0002	080137-062-0015	080137-049-0013
Covance LIMS Number	81200335	81200336	81200337
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.376	0.365	0.350
16:1 Palmitoleic	< LOQ	0.00434	0.00436
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0757	0.0718	0.0703
18:1 Oleic	1.22	1.08	1.07
18:2 Linoleic	1.89	1.81	1.70
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0417	0.0407	0.0402
20:0 Arachidic	0.0146	0.0136	0.0134
20:1 Eicosenoic	0.00876	0.00786	0.00788
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	< LOQ	0.00440	0.00450

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-023-0003	080137-062-0010	080137-010-0006
Covance LIMS Number	81200338	81200339	81200340
Proximate (%)			
Moisture (fresh weight)	18.5	23.7	22.3
Protein	10.7	12.1	10.4
Total Fat	3.51	4.18	3.80
Ash	1.16	1.32	1.53
Carbohydrates (calculated)	84.5	82.3	84.3
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	13.9	8.85	10.6
Acid Detergent Fiber (%)	6.97	3.56	3.66
Total Dietary Fiber (%)	16.8	13.9	13.5
Amino Acids (%)			
Aspartic Acid	0.708	0.843	0.741
Threonine	0.357	0.422	0.371
Serine	0.482	0.594	0.501
Glutamic Acid	1.99	2.45	2.15
Proline	0.963	1.12	1.03
Glycine	0.393	0.415	0.404
Alanine	0.806	0.990	0.869
Cystine	0.218	0.236	0.233
Valine	0.507	0.586	0.524
Methionine	0.198	0.216	0.219
Isoleucine	0.395	0.473	0.413
Leucine	1.35	1.72	1.47
Tyrosine	0.348	0.283	0.233
Phenylalanine	0.547	0.674	0.579
Lysine	0.313	0.328	0.301
Histidine	0.287	0.318	0.296
Arginine	0.513	0.518	0.466
Tryptophan	0.0521	0.0554	0.0528

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-023-0003	080137-062-0010	080137-010-0006
Covance LIMS Number	81200338	81200339	81200340
**Trypsin Inhibitor (TIU/mg)	6.18	6.17	6.42
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.583	0.761	0.974
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	10.8	8.27	8.39
Beta carotene (mg/kg)	1.99	1.83	1.83
Minerals (mg/100g)			
Calcium	3.36	4.18	3.15
Copper	0.133	0.124	0.127
Iron	2.37	2.63	2.63
Magnesium	113	136	126
Manganese	0.542	0.574	0.596
Phosphorus	259	305	311
Potassium	335	358	371
Sodium	14.1	< LOQ	< LOQ
Zinc	2.25	2.27	2.70
Iodine	< LOQ	< LOQ	0.0259
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	< LOQ	< LOQ	< LOQ
Molybdenum	292	165	212
Thiamine Hydrochloride (mg/kg)	2.88	3.53	3.66
Riboflavin/Vitamin B2 (mg/kg)	1.74	1.91	1.76
Niacin/Vitamin B3 (mg/kg)	30.8	23.7	21.5
Pyridoxine HCl (mg/kg)	7.39	6.71	6.56
Folic Acid (mg/kg)	0.728	0.505	0.660
Panthotenic acid (mg/kg)	4.80	4.84	5.01
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	< LOQ	22.3	19.3
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.199	0.198	0.188
Inositol (%)	0.178	0.237	0.281
Coumaric acid (%)	0.0216	0.0207	0.0158

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-023-0003	080137-062-0010	080137-010-0006
Covance LIMS Number	81200338	81200339	81200340
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.325	0.421	0.373
16:1 Palmitoleic	0.00470	< LOQ	0.00414
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0710	0.0841	0.0759
18:1 Oleic	1.08	1.29	1.12
18:2 Linoleic	1.51	2.07	1.89
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0350	0.0456	0.0399
20:0 Arachidic	0.0137	0.0160	0.0148
20:1 Eicosenoic	0.00766	0.00959	0.00847
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00465	0.00549	0.00497

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-023-0004	080137-049-0007	080137-010-0010
Covance LIMS Number	81200341	81200342	81200343
Proximate (%)			
Moisture (fresh weight)	17.4	21.9	23.3
Protein	10.7	11.3	11.3
Total Fat	3.90	3.83	4.25
Ash	1.31	1.59	1.47
Carbohydrates (calculated)	84.0	83.4	83.1
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	10.4	10.2	9.40
Acid Detergent Fiber (%)	3.66	4.93	4.35
Total Dietary Fiber (%)	15.0	14.9	12.9
Amino Acids (%)			
Aspartic Acid	0.771	0.796	0.776
Threonine	0.389	0.392	0.390
Serine	0.535	0.549	0.545
Glutamic Acid	2.25	2.33	2.29
Proline	1.07	1.07	1.08
Glycine	0.393	0.399	0.402
Alanine	0.909	0.941	0.922
Cystine	0.222	0.225	0.243
Valine	0.547	0.557	0.548
Methionine	0.207	0.214	0.220
Isoleucine	0.441	0.449	0.441
Leucine	1.54	1.60	1.59
Tyrosine	0.291	0.241	0.254
Phenylalanine	0.619	0.630	0.627
Lysine	0.323	0.309	0.306
Histidine	0.305	0.305	0.308
Arginine	0.511	0.466	0.486
Tryptophan	0.0522	0.0522	0.0562

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-023-0004	080137-049-0007	080137-010-0010
Covance LIMS Number	81200341	81200342	81200343
**Trypsin Inhibitor (TIU/mg)	6.14	5.02	5.83
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.777	0.854	0.759
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	8.81	8.22	< LOQ
Beta carotene (mg/kg)	2.35	2.01	1.86
Minerals (mg/100g)			
Calcium	3.32	3.49	3.42
Copper	0.118	0.131	0.0893
Iron	2.38	2.47	2.72
Magnesium	121	131	125
Manganese	0.499	0.507	0.557
Phosphorus	277	309	306
Potassium	341	362	340
Sodium	< LOQ	< LOQ	24.3
Zinc	2.08	2.34	2.76
Iodine	0.0169	0.0146	0.0160
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	< LOQ	995	< LOQ
Molybdenum	146	222	201
Thiamine Hydrochloride (mg/kg)	3.38	3.80	3.42
Riboflavin/Vitamin B2 (mg/kg)	1.71	2.39	1.89
Niacin/Vitamin B3 (mg/kg)	22.3	23.9	22.2
Pyridoxine HCl (mg/kg)	7.34	6.39	7.35
Folic Acid (mg/kg)	0.587	0.607	0.640
Panthotenic acid (mg/kg)	4.43	5.34	5.05
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	< LOQ	< LOQ	17.5
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.191	0.182	0.186
Inositol (%)	0.224	0.237	0.288
Coumaric acid (%)	0.0225	0.0186	0.0146

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-023-0004	080137-049-0007	080137-010-0010
Covance LIMS Number	81200341	81200342	81200343
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.390	0.374	0.419
16:1 Palmitoleic	0.00516	0.00414	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0872	0.0755	0.0838
18:1 Oleic	1.31	1.19	1.30
18:2 Linoleic	1.88	1.88	2.10
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0430	0.0424	0.0449
20:0 Arachidic	0.0165	0.0146	0.0162
20:1 Eicosenoic	0.00939	0.00866	0.00957
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00538	0.00480	< LOQ

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-062-0009	080137-062-0012	080137-023-0002
Covance LIMS Number	81200344	81200345	81200346
Proximate (%)			
Moisture (fresh weight)	24.4	25.1	20.0
Protein	13.5	12.4	11.3
Total Fat	3.97	4.10	3.86
Ash	1.52	1.52	1.43
Carbohydrates (calculated)	81.1	82.0	83.5
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	10.4	10.1	10.8
Acid Detergent Fiber (%)	3.82	4.14	4.31
Total Dietary Fiber (%)	13.2	14.7	14.8
Amino Acids (%)			
Aspartic Acid	0.935	0.900	0.780
Threonine	0.460	0.446	0.390
Serine	0.651	0.626	0.539
Glutamic Acid	2.75	2.62	2.20
Proline	1.23	1.15	1.03
Glycine	0.440	0.438	0.423
Alanine	1.12	1.06	0.891
Cystine	0.235	0.243	0.230
Valine	0.655	0.632	0.554
Methionine	0.221	0.223	0.210
Isoleucine	0.548	0.518	0.438
Leucine	1.97	1.86	1.49
Tyrosine	0.317	0.415	0.270
Phenylalanine	0.778	0.733	0.606
Lysine	0.352	0.344	0.344
Histidine	0.343	0.342	0.306
Arginine	0.526	0.549	0.530
Tryptophan	0.0566	0.0590	0.0591

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-062-0009	080137-062-0012	080137-023-0002
Covance LIMS Number	81200344	81200345	81200346
**Trypsin Inhibitor (TIU/mg)	6.10	6.10	5.66
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.766	0.808	0.754
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	< LOQ	< LOQ	< LOQ
Beta carotene (mg/kg)	1.85	2.07	2.30
Minerals (mg/100g)			
Calcium	4.99	5.06	3.49
Copper	0.146	0.105	0.110
Iron	2.72	2.64	2.36
Magnesium	135	138	111
Manganese	0.598	0.593	0.550
Phosphorus	315	322	255
Potassium	361	398	320
Sodium	14.3	< LOQ	15.3
Zinc	2.43	2.38	2.20
Iodine	0.0165	0.0175	0.0154
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	< LOQ	< LOQ	74.5
Molybdenum	165	168	245
Thiamine Hydrochloride (mg/kg)	4.13	3.98	3.38
Riboflavin/Vitamin B2 (mg/kg)	2.69	2.67	1.61
Niacin/Vitamin B3 (mg/kg)	22.4	26.3	23.0
Pyridoxine HCl (mg/kg)	5.90	8.30	7.64
Folic Acid (mg/kg)	0.689	0.590	0.609
Panthotenic acid (mg/kg)	5.01	6.14	5.18
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	23.1	25.2	14.6
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.196	0.195	0.196
Inositol (%)	0.251	0.239	0.218
Coumaric acid (%)	0.0225	0.0192	0.0198

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-062-0009	080137-062-0012	080137-023-0002
Covance LIMS Number	81200344	81200345	81200346
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.406	0.399	0.376
16:1 Palmitoleic	0.00468	< LOQ	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0788	0.0773	0.0834
18:1 Oleic	1.22	1.20	1.29
18:2 Linoleic	1.97	1.95	1.81
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0443	0.0414	0.0394
20:0 Arachidic	0.0155	0.0151	0.0163
20:1 Eicosenoic	0.00919	0.00904	0.00913
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00575	< LOQ	0.00529

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-062-0013	080137-062-0011	080137-049-0014
Covance LIMS Number	81200347	81200348	81200349
Proximate (%)			
Moisture (fresh weight)	24.1	24.2	20.9
Protein	12.2	11.9	10.2
Total Fat	4.12	4.34	4.21
Ash	1.61	1.52	1.55
Carbohydrates (calculated)	82.1	82.3	84.1
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	10.1	8.51	8.31
Acid Detergent Fiber (%)	3.97	3.73	3.54
Total Dietary Fiber (%)	12.3	12.3	11.1
Amino Acids (%)			
Aspartic Acid	0.868	0.847	0.770
Threonine	0.455	0.439	0.386
Serine	0.638	0.621	0.535
Glutamic Acid	2.58	2.52	2.14
Proline	1.15	1.13	0.987
Glycine	0.432	0.410	0.397
Alanine	1.05	1.02	0.867
Cystine	0.236	0.227	0.225
Valine	0.614	0.592	0.518
Methionine	0.221	0.215	0.207
Isoleucine	0.507	0.484	0.407
Leucine	1.83	1.79	1.44
Tyrosine	0.281	0.401	0.200
Phenylalanine	0.735	0.718	0.594
Lysine	0.345	0.325	0.319
Histidine	0.343	0.326	0.300
Arginine	0.495	0.516	0.445
Tryptophan	0.0669	0.0677	0.0622

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-062-0013	080137-062-0011	080137-049-0014
Covance LIMS Number	81200347	81200348	81200349
**Trypsin Inhibitor (TIU/mg)	7.47	7.23	7.38
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.794	0.764	0.826
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	< LOQ	< LOQ	< LOQ
Beta carotene (mg/kg)	2.00	1.79	2.02
Minerals (mg/100g)			
Calcium	5.06	4.42	3.51
Copper	0.107	0.0842	0.0948
Iron	2.60	2.61	2.45
Magnesium	130	137	126
Manganese	0.568	0.555	0.531
Phosphorus	298	315	317
Potassium	361	355	384
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.19	2.26	2.20
Iodine	0.0163	0.0169	0.0158
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	< LOQ	< LOQ	810
Molybdenum	174	201	193
Thiamine Hydrochloride (mg/kg)	3.85	3.75	3.49
Riboflavin/Vitamin B2 (mg/kg)	2.90	2.27	2.11
Niacin/Vitamin B3 (mg/kg)	21.6	20.6	24.9
Pyridoxine HCl (mg/kg)	7.48	7.10	7.17
Folic Acid (mg/kg)	0.534	0.608	0.560
Panthotenic acid (mg/kg)	5.77	4.83	5.08
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	22.7	26.0	13.4
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.188	0.195	0.174
Inositol (%)	0.250	0.232	0.220
Coumaric acid (%)	0.0173	0.0203	0.0157

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-062-0013	080137-062-0011	080137-049-0014
Covance LIMS Number	81200347	81200348	81200349
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.398	0.396	0.408
16:1 Palmitoleic	< LOQ	< LOQ	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0771	0.0813	0.0869
18:1 Oleic	1.24	1.24	1.34
18:2 Linoleic	2.02	2.01	1.98
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0452	0.0434	0.0445
20:0 Arachidic	0.0155	0.0153	0.0162
20:1 Eicosenoic	0.00955	0.00873	0.00914
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	< LOQ	< LOQ	0.00558

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-023-0012	080137-062-0003	080137-049-0012
Covance LIMS Number	81200350	81200351	81200352
Proximate (%)			
Moisture (fresh weight)	18.7	26.3	22.1
Protein	9.47	11.8	10.5
Total Fat	4.03	4.25	3.83
Ash	1.28	1.34	1.28
Carbohydrates (calculated)	85.2	82.6	84.3
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	11.1	10.0	10.6
Acid Detergent Fiber (%)	4.42	3.98	4.06
Total Dietary Fiber (%)	13.3	12.4	13.2
Amino Acids (%)			
Aspartic Acid	0.692	0.883	0.791
Threonine	0.370	0.449	0.406
Serine	0.506	0.635	0.570
Glutamic Acid	1.94	2.52	2.28
Proline	0.935	1.13	1.04
Glycine	0.385	0.425	0.394
Alanine	0.790	1.03	0.928
Cystine	0.220	0.235	0.225
Valine	0.478	0.602	0.540
Methionine	0.204	0.220	0.214
Isoleucine	0.369	0.487	0.434
Leucine	1.32	1.79	1.59
Tyrosine	0.336	0.430	0.331
Phenylalanine	0.544	0.723	0.638
Lysine	0.310	0.346	0.309
Histidine	0.280	0.334	0.303
Arginine	0.501	0.537	0.472
Tryptophan	0.0594	0.0575	0.0535

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-023-0012	080137-062-0003	080137-049-0012
Covance LIMS Number	81200350	81200351	81200352
**Trypsin Inhibitor (TIU/mg)	5.58	6.57	6.61
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.595	0.806	0.718
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	< LOQ	< LOQ	< LOQ
Beta carotene (mg/kg)	1.97	1.74	1.64
Minerals (mg/100g)			
Calcium	3.96	4.57	3.83
Copper	0.132	0.113	0.146
Iron	2.51	2.52	2.67
Magnesium	117	131	134
Manganese	0.508	0.541	0.552
Phosphorus	283	293	332
Potassium	368	341	377
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.23	2.12	2.52
Iodine	0.0156	0.0168	0.0158
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	< LOQ	< LOQ	769
Molybdenum	285	199	168
Thiamine Hydrochloride (mg/kg)	2.78	3.80	3.80
Riboflavin/Vitamin B2 (mg/kg)	1.89	2.05	2.73
Niacin/Vitamin B3 (mg/kg)	25.8	22.5	20.9
Pyridoxine HCl (mg/kg)	5.79	6.96	7.02
Folic Acid (mg/kg)	0.601	0.684	0.635
Panthotenic acid (mg/kg)	4.98	6.66	5.64
Vitamin B12 (mg/kg)	0.00198	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	< LOQ	31.2	16.3
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.198	0.209	0.194
Inositol (%)	0.198	0.240	0.221
Coumaric acid (%)	0.0196	0.0235	0.0222

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-023-0012	080137-062-0003	080137-049-0012
Covance LIMS Number	81200350	81200351	81200352
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.358	0.419	0.384
16:1 Palmitoleic	< LOQ	< LOQ	0.00447
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0792	0.0820	0.0824
18:1 Oleic	1.20	1.34	1.17
18:2 Linoleic	1.78	2.10	1.87
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0400	0.0453	0.0409
20:0 Arachidic	0.0148	0.0160	0.0155
20:1 Eicosenoic	0.00859	0.00974	0.00840
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	< LOQ	0.00541	0.00504

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-010-0015	080137-049-0001	080137-036-0011
Covance LIMS Number	81200353	81200354	81200355
Proximate (%)			
Moisture (fresh weight)	23.4	22.2	24.3
Protein	10.3	11.1	8.34
Total Fat	4.36	4.09	4.29
Ash	1.42	1.50	1.05
Carbohydrates (calculated)	83.9	83.3	86.3
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	9.40	12.1	10.3
Acid Detergent Fiber (%)	4.43	3.87	3.82
Total Dietary Fiber (%)	12.9	13.0	12.5
Amino Acids (%)			
Aspartic Acid	0.742	0.807	0.579
Threonine	0.386	0.419	0.310
Serine	0.540	0.595	0.433
Glutamic Acid	2.15	2.42	1.61
Proline	1.00	1.06	0.794
Glycine	0.396	0.384	0.355
Alanine	0.864	0.972	0.659
Cystine	0.221	0.220	0.194
Valine	0.516	0.554	0.421
Methionine	0.198	0.216	0.182
Isoleucine	0.407	0.455	0.308
Leucine	1.48	1.71	1.06
Tyrosine	0.238	0.443	0.203
Phenylalanine	0.602	0.684	0.441
Lysine	0.308	0.301	0.289
Histidine	0.303	0.303	0.248
Arginine	0.466	0.490	0.435
Tryptophan	0.0625	0.0522	0.0514

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-010-0015	080137-049-0001	080137-036-0011
Covance LIMS Number	81200353	81200354	81200355
**Trypsin Inhibitor (TIU/mg)	5.44	6.20	5.59
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.807	0.674	0.740
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	< LOQ	< LOQ	< LOQ
Beta carotene (mg/kg)	1.74	1.63	1.77
Minerals (mg/100g)			
Calcium	3.46	3.51	4.17
Copper	0.219	0.130	0.193
Iron	2.47	2.43	2.21
Magnesium	109	128	112
Manganese	0.520	0.512	0.444
Phosphorus	277	306	269
Potassium	330	315	326
Sodium	< LOQ	14.0	< LOQ
Zinc	2.48	2.34	2.14
Iodine	0.0163	0.0167	0.0164
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	< LOQ	960	140
Molybdenum	205	208	398
Thiamine Hydrochloride (mg/kg)	3.30	4.05	3.32
Riboflavin/Vitamin B2 (mg/kg)	1.71	2.08	1.78
Niacin/Vitamin B3 (mg/kg)	27.5	29.3	30.4
Pyridoxine HCl (mg/kg)	8.13	6.18	6.72
Folic Acid (mg/kg)	0.698	0.617	0.664
Panthotenic acid (mg/kg)	4.41	4.37	4.12
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	18.1	17.0	20.3
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.183	0.193	0.215
Inositol (%)	0.188	0.206	0.178
Coumaric acid (%)	0.0137	0.0201	0.0181

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-010-0015	080137-049-0001	080137-036-0011
Covance LIMS Number	81200353	81200354	81200355
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.419	0.406	0.400
16:1 Palmitoleic	< LOQ	< LOQ	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0871	0.0821	0.0893
18:1 Oleic	1.36	1.26	1.29
18:2 Linoleic	2.13	1.99	1.84
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0439	0.0428	0.0436
20:0 Arachidic	0.0166	0.0159	0.0173
20:1 Eicosenoic	0.00946	0.00909	0.00937
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00531	0.00532	0.00564

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-049-0010	080137-036-0007	080137-010-0012
Covance LIMS Number	81200356	81200357	81200358
Proximate (%)			
Moisture (fresh weight)	23.2	24.6	23.1
Protein	10.8	11.1	11.4
Total Fat	4.39	4.10	4.56
Ash	1.20	1.38	1.53
Carbohydrates (calculated)	83.7	83.4	82.4
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	9.24	9.20	8.17
Acid Detergent Fiber (%)	3.84	3.67	3.43
Total Dietary Fiber (%)	10.8	12.9	12.2
Amino Acids (%)			
Aspartic Acid	0.773	0.720	0.761
Threonine	0.405	0.381	0.384
Serine	0.586	0.560	0.553
Glutamic Acid	2.25	2.23	2.17
Proline	1.04	1.03	1.00
Glycine	0.397	0.397	0.390
Alanine	0.913	0.889	0.880
Cystine	0.236	0.235	0.213
Valine	0.521	0.527	0.531
Methionine	0.220	0.214	0.203
Isoleucine	0.404	0.415	0.420
Leucine	1.55	1.53	1.53
Tyrosine	0.434	0.251	0.415
Phenylalanine	0.613	0.613	0.616
Lysine	0.305	0.308	0.309
Histidine	0.299	0.309	0.296
Arginine	0.513	0.481	0.512
Tryptophan	0.0581	0.0584	0.0538

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-049-0010	080137-036-0007	080137-010-0012
Covance LIMS Number	81200356	81200357	81200358
**Trypsin Inhibitor (TIU/mg)	5.69	5.92	5.03
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.878	0.809	0.756
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	< LOQ	< LOQ	< LOQ
Beta carotene (mg/kg)	1.68	1.99	1.48
Minerals (mg/100g)			
Calcium	3.29	3.98	3.68
Copper	0.288	0.118	0.182
Iron	2.43	2.31	2.72
Magnesium	126	122	117
Manganese	0.534	0.442	0.531
Phosphorus	320	286	291
Potassium	375	294	359
Sodium	< LOQ	16.6	< LOQ
Zinc	2.11	2.40	2.63
Iodine	0.0167	0.0180	0.0159
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	1110	260	163
Molybdenum	217	403	399
Thiamine Hydrochloride (mg/kg)	3.40	3.51	3.46
Riboflavin/Vitamin B2 (mg/kg)	2.07	2.19	2.11
Niacin/Vitamin B3 (mg/kg)	22.3	23.6	21.3
Pyridoxine HCl (mg/kg)	6.07	6.83	6.79
Folic Acid (mg/kg)	0.630	0.623	0.649
Panthotenic acid (mg/kg)	5.36	4.62	5.77
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	19.8	21.5	19.4
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.182	0.207	0.178
Inositol (%)	0.229	0.195	0.239
Coumaric acid (%)	0.0181	0.0162	0.0153

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-049-0010	080137-036-0007	080137-010-0012
Covance LIMS Number	81200356	81200357	81200358
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.414	0.419	0.442
16:1 Palmitoleic	< LOQ	< LOQ	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0878	0.0908	0.0913
18:1 Oleic	1.26	1.33	1.40
18:2 Linoleic	2.07	1.96	2.21
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0462	0.0434	0.0467
20:0 Arachidic	0.0167	0.0174	0.0177
20:1 Eicosenoic	0.00897	0.00983	0.0102
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00535	0.00601	0.00537

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-010-0004	080137-062-0001	080137-062-0007
Covance LIMS Number	81200359	81200360	81200361
Proximate (%)			
Moisture (fresh weight)	24.1	25.1	24.3
Protein	11.9	12.1	12.7
Total Fat	4.27	4.31	4.02
Ash	1.52	1.58	1.48
Carbohydrates (calculated)	82.3	82.0	81.8
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	9.47	10.6	9.04
Acid Detergent Fiber (%)	3.48	3.85	4.19
Total Dietary Fiber (%)	10.4	12.6	12.0
Amino Acids (%)			
Aspartic Acid	0.821	0.860	0.880
Threonine	0.408	0.435	0.456
Serine	0.601	0.629	0.663
Glutamic Acid	2.38	2.38	2.55
Proline	1.10	1.09	1.16
Glycine	0.412	0.438	0.424
Alanine	0.963	0.972	1.04
Cystine	0.203	0.199	0.201
Valine	0.567	0.577	0.588
Methionine	0.209	0.206	0.202
Isoleucine	0.457	0.449	0.469
Leucine	1.67	1.66	1.81
Tyrosine	0.462	0.463	0.487
Phenylalanine	0.669	0.666	0.720
Lysine	0.323	0.355	0.339
Histidine	0.318	0.327	0.328
Arginine	0.556	0.589	0.569
Tryptophan	0.0531	0.0571	0.0617

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-010-0004	080137-062-0001	080137-062-0007
Covance LIMS Number	81200359	81200360	81200361
**Trypsin Inhibitor (TIU/mg)	5.20	5.15	4.48
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.903	0.797	0.717
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	< LOQ	< LOQ	< LOQ
Beta carotene (mg/kg)	1.62	1.88	1.85
Minerals (mg/100g)			
Calcium	3.52	4.69	4.80
Copper	0.250	0.294	0.231
Iron	2.79	2.68	2.73
Magnesium	127	133	139
Manganese	0.584	0.559	0.565
Phosphorus	312	304	314
Potassium	358	371	351
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.85	2.26	2.32
Iodine	0.0182	0.0162	0.0161
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	< LOQ	< LOQ	< LOQ
Molybdenum	188	170	173
Thiamine Hydrochloride (mg/kg)	3.16	3.91	3.78
Riboflavin/Vitamin B2 (mg/kg)	1.81	2.62	2.19
Niacin/Vitamin B3 (mg/kg)	19.0	19.9	18.4
Pyridoxine HCl (mg/kg)	6.48	6.82	7.12
Folic Acid (mg/kg)	0.647	0.590	0.605
Panthotenic acid (mg/kg)	5.18	7.60	6.72
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	21.3	27.6	25.8
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.188	0.203	0.214
Inositol (%)	0.241	0.235	0.232
Coumaric acid (%)	0.0154	0.0235	0.0256

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-010-0004	080137-062-0001	080137-062-0007
Covance LIMS Number	81200359	81200360	81200361
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.406	0.433	0.399
16:1 Palmitoleic	< LOQ	0.00561	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0806	0.0826	0.0811
18:1 Oleic	1.25	1.36	1.22
18:2 Linoleic	2.03	2.12	1.98
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0435	0.0458	0.0428
20:0 Arachidic	0.0155	0.0164	0.0153
20:1 Eicosenoic	0.00888	0.0100	0.00886
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	< LOQ	0.00569	< LOQ

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-023-0009	080137-023-0005	080137-062-0005
Covance LIMS Number	81200362	81200363	81200364
Proximate (%)			
Moisture (fresh weight)	18.7	19.0	25.6
Protein	12.4	11.8	12.4
Total Fat	3.71	4.06	4.27
Ash	1.39	1.54	1.53
Carbohydrates (calculated)	82.5	82.6	81.7
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	10.5	10.3	10.4
Acid Detergent Fiber (%)	4.24	2.85	4.25
Total Dietary Fiber (%)	12.4	11.8	11.5
Amino Acids (%)			
Aspartic Acid	0.830	0.816	0.847
Threonine	0.424	0.425	0.437
Serine	0.631	0.617	0.644
Glutamic Acid	2.46	2.38	2.51
Proline	1.12	1.10	1.13
Glycine	0.432	0.428	0.417
Alanine	0.993	0.963	1.02
Cystine	0.209	0.232	0.224
Valine	0.585	0.563	0.590
Methionine	0.221	0.216	0.208
Isoleucine	0.466	0.437	0.472
Leucine	1.72	1.64	1.79
Tyrosine	0.461	0.436	0.483
Phenylalanine	0.697	0.662	0.708
Lysine	0.343	0.343	0.331
Histidine	0.327	0.320	0.328
Arginine	0.583	0.584	0.550
Tryptophan	0.0645	0.0541	0.0552

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-023-0009	080137-023-0005	080137-062-0005
Covance LIMS Number	81200362	81200363	81200364
**Trypsin Inhibitor (TIU/mg)	4.92	4.54	5.04
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.635	0.811	0.815
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	< LOQ	7.04	< LOQ
Beta carotene (mg/kg)	2.00	1.93	1.90
Minerals (mg/100g)			
Calcium	3.88	3.67	4.38
Copper	0.212	0.107	0.238
Iron	2.63	3.56	2.42
Magnesium	125	125	128
Manganese	0.545	0.531	0.583
Phosphorus	287	285	297
Potassium	350	342	358
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.28	2.09	2.19
Iodine	0.0151	0.0190	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	< LOQ	< LOQ	< LOQ
Molybdenum	199	249	188
Thiamine Hydrochloride (mg/kg)	3.49	3.14	3.70
Riboflavin/Vitamin B2 (mg/kg)	1.85	1.96	2.07
Niacin/Vitamin B3 (mg/kg)	24.1	21.6	23.8
Pyridoxine HCl (mg/kg)	7.11	7.65	6.94
Folic Acid (mg/kg)	0.492	0.593	0.590
Panthotenic acid (mg/kg)	4.35	4.65	5.08
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	< LOQ	< LOQ	28.9
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.198	0.201	0.207
Inositol (%)	0.218	0.251	0.261
Coumaric acid (%)	0.0221	0.0238	0.0235

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-023-0009	080137-023-0005	080137-062-0005
Covance LIMS Number	81200362	81200363	81200364
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.367	0.391	0.391
16:1 Palmitoleic	< LOQ	< LOQ	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0776	0.0860	0.0778
18:1 Oleic	1.24	1.32	1.22
18:2 Linoleic	1.71	1.93	2.03
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0387	0.0417	0.0429
20:0 Arachidic	0.0154	0.0165	0.0148
20:1 Eicosenoic	0.00902	0.00936	0.00886
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00522	0.00526	< LOQ

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0008	080137-010-0008	080137-010-0003
Covance LIMS Number	81200365	81200366	81200367
Proximate (%)			
Moisture (fresh weight)	24.5	24.4	25.4
Protein	9.72	11.0	10.8
Total Fat	4.19	4.29	4.36
Ash	1.38	1.49	1.57
Carbohydrates (calculated)	84.8	83.2	83.2
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	10.0	8.58	9.22
Acid Detergent Fiber (%)	4.60	4.05	3.85
Total Dietary Fiber (%)	13.4	12.3	12.0
Amino Acids (%)			
Aspartic Acid	0.632	0.737	0.729
Threonine	0.354	0.381	0.370
Serine	0.502	0.553	0.535
Glutamic Acid	1.85	2.13	2.04
Proline	0.862	1.01	0.977
Glycine	0.368	0.390	0.383
Alanine	0.750	0.856	0.828
Cystine	0.203	0.237	0.225
Valine	0.449	0.508	0.497
Methionine	0.189	0.212	0.204
Isoleucine	0.339	0.392	0.383
Leucine	1.25	1.46	1.39
Tyrosine	0.362	0.366	0.395
Phenylalanine	0.511	0.585	0.570
Lysine	0.299	0.303	0.303
Histidine	0.272	0.295	0.286
Arginine	0.498	0.501	0.509
Tryptophan	0.0521	0.0610	0.0567

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0008	080137-010-0008	080137-010-0003
Covance LIMS Number	81200365	81200366	81200367
**Trypsin Inhibitor (TIU/mg)	5.23	3.90	4.62
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.784	0.757	0.748
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	6.91	< LOQ	< LOQ
Beta carotene (mg/kg)	2.28	1.85	1.69
Minerals (mg/100g)			
Calcium	4.83	3.57	3.63
Copper	0.170	0.153	0.131
Iron	2.37	2.72	2.86
Magnesium	124	131	114
Manganese	0.436	0.586	0.563
Phosphorus	289	317	283
Potassium	355	385	350
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.37	2.69	2.59
Iodine	< LOQ	< LOQ	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	179	< LOQ	< LOQ
Molybdenum	423	196	212
Thiamine Hydrochloride (mg/kg)	3.52	3.32	3.39
Riboflavin/Vitamin B2 (mg/kg)	1.76	2.08	2.05
Niacin/Vitamin B3 (mg/kg)	24.8	22.9	24.7
Pyridoxine HCl (mg/kg)	7.01	6.73	8.35
Folic Acid (mg/kg)	0.564	0.614	0.611
Panthotenic acid (mg/kg)	4.65	4.83	4.06
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	20.1	24.1	26.0
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.203	0.194	0.206
Inositol (%)	0.260	0.323	0.261
Coumaric acid (%)	0.0163	0.0163	0.0196

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0008	080137-010-0008	080137-010-0003
Covance LIMS Number	81200365	81200366	81200367
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.409	0.411	0.418
16:1 Palmitoleic	< LOQ	< LOQ	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0898	0.0825	0.0867
18:1 Oleic	1.36	1.34	1.38
18:2 Linoleic	1.93	2.09	2.10
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0437	0.0450	0.0446
20:0 Arachidic	0.0176	0.0159	0.0166
20:1 Eicosenoic	0.0101	0.00959	0.00985
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00585	< LOQ	0.00536

LOQ-Limit of Quantitation

**Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight**

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0005	080137-010-0001	080137-062-0006
Covance LIMS Number	81200368	81200369	81200370
Proximate (%)			
Moisture (fresh weight)	26.2	24.6	25.6
Protein	8.92	11.0	12.2
Total Fat	4.43	4.42	4.25
Ash	1.27	1.32	1.61
Carbohydrates (calculated)	85.4	83.3	82.0
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	9.84	8.75	9.72
Acid Detergent Fiber (%)	5.07	3.74	4.23
Total Dietary Fiber (%)	13.4	11.5	12.2
Amino Acids (%)			
Aspartic Acid	0.621	0.772	0.884
Threonine	0.339	0.397	0.457
Serine	0.486	0.584	0.677
Glutamic Acid	1.84	2.23	2.61
Proline	0.881	0.985	1.13
Glycine	0.364	0.398	0.426
Alanine	0.743	0.903	1.05
Cystine	0.211	0.227	0.239
Valine	0.455	0.527	0.598
Methionine	0.194	0.207	0.224
Isoleucine	0.352	0.412	0.474
Leucine	1.24	1.55	1.84
Tyrosine	0.266	0.414	0.500
Phenylalanine	0.504	0.622	0.726
Lysine	0.289	0.317	0.337
Histidine	0.272	0.300	0.332
Arginine	0.459	0.534	0.570
Tryptophan	0.0526	0.0568	0.0616

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0005	080137-010-0001	080137-062-0006
Covance LIMS Number	81200368	81200369	81200370
**Trypsin Inhibitor (TIU/mg)	4.85	3.93	4.46
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.813	0.755	0.844
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	7.75	< LOQ	< LOQ
Beta carotene (mg/kg)	2.21	1.50	1.90
Minerals (mg/100g)			
Calcium	4.35	4.23	5.28
Copper	0.134	0.134	0.113
Iron	2.44	2.80	2.55
Magnesium	120	122	137
Manganese	0.493	0.570	0.613
Phosphorus	286	298	308
Potassium	352	351	366
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.32	2.61	2.26
Iodine	< LOQ	< LOQ	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	164	< LOQ	< LOQ
Molybdenum	346	225	185
Thiamine Hydrochloride (mg/kg)	3.52	3.33	4.07
Riboflavin/Vitamin B2 (mg/kg)	1.90	2.28	2.24
Niacin/Vitamin B3 (mg/kg)	26.7	23.5	28.5
Pyridoxine HCl (mg/kg)	6.99	7.02	6.91
Folic Acid (mg/kg)	0.640	0.588	0.536
Panthotenic acid (mg/kg)	3.98	5.13	6.17
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	26.4	25.2	19.8
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.214	0.190	0.202
Inositol (%)	0.309	0.256	0.223
Coumaric acid (%)	0.0169	0.0175	0.0207

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0005	080137-010-0001	080137-062-0006
Covance LIMS Number	81200368	81200369	81200370
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.430	0.410	0.427
16:1 Palmitoleic	< LOQ	0.00544	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.101	0.0809	0.0781
18:1 Oleic	1.41	1.32	1.27
18:2 Linoleic	2.01	2.00	2.14
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0461	0.0440	0.0458
20:0 Arachidic	0.0187	0.0159	0.0157
20:1 Eicosenoic	0.0101	0.00952	0.00980
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00588	< LOQ	< LOQ

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0012	080137-023-0014	080137-036-0002
Covance LIMS Number	81200371	81200372	81200373
Proximate (%)			
Moisture (fresh weight)	22.2	18.5	23.4
Protein	7.26	12.9	6.17
Total Fat	3.86	3.73	4.16
Ash	1.38	1.60	1.46
Carbohydrates (calculated)	87.5	81.8	88.3
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	11.2	13.6	11.6
Acid Detergent Fiber (%)	4.05	3.62	4.73
Total Dietary Fiber (%)	13.2	12.3	14.5
Amino Acids (%)			
Aspartic Acid	0.503	0.879	0.496
Threonine	0.287	0.464	0.282
Serine	0.371	0.649	0.360
Glutamic Acid	1.36	2.71	1.31
Proline	0.640	1.14	0.611
Glycine	0.317	0.431	0.325
Alanine	0.560	1.09	0.538
Cystine	0.194	0.227	0.185
Valine	0.365	0.628	0.359
Methionine	0.175	0.215	0.164
Isoleucine	0.267	0.534	0.261
Leucine	0.891	1.94	0.84
Tyrosine	0.234	0.470	0.247
Phenylalanine	0.380	0.782	0.363
Lysine	0.261	0.345	0.270
Histidine	0.221	0.339	0.219
Arginine	0.383	0.564	0.413
Tryptophan	0.0473	0.0587	0.0389

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0012	080137-023-0014	080137-036-0002
Covance LIMS Number	81200371	81200372	81200373
**Trypsin Inhibitor (TIU/mg)	4.58	4.42	3.75
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.771	0.753	0.785
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	7.04	7.13	7.70
Beta carotene (mg/kg)	2.10	1.90	1.97
Minerals (mg/100g)			
Calcium	4.92	3.78	4.75
Copper	0.140	0.112	0.132
Iron	1.90	2.56	1.97
Magnesium	116	136	115
Manganese	0.416	0.509	0.392
Phosphorus	287	313	269
Potassium	352	341	349
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.54	2.33	2.35
Iodine	< LOQ	< LOQ	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	172	< LOQ	171
Molybdenum	481	205	523
Thiamine Hydrochloride (mg/kg)	3.01	3.55	3.17
Riboflavin/Vitamin B2 (mg/kg)	1.56	2.23	1.49
Niacin/Vitamin B3 (mg/kg)	26.6	17.1	30.0
Pyridoxine HCl (mg/kg)	5.26	7.29	5.08
Folic Acid (mg/kg)	0.587	0.547	0.450
Panthotenic acid (mg/kg)	4.86	6.20	4.95
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	14.3	< LOQ	18.1
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.224	0.166	0.234
Inositol (%)	0.229	0.265	0.234
Coumaric acid (%)	0.0197	0.0250	0.0217

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0012	080137-023-0014	080137-036-0002
Covance LIMS Number	81200371	81200372	81200373
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.386	0.369	0.415
16:1 Palmitoleic	0.00429	0.00491	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0892	0.0777	0.0996
18:1 Oleic	1.22	1.15	1.34
18:2 Linoleic	1.77	1.77	1.93
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0441	0.0400	0.0475
20:0 Arachidic	0.0176	0.0155	0.0198
20:1 Eicosenoic	0.00932	0.00854	0.0104
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00596	0.00523	0.00679

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-049-0002	080137-023-0006	080137-036-0001
Covance LIMS Number	81200374	81200375	81200376
Proximate (%)			
Moisture (fresh weight)	22.3	19.4	27.2
Protein	9.19	10.2	9.41
Total Fat	4.14	4.07	4.37
Ash	1.71	1.91	1.85
Carbohydrates (calculated)	84.9	83.7	84.3
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	9.68	11.2	11.3
Acid Detergent Fiber (%)	4.23	5.79	5.03
Total Dietary Fiber (%)	12.6	14.4	15.7
Amino Acids (%)			
Aspartic Acid	0.691	0.744	0.654
Threonine	0.351	0.388	0.354
Serine	0.466	0.520	0.471
Glutamic Acid	1.85	2.18	1.91
Proline	0.843	0.978	0.849
Glycine	0.372	0.409	0.378
Alanine	0.755	0.878	0.766
Cystine	0.201	0.237	0.225
Valine	0.466	0.538	0.478
Methionine	0.181	0.217	0.198
Isoleucine	0.360	0.434	0.374
Leucine	1.24	1.50	1.28
Tyrosine	0.346	0.212	0.361
Phenylalanine	0.515	0.615	0.533
Lysine	0.297	0.328	0.304
Histidine	0.272	0.311	0.283
Arginine	0.475	0.471	0.496
Tryptophan	0.0438	0.0597	0.0552

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-049-0002	080137-023-0006	080137-036-0001
Covance LIMS Number	81200374	81200375	81200376
**Trypsin Inhibitor (TIU/mg)	4.29	2.94	3.78
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.874	0.778	0.743
Raffinose (%)	< LOQ	< LOQ	0.147
Alpha Tocopherol (mg/kg)	< LOQ	9.34	8.37
Beta carotene (mg/kg)	1.65	1.96	2.23
Minerals (mg/100g)			
Calcium	3.64	3.76	4.09
Copper	0.143	0.127	0.120
Iron	2.30	2.41	2.36
Magnesium	124	132	121
Manganese	0.537	0.542	0.495
Phosphorus	319	293	283
Potassium	386	382	350
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.19	2.22	2.31
Iodine	< LOQ	< LOQ	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	748	< LOQ	177
Molybdenum	185	206	354
Thiamine Hydrochloride (mg/kg)	3.50	3.18	3.56
Riboflavin/Vitamin B2 (mg/kg)	2.54	1.56	1.50
Niacin/Vitamin B3 (mg/kg)	30.6	23.0	24.7
Pyridoxine HCl (mg/kg)	5.23	6.03	6.61
Folic Acid (mg/kg)	0.476	0.496	0.468
Panthotenic acid (mg/kg)	6.04	5.07	4.48
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	16.6	13.8	30.8
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.187	0.196	0.236
Inositol (%)	0.243	0.252	0.225
Coumaric acid (%)	0.0194	0.0223	0.0209

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-049-0002	080137-023-0006	080137-036-0001
Covance LIMS Number	81200374	81200375	81200376
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.412	0.388	0.423
16:1 Palmitoleic	0.00520	0.00520	0.00573
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0892	0.0847	0.0979
18:1 Oleic	1.33	1.35	1.50
18:2 Linoleic	1.98	1.84	1.99
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0463	0.0417	0.0456
20:0 Arachidic	0.0170	0.0165	0.0183
20:1 Eicosenoic	0.00949	0.00945	0.0106
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00565	0.00550	0.00606

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0014	080137-010-0009	080137-049-0006
Covance LIMS Number	81200377	81200378	81200379
Proximate (%)			
Moisture (fresh weight)	26.4	23.5	22.4
Protein	8.55	10.5	11.0
Total Fat	4.24	4.12	3.83
Ash	1.34	1.69	2.02
Carbohydrates (calculated)	85.9	83.7	83.1
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	9.92	11.5	10.1
Acid Detergent Fiber (%)	4.47	3.84	3.52
Total Dietary Fiber (%)	14.0	11.4	11.4
Amino Acids (%)			
Aspartic Acid	0.603	0.776	0.774
Threonine	0.332	0.403	0.392
Serine	0.428	0.537	0.534
Glutamic Acid	1.73	2.24	2.28
Proline	0.766	1.01	1.00
Glycine	0.363	0.414	0.390
Alanine	0.698	0.902	0.915
Cystine	0.212	0.237	0.238
Valine	0.444	0.549	0.540
Methionine	0.189	0.216	0.219
Isoleucine	0.340	0.446	0.445
Leucine	1.15	1.56	1.59
Tyrosine	0.319	0.438	0.278
Phenylalanine	0.484	0.639	0.631
Lysine	0.295	0.328	0.299
Histidine	0.265	0.312	0.305
Arginine	0.462	0.544	0.450
Tryptophan	0.0511	0.0604	0.0571

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0014	080137-010-0009	080137-049-0006
Covance LIMS Number	81200377	81200378	81200379
**Trypsin Inhibitor (TIU/mg)	4.70	4.51	4.73
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.819	0.706	0.716
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	8.19	7.39	7.00
Beta carotene (mg/kg)	2.17	1.75	1.80
Minerals (mg/100g)			
Calcium	4.73	3.95	3.81
Copper	0.125	0.124	0.143
Iron	2.24	2.69	2.49
Magnesium	121	124	134
Manganese	0.429	0.566	0.588
Phosphorus	279	295	322
Potassium	321	339	372
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.36	2.54	2.15
Iodine	< LOQ	< LOQ	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	281	< LOQ	831
Molybdenum	457	212	174
Thiamine Hydrochloride (mg/kg)	3.75	3.33	3.44
Riboflavin/Vitamin B2 (mg/kg)	1.45	1.67	1.98
Niacin/Vitamin B3 (mg/kg)	23.8	22.4	22.0
Pyridoxine HCl (mg/kg)	7.08	6.80	6.48
Folic Acid (mg/kg)	0.476	0.506	0.512
Panthotenic acid (mg/kg)	3.94	4.31	4.46
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	28.5	20.5	19.8
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.230	0.204	0.187
Inositol (%)	0.231	0.231	0.183
Coumaric acid (%)	0.0167	0.0208	0.0169

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0014	080137-010-0009	080137-049-0006
Covance LIMS Number	81200377	81200378	81200379
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.394	0.409	0.387
16:1 Palmitoleic	< LOQ	0.00523	0.00469
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0874	0.0821	0.0754
18:1 Oleic	1.27	1.29	1.16
18:2 Linoleic	1.85	1.99	1.89
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0420	0.0435	0.0432
20:0 Arachidic	0.0168	0.0161	0.0148
20:1 Eicosenoic	0.00971	0.00946	0.00862
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00554	< LOQ	0.00508

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-049-0005	080137-049-0011	080137-049-0009
Covance LIMS Number	81200380	81200381	81200382
Proximate (%)			
Moisture (fresh weight)	23.2	21.5	22.0
Protein	11.3	9.59	11.4
Total Fat	4.23	4.25	4.19
Ash	1.99	1.85	1.99
Carbohydrates (calculated)	82.4	84.3	82.4
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	9.21	10.4	9.82
Acid Detergent Fiber (%)	4.62	4.31	4.33
Total Dietary Fiber (%)	10.7	14.0	13.5
Amino Acids (%)			
Aspartic Acid	0.789	0.685	0.740
Threonine	0.411	0.353	0.391
Serine	0.572	0.465	0.549
Glutamic Acid	2.33	1.85	2.12
Proline	1.01	0.850	0.935
Glycine	0.384	0.373	0.374
Alanine	0.939	0.746	0.851
Cystine	0.228	0.222	0.232
Valine	0.543	0.462	0.488
Methionine	0.206	0.201	0.212
Isoleucine	0.449	0.364	0.387
Leucine	1.64	1.23	1.46
Tyrosine	0.440	0.196	0.391
Phenylalanine	0.660	0.512	0.586
Lysine	0.299	0.298	0.291
Histidine	0.305	0.275	0.282
Arginine	0.491	0.413	0.465
Tryptophan	0.0543	0.0553	0.0524

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-049-0005	080137-049-0011	080137-049-0009
Covance LIMS Number	81200380	81200381	81200382
**Trypsin Inhibitor (TIU/mg)	5.07	4.99	5.29
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.835	0.969	0.896
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	10.6	8.00	< LOQ
Beta carotene (mg/kg)	2.19	2.42	2.00
Minerals (mg/100g)			
Calcium	3.93	3.63	3.62
Copper	0.126	0.154	0.137
Iron	2.40	2.61	2.48
Magnesium	122	123	124
Manganese	0.529	0.502	0.505
Phosphorus	307	321	308
Potassium	375	399	378
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.17	2.11	2.15
Iodine	< LOQ	< LOQ	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	729	1010	699
Molybdenum	217	211	206
Thiamine Hydrochloride (mg/kg)	3.65	3.58	3.44
Riboflavin/Vitamin B2 (mg/kg)	2.08	2.04	2.24
Niacin/Vitamin B3 (mg/kg)	23.3	21.0	21.7
Pyridoxine HCl (mg/kg)	6.93	6.19	6.44
Folic Acid (mg/kg)	0.561	0.550	0.526
Panthotenic acid (mg/kg)	4.78	5.59	5.12
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	21.5	13.8	16.4
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.178	0.196	0.190
Inositol (%)	0.201	0.197	0.217
Coumaric acid (%)	0.0202	0.0190	0.0201

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-049-0005	080137-049-0011	080137-049-0009
Covance LIMS Number	81200380	81200381	81200382
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.444	0.419	0.414
16:1 Palmitoleic	0.00557	0.00525	0.00569
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0875	0.0847	0.0823
18:1 Oleic	1.37	1.36	1.29
18:2 Linoleic	2.21	2.03	2.00
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0483	0.0454	0.0456
20:0 Arachidic	0.0169	0.0167	0.0158
20:1 Eicosenoic	0.0100	0.00945	0.00929
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00549	0.00540	< LOQ

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0015	080137-023-0010	080137-023-0013
Covance LIMS Number	81200383	81200384	81200385
Proximate (%)			
Moisture (fresh weight)	26.0	19.1	17.5
Protein	8.78	11.4	11.4
Total Fat	4.42	4.07	4.06
Ash	1.89	1.95	1.71
Carbohydrates (calculated)	84.9	82.6	82.8
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	11.9	11.0	12.5
Acid Detergent Fiber (%)	4.00	4.07	4.56
Total Dietary Fiber (%)	10.8	14.3	14.5
Amino Acids (%)			
Aspartic Acid	0.616	0.797	0.767
Threonine	0.339	0.423	0.400
Serine	0.454	0.585	0.541
Glutamic Acid	1.76	2.39	2.19
Proline	0.780	1.05	0.971
Glycine	0.368	0.409	0.410
Alanine	0.708	0.962	0.885
Cystine	0.224	0.234	0.234
Valine	0.445	0.565	0.537
Methionine	0.195	0.211	0.211
Isoleucine	0.339	0.468	0.434
Leucine	1.16	1.68	1.52
Tyrosine	0.339	0.443	0.408
Phenylalanine	0.489	0.686	0.624
Lysine	0.301	0.326	0.332
Histidine	0.266	0.315	0.307
Arginine	0.481	0.535	0.536
Tryptophan	0.0493	0.0546	0.0524

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0015	080137-023-0010	080137-023-0013
Covance LIMS Number	81200383	81200384	81200385
**Trypsin Inhibitor (TIU/mg)	4.45	4.43	4.13
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.730	0.750	0.722
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	9.05	7.70	8.95
Beta carotene (mg/kg)	2.12	1.76	2.08
Minerals (mg/100g)			
Calcium	4.33	3.19	3.72
Copper	0.131	0.117	0.124
Iron	2.16	2.31	2.85
Magnesium	117	119	138
Manganese	0.476	0.487	0.565
Phosphorus	278	261	302
Potassium	335	336	364
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.64	1.97	2.56
Iodine	< LOQ	< LOQ	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	138	< LOQ	< LOQ
Molybdenum	381	136	117
Thiamine Hydrochloride (mg/kg)	3.28	3.16	3.42
Riboflavin/Vitamin B2 (mg/kg)	1.58	1.77	1.78
Niacin/Vitamin B3 (mg/kg)	24.2	21.4	19.4
Pyridoxine HCl (mg/kg)	8.38	8.26	8.01
Folic Acid (mg/kg)	0.509	0.514	0.493
Panthotenic acid (mg/kg)	4.12	4.64	4.57
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	27.2	15.6	< LOQ
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.223	0.213	0.200
Inositol (%)	0.178	0.163	0.207
Coumaric acid (%)	0.0184	0.0241	0.0232

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0015	080137-023-0010	080137-023-0013
Covance LIMS Number	81200383	81200384	81200385
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.441	0.392	0.399
16:1 Palmitoleic	0.00549	0.00509	0.00520
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0988	0.0864	0.0880
18:1 Oleic	1.45	1.36	1.33
18:2 Linoleic	2.08	1.92	1.93
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0461	0.0423	0.0419
20:0 Arachidic	0.0182	0.0168	0.0171
20:1 Eicosenoic	0.0101	0.00967	0.00948
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00582	0.00520	0.00559

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-010-0007	080137-036-0010	080137-049-0003
Covance LIMS Number	81200386	81200387	81200388
Proximate (%)			
Moisture (fresh weight)	22.3	25.8	20.9
Protein	10.3	10.3	10.2
Total Fat	4.27	4.42	4.32
Ash	1.71	1.75	1.86
Carbohydrates (calculated)	83.7	83.6	83.6
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	11.4	10.3	8.82
Acid Detergent Fiber (%)	3.98	3.36	4.24
Total Dietary Fiber (%)	13.3	13.6	12.2
Amino Acids (%)			
Aspartic Acid	0.761	0.697	0.733
Threonine	0.396	0.364	0.354
Serine	0.533	0.495	0.474
Glutamic Acid	2.23	2.09	1.98
Proline	0.981	0.987	0.939
Glycine	0.405	0.394	0.386
Alanine	0.892	0.837	0.809
Cystine	0.245	0.222	0.219
Valine	0.537	0.519	0.504
Methionine	0.218	0.198	0.206
Isoleucine	0.435	0.412	0.392
Leucine	1.53	1.43	1.34
Tyrosine	0.345	0.400	0.373
Phenylalanine	0.624	0.577	0.541
Lysine	0.315	0.309	0.310
Histidine	0.310	0.301	0.284
Arginine	0.502	0.519	0.493
Tryptophan	0.0539	0.0562	0.0480

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-010-0007	080137-036-0010	080137-049-0003
Covance LIMS Number	81200386	81200387	81200388
**Trypsin Inhibitor (TIU/mg)	3.77	4.45	4.48
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.811	0.659	0.747
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	8.46	7.95	7.10
Beta carotene (mg/kg)	1.65	2.13	1.76
Minerals (mg/100g)			
Calcium	3.81	4.23	3.49
Copper	0.166	0.128	0.147
Iron	2.77	2.26	2.33
Magnesium	134	124	124
Manganese	0.579	0.427	0.508
Phosphorus	327	270	307
Potassium	387	319	384
Sodium	< LOQ	< LOQ	< LOQ
Zinc	3.04	2.21	2.25
Iodine	< LOQ	< LOQ	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	< LOQ	330	738
Molybdenum	221	419	210
Thiamine Hydrochloride (mg/kg)	3.59	3.73	3.43
Riboflavin/Vitamin B2 (mg/kg)	1.74	1.74	1.87
Niacin/Vitamin B3 (mg/kg)	24.2	23.9	17.2
Pyridoxine HCl (mg/kg)	6.04	6.68	5.74
Folic Acid (mg/kg)	0.533	0.561	0.566
Panthotenic acid (mg/kg)	6.63	4.56	5.12
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	15.6	28.4	16.6
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.185	0.233	0.186
Inositol (%)	0.196	0.202	0.195
Coumaric acid (%)	0.0144	0.0190	0.0217

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-010-0007	080137-036-0010	080137-049-0003
Covance LIMS Number	81200386	81200387	81200388
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.417	0.443	0.429
16:1 Palmitoleic	< LOQ	0.00589	0.00550
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0856	0.0943	0.0904
18:1 Oleic	1.30	1.47	1.40
18:2 Linoleic	2.12	2.04	2.06
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0438	0.0451	0.0468
20:0 Arachidic	0.0163	0.0183	0.0174
20:1 Eicosenoic	0.00934	0.0107	0.00982
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	< LOQ	0.00594	0.00580

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-049-0008	080137-023-0011	080137-062-0008
Covance LIMS Number	81200389	81200390	81200391
Proximate (%)			
Moisture (fresh weight)	20.4	18.1	24.8
Protein	12.3	11.3	12.1
Total Fat	3.81	4.13	4.61
Ash	1.68	1.56	1.50
Carbohydrates (calculated)	82.3	83.0	81.8
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	10.3	9.93	8.67
Acid Detergent Fiber (%)	4.55	3.28	3.88
Total Dietary Fiber (%)	12.3	13.1	13.1
Amino Acids (%)			
Aspartic Acid	0.848	0.735	0.826
Threonine	0.422	0.392	0.416
Serine	0.595	0.552	0.576
Glutamic Acid	2.51	2.16	2.41
Proline	1.12	0.982	1.06
Glycine	0.415	0.394	0.410
Alanine	1.02	0.874	0.980
Cystine	0.234	0.220	0.222
Valine	0.595	0.512	0.593
Methionine	0.222	0.208	0.209
Isoleucine	0.485	0.399	0.485
Leucine	1.77	1.50	1.73
Tyrosine	0.470	0.388	0.453
Phenylalanine	0.692	0.600	0.686
Lysine	0.320	0.310	0.328
Histidine	0.319	0.294	0.319
Arginine	0.525	0.512	0.520
Tryptophan	0.0541	0.0598	0.0566

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-049-0008	080137-023-0011	080137-062-0008
Covance LIMS Number	81200389	81200390	81200391
**Trypsin Inhibitor (TIU/mg)	3.82	4.11	5.13
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.818	0.814	0.839
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	7.12	10.3	23.1
Beta carotene (mg/kg)	1.81	2.05	1.84
Minerals (mg/100g)			
Calcium	3.33	3.31	4.56
Copper	0.141	0.127	0.122
Iron	2.70	2.56	2.63
Magnesium	133	128	138
Manganese	0.520	0.504	0.557
Phosphorus	314	281	303
Potassium	345	341	360
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.36	2.36	2.27
Iodine	< LOQ	< LOQ	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	902	< LOQ	< LOQ
Molybdenum	158	173	165
Thiamine Hydrochloride (mg/kg)	4.15	3.33	3.71
Riboflavin/Vitamin B2 (mg/kg)	2.06	1.56	1.69
Niacin/Vitamin B3 (mg/kg)	12.8	18.8	21.7
Pyridoxine HCl (mg/kg)	5.75	7.55	7.49
Folic Acid (mg/kg)	0.569	0.490	0.556
Panthotenic acid (mg/kg)	4.97	4.80	4.76
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	14.2	< LOQ	24.6
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.180	0.201	0.203
Inositol (%)	0.205	0.173	0.186
Coumaric acid (%)	0.0192	0.0233	0.0229

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-049-0008	080137-023-0011	080137-062-0008
Covance LIMS Number	81200389	81200390	81200391
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.381	0.397	0.448
16:1 Palmitoleic	< LOQ	0.00513	0.00564
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0763	0.0917	0.0878
18:1 Oleic	1.16	1.36	1.42
18:2 Linoleic	1.86	1.90	2.26
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0406	0.0422	0.0480
20:0 Arachidic	0.0146	0.0172	0.0170
20:1 Eicosenoic	0.00828	0.00974	0.0103
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	< LOQ	0.00541	0.00559

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0004	080137-062-0002	080137-036-0009
Covance LIMS Number	81200392	81200393	81200394
Proximate (%)			
Moisture (fresh weight)	25.9	26.0	23.5
Protein	11.1	11.6	6.82
Total Fat	4.29	4.54	4.21
Ash	1.57	1.66	1.57
Carbohydrates (calculated)	83.0	82.3	87.5
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	10.0	9.64	10.9
Acid Detergent Fiber (%)	3.43	3.28	3.49
Total Dietary Fiber (%)	13.3	12.3	12.9
Amino Acids (%)			
Aspartic Acid	0.731	0.814	0.451
Threonine	0.386	0.401	0.250
Serine	0.528	0.545	0.310
Glutamic Acid	2.21	2.28	1.18
Proline	0.995	1.03	0.570
Glycine	0.397	0.412	0.299
Alanine	0.883	0.927	0.493
Cystine	0.228	0.236	0.173
Valine	0.537	0.570	0.339
Methionine	0.208	0.216	0.170
Isoleucine	0.432	0.461	0.242
Leucine	1.52	1.59	0.763
Tyrosine	0.414	0.297	0.242
Phenylalanine	0.613	0.638	0.323
Lysine	0.316	0.331	0.246
Histidine	0.306	0.316	0.200
Arginine	0.526	0.500	0.374
Tryptophan	0.0467	0.0565	0.0439

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0004	080137-062-0002	080137-036-0009
Covance LIMS Number	81200392	81200393	81200394
**Trypsin Inhibitor (TIU/mg)	4.01	4.30	4.61
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.758	0.872	0.818
Raffinose (%)	< LOQ	< LOQ	0.142
Alpha Tocopherol (mg/kg)	21.9	< LOQ	19.6
Beta carotene (mg/kg)	2.12	1.97	1.83
Minerals (mg/100g)			
Calcium	4.36	4.08	4.61
Copper	0.126	0.146	0.145
Iron	2.42	2.43	1.84
Magnesium	119	134	110
Manganese	0.447	0.547	0.354
Phosphorus	279	303	264
Potassium	331	368	354
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.31	2.12	2.44
Iodine	< LOQ	< LOQ	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	229	< LOQ	187
Molybdenum	354	193	506
Thiamine Hydrochloride (mg/kg)	3.68	3.57	3.19
Riboflavin/Vitamin B2 (mg/kg)	1.52	1.72	1.40
Niacin/Vitamin B3 (mg/kg)	28.9	24.2	28.6
Pyridoxine HCl (mg/kg)	6.46	6.05	4.97
Folic Acid (mg/kg)	0.588	0.581	0.544
Panthotenic acid (mg/kg)	3.95	4.46	4.33
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	25.4	29.9	16.1
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.213	0.201	0.227
Inositol (%)	0.208	0.219	0.207
Coumaric acid (%)	0.0192	0.0215	0.0201

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-036-0004	080137-062-0002	080137-036-0009
Covance LIMS Number	81200392	81200393	81200394
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.424	0.438	0.435
16:1 Palmitoleic	< LOQ	0.00553	0.00523
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0938	0.0861	0.106
18:1 Oleic	1.42	1.35	1.33
18:2 Linoleic	1.98	2.22	1.95
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0445	0.0474	0.0493
20:0 Arachidic	0.0178	0.0165	0.0207
20:1 Eicosenoic	0.0100	0.0101	0.0100
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00582	0.00542	0.00671

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-049-0015	080137-010-0014	080137-010-0013
Covance LIMS Number	81200395	81200396	81200397
Proximate (%)			
Moisture (fresh weight)	22.5	21.4	22.1
Protein	12.1	12.7	10.9
Total Fat	4.08	4.33	4.24
Ash	1.66	1.76	1.71
Carbohydrates (calculated)	82.2	81.3	83.2
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	9.61	9.76	8.46
Acid Detergent Fiber (%)	3.64	3.83	3.47
Total Dietary Fiber (%)	12.5	14.2	12.2
Amino Acids (%)			
Aspartic Acid	0.805	0.860	0.742
Threonine	0.406	0.422	0.375
Serine	0.550	0.587	0.508
Glutamic Acid	2.35	2.56	2.14
Proline	1.07	1.13	0.986
Glycine	0.412	0.417	0.399
Alanine	0.952	1.04	0.863
Cystine	0.235	0.225	0.227
Valine	0.575	0.606	0.529
Methionine	0.225	0.218	0.213
Isoleucine	0.463	0.506	0.424
Leucine	1.64	1.82	1.46
Tyrosine	0.385	0.246	0.226
Phenylalanine	0.648	0.714	0.584
Lysine	0.323	0.326	0.311
Histidine	0.314	0.322	0.299
Arginine	0.514	0.486	0.458
Tryptophan	0.0564	0.0425	0.0594

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-049-0015	080137-010-0014	080137-010-0013
Covance LIMS Number	81200395	81200396	81200397
**Trypsin Inhibitor (TIU/mg)	3.65	3.89	4.60
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.788	0.756	0.838
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	14.8	7.05	7.03
Beta carotene (mg/kg)	1.86	1.87	1.77
Minerals (mg/100g)			
Calcium	3.70	3.87	3.66
Copper	0.222	0.140	0.169
Iron	2.52	2.60	2.71
Magnesium	132	122	126
Manganese	0.516	0.541	0.569
Phosphorus	302	290	313
Potassium	345	337	376
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.30	2.75	2.93
Iodine	< LOQ	< LOQ	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	1020	< LOQ	< LOQ
Molybdenum	185	211	208
Thiamine Hydrochloride (mg/kg)	3.65	3.56	3.29
Riboflavin/Vitamin B2 (mg/kg)	2.08	1.90	1.76
Niacin/Vitamin B3 (mg/kg)	18.5	22.4	24.9
Pyridoxine HCl (mg/kg)	5.90	6.90	7.06
Folic Acid (mg/kg)	0.552	0.490	0.588
Panthotenic acid (mg/kg)	5.60	4.76	4.40
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	17.9	20.0	17.8
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.183	0.202	0.182
Inositol (%)	0.201	0.229	0.175
Coumaric acid (%)	0.0204	0.0215	0.0162

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080137-049-0015	080137-010-0014	080137-010-0013
Covance LIMS Number	81200395	81200396	81200397
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.410	0.426	0.416
16:1 Palmitoleic	0.00781	0.00520	0.00583
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0846	0.0858	0.0858
18:1 Oleic	1.28	1.32	1.32
18:2 Linoleic	1.96	2.15	2.08
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0453	0.0444	0.0436
20:0 Arachidic	0.0160	0.0164	0.0163
20:1 Eicosenoic	0.00898	0.00971	0.00937
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00524	0.00536	0.00524

LOQ-Limit of Quantitation

Table 2
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-022-0011	080137-022-0002	080137-048-0001
Covance LIMS Number	81200398	81200399	81200400
Proximate (%)			
Moisture (on a fresh weight basis)	67.1	67.9	73.1
Protein	8.39	7.85	8.33
Total Fat	2.74	2.40	1.78
Ash	3.74	3.68	4.76
Carbohydrates (calculated)	85.1	86.0	85.1
Neutral Detergent Fiber (%)	41.3	44.5	48.7
Acid Detergent Fiber (%)	25.8	30.5	28.2
Minerals (%)			
Calcium	0.193	0.200	0.173
Phosphorus	0.191	0.148	0.228

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-009-0005	080137-048-0012	080137-009-0013
Covance LIMS Number	81200401	81200402	81200403
Proximate (%)			
Moisture (on a fresh weight basis)	68.9	72.5	71.3
Protein	8.94	7.02	8.99
Total Fat	3.11	1.95	3.15
Ash	4.28	4.29	4.63
Carbohydrates (calculated)	83.6	86.9	83.3
Neutral Detergent Fiber (%)	41.8	45.1	35.9
Acid Detergent Fiber (%)	23.8	29.7	25.4
Minerals (%)			
Calcium	0.223	0.153	0.237
Phosphorus	0.205	0.219	0.221

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-061-0010	080137-009-0002	080137-035-0003
Covance LIMS Number	81200404	81200405	81200406
Proximate (%)			
Moisture (on a fresh weight basis)	71.1	67.5	63.1
Protein	8.82	9.54	5.96
Total Fat	2.43	3.26	2.43
Ash	4.12	3.48	3.06
Carbohydrates (calculated)	84.8	83.1	88.6
Neutral Detergent Fiber (%)	43.3	44.6	37.7
Acid Detergent Fiber (%)	25.6	25.7	21.7
Minerals (%)			
Calcium	0.237	0.224	0.180
Phosphorus	0.210	0.227	0.237

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-048-0011	080137-061-0007	080137-035-0015
Covance LIMS Number	81200407	81200408	81200409
Proximate (%)			
Moisture (on a fresh weight basis)	75.0	71.3	64.1
Protein	7.04	9.58	4.48
Total Fat	1.80	1.75	2.90
Ash	4.32	3.94	4.32
Carbohydrates (calculated)	86.8	84.7	88.3
Neutral Detergent Fiber (%)	47.2	42.5	42.6
Acid Detergent Fiber (%)	27.8	29.4	33.4
Minerals (%)			
Calcium	0.158	0.242	0.184
Phosphorus	0.246	0.220	0.238

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-048-0006	080137-009-0011	080137-022-0005
Covance LIMS Number	81200410	81200411	81200412
Proximate (%)			
Moisture (on a fresh weight basis)	71.7	72.4	67.5
Protein	6.68	8.44	7.88
Total Fat	1.92	3.36	3.91
Ash	4.63	5.22	4.00
Carbohydrates (calculated)	86.9	83.0	84.3
Neutral Detergent Fiber (%)	41.7	46.0	44.9
Acid Detergent Fiber (%)	27.2	24.8	25.3
Minerals (%)			
Calcium	0.141	0.274	0.249
Phosphorus	0.230	0.201	0.168

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-022-0001	080137-009-0012	080137-035-0014
Covance LIMS Number	81200413	81200414	81200415
Proximate (%)			
Moisture (on a fresh weight basis)	68.5	69.6	63.1
Protein	8.51	7.76	5.04
Total Fat	1.91	3.01	2.59
Ash	4.06	3.88	3.41
Carbohydrates (calculated)	85.4	85.2	88.9
Neutral Detergent Fiber (%)	43.8	40.8	38.5
Acid Detergent Fiber (%)	22.9	22.9	27.9
Minerals (%)			
Calcium	0.283	0.167	0.194
Phosphorus	0.214	0.203	0.193

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-022-0003	080137-061-0002	080137-061-0008
Covance LIMS Number	81200416	81200417	81200418
Proximate (%)			
Moisture (on a fresh weight basis)	68.0	74.4	71.9
Protein	7.59	8.05	7.72
Total Fat	2.77	2.30	2.01
Ash	3.63	4.06	3.95
Carbohydrates (calculated)	85.9	85.5	86.5
Neutral Detergent Fiber (%)	40.3	44.9	41.3
Acid Detergent Fiber (%)	22.9	25.9	28.2
Minerals (%)			
Calcium	0.236	0.254	0.230
Phosphorus	0.127	0.195	0.217

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-061-0005	080137-022-0014	080137-022-0013
Covance LIMS Number	81200419	81200420	81200421
Proximate (%)			
Moisture (on a fresh weight basis)	70.7	67.5	67.1
Protein	8.53	8.28	8.63
Total Fat	2.22	2.37	3.16
Ash	3.99	3.20	4.47
Carbohydrates (calculated)	85.3	86.2	83.9
Neutral Detergent Fiber (%)	41.0	39.4	40.4
Acid Detergent Fiber (%)	28	23.7	19.9
Minerals (%)			
Calcium	0.235	0.182	0.270
Phosphorus	0.185	0.148	0.224

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-035-0010	080137-009-0014	080137-061-0001
Covance LIMS Number	81200422	81200423	81200424
Proximate (%)			
Moisture (on a fresh weight basis)	66.0	75.2	72.1
Protein	5.68	9.23	11.9
Total Fat	2.57	2.25	2.39
Ash	3.82	6.45	4.44
Carbohydrates (calculated)	87.9	82.3	81.4
Neutral Detergent Fiber (%)	41.5	42.3	42.3
Acid Detergent Fiber (%)	26.6	32.6	25.4
Minerals (%)			
Calcium	0.216	0.315	0.228
Phosphorus	0.202	0.178	0.197

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-035-0007	080137-035-0001	080137-009-0015
Covance LIMS Number	81200425	81200426	81200427
Proximate (%)			
Moisture (on a fresh weight basis)	67.7	64.4	73.6
Protein	4.40	5.67	7.39
Total Fat	1.98	2.89	2.05
Ash	3.65	2.92	4.85
Carbohydrates (calculated)	90.1	88.5	85.6
Neutral Detergent Fiber (%)	37.8	30.6	39.4
Acid Detergent Fiber (%)	25.4	26.6	29.1
Minerals (%)			
Calcium	0.218	0.154	0.243
Phosphorus	0.202	0.198	0.222

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-009-0006	080137-009-0004	080137-022-0008
Covance LIMS Number	81200428	81200429	81200430
Proximate (%)			
Moisture (on a fresh weight basis)	66.7	69.2	67.6
Protein	7.27	6.69	7.59
Total Fat	2.94	2.73	2.05
Ash	3.48	4.35	3.86
Carbohydrates (calculated)	86.2	86.4	86.4
Neutral Detergent Fiber (%)	38.1	37.0	37.0
Acid Detergent Fiber (%)	24.7	21.9	22.1
Minerals (%)			
Calcium	0.171	0.197	0.214
Phosphorus	0.223	0.217	0.175

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-035-0008	080137-009-0003	080137-022-0010
Covance LIMS Number	81200431	81200432	81200433
Proximate (%)			
Moisture (on a fresh weight basis)	66.5	68.9	69.3
Protein	5.07	6.50	7.30
Total Fat	2.31	2.60	1.60
Ash	3.73	3.89	3.13
Carbohydrates (calculated)	89.0	87.1	87.9
Neutral Detergent Fiber (%)	45.4	40.8	36.2
Acid Detergent Fiber (%)	29.8	25.7	22.8
Minerals (%)			
Calcium	0.203	0.175	0.216
Phosphorus	0.245	0.196	0.172

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-048-0002	080137-009-0010	080137-061-0015
Covance LIMS Number	81200434	81200435	81200436
Proximate (%)			
Moisture (on a fresh weight basis)	74.5	68.5	71.8
Protein	6.63	7.87	8.01
Total Fat	1.71	2.75	1.36
Ash	4.55	4.06	4.33
Carbohydrates (calculated)	87.1	85.4	86.2
Neutral Detergent Fiber (%)	38.5	31.0	37.9
Acid Detergent Fiber (%)	29.0	21.2	26.8
Minerals (%)			
Calcium	0.143	0.168	0.208
Phosphorus	0.227	0.204	0.199

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-048-0010	080137-061-0006	080137-009-0009
Covance LIMS Number	81200437	81200438	81200439
Proximate (%)			
Moisture (on a fresh weight basis)	73.8	70.9	66.7
Protein	6.95	7.80	7.99
Total Fat	1.41	1.71	2.70
Ash	4.81	3.54	3.48
Carbohydrates (calculated)	87.0	86.9	85.9
Neutral Detergent Fiber (%)	46.2	38.5	35.7
Acid Detergent Fiber (%)	26.7	28.7	22.2
Minerals (%)			
Calcium	0.190	0.173	0.147
Phosphorus	0.238	0.194	0.203

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-009-0001	080137-009-0008	080137-035-0012
Covance LIMS Number	81200440	81200441	81200442
Proximate (%)			
Moisture (on a fresh weight basis)	68.4	70.0	66.9
Protein	8.20	8.03	4.14
Total Fat	3.01	2.34	2.06
Ash	4.02	4.30	3.75
Carbohydrates (calculated)	84.8	85.3	90.0
Neutral Detergent Fiber (%)	35.4	49.0	41.7
Acid Detergent Fiber (%)	26.8	23.5	27.9
Minerals (%)			
Calcium	0.170	0.223	0.174
Phosphorus	0.210	0.201	0.248

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-061-0011	080137-035-0011	080137-035-0013
Covance LIMS Number	81200443	81200444	81200445
Proximate (%)			
Moisture (on a fresh weight basis)	71.2	69.1	64.9
Protein	7.36	4.98	5.44
Total Fat	1.72	1.93	2.44
Ash	3.78	4.53	3.53
Carbohydrates (calculated)	87.2	88.7	88.6
Neutral Detergent Fiber (%)	38.9	48.2	35.9
Acid Detergent Fiber (%)	31.9	29.0	26.6
Minerals (%)			
Calcium	0.202	0.309	0.181
Phosphorus	0.180	0.224	0.197

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-022-0015	080137-048-0014	080137-061-0003
Covance LIMS Number	81200446	81200447	81200448
Proximate (%)			
Moisture (on a fresh weight basis)	67.4	73.1	70.7
Protein	7.67	6.58	8.02
Total Fat	1.98	1.38	2.00
Ash	3.77	4.65	4.27
Carbohydrates (calculated)	86.5	87.4	85.7
Neutral Detergent Fiber (%)	34.0	43.1	39.6
Acid Detergent Fiber (%)	20.1	28.1	24.7
Minerals (%)			
Calcium	0.187	0.135	0.216
Phosphorus	0.159	0.200	0.200

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-035-0006	080137-022-0004	080137-022-0006
Covance LIMS Number	81200449	81200450	81200451
Proximate (%)			
Moisture (on a fresh weight basis)	63.4	66.4	66.7
Protein	5.74	8.30	9.22
Total Fat	2.90	1.75	1.92
Ash	3.33	3.78	3.72
Carbohydrates (calculated)	88.0	86.3	85.0
Neutral Detergent Fiber (%)	42.3	44.6	50.5
Acid Detergent Fiber (%)	26.8	29.8	29.1
Minerals (%)			
Calcium	0.162	0.229	0.228
Phosphorus	0.207	0.174	0.146

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-061-0013	080137-022-0009	080137-009-0007
Covance LIMS Number	81200452	81200453	81200454
Proximate (%)			
Moisture (on a fresh weight basis)	70.1	67.3	69.7
Protein	8.70	7.95	7.39
Total Fat	1.62	1.89	2.52
Ash	4.58	4.04	4.06
Carbohydrates (calculated)	84.9	86.2	86.1
Neutral Detergent Fiber (%)	56.5	47.4	38.0
Acid Detergent Fiber (%)	28.1	23.4	24.8
Minerals (%)			
Calcium	0.226	0.200	0.199
Phosphorus	0.208	0.165	0.201

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-061-0014	080137-035-0002	080137-048-0008
Covance LIMS Number	81200455	81200456	81200457
Proximate (%)			
Moisture (on a fresh weight basis)	71.4	67.4	75.1
Protein	8.60	4.17	5.66
Total Fat	1.11	1.74	0.896
Ash	5.21	3.77	5.42
Carbohydrates (calculated)	85.0	90.2	88.0
Neutral Detergent Fiber (%)	38.8	40.8	49.4
Acid Detergent Fiber (%)	26.0	28.2	32.4
Minerals (%)			
Calcium	0.244	0.182	0.165
Phosphorus	0.202	0.179	0.216

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-048-0015	080137-048-0009	080137-022-0007
Covance LIMS Number	81200458	81200459	81200460
Proximate (%)			
Moisture (on a fresh weight basis)	74.0	72.5	66.0
Protein	5.04	4.15	5.47
Total Fat	1.50	0.796	1.32
Ash	4.96	4.29	3.32
Carbohydrates (calculated)	88.5	90.9	90.0
Neutral Detergent Fiber (%)	42.7	45.8	38.8
Acid Detergent Fiber (%)	32.1	29.9	25.4
Minerals (%)			
Calcium	0.165	0.135	0.190
Phosphorus	0.233	0.227	0.162

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-061-0004	080137-048-0007	080137-035-0005
Covance LIMS Number	81200461	81200462	81200463
Proximate (%)			
Moisture (on a fresh weight basis)	71.6	74.7	67.8
Protein	4.93	4.27	3.14
Total Fat	1.46	1.22	1.73
Ash	3.91	4.27	4.78
Carbohydrates (calculated)	89.8	90.1	90.4
Neutral Detergent Fiber (%)	45.8	44.7	43.2
Acid Detergent Fiber (%)	31.0	28.2	28.2
Minerals (%)			
Calcium	0.186	0.135	0.240
Phosphorus	0.187	0.215	0.188

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-035-0004	080137-061-0009	080137-048-0003
Covance LIMS Number	81200464	81200465	81200466
Proximate (%)			
Moisture (on a fresh weight basis)	65.8	71.4	73.9
Protein	4.30	5.45	3.14
Total Fat	1.56	1.20	0.751
Ash	3.89	4.69	4.33
Carbohydrates (calculated)	90.4	88.8	92.0
Neutral Detergent Fiber (%)	48.2	46.5	48.7
Acid Detergent Fiber (%)	25.6	27.0	30.9
Minerals (%)			
Calcium	0.152	0.233	0.120
Phosphorus	0.207	0.202	0.212

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-048-0004	080137-061-0012	080137-022-0012
Covance LIMS Number	81200467	81200468	81200469
Proximate (%)			
Moisture (on a fresh weight basis)	73.0	71.9	67.5
Protein	3.34	5.55	5.23
Total Fat	1.09	1.12	1.30
Ash	4.15	4.23	3.60
Carbohydrates (calculated)	91.5	89.0	89.8
Neutral Detergent Fiber (%)	44.4	40.9	42.5
Acid Detergent Fiber (%)	25.2	26.9	24.1
Minerals (%)			
Calcium	0.126	0.230	0.202
Phosphorus	0.194	0.199	0.151

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080137-048-0005	080137-048-0013	080137-035-0009
Covance LIMS Number	81200470	81200471	81200472
Proximate (%)			
Moisture (on a fresh weight basis)	73.9	75.7	68.1
Protein	3.64	3.69	4.26
Total Fat	1.20	1.04	1.50
Ash	4.83	5.19	5.30
Carbohydrates (calculated)	90.4	90.1	89.0
Neutral Detergent Fiber (%)	47.1	53.1	48.6
Acid Detergent Fiber (%)	24.3	22.8	29.3
Minerals (%)			
Calcium	0.150	0.172	0.181
Phosphorus	0.187	0.227	0.264

LOQ-Limit of Quantitation

APPENDIX A
ANALYTICAL METHOD SUMMARIES AND REFERENCE STANDARDS

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 and Fiber Analyses, Agriculture Handbook No.379, United States Department of Agriculture, Washington, D.C. (1970).

Amino Acid Composition (TAAP/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 0.0100%.

Reference Standards:
Thermo Scientific K18, 2.5 µmol/mL per constituent except cystine (1.25 µmol/mL), Lot Number JG124726
Sigma-Aldrich, L-Tryptophan, 100%, Lot Number 076K0075

Sigma-Aldrich/BioChemika, L-Cysteic Acid Monohydrate, 99.5% (used as 100%), Lot Number 1305674
Sigma, L-Methionine Sulfone, Lot Numbers 012H3349, > 99% but used as 100% and 047K1321, 100%

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

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 (Reported as Vitamin A) (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 was calculated and reported on a fresh weight basis. The limit of quantitation for this study was 0.200 mg/kg.

Reference Standard:
Sigma, Beta Carotene, Type 1, Lot Number 127K3751, 98.2% as stated on Certificate of Analysis (96.23% determined spectrophotometrically).

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).

Cholesterol (CHOK)
The sample is saponified using ethanolic potassium hydroxide. The unsaponifiable fraction that contains cholesterol and other sterols is extracted with toluene. The toluene is evaporated to dryness and the residue is dissolved in dimethylformamide. The samples are derivatized to form trimethylsilyl ethers. The derivatized cholesterol is quantitatively determined by gas chromatography using 5 α-cholestane as an internal standard. The limit of quantitation for this study was 0.00100%.

Reference Standards:
Sigma, Cholesterol, 99.5%,Lot Number 064K5324
Chromadex, Campesterol, 97.2%,Lot Number 03072-641*
Sigma, Stigmasterol, 97.0%,Lot Number 027K5302*
Sigma, Beta-sitosterol, 98.0%,Lot Number 107K3814*

* Present in the standard but not used for CHOK calculation.

Reference:
Official Methods of Analysis of AOAC INTERNATIONAL, 17th Ed., Official Method 994.10. (Modified), AOAC INTERNATIONAL, Gaithersburg, Maryland, (2000).

Courmaric Acid and Ferulic Acid (ACID)
The ground samples are extracted using methanol followed by alkaline hydrolysis and buffering prior to injection directly onto an analytical high-performance liquid chromatography system for quantitation of p-coumaric acid and ferulic acid by ultraviolet detection. The limit of quantitation for courmaric and ferulic acids in this study was 0.005 %.

Reference Standard:
Acros Organics, 4-Hydroxy-3-methoxycinnamic acid (ferulic acid), 98.9%, Lot Number A0230525
Acros Organics, p-Hydroxycinnamic acid (p-coumaric), 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).

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., Method 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 (LOQ) varies with the % lipid contained in the sample. The LOQs listed below apply to the grain samples in this study.

LOQ is 0.00300 % for samples containing 2.0-3.0 % fat.
LOQ is 0.00400 % for samples containing 3.0-4.0 % fat.

Reference Standards:
Nu Chek Prep GLC Reference Standard Hazelton No. 1, Greater than 99%, Lot Number AU18-S
Nu Chek Prep GLC Reference Standard Hazelton No. 2, Greater than 99%, Lot Number M13-O
Nu Chek Prep GLC Reference Standard Hazelton No. 3, Greater than 99%, Lot Number MA18-S
Nu Chek Prep GLC Reference Standard Hazelton No. 4, Greater than 99%, Lot Number AU18-S
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-A2-S

References:
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 996.06, AOAC INTERNATIONAL, Gaithersburg, Maryland, (2005).

Official Methods and Recommended Practices of the AOCS, 5th Ed., Method Ce 1-62, American Oil Chemists' Society: Champaign, Illinois, (1997).

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 mg/kg.

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).

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 calculated to be 0.00005 %.

Reference Standard:
ACROS 2-Furaldehyde, 99.7% but used as 99%, 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).

ICP Emission Spectrometry (ICPS/ICP2)
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)	Grain Limit of Quantitation (mg/100g)	Forage Limit of Quantitation (%)
Calcium	B2-MEB280039, B2-MEB266040	200, 1000	2.00	0.00200
Copper	B2-MEB280039, B2-MEB280036	2, 10	0.050	-
Iron	B2-MEB280039, B2-MEB280035	10, 50	0.200	-
Magnesium	B2-MEB280039, B2-MEB280036	50, 250	2.00	-
Manganese	B2-MEB280039, B2-MEB280036	2, 10	0.030	-
Phosphorus	B2-MEB280039, B2-MEB266040	200, 1000	2.00	0.00200
Potassium	B2-MEB280039, B2-MEB266040	200, 1000	10.0	-
Sodium	B2-MEB280039, B2-MEB266040	200, 1000*	10.0	-
Zinc	B2-MEB280039, B2-MEB280036	10, 50	0.040	-

* B2-MEB266040 was diluted to 800 µg/mL for the high-level sodium standard.

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

ICP-Mass Spectrometry (MS1)
The sample was wet-ashed with nitric acid using microwave digestion. Using inductively coupled plasma mass spectrometry, the amount of each element was determined by comparing the counts generated by the unknowns to those generated by standard solutions of known concentrations.

Spex CertiPrep Reference Standards and Limits of Quantitation:

Mineral	Lot Numbers	Concentration (mg/L)	Limit of Quantitation (ppb)
Selenium	6-74GS	100	50.0
Chromium	6-74GS	100	50.0
Molybdenum	6-74GS	100	50.0

References:

Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 993.14, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

EPA Method 200.8, *Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma-Mass Spectrometry*, (1994).

Cabrera, C., Gallego, C., Lopez, M. C., Lorenzo, M. L., and Lillo, E., "Determination of Levels of Lead Contamination in Food and Feed Crops", *Journal of AOAC International*, Volume 77(5):1249-1252, (1994).

Inositol (INOS)

The inositol sample was extracted with dilute hydrochloric acid at a high temperature. The amount of inositol was determined by comparing the growth response of the sample, using the yeast *Saccharomyces carlsbergenesis*, with the growth response of an inositol standard. The response was measured turbidimetrically. The limit of quantitation for this study was 0.004 %.

Reference Standard:

Sigma-Aldrich, Myo-Inositol, 100%, Lot Number 065K0018

References:

Methods of Analysis for Infant Formulas, Infant Formula Council, Atlanta, Georgia, Section C-7, (1985).

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).

Iodine (IOL)

The sample was digested with a combination of alcoholic potassium hydroxide, sodium carbonate, and alcoholic magnesium nitrate, whereby the iodide was converted to potassium iodide. In the case of organic iodides, the conversion was the result of a dehydrohalogenation reaction. After preliminary charring on a hot plate with heat lamps, the sample was placed in a muffle set for 90 minutes to complete the combustion of organic material. The iodide was then extracted from the ash with hot water and filtered. The analysis was completed by colorimetrically measuring the extent of the reaction between arsenic and cerium as catalyzed by the presence of iodide. The greater the amount of iodide present, the greater the rate of reaction as determined by the difference in absorbance for a 15-minute interval. The limit of quantitation for this study was 0.0100 mg/100g.

Reference Standard:
Fisher, Potassium Iodide, 99.9%, Lot Number 061234

References:
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 932.21, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

Binnerts, W. T., "Determination of Iodine in Milk", *Analytica Chimica Acta*, 10:78-80, (1954).

Heerspink, W., Op Deweegh, G. J., *Clinica Chimica Acta*, 39:327-338, (1972).

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 and 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 mg/kg.

Reference Standard:
USP, Niacin, 99.8%, Lot Number I0E295

Reference:
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 944.13 and 960.46, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

Pantothenic Acid (PANN)
The sample was diluted with water or treated with an enzyme mixture to liberate the pantothenic acid from coenzyme A and the pH was adjusted to remove interferences. The amount of pantothenic acid was determined by comparing the growth response of the sample, using the bacteria *Lactobacillus plantarum*, with the growth response of a calcium pantothenate standard. This growth response was measured turbidimetrically. The limit of quantitation for this study was 0.400 mg/kg.

Reference Standard:
USP, Calcium pantothenate, 99.0%, Lot Number O0C331

References:
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 945.74 and 960.46, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

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 approximately 0.100%.

Reference Standard:
Sigma-Aldrich, Phytic Acid, Dodecasodium Salt Hydrate, 95%, Lot Number 077K0693

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).

Kalthoff, 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 trifluoracetic acid and analyzed by gas chromatography using a flame ionization detector. The limit of quantitation for this study was 0.100%.

Reference Standards:
Sigma-Aldrich, D(+)-Raffinose Pentahydrate, 99% (84.0% 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).

Thiamin Hydrochloride (BIDE)
The sample was autoclaved under weak acid conditions to extract the thiamin. The resulting solution was incubated with a buffered enzyme solution to release any bound thiamin. The solution was purified on a cation-exchange column. An aliquot was reacted with potassium ferricyanide to convert thiamin 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 0.10 mg/kg. Results were reported as thiamin hydrochloride.

Reference Standard:
USP, Thiamin hydrochloride, 99.8%, used as 95.9% after correction for moisture, 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).

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).

Trypsin Inhibitor (TRIP)
The sample was ground and defatted with petroleum ether. A sample of matrix was extracted with 0.01N sodium hydroxide. Varying aliquots of the sample suspension were exposed to a known amount of trypsin and benzoy1-DL-arginine~p~nitroanilide hydrochloride. The sample was allowed to react for 10 minutes at 37°C. After 10 minutes, the reaction was halted by the addition of acetic acid. The solution was centrifuged, then the absorbance was determined at 410 nm. Trypsin inhibitor activity was determined by photometrically measuring the inhibition of trypsin's reaction with benzoyl-DL-arginine~p~nitroanilide hydrochloride. The limit of quantitation for this study was 1.00 Trypsin Inhibitor Units (TIU)/mg.

Reference:
Official Methods and Recommended Practices of the American Oil Chemists' Society, 5th Ed., Method Ba 12-75, American Oil Chemists' Society: Champaign, Illinois, (1997).

Vitamin B_2 (Riboflavin) (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 rhamnosus*, with the growth response of multipoint riboflavin standards. The growth response was measured turbidimetrically. The limit of quantitation for this study was 0.200 mg/kg.

Reference Standard:
USP, Riboflavin, 100%, Lot Number: N0C021

References:
Official Methods of Analysis of AOAC INTERNATIONAL, 18^{th} 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).

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 cerevisiae,* 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 mg/kg.

Reference Standard:
USP, Pyridoxine hydrochloride, 100%, Lot Number: P

References:
Official Methods of Analysis of AOAC INTERNATIONAL, 18^{th} 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 B_{12} (B12F)
Vitamin B_{12} was extracted from the sample into a buffer by heating in an autoclave. Utilizing the bacteria *Lactobacillus delbrueckii*, the amount of vitamin B_{12} was determined turbidimetrically by comparing the growth response of a sample against the growth response of a vitamin B_{12} standard. The limit of quantitation for this study was 0.00120 mg/kg.

Reference Standard:
USP, Cyanocobalamin, 10.7 µg/mg, Lot Number: N

References:
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 952.20 and 960.46, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

The United States Pharmacopeia, Twenty-Ninth Revision, pp. 603-4, United States Pharmacopeial Convention, Inc.: Rockville, Maryland, (2005).

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

Vitamin C (VCF)
The vitamin C in the sample was extracted, oxidized, and mixed with o-phenylenediamine to produce a fluorophor having an activation maximum at approximately 350 nm and a fluorescence maximum at 430 nm. Fluorescence was proportional to concentration. Development of the fluorescence compound with the vitamin was prevented by forming a boric acid-dehydroascorbic acid complex prior to addition of the o-phenylenediamine solution. Any remaining fluorescence was due to extraneous material and served as the blank. The limit of quantitation for this study was 10.0 mg/kg.

Reference Standard:
USP, Ascorbic Acid, 99.9% but used as 100%, Lot Number Q1G135

Reference:
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 967.22, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

Vitamin D (VDMS)
Vitamin D was extracted with reagent alcohol. After removing any solid particles by centrifuging the extraction solution was saponified by adding KOH solution. The analyte was extracted with hexane, dried down, reconstituted, and injected for LC/MS/MS measurement. The limit of quantitation for this study was 0.005 mg/kg.

Reference Standards:
USP, Cholecalciferol, 100%, Lot Number N0G038
USP, Ergocalciferol, 100%, Lot Number P0B275

Reference:
Huang, M., LaLuzerne P., and Winters, D. "Measurement of Vitamin D in Foods and Nutritional Supplements by Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS)" 2009 (accepted), Journal of AOAC INTERNATIONAL.

Vitamin E (LCAT)
The sample 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 5.00 mg/kg.

Reference Standard:
USP, Alpha Tocopherol, 100%, Lot Number M

References:
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).

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 and Food Chemistry,* 31:1330-1333, (1983).

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

Appendix D—Report for Protocol 080139

SUMMARY

(In accordance with 40 CFR part 152, this summary is available for public release after registration)

STUDY TITLE

Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9 - Canada Site

DATA REQUIREMENTS

Not Applicable

AUTHOR(S)

A. M. Phillips, R. A. Herman, A. D. Thomas, M. Sosa

STUDY COMPLETED ON

29-June-2009

PERFORMING LABORATORIES

Regulatory Sciences and Government Affairs—Indianapolis Lab
Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, Indiana 46268-1054

LABORATORY STUDY ID

080139

Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9 - Canada Site

SUMMARY

Field expression, nutrient composition and agronomic trials of a non-transgenic control and a hybrid corn line containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) were conducted in 2008 at a site located in Ontario, Canada. This report summarizes the expression levels of AAD-1 protein in leaf, pollen, root, forage, whole plant, and grain, the results of agronomic determinations, and compositional analysis of forage and grain samples from the control and AAD-1.

The soluble, extractable AAD-1 protein was measured using a quantitative enzyme-linked immunosorbent assay (ELISA) method in corn leaf, pollen, root, forage, whole plant, and grain. Average expression values ranged from 1.28 ng/mg dry weight in R1 stage root to 114.2 ng/mg in pollen tissue. Expression values were similar for the all sprayed treatments as well as for the plots sprayed and unsprayed with 2,4-D and quizalofop herbicides.

Compositional analyses, including proximates, minerals, amino acids, fatty acids, vitamins, anti-nutrients, and secondary metabolites were conducted at Covance Laboratories.

STUDY TITLE

Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9 - Canada Site

DATA REQUIREMENTS

Not Applicable

AUTHOR(S)

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STUDY COMPLETED ON

29-June-2009

PERFORMING LABORATORY

Regulatory Sciences and Government Affairs—Indianapolis Lab
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9330 Zionsville Road
Indianapolis, Indiana 46268-1054

LABORATORY STUDY ID

080139

STATEMENT OF NO DATA CONFIDENTIALITY CLAIMS

Compound: AAD-1 Corn

Title: Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9 - Canada Site

No claim of confidentiality, on any basis whatsoever, is made for any information contained in this document. I acknowledge that information not designated as within the scope of FIFRA sec. 10(d)(1)(A), (B), or (C) and which pertains to a registered or previously registered pesticide is not entitled to confidential treatment and may be released to the public, subject to the provisions regarding disclosure to multinational entities under FIFRA sec. 10(g).

Company: Dow AgroSciences LLC

Company Agent: L. A. Tagliani

Title: Regulatory Manager

Signature: ______________________

Date: ______________________

*In the United States, the above statement supersedes all other statements of confidentiality that may occur elsewhere in this report.

THIS DATA MAY BE CONSIDERED CONFIDENTIAL IN COUNTRIES OUTSIDE THE UNITED STATES.

STATEMENT OF COMPLIANCE WITH GOOD LABORATORY PRACTICE STANDARDS

Title: Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9 - Canada Site

Study Initiation Date: 19-May-2008

This report represents data generated after the effective date of the EPA FIFRA Good Laboratory Practice Standards.

United States Environmental Protection Agency
Title 40 Code of Federal Regulations Part 160
FEDERAL REGISTER, August 17, 1989

Organisation for Economic Co-Operation and Development
ENV/MC/CHEM(98)17, Paris January 26, 1998

All aspects of this study were conducted in accordance with the requirements for Good Laboratory Practice Standards, 40 CFR 160, except for the following: at some sites documentation is incomplete by GLP standards for climatological data, irrigation data, field history, pesticide maintenance, sample weights, soil property and crop information. The test substance was not characterized according to GLP. The statistical analysis of the data was conducted using SAS software, version 9.1, which was not validated according to GLP. In addition, GLP compliance exceptions are listed on page 3 of the Covance composition report.

L. A. Tagliani Sponsor Dow AgroSciences LLC	Date
L. A. Tagliani Submitter Dow AgroSciences LLC	Date
A. M. Phillips Study Director/Author Dow AgroSciences LLC	Study Completion Date

QUALITY ASSURANCE STATEMENT

Compound: AAD-1 Corn

Title: Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9 - Canada Site

Study Initiation Date: 19-May-2008 Study Completion Date: 29-June-2009

THIS PAGE WILL BE REPLACED BY THE QUALITY ASSURANCE UNIT

SIGNATURE PAGE

A. M. Phillips Author Dow AgroSciences LLC	Date
G. Shan Reviewer Dow AgroSciences LLC	Date
R. A. Herman Reviewer Dow AgroSciences LLC	Date
K. A. Clayton Global Leader, Biotechnology Regulatory Science Dow AgroSciences LLC	Date

STUDY PERSONNEL

Title: Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9 - Canada Site

Principle Field Investigators:

Site ID	Facility
080139ON	Jamie Parnell Vaughn Agricultural Research Services Ltd. Branchton, Ontario, Canada

Analysts: A. D. Thomas, M. Sosa, S. K. Embrey

Study Director: A. M. Phillips

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Field Expression, Nutrient Composition Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) - Event DAS-40278-9 - Canada Site

ABSTRACT

Field expression, nutrient composition and agronomic trials of a non-transgenic control and a hybrid corn line containing Aryloxyalkanoate Dioxygenase-1 (AAD-1) were conducted in 2008 at a site located in Ontario, Canada. This report summarizes the expression levels of AAD-1 protein in leaf, pollen, root, forage, whole plant, and grain, the results of agronomic determinations, and compositional analysis of forage and grain samples from the control and AAD-1.

The soluble, extractable AAD-1 protein was measured using a quantitative enzyme-linked immunosorbent assay (ELISA) method in corn leaf, pollen, root, forage, whole plant, and grain. Average expression values ranged from 1.28 ng/mg dry weight in R1 stage root to 114.2 ng/mg in pollen tissue. Expression values were similar for the all sprayed treatments as well as for the plots sprayed and unsprayed with 2,4-D and quizalofop herbicides.

Compositional analyses, including proximates, minerals, amino acids, fatty acids, vitamins, anti-nutrients, and secondary metabolites were conducted at Covance Laboratories.

INTRODUCTION

Corn has been modified by the insertion of the *aad*-1 gene from *Sphingobium herbicidovorans* which encodes the aryloxyalkanoate dioxygenase (AAD-1) protein. The trait confers tolerance to 2,4-dichlorophenoxyacetic acid and aryloxyphenoxypropionate (commonly referred to as "fop" herbicides such as quizalofop) herbicides and may be used as a selectable marker during plant transformation and in breeding nurseries. Transformation of corn with a linear DNA fragment from the plasmid pDAS1740 was carried forward, through breeding, to produce event DAS-40278-9, which is the focus of this study.

The purpose of this study was to determine the levels of AAD-1 protein found in corn tissues. In addition, compositional analysis was performed on corn forage and grain from isogenic non-transformed corn line and the transgenic corn line DAS-40278-9 (unsprayed, sprayed with 2,4-D, sprayed with quizalofop, and sprayed with 2,4-D and quizalofop). Agronomic characteristics of the isogenic non-transformed corn line and the DAS-40278-9 corn were also determined.

Field expression, composition, and agronomic trials were conducted at one test site located within the major corn-producing regions of Canada. The trial was located in Branchton, Ontartio, Canada. Study amendments and deviations are listed in Appendix A, Table 1 of this report.

EXPERIMENTAL

Test Substances

The test substance was hybrid seed containing the DAS-40278-9 event. The hybrid seed, ZQ07LQ570715, was made from a cross between near converted DAS-40278-9 event inbred (BC3S1) and another Dow AgroSciences parental inbred. The BC3S1 inbred seed was produced by backcrossing event DAS-40278-9 for 3 generations with inbred line XHH13 followed by one generation of self pollination (BC3S1). The test substance and treatments are listed in the table below.

Test Entry	ID Numbers	Description
2	ZQ07LQ570715	AAD-1 unsprayed
3	ZQ07LQ570715	AAD-1 sprayed w/ quizalofop
4	ZQ07LQ570715	AAD-1 sprayed w/ 2,4-D
5	ZQ07LQ570715	AAD-1 sprayed w/ 2,4-D and quizalofop

Control Substance

The control substance was conventional hybrid seed of the same genetic background as the test substance line, but it did not contain the DAS-40278-9 event. The control substance used for this study is listed in the table below.

Test Entry	ID Number	Description
1	ZQ07LQ573115	Non-AAD-1 Control

Test System

The test system for this study was corn plants produced from the genetically modified and control corn seed grown at a location within the major corn growing regions of Canada. The field testing facility was located at Branchton, Ontario, Canada (referred to as 080139ON, Appendix B, Table 1).

The test and control corn seed was planted at a seeding rate of approximately 24 seeds per row with seed spacing within each row of approximately 10 inches (25 cm). Four replicate plots of each treatment were established, with each plot consisting of 2-25 ft rows. Plots were arranged in a randomized complete block (RCB) design, with a unique randomization. Each corn plot was bordered by 2 rows of a non-transgenic maize hybrid of similar maturity. The entire trial site was surrounded by a minimum of 12 rows (or 30 ft) of a non-transgenic maize hybrid of similar relative maturity.

Appropriate insect, weed, and disease control practices were applied to produce an agronomical acceptable crop. Appendix B, Table 2 lists the maintenance chemicals used. Average monthly maximum and minimum temperatures along with rainfall and irrigation are shown in Appendix B, Table 3. During the field portion of this study, temperatures and rainfall were in the ranges typically encountered in corn production.

<u>Herbicide Applications</u>

Herbicide treatments were applied with a spray volume of approximately 20 gallons per acre (187 L/ha). These applications were designed to replicate maximum label rate commercial practices.

Herbicide	TSN	Concentration
Weedar 64	026491-0006	39%, 3.76 lb ae[a] /gal, 451 g ae/l
Assure II	106155	10.2%, 0.87 lb ai[b] /gal, 104 g ai/l

[a] ae = acid equivalent.
[b] ai = active ingredient.

2,4-D (Weedar 64) was applied as 3 broadcast over-the-top applications to Test Entries 4 and 5 (seasonal total of 3 lb ae/A). Individual applications were at pre-emergence and approximately V4 and V8 – V9 stages. Individual target application rates were 1.0 lb ae/A for Weedar 64, or 1120 g ae/ha. Actual application rates ranged from 1105 – 1231 g ae/A (Appendix B Table 4).

Quizalofop (Assure II) was applied as a single broadcast over-the-top application to Test Entries 3 and 5. Application timing was at approximately V6 growth stage. The target application rate was 0.0825 lb ai/A for Assure II, or 92 g ai/ha. Actual application rates ranged from 94.7 – 97.6 g ai/ha (Appendix B Table 4).

Agronomic Data Collection

Agronomic characteristics were recorded for all test entries within Blocks 2, 3, and 4. The following characteristics were measured:

Trait	Evaluation Timing	Description of Data
Early Population	V1 and V4	Number of plants emerged per plot.
Seedling Vigor	V4	Visual estimate of average vigor of emerged plants per plot
Plant Vigor/Injury	Approximately 1-2 weeks after applications	Injury from herbicide applications.
Time to Silking	Approximately 50% silking	The number of accumulated heat units from the time of planting until approximately 50% of the plants have emerged silks.
Time to Pollen Shed	Approximately 50% pollen shed	The number of accumulated heat units from the time of planting until approximately 50% of the plants are shedding pollen
Pollen Viability	Approximately 50% pollen shed	Evaluation of pollen color and shape over time
Plant Height	Approximately R6	Height to the tip of the tassel
Ear Height	Approximately R6	Height to the base of the primary ear
Stalk Lodging	Approximately R6	Visual estimate of percent of plants in the plot with stalks broken below the primary ear
Root Lodging	Approximately R6	Visual estimate of percent of plants in the plot leaning approximately 30º or more in the first ~1/2 meter above the soil surface
Final Population	Approximately R6	The number of plants remaining per plot
Days to Maturity	Approximately R6	The number of accumulated heat units from the time of planting until approximately 50% of the plants have reached physiological maturity.
Stay Green	Approximately R6	Overall plant health
Disease Incidence	Approximately R6	Visual estimate of foliar disease incidence
Insect Damage	Approximately R6	Visual estimate of insect damage

Heat Unit = ((MAX temp + MIN temp) / 2) – 50°F

Sample Collection

Samples for expression and composition analysis were collected as per the following table (for sampling dates for ON site, see Appendix B, Table 5). Samples of forage, stover and grain were also collected for residue analysis and will be reported in a separate report. All samples were placed into a freezer or on dry ice within 30 minutes of collection.

Block	Tissue	Approx. Growth Stage[a]	Sample Size	Samples per Entry Control Entry 1	Samples per Entry Test Entries 2-5
1 (expression)	Leaf	V2-4	3 leaves	3	3
	Leaf	V9	3 leaves	3	3
	Pollen[b]	R1	1 plant	3	3
	Root[b]	R1	1 plant	3	3
	Leaf[b]	R1	1 leaf	3	3
	Forage	R4	2 plants[c]	3	3
	Whole Plant	R6	2 plants[c]	3	3
	Grain	R6-Maturity	1 ear	3	3
Block	**Tissue**	**Growth Stage[a]**	**Sample Size**	**Control Entry 1**	**Test Entries 2-5**
2 – 4 (composition)	Forage	R4	3 plants[c]	1	1
	Grain	R6-Maturity	5 ears	1	1

[a] Approximate growth stage.
[b] The pollen, root, and leaf samples collected at R1 collected from the same plant.
[c] Two plants chopped, combined and sub-sampled for expression, or 3 plants for composition.

Field Sample Storage, Shipping and Processing

Each sample was assigned a unique number that was used for identification and tracking. Samples were grouped together according to matrix, treatment number, and site (sample group number or SGN). All samples were delivered frozen to Dow AgroSciences by an ACDS (Agricultural Chemicals Development Services) freezer truck. Appendix B, Table 6 contains sample identifiers along with dates of sampling, shipping, and receipt of samples at Dow AgroSciences (DAS).

Upon receipt at Dow AgroSciences, samples were inspected for physical condition and were found to be either cold or frozen and in good condition. Samples were logged into the computerized Regulatory Laboratories Information Management System (RLIMS). All expression samples were stored in temperature-monitored freezers at approximately -80 °C, being removed only for required sample preparation and analysis. Composition samples were stored at approximately -20 °C at Dow AgroSciences, until frozen shipment to Covance Laboratories, Madison, WI.

Samples of corn tissues were prepared for expression analysis by coarse grinding, lyophilizing and fine-grinding (if necessary) with a Geno/Grinder (Certiprep, Metuchen, New Jersey). No additional preparation was required for pollen.

Analytical Standards for Expression Analysis

The analytical standard used for calibration curves during expression analysis was AAD-1 microbial protein, TSN 105930, 0.1805 mg/mL (1).

Determination of AAD-1 Protein in Corn Samples

Samples of corn were analyzed for the amount of AAD-1 protein using the Dow AgroSciences validated method 07.19 (2). In this method, the soluble extractable AAD-1 protein is quantified using an enzyme-linked immunosorbent assay (ELISA) kit purchased from Beacon Analytical System, Inc.

In the analytical method, the AAD-1 protein was extracted from corn tissues with a phosphate buffered saline solution containing the detergent Tween-20 (PBST) containing 0.5% Bovine

Serum Albumin (BSA). For pollen, the protein was extracted with a 0.5% PBST/BSA buffer containing 1 mg/mL of sodium ascorbate and 2% protease inhibitor cocktail. The plant tissue and pollen extracts were centrifuged; the aqueous supernatant was collected, diluted with appropriate buffer if necessary, and analyzed using an AAD-1 ELISA kit in a sandwich format. The kit used the following steps. An aliquot of the diluted sample and a biotinylated anti-AAD-1 monoclonal antibody are incubated in the wells of a microtiter plate coated with an immobilized anti-AAD-1 monoclonal antibody. These antibodies bind with AAD-1 protein in the wells and form a "sandwich" with AAD-1 protein bound between soluble and the immobilized antibody. The unbound samples and conjugate are then removed from the plate by washing with PBST. An excess amount of streptavidin-enzyme (alkaline phosphatase) conjugate is added to the wells for incubation. At the end of the incubation period, the unbound reagents were removed from the plate by washing. Subsequent addition of an enzyme substrate generated a colored product. Since the AAD-1 was bound in the antibody sandwich, the level of color development was related to the concentration of AAD-1 in the sample (i.e., lower residue concentrations result in lower color development). The absorbance at 405 nm was measured using a Molecular Devices V-max or Spectra Max 190 plate reader. A calibration curve was generated and the AAD-1 concentration in unknown samples was calculated from the polynomial regression equation using Soft-MAX Pro™ software which was compatible with the plate reader. Samples were analyzed in duplicate wells with the average concentration of the duplicate wells being reported.

Limit of Detection/Quantitation for Corn Samples

The limit of detection (LOD) and limit of quantitation (LOQ) for corn tissues were determined during the method validation for the method described above. Samples were reported as not detectable (ND) if the absorbance was less than the lowest standard absorbance at the minimum matrix dilution. Reported sample concentrations that are less than the method LOQ values (shown in table below) have lower precision than results reported above the LOQ values (3).

Matrix	LOD[a]	LOQ
Leaf	0.2	0.4
Root	0.2	0.4
Pollen	0.2	0.4
Forage	0.2	0.4
Grain	0.2	0.4
Whole plant	0.2	0.4

[a] Units of ng protein/mg sample weight.

Compositional Analysis

Samples of corn forage and grain were analyzed at Covance Laboratories Inc. for nutrient content with a variety of tests. The analyses performed for forage included ash, total fat, moisture, protein, carbohydrate, crude fiber, acid detergent fiber, neutral detergent fiber, calcium and phosphorus. The analyses performed for grain included proximates (ash, total fat, moisture, protein, carbohydrate, crude fiber, acid detergent fiber, neutral detergent fiber), minerals, amino acids, fatty acids, vitamins, secondary metabolites and anti-nutrients.

Statistical Treatment

For the agronomic, expression and composition data, mean calculations, standard deviations, and regression analysis were performed. Acceptance criteria of the calibration curves for each ELISA plate was detailed in the analytical method reports for each method described above. For draft methods, similar acceptance criteria were used.

RESULTS AND DISCUSSION

Agronomic Results

Agronomic data was collected from the control, AAD-1 unsprayed, AAD-1 sprayed with 2,4-D, AAD-1 sprayed with quizalofop, and AAD-1 sprayed with both 2,4-D and quizalofop was conducted. Mean results of each determination for each entry can be found in Table 1.

Expression Analysis Results

The corn matrices of leaf (V2-V4, V9 and R1), root (R1), pollen, forage, whole plant (R6) and grain were analyzed for expression levels of AAD-1 protein. Protein concentrations in the matrices (ng /mg) are expressed on a dry tissue weight basis. The AAD-1 protein concentration was reported as not detected (ND) if the sample absorbance was less than the lowest calibration standard absorbance at the lowest matrix dilution.

A summary of the AAD-1 protein concentrations (averaged across sites) in the various corn matrices is shown in Table 2. AAD-1 average protein concentration ranged from 1.28 ng/mg dry weight in R1 stage root to 114.2 ng/mg in pollen tissue. Expression results for the unsprayed and sprayed plots were similar. The AAD-1 protein was not detected in any control samples. Results for individual samples can be found in Appendix C, Tables 1-8.

Composition Analysis Results

A summary of the composition analysis results for each individual sample can be found in the Covance analytical sub-report in Appendix D.

ARCHIVING

The final report and all raw data (including verified and signed copies) associated with this study will be filed in the Dow AgroSciences facility archives, Indianapolis, Indiana upon issuing the final report.

REFERENCES

1. AAD-1 Protein Standard TSN 105930 Certificate of Analysis, 2009, unpublished data of Dow AgroSciences.

2. Shan, G., Tyler, D., "Determination of AAD-1 Protein in Maize Tissues by Enzyme-Linked Immunosorbent Assay," GRM 07.19, unpublished method of Dow AgroSciences LLC.

3. Keith, L. H.; Crummett, W.; Deegan, J., Jr.; Libby, R. A.; Taylor, J. K.; Wentler, G., Principles of Environmental Chemistry, *Anal. Chem.* **1983**, *55*, 2210-2218.

Table 1. Summary of Agronomic Characteristics Results for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Non-Transgenic Control.

Analyte[a]	Control	Unsprayed	Sprayed Quizalofop	Sprayed 2,4-D	Sprayed Both
Early population V1 (number of plants)	- -[j]	- -	- -	- -	- -
Early population V4 (number of plants)	46.0	52.0	53.7	53.7	48.0
Seedling Vigor[b]	7.7	6.7	7.0	7.7	7.3
Final population (number of plants)	44.7	51.3	52.7	52.3	48.0
Crop Injury – 1st app.[c]	0	0	0	0	0
Crop Injury – 2nd app.[c]	0	0	0	0	0
Crop Injury – 3rd app.[c]	0	0	0	0	0
Crop Injury – 4th app.[c]	0	0	0	0	0
Time to Silking (heat units)[d]	1262.4	1296.0	1263.3	1276.8	1277.7
Time to Pollen Shed (heat units)[d]	1281.6	1308.5	1284.0	1291.2	1295.1
Pollen Shape 0 minutes (%)[e]	0.3	1.0	1.0	1.3	1.0
Pollen Shape 30 minutes (%)	100	100	100	100	100
Pollen Shape 60 minutes (%)	100	100	100	100	100
Pollen Shape 120 minutes (%)	100	100	100	100	100
Pollen Color 0 minutes (%)[f]	0.3	1.0	1.0	1.3	1.0
Pollen Color 30 minutes (%)	96.7	96.7	98.3	98.3	100.0

Table 1. (Cont.) Summary of Agronomic Characteristics Results for the DAS-40278-9 AAD-1 Corn (Sprayed and Unsprayed) and Non-Transgenic Control.

Analyte[a]	Control	Unsprayed	Sprayed Quizalofop	Sprayed 2,4-D	Sprayed Both
Pollen Color 60 minutes (%)	100	100	100	100	100
Pollen Color 120 minutes (%)	100	100	100	100	100
Stalk Lodging (%)	0	0	0	0	0
Root Lodging (%)	0	0	0	0	0
Stay Green[g]	1.3	2.0	1.7	1.3	1.3
Disease Incidence[h]	8.0	7.7	7.3	8.0	7.0
Insect Damage[i]	8	8	8	8	8
Days to Maturity (heat units)[d]	2200.6	2200.6	2200.6	2200.6	2200.6
Plant Height (cm)	312.1	299.5	309.4	321.2	302.3
Ear Height (cm)	130.3	120.2	119.4	125.4	112.6

[a] Average of 3 determinations for each treatment.
[b] Visual estimate on 1-9 scale; 9 = tall plants with large robust leaves.
[c] 0-100% scale; with 0 = no injury and 100 = dead plant.
[d] The number of heat units that have accumulated from the time of planting.
[e] 0-100% scale; with % pollen grains with collapsed walls.
[f] 0-100% scale; with % pollen grains with intense yellow color.
[g] Visual estimate on 1-9 scale with 1 no visible green tissue.
[h] Visual estimate on 1-9 scale with 1 being poor disease resistance.
[i] Visual estimate on 1-9 scale with 1 being poor insect resistance.
[j] Data not collected.

Table 2. Summary of Mean Concentration Levels of AAD-1 Protein Measured in the AAD-1 Unsprayed, AAD-1 + Quizalofop, AAD-1 + 2,4-D and AAD-1 + Quizalofop and 2,4-D in Maize Tissues

Corn Tissue	Treatment	AAD-1 ng/mg Tissue Dry Weight Mean	Std. Dev.	Range
V2-V4 Leaf	AAD-1 Unsprayed	10.6	2.03	8.27-11.9
	AAD-1 + Quizalofop	11.6	1.35	10.6-13.1
	AAD-1 + 2,4-D	9.46	0.49	9.03-10.0
	AAD-1 + Quizalofop and 2,4-D	7.79	3.06	4.33-10.1
V9 Leaf	AAD-1 Unsprayed	7.70	0.99	6.99-8.84
	AAD-1 + Quizalofop	6.92	0.91	5.89-7.62
	AAD-1 + 2,4-D	6.92	1.05	6.02-8.07
	AAD-1 + Quizalofop and 2,4-D	7.42	0.16	7.25-7.55
R1 Leaf	AAD-1 Unsprayed	4.35	0.45	3.90-4.80
	AAD-1 + Quizalofop	6.43	1.04	5.36-7.43
	AAD-1 + 2,4-D	6.62	0.10	6.55-6.74
	AAD-1 + Quizalofop and 2,4-D	4.84	0.23	4.70-5.10
Pollen	AAD-1 Unsprayed	100.2	44.7	56.3-145.7
	AAD-1 + Quizalofop	70.4	28.3	52.2-103.0
	AAD-1 + 2,4-D	97.4	52.6	37.5-136.3
	AAD-1 + Quizalofop and 2,4-D	114.2	6.58	108.7-121.5
R1 Root	AAD-1 Unsprayed	1.41	0.50	0.91-1.92
	AAD-1 + Quizalofop	1.88	0.89	1.19-2.89
	AAD-1 + 2,4-D	1.28	0.30	0.97-1.58
	AAD-1 + Quizalofop and 2,4-D	1.59	0.51	1.29-2.18
R4 Forage	AAD-1 Unsprayed	7.28	2.04	4.95-8.75
	AAD-1 + Quizalofop	6.54	2.29	3.93-8.22
	AAD-1 + 2,4-D	8.46	0.87	7.69-9.40
	AAD-1 + Quizalofop and 2,4-D	8.28	0.51	7.92-8.86
Whole plant	AAD-1 Unsprayed	3.14	1.07	1.90-3.82
	AAD-1 + Quizalofop	4.96	0.68	4.17-5.44
	AAD-1 + 2,4-D	5.59	0.45	5.11-6.00
	AAD-1 + Quizalofop and 2,4-D	4.19	0.90	3.33-5.13
Grain	AAD-1 Unsprayed	6.74	1.49	5.43-8.36
	AAD-1 + Quizalofop	5.80	1.07	4.71-6.84
	AAD-1 + 2,4-D	6.29	2.17	4.98-8.79
	AAD-1 + Quizalofop and 2,4-D	5.05	0.28	4.86-5.38

Appendix A—Study Protocol Amendments and Deviations

Appendix A. Table 1. Study Amendments and Deviations.

Protocol Amendments

	Description
1	Document that a different TSN supply of Weedar 64 was used for the study.
2	Assay results of Weedar were added to the protocol. USDA notifications updated in the protocol.
3	Details for sample preparation for ELISA analysis added to the protocol.
4	Analytical details for protein expression analysis were added to protocol.
5	Analytical details for compositional analysis were added to the protocol.
6	Additional details for compositional analysis were added to the protocol.
7	Analytical details for residue analysis were added to the protocol.
8	Additional details for compositional analysis were added to the protocol.
9	Documented a change to the principal investigator at Covance.
10	Documents that residue analysis for quizalofop will be performed at Dow AgroSciences, Indianapolis.
11	Documents that residue analysis will be reported in a separate non-GLP report.

Protocol Deviations

Field Site Deviations

080139ON-1	Samples collected for R4 forage composition and residue were not confirmed by strip testing.
080139ON-2	Some of the residue samples were below the 1 kg weight requirement.
080139ON-3	Some of the composition grain samples did not contain 5 ears.
080139ON-4	Documents SOP deviation for test mix volume adjustment.
080139ON-5	Documents documentation over-write by PI that obscured the original entry.
080139ON-6	Early population determinations at V1 growth stage were not collected.

Appendix B—Field Information

Appendix B Table 1. Field Site Information

Site	Field Investigator	Site Location	Soil Type
080139ON	Jamie Parnell, Vaughn Agricultural Research	Branchton, Ontario Canada	Brant Silt Loam

Appendix B Table 2. Maintenance Chemical Use

Site	Chemical	Date	Rate	Units	Purpose
ON	Dual II Magnum Aatrex	30-May-08 30-May-08	1.75 3.1	l/ha l/ha	Herbicide Herbicide

Appendix B Table 3. Climatological Data

Site	Month 2008	Temperature, °F Max	Temperature, °F Min	Historical Temp.,°F[a] Max	Historical Temp.,°F[a] Min	Rainfall inches	Irrig. inches	Hist. Rainfall,[a] inches
ON	May	62.9	41.0	65.5	43.3	3.59	0	3.08
	June	75.4	56.3	74.1	52.2	5.28	0	3.20
	July	80.1	58.1	78.6	56.7	5.96	0	3.61
	August	77.7	54.4	76.5	54.9	6.74	0	3.40
	Sept.	72.2	49.7	68.4	47.1	5.21	0	3.38
	Oct.	57.9	36.2	56.1	37.2	2.30	0	2.58
	Nov.	43.9	28.8	43.0	29.3	3.93	0	3.26

[a] Historical data is 30 year average.

Appendix B Table 4. Herbicide Application Rate and Timing

Site Code	Herbicide	Application No.	Rate of Application g ae/ha[a]	Date	Approx. Crop Stage
ON	Weedar 64	1	1120, 1105	05-Jun-08	preemergence
	Weedar 64	2	1193, 1164	23-Jun-08	V4
	Assure II	3	97.6, 94.7	03-Jul-08	V6
	Weedar 64	4	1195, 1231	16-Jul-08	V8-V9

[a] For Weedar 64 - Target application of 1120 g ae/ha. For Assure – Target application of 92 g ai/ha. Calculated individually for entries 3 & 5 (Assure II) or 4 & 5 (Weedar 64).

Appendix B Table 5. Sampling Information

Site	Planting Date	Sampling Date	DAP[a]	Commodity
ON	27-May-08	20-Jun-08	24	V2-4 Leaf
		16-Jul-08	50	V9 Leaf
		08-Aug-08	73	Pollen
		08-Aug-08	73	R1 Root
		08-Aug-08	73	R1 Leaf
		17-Sep-08	113	R4 Forage
		11-Nov-08	168	R6 Whole plant
		11-Nov-08	168	Grain
		22-Sep-08	118	Comp Forage
		21-Nov-08	178	Comp Grain
		22-Sep-08	118	Residue Forage
		11-Nov-08	168	Residue Grain
		11-Nov-08	168	Residue Stover

[a] DAP = Days after planting.

Appendix B Table 6. Dates of Sampling, Shipping, and Receipt

Site	Matrix	SGN[a]	Sampling Date	Shipped Date	Received at DAS Date
ON	V2-4 Leaf	080139-001	20-Jun-08	23-Jun-08	24-Jun-08
	V9 Leaf	080139-002	16-Jul-08	16-Jul-08	17-Jul-08
	Pollen	080139-003	08-Aug-08	19-Aug-08	20-Aug-08
	R1 Root	080139-004	08-Aug-08	19-Aug-08	20-Aug-08
	R1 Leaf	080139-005	08-Aug-08	19-Aug-08	20-Aug-08
	R4 Forage	080139-006	17-Sep-08	18-Sep-08	29-Sep-08
	R6 Whole plant	080139-007	11-Nov-08	18-Nov-08	21-Nov-08
	Grain	080139-008	11-Nov-08	18-Nov-08	21-Nov-08
	Comp[b] Forage	080139-009	22-Sep-08	18-Nov-08	21-Nov-08
	Comp Grain	080139-010	21-Nov-08	08-Dec-08	11-Dec-08
	Residue Forage	080139-011	22-Sep-08	08-Dec-08	11-Dec-08
	Residue Grain	080139-012	11-Nov-08	08-Dec-08	11-Dec-08
	Residue Stover	080139-013	11-Nov-08	08-Dec-08	11-Dec-08

[a] SGN = Sample Group Number.
[b] Samples for composition testing.

Appendix C—Protein Expression Data from Individual Samples

Appendix C Table 1. Expression Levels of AAD-1 Protein in Maize V2-V4 Leaf

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080139-001-0001	ON Control	19-Nov-08	15	1.5	2	ND[b]	ND
080139-001-0002	ON Control	19-Nov-08	15	1.5	2	ND	ND
080139-001-0003	ON Control	19-Nov-08	15	1.5	2	ND	ND
080139-001-0004	ON AAD-1 Unsprayed	19-Nov-08	15	1.5	10	82.71	8.27
080139-001-0005	ON AAD-1 Unsprayed	19-Nov-08	15	1.5	10	118.83	11.88
080139-001-0006	ON AAD-1 Unsprayed	19-Nov-08	15	1.5	10	117.01	11.70
						Mean =	10.6
						Std dev. =	2.03
080139-001-0007	ON AAD-1 + Quizalofop	19-Nov-08	15	1.5	10	105.86	10.59
080139-001-0008	ON AAD-1 + Quizalofop	19-Nov-08	15	1.5	10	131.36	13.14
080139-001-0009	ON AAD-1 + Quizalofop	19-Nov-08	15	1.5	10	111.01	11.10
						Mean =	11.6
						Std dev. =	1.35
080139-001-0010	ON AAD-1 + 2,4-D	19-Nov-08	15	1.5	10	90.32	9.03
080139-001-0011	ON AAD-1 + 2,4-D	19-Nov-08	15	1.5	10	99.95	9.99
080139-001-0012	ON AAD-1 + 2,4-D	19-Nov-08	15	1.5	10	93.53	9.35
						Mean =	9.46
						Std dev. =	0.49
080139-001-0013	ON AAD-1 + 2,4-D and Quizalofop	19-Nov-08	15	1.5	10	43.28	4.33
080139-001-0014	ON AAD-1 + 2,4-D and Quizalofop	19-Nov-08	15	1.5	10	89.02	8.90
080139-001-0015	ON AAD-1 + 2,4-D and Quizalofop	19-Nov-08	15	1.5	10	101.33	10.13
						Mean =	7.79
						Std dev. =	3.06

[a] Results (ng/mg) AAD-1 on dry weight basis = $\frac{\text{Result (ng/mL)}}{\text{Sample Weight (mg)/Sample Vol. (mL)}}$

[b] ND = Below the lowest standard at the minimum matrix dilution.

Appendix C Table 2. Expression Levels of AAD-1 Protein in Maize V9 Leaf

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080139-002-0001	ON Control	19-Nov-08	15	1.5	2	ND[b]	ND
080139-002-0002	ON Control	19-Nov-08	15	1.5	2	ND	ND
080139-002-0003	ON Control	19-Nov-08	15	1.5	2	ND	ND
080139-002-0004	ON AAD-1 Unsprayed	19-Nov-08	15	1.5	10	72.83	7.28
080139-002-0005	ON AAD-1 Unsprayed	19-Nov-08	15	1.5	10	88.37	8.84
080139-002-0006	ON AAD-1 Unsprayed	19-Nov-08	15	1.5	10	69.86	6.99
						Mean =	7.70
						Std dev. =	0.99
080139-002-0007	ON AAD-1 + Quizalofop	19-Nov-08	15	1.5	10	58.88	5.89
080139-002-0008	ON AAD-1 + Quizalofop	19-Nov-08	15	1.5	10	76.22	7.62
080139-002-0009	ON AAD-1 + Quizalofop	19-Nov-08	15	1.5	10	72.37	7.24
						Mean =	6.92
						Std dev. =	0.91
080139-002-0010	ON AAD-1 + 2,4-D	19-Nov-08	15	1.5	10	60.21	6.02
080139-002-0011	ON AAD-1 + 2,4-D	19-Nov-08	15	1.5	10	66.75	6.67
080139-002-0012	ON AAD-1 + 2,4-D	19-Nov-08	15	1.5	10	80.73	8.07
						Mean =	6.92
						Std dev. =	1.05
080139-002-0013	ON AAD-1 + 2,4-D and Quizalofop	19-Nov-08	15	1.5	10	74.71	7.47
080139-002-0014	ON AAD-1 + 2,4-D and Quizalofop	19-Nov-08	15	1.5	10	72.47	7.25
080139-002-0015	ON AAD-1 + 2,4-D and Quizalofop	19-Nov-08	15	1.5	10	75.47	7.55
						Mean =	7.42
						Std dev. =	0.16

[a] Results (ng/mg) AAD-1 on dry weight basis = $\frac{\text{Result (ng/mL)}}{\text{Sample Weight (mg)/Sample Vol. (mL)}}$

[b] ND = Below the lowest standard at the minimum matrix dilution.

Appendix C Table 3. Expression Levels of AAD-1 Protein in Maize R1 Leaf

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080139-005-0001	ON Control	20-Nov-08	15	1.5	2	ND[b]	ND
080139-005-0002	ON Control	20-Nov-08	15	1.5	2	ND	ND
080139-005-0003	ON Control	20-Nov-08	15	1.5	2	ND	ND
080139-005-0004	ON AAD-1 Unsprayed	20-Nov-08	15	1.5	5	48.00	4.80
080139-005-0005	ON AAD-1 Unsprayed	20-Nov-08	15	1.5	5	43.42	4.34
080139-005-0006	ON AAD-1 Unsprayed	20-Nov-08	15	1.5	5	39.02	3.90
						Mean =	4.35
						Std dev. =	0.45
080139-005-0007	ON AAD-1 + Quizalofop	20-Nov-08	15	1.5	5	65.15	6.51
080139-005-0008	ON AAD-1 + Quizalofop	20-Nov-08	15	1.5	5	53.55	5.36
080139-005-0009	ON AAD-1 + Quizalofop	20-Nov-08	15	1.5	5	74.27	7.43
						Mean =	6.43
						Std dev. =	1.04
080139-005-0010	ON AAD-1 + 2,4-D	20-Nov-08	15	1.5	5	65.46	6.55
080139-005-0011	ON AAD-1 + 2,4-D	20-Nov-08	15	1.5	5	65.87	6.59
080139-005-0012	ON AAD-1 + 2,4-D	20-Nov-08	15	1.5	5	67.41	6.74
						Mean =	6.62
						Std dev. =	0.10
080139-005-0013	ON AAD-1 + 2,4-D and Quizalofop	20-Nov-08	15	1.5	5	47.18	4.72
080139-005-0014	ON AAD-1 + 2,4-D and Quizalofop	20-Nov-08	15	1.5	5	51.04	5.10
080139-005-0015	ON AAD-1 + 2,4-D and Quizalofop	20-Nov-08	15	1.5	5	46.96	4.70
						Mean =	4.84
						Std dev. =	0.23

[a] Results (ng/mg) AAD-1 on dry weight basis = $\dfrac{\text{Result (ng/mL)}}{\text{Sample Weight (mg)/Sample Vol. (mL)}}$

[b] ND = Below the lowest standard at the minimum matrix dilution.

Appendix C Table 4. Expression Levels of AAD-1 Protein in Maize Pollen

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080139-003-0001	ON Control	1-Dec-08	15	1.5	2	ND[b]	ND
080139-003-0002	ON Control	no sample[c]	NA	NA	NA	NA	NA
080139-003-0003	ON Control	1-Dec-08	15	1.5	2	ND	ND
080139-003-0004	ON AAD-1 Unsprayed	19-Dec-08	15	1.5	50 & 100	563.36	56.34
080139-003-0005	ON AAD-1 Unsprayed	1-Dec-08	15	1.5	100	1457.06	145.71
080139-003-0006	ON AAD-1 Unsprayed	19-Dec-08	15	1.5	50 & 100	986.14	98.61
						Mean =	100.2
						Std dev. =	44.7
080139-003-0007	ON AAD-1 + Quizalofop	19-Dec-08	15	1.5	50 & 100	521.75	52.17
080139-003-0008	ON AAD-1 + Quizalofop	19-Dec-08	15	1.5	50 & 100	560.09	56.01
080139-003-0009	ON AAD-1 + Quizalofop	1-Dec-08	15	1.5	100	1029.50	102.95
						Mean =	70.4
						Std dev. =	28.3
080139-003-0010	ON AAD-1 + 2,4-D	1-Dec-08	15	1.5	100	1362.46	136.25
080139-003-0011	ON AAD-1 + 2,4-D	1-Dec-08	15	1.5	100	179.92	37.51[d]
		19-Dec-08	15	1.5	50 & 100	570.27	
080139-003-0012	ON AAD-1 + 2,4-D	1-Dec-08	15	1.5	100	1183.92	118.39
						Mean =	97.4
						Std dev. =	52.6
080139-003-0013	ON AAD-1 + 2,4-D and Quizalofop	1-Dec-08	15	1.5	100	1087.17	108.72
080139-003-0014	ON AAD-1 + 2,4-D and Quizalofop	1-Dec-08	15	1.5	100	1215.01	121.50
080139-003-0015	ON AAD-1 + 2,4-D and Quizalofop	1-Dec-08	15	1.5	100	1124.04	112.40
						Mean =	114.2
						Std dev. =	6.58

[a] Results (ng/mg) AAD-1 on dry weight basis = $\frac{\text{Result (ng/mL)}}{\text{Sample Weight (mg)/Sample Vol. (mL)}}$

[b] ND = Below the lowest standard at the minimum matrix dilution.

[c] Not enough sample available for analysis.

[d] Average of duplicate analyses (multiple weighings of sample).

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Appendix C Table 5. Expression Levels of AAD-1 Protein in Maize R1 Root

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080139-004-0001	ON Control	9-Dec-08	15	1.5	2	ND[b]	ND
080139-004-0002	ON Control	9-Dec-08	15	1.5	2	ND	ND
080139-004-0003	ON Control	9-Dec-08	15	1.5	2	ND	ND
080139-004-0004	ON AAD-1 Unsprayed	9-Dec-08	15	1.5	4	19.15	1.92
080139-004-0005	ON AAD-1 Unsprayed	9-Dec-08	15	1.5	4	9.07	0.91
080139-004-0006	ON AAD-1 Unsprayed	9-Dec-08	15	1.5	4	14.15	1.42
						Mean =	1.41
						Std dev. =	0.50
080139-004-0007	ON AAD-1 + Quizalofop	9-Dec-08	15	1.5	4	11.87	1.19
080139-004-0008	ON AAD-1 + Quizalofop	9-Dec-08	15	1.5	4	28.87	2.89
080139-004-0009	ON AAD-1 + Quizalofop	8-Jan-09	15	1.5	4	15.67	1.57
						Mean =	1.88
						Std dev. =	0.89
080139-004-0010	ON AAD-1 + 2,4-D	9-Dec-08	15	1.5	4	15.78	1.58
080139-004-0011	ON AAD-1 + 2,4-D	9-Dec-08	15	1.5	4	12.93	1.29
080139-004-0012	ON AAD-1 + 2,4-D	9-Dec-08	15	1.5	4	9.72	0.97
						Mean =	1.28
						Std dev. =	0.30
080139-004-0013	ON AAD-1 + 2,4-D and Quizalofop	9-Dec-08	15	1.5	4	12.92	1.29
080139-004-0014	ON AAD-1 + 2,4-D and Quizalofop	9-Dec-08	15	1.5	4	12.98	1.30
080139-004-0015	ON AAD-1 + 2,4-D and Quizalofop	9-Dec-08	15	1.5	4	21.80	2.18
						Mean =	1.59
						Std dev. =	0.51

[a] Results (ng/mg) AAD-1 on dry weight basis = $\dfrac{\text{Result (ng/mL)}}{\text{Sample Weight (mg)/Sample Vol. (mL)}}$

[b] ND = Below the lowest standard at the minimum matrix dilution.

Appendix C Table 6. Expression Levels of AAD-1 Protein in Maize R4 Forage

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080139-006-0001	ON Control	16-Dec-08	15	1.5	2	ND[b]	ND
080139-006-0002	ON Control	16-Dec-08	15	1.5	2	ND	ND
080139-006-0003	ON Control	16-Dec-08	15	1.5	2	ND	ND
080139-006-0004	ON AAD-1 Unsprayed	16-Dec-08	15	1.5	5	49.52	4.95
080139-006-0005	ON AAD-1 Unsprayed	16-Dec-08	15	1.5	5	81.26	8.13
080139-006-0006	ON AAD-1 Unsprayed	16-Dec-08	15	1.5	5	87.51	8.75
						Mean =	7.28
						Std dev. =	2.04
080139-006-0007	ON AAD-1 + Quizalofop	16-Dec-08	15	1.5	5	39.25	3.93
080139-006-0008	ON AAD-1 + Quizalofop	16-Dec-08	15	1.5	5	74.68	7.47
080139-006-0009	ON AAD-1 + Quizalofop	16-Dec-08	15	1.5	5	82.17	8.22
						Mean =	6.54
						Std dev. =	2.29
080139-006-0010	ON AAD-1 + 2,4-D	16-Dec-08	15	1.5	5	93.96	9.40
080139-006-0011	ON AAD-1 + 2,4-D	16-Dec-08	15	1.5	5	76.88	7.69
080139-006-0012	ON AAD-1 + 2,4-D	16-Dec-08	15	1.5	5	82.87	8.29
						Mean =	8.46
						Std dev. =	0.87
080139-006-0013	ON AAD-1 + 2,4-D and Quizalofop	16-Dec-08	15	1.5	5	80.61	8.06
080139-006-0014	ON AAD-1 + 2,4-D and Quizalofop	16-Dec-08	15	1.5	5	79.20	7.92
080139-006-0015	ON AAD-1 + 2,4-D and Quizalofop	16-Dec-08	15	1.5	5	88.57	8.86
						Mean =	8.28
						Std dev. =	0.51

[a] Results (ng/mg) AAD-1 on dry weight basis = $\frac{\text{Result (ng/mL)}}{\text{Sample Weight (mg)/Sample Vol. (mL)}}$

[b] ND = Below the lowest standard at the minimum matrix dilution.

Appendix C Table 7. Expression Levels of AAD-1 Protein in Maize R6 Whole Plant

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080139-007-0001	ON Control	16-Dec-08	15	1.5	2	ND[b]	ND
080139-007-0002	ON Control	16-Dec-08	15	1.5	2	ND	ND
080139-007-0003	ON Control	16-Dec-08	15	1.5	2	ND	ND
080139-007-0004	ON AAD-1 Unsprayed	16-Dec-08	15	1.5	5	38.23	3.82
080139-007-0005	ON AAD-1 Unsprayed	16-Dec-08	15	1.5	5	36.92	3.69
080139-007-0006	ON AAD-1 Unsprayed	16-Dec-08	15	1.5	5	19.03	1.90
						Mean =	3.14
						Std dev. =	1.07
080139-007-0007	ON AAD-1 + Quizalofop	16-Dec-08	15	1.5	5	54.37	5.44
080139-007-0008	ON AAD-1 + Quizalofop	16-Dec-08	15	1.5	5	41.73	4.17
080139-007-0009	ON AAD-1 + Quizalofop	16-Dec-08	15	1.5	5	52.62	5.26
						Mean =	4.96
						Std dev. =	0.68
080139-007-0010	ON AAD-1 + 2,4-D	16-Dec-08	15	1.5	5	60.03	6.00
080139-007-0011	ON AAD-1 + 2,4-D	16-Dec-08	15	1.5	5	56.51	5.65
080139-007-0012	ON AAD-1 + 2,4-D	16-Dec-08	15	1.5	5	51.08	5.11
						Mean =	5.59
						Std dev. =	0.45
080139-007-0013	ON AAD-1 + 2,4-D and Quizalofop	16-Dec-08	15	1.5	5	51.30	5.13
080139-007-0014	ON AAD-1 + 2,4-D and Quizalofop	16-Dec-08	15	1.5	5	33.30	3.33
080139-007-0015	ON AAD-1 + 2,4-D and Quizalofop	16-Dec-08	15	1.5	5	41.07	4.11
						Mean =	4.19
						Std dev. =	0.90

[a] Results (ng/mg) AAD-1 on dry weight basis = $\frac{\text{Result (ng/mL)}}{\text{Sample Weight (mg)/Sample Vol. (mL)}}$

[b] ND = Below the lowest standard at the minimum matrix dilution.

Appendix C Table 8. Expression Levels of AAD-1 Protein in Maize Grain

DAS Sample Number	Sample Description	Date of Analysis	Sample Weight (mg)	Sample Volume (mL)	Dilution Factor	AAD-1 Reported Results (ng/mL)	AAD-1 Results (ng/mg)[a]
080139-008-0001	ON Control	16-Dec-08	15	1.5	2	ND[b]	ND
080139-008-0002	ON Control	16-Dec-08	15	1.5	2	ND	ND
080139-008-0003	ON Control	16-Dec-08	15	1.5	2	ND	ND
080139-008-0004	ON AAD-1 Unsprayed	16-Dec-08	15	1.5	5	54.35	5.43
080139-008-0005	ON AAD-1 Unsprayed	16-Dec-08	15	1.5	5	64.16	6.42
080139-008-0006	ON AAD-1 Unsprayed	16-Dec-08	15	1.5	5	83.63	8.36
						Mean =	6.74
						Std dev. =	1.49
080139-008-0007	ON AAD-1 + Quizalofop	16-Dec-08	15	1.5	5	68.36	6.84
080139-008-0008	ON AAD-1 + Quizalofop	16-Dec-08	15	1.5	5	47.06	4.71
080139-008-0009	ON AAD-1 + Quizalofop	16-Dec-08	15	1.5	5	58.65	5.87
						Mean =	5.80
						Std dev. =	1.07
080139-008-0010	ON AAD-1 + 2,4-D	16-Dec-08	15	1.5	5	49.77	4.98
080139-008-0011	ON AAD-1 + 2,4-D	16-Dec-08	15	1.5	5	87.88	8.79
080139-008-0012	ON AAD-1 + 2,4-D	16-Dec-08	15	1.5	5	50.99	5.10
						Mean =	6.29
						Std dev. =	2.17
080139-008-0013	ON AAD-1 + 2,4-D and Quizalofop	16-Dec-08	15	1.5	5	49.19	4.92
080139-008-0014	ON AAD-1 + 2,4-D and Quizalofop	16-Dec-08	15	1.5	5	53.79	5.38
080139-008-0015	ON AAD-1 + 2,4-D and Quizalofop	16-Dec-08	15	1.5	5	48.64	4.86
						Mean =	5.05
						Std dev. =	0.28

[a] Results (ng/mg) AAD-1 on dry weight basis = $\frac{\text{Result (ng/mL)}}{\text{Sample Weight (mg)/Sample Vol. (mL)}}$

[b] ND = Below the lowest standard at the minimum matrix dilution.

Appendix D—Covance Analytical Report, Covance 8200-537

COVANCE
THE DEVELOPMENT SERVICES COMPANY

Sub-Report

Study Title	Field Expression, Nutrient Composition Analysis, Residue Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD1) – Event DAS-40278-9 Canada Site
Study Director	A. M. Phillips Dow AgroSciences LLC
Sponsor	Dow AgroSciences LLC 9330 Zionsville Road Indianapolis, Indiana 46268
Principal Investigator	Jane Z. Sabbatini Covance Laboratories Inc.
Testing Site	Covance Laboratories Inc. 3301 Kinsman Boulevard Madison, WI 53704
Covance Study Identification	8200-537
Covance Client Identification	1002382
Sponsor Study Identification	080139
Version	Final
Sub-Report Issued	15 April 2009
Page Number	1 of 47

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COMPLIANCE STATEMENT

The study was conducted in compliance with the Environmental Protection Agency (EPA) FIFRA Good Laboratory Practice (GLP) Standards, Title 40 Code of Federal Regulations Part 160, effective October 16, 1989, and with the OECD GLP Standards with the following exceptions:

1. The reference standards used for compositional analysis were not listed in the protocol or characterized according to GLP standards.
2. Reserve samples from each batch of the reference standards were not retained.

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

Jane Z. Sabbatini
Jane Z. Sabbatini
Principal Investigator
Covance Laboratories Inc.

15-Apr-2009
Date

QUALITY ASSURANCE STATEMENT

This report has been reviewed by the Quality Assurance Unit of Covance Laboratories Inc. and accurately reflects the raw data. The following study specific inspections were conducted and findings reported to the principal investigator (PI), study director (SD), and associated management.

Inspection Dates			Date Reported to PI and PI Management	Date Reported to SD and SD Management
From	To	Phase		
31 Dec 2008	31 Dec 2008	Analytical Chemistry	31 Dec 2008	14 Apr 2009
09 Mar 2009	15 Mar 2009	Draft Report and Data Review	16 Mar 2009	14 Apr 2009
03 Apr 2009	08 Apr 2009	Revised Draft Report and Data Review	09 Apr 2009	14 Apr 2009

Jenna J Kassen
Representative
Quality Assurance Unit

15 Apr 09
Date

SIGNATURE

Jane Z. Sabbatini
Jane Z. Sabbatini
Principal Investigator
Covance Laboratories Inc.

15-Apr-2009
Date

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STUDY IDENTIFICATION

Study Title
Field Expression, Nutrient Composition Analysis, Residue Analysis and Agronomic Characteristics of a Hybrid Maize Line Containing Aryloxyalkanoate Dioxygenase-1 (AAD1) – Event DAS-40278-9 Canada Site

Purpose
The purpose of this portion of the study was to conduct compositional analyses of corn forage and grain products for use in Dow AgroSciences study 080139.

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9330 Zionsville Road
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Study Timetable

Study Initiation Date:	19 May, 2008
Study Completion Date:	15 April, 2009

MAJOR COMPUTER SYSTEMS

The major computer systems used for this portion of the study included, but were not limited to, the following systems:

- Balance (balance weight capture system)
- Waters Empower® Chromatography Manager (data acquisition and result calculation system)
- ICP WinLab32 (ICP spectrometry)
- Laboratory Information Management System (sample and assay tracking)
- The Metasys or REES Centron (monitor and document facility storage conditions)
- eNotes (official study communication system)
- MADCAP (dilution calculation system)
- Elan (ICP-MS)
- WINGZ (calculation of standard curve)
- UV-Visible ChemStation (data acquisition)
- Analyst® (Applied Biosystems)

SAMPLE RECEIPT AND HANDLING

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

TEST SAMPLES

Test Sample Identification

The test samples were corn forage and grain and each sample was identified with a unique Dow AgroSciences' sample identifier. The Covance LIMS numbers and the sponsor sample identifier were cross-referenced and are listed in Tables 1 and 2.

Storage Conditions

Upon receipt at Covance, the samples were stored in a freezer set to maintain −20 ±10°C. Reference standards were stored according to vendor specifications.

® Empower is a registered trademark of Waters Corporation

Summary of Sample Preparation
Each sample of corn forage and grain was weighed after receipt and was ground to a powder with liquid nitrogen using a Waring Blender prior to analyses.

Stability
Stability of the compositional analytes in the test samples was not determined in this portion of the study.

Disposition
Any remaining prepared dilutions or extractions of the test samples (if applicable) will be discarded at Covance. Any remaining sample volumes will be archived at Covance for one year or until the final disposition is directed by the Study Director. Any remaining reference standards may be used for other testing.

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

Reserve (Archive) Samples
Reserve samples were not required for this portion of the study.

EXPERIMENTAL DESIGN

Covance used approved analytical methods to determine the composition of the test samples. 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 reference standards were used in each assay for the analytical procedures and equipment calibrations. See Appendix A for reference standard identification (if applicable). Any additional analyses or re-analyses were documented and justified in the raw data. If additional processing was necessary, it was documented in the raw data.

The analytes required for the corn forage samples were as follows:

Analyte	Method Mnemonic[1]
Proximates:	
Crude Protein	PGEN
Fat	FAAH
Ash	ASHM
Moisture	M100

Neutral Detergent Fiber (NDF)	NDFE
Acid Detergent Fiber (ADF)	ADF
Minerals:	ICP2
Calcium, Phosphorus	

The analytes required for the corn grain samples were as follows:

Analyte	**Method Mnemonic**[1]
Proximates:	
Crude Protein	PGEN
Fat	FSOX
Ash	ASHM
Moisture	M100
Cholesterol	CHOK
Neutral Detergent Fiber (NDF)	NDFE
Acid Detergent Fiber (ADF)	ADF
Total Dietary Fiber	TDF
Minerals:	ICPS
Calcium, Copper, Iron, Magnesium, Manganese, Phosphorus, Potassium, Sodium, Zinc	
Iodine	IOL
Selenium, Chromium, Molybdenum	MS2
Fatty Acid Profile (C8-C22)	FAPM
Amino Acid Profile	TAA5
Phytic Acid	PHYT
Trypsin Inhibitor	TRIP
Courmaric Acid	ACID
Ferulic Acid	ACID
Furfural	FURF
Inositol	INOS
Raffinose	SUGT
Vitamine E (alpha tocopherol)	LCAT
Vitamin A (beta carotene)	BCLC
Vitamin B1 (Thiamin HCl)	BIDE
Vitamin B2 (Riboflavin)	B2FV
Vitamin B5 (Pantothenic Acid)	PANN
Viamin B6 (Pyridoxine HCl)	B6A
Viamin B12	B12F
Vitamin C (Ascorbic Acid)	VCF
Vitamin D	VDMS

Niacin (Nicotinic Acid)	NIAP
Folic Acid	FOAN

[1]Analytical methods are kept on file at Covance Laboratories Inc.
Carbohydrate (CHO) values were determined by calculation.

DRY WEIGHT CALCULATION

The calculation used to convert the analytical fresh weight results to dry weight results was as follows:

$$100\% - \%\text{Moisture} = \text{DW}\%$$
$$\text{DW}\% \div 100 = \text{DWD}$$
$$\text{FWR} \div \text{DWD} = \text{DWR}$$

DW - Dry Weight
DWD - Dry Weight Decimal
FWR - Fresh Weight Result
DWR - Dry Weight Result

CONTROL OF BIAS/RANDOMIZATION

The samples were treated identically in order to minimize assay bias. Samples were tested in a randomized order to minimize assay bias. Randomization method and details are documented in the study file.

STATISTICAL EVALUATIONS

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

MAINTENANCE OF RAW DATA AND RECORDS

All raw data, documentation, records, protocol, protocol amendments, and the final original sub-report generated as a result of this portion of the study will be transferred to Dow AgroSciences at the end of this portion of the study. Covance collected data in both paper and electronic formats. When electronic data was collected, Covance printed out a paper copy of the data which was defined as the finalized raw data. Covance has retained a copy of electronic data (CD) in their archives and will ship all finalized paper raw data to Dow AgroSciences at the conclusion of the study.

The following supporting records will be retained at Covance but will not be archived with the study data:

- Training records

- Storage temperature records
- Instrument calibration and maintenance records
- Durable media records
- Applicable Standard Operating Procedures (SOPs)
- Standard logbooks

The test samples, associated with this portion of the study, will be properly disposed of at the direction of the Study Director following receipt of the analytical results.

RESULTS

The results for all analytes for corn grain and forage are presented in Tables 1 and 2, respectively. The moisture results are presented in the table on a fresh-weight basis. The limits of quantitation (LOQs) listed in Appendix A and in the tables are also expressed on a fresh weight basis. All of the other corn grain and forage assay results are presented in the tables on a dry-weight basis.

Table 1
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080139-010-0003	080139-010-0011	080139-010-0007
Covance LIMS Number	81200626	81200627	81200628
Proximate (%)			
Moisture (fresh weight basis)	32.5	34.4	35.0
Protein	7.66	9.77	9.11
Total Fat	4.76	4.59	4.51
Ash	1.28	1.25	1.68
Carbohydrates (calculated)	86.4	84.5	84.8
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	13.0	11.0	10.0
Acid Detergent Fiber (%)	4.24	3.84	2.92
Total Dietary Fiber (%)	13.9	12.6	12.3
Amino Acids (%)			
Aspartic Acid	0.557	0.709	0.635
Threonine	0.293	0.363	0.332
Serine	0.369	0.476	0.425
Glutamic Acid	1.40	1.89	1.66
Proline	0.661	0.861	0.763
Glycine	0.332	0.370	0.355
Alanine	0.600	0.790	0.703
Cystine	0.187	0.210	0.200
Valine	0.393	0.485	0.446
Methionine	0.161	0.186	0.183
Isoleucine	0.289	0.373	0.334
Leucine	0.930	1.30	1.13
Tyrosine	0.188	0.389	0.346
Phenylalanine	0.399	0.535	0.471
Lysine	0.277	0.299	0.288
Histidine	0.233	0.280	0.258
Arginine	0.379	0.462	0.437
Tryptophan	0.0449	0.0506	0.0460

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080139-010-0003	080139-010-0011	080139-010-0007
Covance LIMS Number	81200626	81200627	81200628
**Trypsin Inhibitor (TIU/mg)	4.56	4.74	4.85
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.455	0.672	0.765
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin A (mg/kg)	1.63	1.48	1.37
Minerals (mg/100g)			
Calcium	4.16	4.83	4.74
Copper	0.160	0.137	0.140
Iron	2.76	2.52	2.71
Magnesium	120	124	128
Manganese	0.498	0.561	0.503
Phosphorus	288	300	309
Potassium	406	387	411
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.29	1.74	2.05
Iodine	< LOQ	< LOQ	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	405
Selenium	75.4	< LOQ	< LOQ
Molybdenum	236	203	257
Thiamine Hydrochloride (mg/kg)	3.88	3.70	4.20
Riboflavin/Vitamin B2 (mg/kg)	1.93	2.09	2.14
Niacin/Vitamin B3 (mg/kg)	31.0	26.4	29.1
Pyridoxine HCl (mg/kg)	5.54	5.17	7.97
Folic Acid (mg/kg)	0.572	0.582	0.662
Panthotenic acid (mg/kg)	5.85	6.28	6.18
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	36.6	33.5	33.5

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080139-010-0003	080139-010-0011	080139-010-0007
Covance LIMS Number	81200626	81200627	81200628
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.234	0.206	0.208
Inositol (%)	0.190	0.200	0.189
Courmaric acid (%)	0.0255	0.0221	0.0218
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.508	0.491	0.498
16:1 Palmitoleic	< LOQ	< LOQ	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0993	0.0851	0.0849
18:1 Oleic	1.46	1.32	1.30
18:2 Linoleic	2.37	2.48	2.45
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0474	0.0488	0.0492
20:0 Arachidic	0.0199	0.0181	0.0183
20:1 Eicosenoic	0.0117	0.00968	0.0110
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00683	< LOQ	0.00652

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080139-010-0014	080139-010-0001	080139-010-0004
Covance LIMS Number	81200629	81200630	81200631
Proximate (%)			
Moisture (fresh weight basis)	33.7	36.9	34.7
Protein	8.37	8.56	10.6
Total Fat	4.65	4.55	4.59
Ash	1.57	1.41	1.41
Carbohydrates (calculated)	85.4	85.4	83.3
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	10.6	11.4	12.1
Acid Detergent Fiber (%)	3.63	4.26	3.43
Total Dietary Fiber (%)	13.0	14.1	13.2
Amino Acids (%)			
Aspartic Acid	0.599	0.659	0.772
Threonine	0.314	0.328	0.387
Serine	0.398	0.423	0.516
Glutamic Acid	1.54	1.65	2.08
Proline	0.722	0.739	0.930
Glycine	0.347	0.350	0.386
Alanine	0.655	0.697	0.868
Cystine	0.208	0.200	0.225
Valine	0.421	0.439	0.524
Methionine	0.190	0.176	0.210
Isoleucine	0.312	0.331	0.407
Leucine	1.03	1.11	1.44
Tyrosine	0.199	0.203	0.421
Phenylalanine	0.431	0.463	0.587
Lysine	0.285	0.292	0.312
Histidine	0.250	0.257	0.296
Arginine	0.397	0.398	0.490
Tryptophan	0.0475	0.0450	0.0502

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080139-010-0014	080139-010-0001	080139-010-0004
Covance LIMS Number	81200629	81200630	81200631
**Trypsin Inhibitor (TIU/mg)	4.57	5.61	5.64
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.679	0.680	0.755
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin A (mg/kg)	1.61	1.37	1.37
Minerals (mg/100g)			
Calcium	4.52	5.31	4.43
Copper	0.170	0.136	0.132
Iron	2.97	2.54	2.45
Magnesium	132	123	136
Manganese	0.614	0.588	0.516
Phosphorus	317	281	320
Potassium	406	404	394
Sodium	< LOQ	< LOQ	< LOQ
Zinc	2.16	1.84	1.91
Iodine	0.0190	0.0235	0.0170
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	< LOQ	< LOQ	< LOQ
Molybdenum	275	273	201
Thiamine Hydrochloride (mg/kg)	4.01	3.91	4.55
Riboflavin/Vitamin B2 (mg/kg)	1.86	2.22	2.02
Niacin/Vitamin B3 (mg/kg)	27.8	30.9	24.5
Pyridoxine HCl (mg/kg)	5.52	5.93	6.88
Folic Acid (mg/kg)	0.704	0.667	0.611
Panthotenic acid (mg/kg)	5.32	6.18	5.31
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	34.8	32.5	30.6

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080139-010-0014	080139-010-0001	080139-010-0004
Covance LIMS Number	81200629	81200630	81200631
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.208	0.230	0.199
Inositol (%)	0.204	0.162	0.185
Courmaric acid (%)	0.0214	0.0241	0.0213
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.484	0.472	0.452
16:1 Palmitoleic	< LOQ	< LOQ	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0888	0.0762	0.0790
18:1 Oleic	1.35	1.24	1.19
18:2 Linoleic	2.43	2.27	2.27
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0483	0.0442	0.0443
20:0 Arachidic	0.0183	0.0171	0.0164
20:1 Eicosenoic	0.0109	0.0107	0.00969
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	< LOQ	0.00582	0.00562

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080139-010-0010	080139-010-0012	080139-010-0015
Covance LIMS Number	81200632	81200633	81200634
Proximate (%)			
Moisture (fresh weight basis)	35.6	33.8	34.9
Protein	10.5	10.2	8.40
Total Fat	4.49	4.61	4.56
Ash	1.51	1.53	1.35
Carbohydrates (calculated)	83.4	83.7	85.7
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	9.69	10.0	10.5
Acid Detergent Fiber (%)	4.49	3.34	3.50
Total Dietary Fiber (%)	11.9	14.3	13.3
Amino Acids (%)			
Aspartic Acid	0.767	0.748	0.610
Threonine	0.384	0.378	0.316
Serine	0.508	0.500	0.406
Glutamic Acid	2.08	2.02	1.55
Proline	0.921	0.920	0.722
Glycine	0.387	0.382	0.346
Alanine	0.868	0.835	0.657
Cystine	0.222	0.222	0.198
Valine	0.530	0.508	0.421
Methionine	0.199	0.192	0.186
Isoleucine	0.413	0.396	0.312
Leucine	1.45	1.39	1.04
Tyrosine	0.227	0.329	0.324
Phenylalanine	0.587	0.565	0.439
Lysine	0.312	0.304	0.284
Histidine	0.300	0.293	0.249
Arginine	0.441	0.458	0.421
Tryptophan	0.0590	0.0544	0.0476

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080139-010-0010	080139-010-0012	080139-010-0015
Covance LIMS Number	81200632	81200633	81200634
**Trypsin Inhibitor (TIU/mg)	4.52	4.76	2.40
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.699	0.733	0.697
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin A (mg/kg)	1.39	1.46	1.49
Minerals (mg/100g)			
Calcium	4.70	4.38	5.16
Copper	0.133	0.138	0.160
Iron	2.38	2.72	2.70
Magnesium	134	128	133
Manganese	0.548	0.589	0.558
Phosphorus	311	308	306
Potassium	408	394	409
Sodium	< LOQ	< LOQ	< LOQ
Zinc	1.94	2.13	2.12
Iodine	< LOQ	0.0196	0.0160
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	< LOQ	< LOQ	119
Molybdenum	180	177	221
Thiamine Hydrochloride (mg/kg)	3.85	4.41	3.79
Riboflavin/Vitamin B2 (mg/kg)	1.77	2.36	2.03
Niacin/Vitamin B3 (mg/kg)	25.3	25.7	26.3
Pyridoxine HCl (mg/kg)	6.27	5.98	6.04
Folic Acid (mg/kg)	0.644	0.631	0.585
Panthotenic acid (mg/kg)	5.81	5.74	6.16
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	24.5	26.9	31.6

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080139-010-0010	080139-010-0012	080139-010-0015
Covance LIMS Number	81200632	81200633	81200634
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.203	0.199	0.218
Inositol (%)	0.186	0.175	0.181
Courmaric acid (%)	0.0191	0.0193	0.0243
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.455	0.468	0.499
16:1 Palmitoleic	< LOQ	< LOQ	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0753	0.0784	0.0877
18:1 Oleic	1.24	1.26	1.36
18:2 Linoleic	2.30	2.39	2.44
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0449	0.0459	0.0502
20:0 Arachidic	0.0161	0.0162	0.0183
20:1 Eicosenoic	0.0102	0.0102	0.0116
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00489	< LOQ	0.00642

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080139-010-0009	080139-010-0013	080139-010-0006
Covance LIMS Number	81200635	81200636	81200637
Proximate (%)			
Moisture (fresh weight basis)	33.9	34.0	34.1
Protein	10.8	11.2	9.42
Total Fat	4.42	4.79	4.54
Ash	1.41	1.50	1.29
Carbohydrates (calculated)	83.4	82.4	84.8
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	9.74	10.4	10.8
Acid Detergent Fiber (%)	3.60	3.68	4.14
Total Dietary Fiber (%)	12.7	13.1	13.1
Amino Acids (%)			
Aspartic Acid	0.772	0.776	0.662
Threonine	0.399	0.397	0.341
Serine	0.542	0.547	0.452
Glutamic Acid	2.13	2.20	1.78
Proline	0.959	0.959	0.807
Glycine	0.390	0.389	0.355
Alanine	0.893	0.917	0.739
Cystine	0.228	0.233	0.206
Valine	0.531	0.541	0.457
Methionine	0.209	0.211	0.181
Isoleucine	0.418	0.430	0.351
Leucine	1.51	1.55	1.21
Tyrosine	0.433	0.239	0.234
Phenylalanine	0.608	0.623	0.502
Lysine	0.312	0.312	0.285
Histidine	0.303	0.303	0.269
Arginine	0.495	0.438	0.411
Tryptophan	0.0514	0.0583	0.0499

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080139-010-0009	080139-010-0013	080139-010-0006
Covance LIMS Number	81200635	81200636	81200637
**Trypsin Inhibitor (TIU/mg)	3.84	3.94	4.05
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.593	0.729	0.856
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin A (mg/kg)	1.28	1.50	1.47
Minerals (mg/100g)			
Calcium	4.48	4.77	5.04
Copper	0.126	0.271	0.151
Iron	2.50	3.00	2.64
Magnesium	123	130	117
Manganese	0.522	0.514	0.555
Phosphorus	289	314	273
Potassium	371	394	395
Sodium	< LOQ	< LOQ	< LOQ
Zinc	1.91	2.02	2.00
Iodine	< LOQ	0.0203	0.0179
Minerals (ppb)			
Chromium	< LOQ	962	< LOQ
Selenium	< LOQ	< LOQ	81.6
Molybdenum	168	211	206
Thiamine Hydrochloride (mg/kg)	4.30	4.20	3.88
Riboflavin/Vitamin B2 (mg/kg)	2.33	2.14	2.08
Niacin/Vitamin B3 (mg/kg)	26.2	22.7	29.4
Pyridoxine HCl (mg/kg)	6.52	6.59	6.08
Folic Acid (mg/kg)	0.611	0.794	0.592
Panthotenic acid (mg/kg)	5.60	6.18	8.42
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	26.5	30.9	30.5

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080139-010-0009	080139-010-0013	080139-010-0006
Covance LIMS Number	81200635	81200636	81200637
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.200	0.195	0.206
Inositol (%)	0.177	0.176	0.170
Courmaric acid (%)	0.0183	0.0182	0.0193
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.448	0.523	0.458
16:1 Palmitoleic	< LOQ	< LOQ	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0772	0.0945	0.0803
18:1 Oleic	1.23	1.42	1.24
18:2 Linoleic	2.27	2.58	2.26
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0449	0.0538	0.0451
20:0 Arachidic	0.0156	0.0182	0.0164
20:1 Eicosenoic	0.0104	0.0116	0.0107
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00531	0.00618	0.00592

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080139-010-0002	080139-010-0005	080139-010-0008
Covance LIMS Number	81200638	81200639	81200640
Proximate (%)			
Moisture (fresh weight basis)	33.4	40.1	33.4
Protein	7.93	10.5	10.7
Total Fat	4.68	4.52	4.64
Ash	1.42	1.75	1.41
Carbohydrates (calculated)	86.0	83.3	83.3
Cholesterol (%)	< LOQ	< LOQ	< LOQ
Neutral Detergent Fiber (%)	11.5	14.9	9.67
Acid Detergent Fiber (%)	4.08	4.54	3.96
Total Dietary Fiber (%)	14.1	14.5	13.3
Amino Acids (%)			
Aspartic Acid	0.580	0.763	0.754
Threonine	0.299	0.402	0.395
Serine	0.384	0.543	0.533
Glutamic Acid	1.43	2.07	2.09
Proline	0.668	0.930	0.926
Glycine	0.326	0.396	0.392
Alanine	0.610	0.865	0.875
Cystine	0.179	0.224	0.227
Valine	0.393	0.513	0.527
Methionine	0.156	0.212	0.210
Isoleucine	0.291	0.392	0.411
Leucine	0.958	1.42	1.46
Tyrosine	0.188	0.409	0.426
Phenylalanine	0.410	0.579	0.596
Lysine	0.278	0.319	0.321
Histidine	0.233	0.297	0.300
Arginine	0.375	0.484	0.506
Tryptophan	0.0461	0.0518	0.0551

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080139-010-0002	080139-010-0005	080139-010-0008
Covance LIMS Number	81200638	81200639	81200640
**Trypsin Inhibitor (TIU/mg)	3.66	4.86	4.26
**TIU - Trypsin Inhibitor Unit			
Phytic Acid (%)	0.706	0.751	0.718
Raffinose (%)	< LOQ	< LOQ	< LOQ
Alpha Tocopherol (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin A (mg/kg)	1.47	1.08	1.23
Minerals (mg/100g)			
Calcium	4.41	5.89	4.29
Copper	0.173	0.175	0.129
Iron	2.67	3.22	2.59
Magnesium	112	164	133
Manganese	0.523	0.666	0.548
Phosphorus	284	371	308
Potassium	410	469	363
Sodium	< LOQ	< LOQ	< LOQ
Zinc	1.74	2.42	1.89
Iodine	< LOQ	0.0189	< LOQ
Minerals (ppb)			
Chromium	< LOQ	< LOQ	< LOQ
Selenium	< LOQ	< LOQ	< LOQ
Molybdenum	240	192	197
Thiamine Hydrochloride (mg/kg)	3.39	4.66	4.01
Riboflavin/Vitamin B2 (mg/kg)	2.33	1.92	1.67
Niacin/Vitamin B3 (mg/kg)	32.0	25.2	23.9
Pyridoxine HCl (mg/kg)	6.26	6.33	6.10
Folic Acid (mg/kg)	0.622	0.442	0.511
Panthotenic acid (mg/kg)	5.63	4.96	4.67
Vitamin B12 (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin D (mg/kg)	< LOQ	< LOQ	< LOQ
Vitamin C (mg/kg)	35.9	30.9	32.6

LOQ-Limit of Quantitation

Table 1 (Continued)
Compositional Analyses of Corn Grain
Dry Weight

Type of Sample	Corn Grain	Corn Grain	Corn Grain
DAS SGN (or SN range)	080139-010-0002	080139-010-0005	080139-010-0008
Covance LIMS Number	81200638	81200639	81200640
Furfural (%)	< LOQ	< LOQ	< LOQ
Ferulic Acid (%)	0.224	0.229	0.203
Inositol (%)	0.198	0.180	0.174
Courmaric acid (%)	0.0233	0.0240	0.0210
Fatty Acids (%)			
8:0 Caprylic	< LOQ	< LOQ	< LOQ
10:0 Capric	< LOQ	< LOQ	< LOQ
12:0 Lauric	< LOQ	< LOQ	< LOQ
14:0 Myristic	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	< LOQ	< LOQ	< LOQ
16:0 Palmitic	0.486	0.476	0.459
16:1 Palmitoleic	< LOQ	< LOQ	< LOQ
17:0 Heptadecanoic	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	< LOQ	< LOQ	< LOQ
18:0 Stearic	0.0941	0.0733	0.0785
18:1 Oleic	1.35	1.23	1.27
18:2 Linoleic	2.36	2.34	2.24
18:3 gamma-Linolenic	< LOQ	< LOQ	< LOQ
18:3 Linolenic	0.0485	0.0452	0.0465
20:0 Arachidic	0.0186	0.0157	0.0156
20:1 Eicosenoic	0.0112	0.0108	0.0103
20:2 Eicosadienoic	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	< LOQ	< LOQ	< LOQ
22:0 Behenic	0.00665	0.00588	< LOQ

LOQ-Limit of Quantitation

Table 2
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080139-009-0015	080139-009-0009	080139-009-0001
Covance LIMS Number	81200611	81200612	81200613
Proximate (%)			
Moisture (on a fresh weight basis)	70.1	63.1	69.1
Protein	7.69	8.13	10.0
Total Fat	1.16	2.65	2.68
Ash	4.05	2.56	3.69
Carbohydrates (calculated)	87.0	86.7	83.5
Neutral Detergent Fiber (%)	47.8	37.1	41.1
Acid Detergent Fiber (%)	27.7	22.5	25.1
Minerals (%)			
Calcium	0.378	0.172	0.313
Phosphorus	0.167	0.195	0.201

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080139-009-0007	080139-009-0005	080139-009-0006
Covance LIMS Number	81200614	81200615	81200616
Proximate (%)			
Moisture (on a fresh weight basis)	70.5	70.7	69.7
Protein	5.22	4.37	7.99
Total Fat	1.20	1.78	2.44
Ash	3.21	2.89	2.12
Carbohydrates (calculated)	90.5	91.1	87.5
Neutral Detergent Fiber (%)	48.1	45.4	45.9
Acid Detergent Fiber (%)	32.9	28.3	27.7
Minerals (%)			
Calcium	0.300	0.266	0.238
Phosphorus	0.168	0.145	0.167

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080139-009-0014	080139-009-0011	080139-009-0012
Covance LIMS Number	81200617	81200618	81200619
Proximate (%)			
Moisture (on a fresh weight basis)	68.5	69.6	65.9
Protein	6.73	7.86	8.89
Total Fat	2.36	1.96	2.36
Ash	3.01	4.08	2.90
Carbohydrates (calculated)	87.9	86.2	85.9
Neutral Detergent Fiber (%)	39.4	41.8	30.8
Acid Detergent Fiber (%)	25.0	26.7	22.9
Minerals (%)			
Calcium	0.300	0.274	0.230
Phosphorus	0.205	0.171	0.180

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080139-009-0003	080139-009-0013	080139-009-0002
Covance LIMS Number	81200620	81200621	81200622
Proximate (%)			
Moisture (on a fresh weight basis)	70.0	71.2	69.1
Protein	7.40	8.13	10.2
Total Fat	1.92	1.74	2.76
Ash	3.83	4.55	3.82
Carbohydrates (calculated)	87.0	85.8	83.2
Neutral Detergent Fiber (%)	44.7	41.7	41.7
Acid Detergent Fiber (%)	36.0	26.2	21.3
Minerals (%)			
Calcium	0.296	0.341	0.260
Phosphorus	0.159	0.181	0.193

LOQ-Limit of Quantitation

Table 2 (Continued)
Compositional Analyses of Corn Forage
Dry Weight

Type of Sample	Corn Forage	Corn Forage	Corn Forage
DAS SGN (or SN range)	080139-009-0008	080139-009-0010	080139-009-0004
Covance LIMS Number	81200623	81200624	81200625
Proximate (%)			
Moisture (on a fresh weight basis)	70.7	68.8	70.3
Protein	7.06	9.81	8.45
Total Fat	1.75	1.64	1.08
Ash	4.44	3.49	3.43
Carbohydrates (calculated)	86.7	84.9	86.9
Neutral Detergent Fiber (%)	46.1	39.1	44.4
Acid Detergent Fiber (%)	25.6	25.3	23.9
Minerals (%)			
Calcium	0.399	0.270	0.290
Phosphorus	0.154	0.222	0.186

LOQ-Limit of Quantitation

APPENDIX A
ANALYTICAL METHOD SUMMARIES AND REFERENCE STANDARDS

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 and Fiber Analyses, Agriculture Handbook No.379, United States Department of Agriculture, Washington, D.C. (1970).

Amino Acid Composition (TAAP/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 0.0100%.

Reference Standards:
Thermo Scientific K18, 2.5 μmol/mL per constituent except cystine (1.25 μmol/mL), Lot Number JG124726
Sigma-Aldrich, L-Tryptophan, 100%, Lot Number 076K0075

Sigma-Aldrich/BioChemika, L-Cysteic Acid Monohydrate, 99.5% (used as 100%), Lot Number 1305674
Sigma, L-Methionine Sulfone, Lot Number 047K1321, 100%

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

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 (Reported as Vitamin A) (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 was calculated and reported on a fresh weight basis. The limit of quantitation for this study was 0.200 mg/kg.

Reference Standard:
Sigma, Beta Carotene, Type 1, Lot Number 127K3751, 98.2% as stated on Certificate of Analysis (96.23% determined spectrophotometrically).

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).

Cholesterol (CHOK)
The sample is saponified using ethanolic potassium hydroxide. The unsaponifiable fraction that contains cholesterol and other sterols is extracted with toluene. The toluene is evaporated to dryness and the residue is dissolved in dimethylformamide. The samples are derivatized to form trimethylsilyl ethers. The derivatized cholesterol is quantitatively determined by gas chromatography using 5 α-cholestane as an internal standard. The limit of quantitation for this study was 0.0010%.

Reference Standards:
Sigma, Cholesterol, 99.5%,Lot Number 064K5324
Chromadex, Campesterol, 97.2%,Lot Number 03072-641*
Sigma, Stigmasterol, 97.0%,Lot Number 027K5302*
Sigma, Beta-sitosterol, 98.0%,Lot Number 107K3814*

* Present in the standard but not used for CHOK calculation.

Reference:
Official Methods of Analysis of AOAC INTERNATIONAL, 17th Ed., Official Method 994.10. (Modified), AOAC INTERNATIONAL, Gaithersburg, Maryland, (2000).

Courmaric Acid and Ferulic Acid (ACID)
The ground samples are extracted using methanol followed by alkaline hydrolysis and buffering prior to injection directly onto an analytical high-performance liquid chromatography system for quantitation of p-coumaric acid and ferulic acid by ultraviolet detection. The limit of quantitation for courmaric and ferulic acids in this study was 0.005 %.

Reference Standard:
Acros Organics, 4-Hydroxy-3-methoxycinnamic acid (ferulic acid), 98.9%, Lot Number A0230525
Acros Organics, p-Hydroxycinnamic acid (p-coumaric), 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).

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., Method 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 (LOQ) varies with the % lipid contained in the sample. The LOQs listed below apply to the grain samples in this study.

LOQ is 0.00300 % for samples containing 2.0-3.0 % fat.
LOQ is 0.00400 % for samples containing 3.0-4.0 % fat.

Reference Standards:
Nu Chek Prep GLC Reference Standard Hazelton No. 1, Greater than 99%, Lot Number AU18-S
Nu Chek Prep GLC Reference Standard Hazelton No. 2, Greater than 99%, Lot Number M13-O
Nu Chek Prep GLC Reference Standard Hazelton No. 3, Greater than 99%, Lot Number MA18-S
Nu Chek Prep GLC Reference Standard Hazelton No. 4, Greater than 99%, Lot Number AU18-S
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-A2-S

References:

Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 996.06, AOAC INTERNATIONAL, Gaithersburg, Maryland, (2005).

Official Methods and Recommended Practices of the AOCS, 5th Ed., Method Ce 1-62, American Oil Chemists' Society: Champaign, Illinois, (1997).

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 mg/kg.

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).

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 calculated to be 0.00005 %.

Reference Standard:
ACROS 2-Furaldehyde, 99.7% but used as 99%, 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).

ICP Emission Spectrometry (ICPS/ICP2)
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)	Grain Limit of Quantitation (mg/100g)	Forage Limit of Quantitation (%)
Calcium	B2-MEB280039, B2-MEB266040	200, 1000	2.00	0.00200
Copper	B2-MEB280039, B2-MEB280036	2, 10	0.050	-
Iron	B2-MEB280039, B2-MEB280035	10, 50	0.200	-
Magnesium	B2-MEB280039, B2-MEB280036	50, 250	2.00	-
Manganese	B2-MEB280039, B2-MEB280036	2, 10	0.030	-
Phosphorus	B2-MEB280039, B2-MEB266040	200, 1000	2.00	0.00200
Potassium	B2-MEB280039, B2-MEB266040	200, 1000	10.0	-
Sodium	B2-MEB280039, B2-MEB266040	200, 1000	10.0	-
Zinc	B2-MEB280039, B2-MEB280036	10, 50	0.040	-

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

ICP-Mass Spectrometry (MS2)
The sample was wet-ashed with nitric acid using microwave digestion. Using inductively coupled plasma mass spectrometry, the amount of each element was determined by comparing the counts generated by the unknowns to those generated by standard solutions of known concentrations.

Spex CertiPrep Reference Standards and Limits of Quantitation:

Mineral	Lot Numbers	Concentration (mg/L)	Limit of Quantitation (ppb)
Selenium	6-74GS	100	50.0
Chromium	6-74GS	100	50.0
Molybdenum	6-74GS	100	50.0

References:
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 993.14, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

EPA Method 200.8, *Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma-Mass Spectrometry*, (1994).

Cabrera, C., Gallego, C., Lopez, M. C., Lorenzo, M. L., and Lillo, E., "Determination of Levels of Lead Contamination in Food and Feed Crops", *Journal of AOAC International*, Volume 77(5):1249-1252, (1994).

Inositol (INOS)
The inositol sample was extracted with dilute hydrochloric acid at a high temperature. The amount of inositol was determined by comparing the growth response of the sample, using the yeast *Saccharomyces carlsbergenesis*, with the growth response of an inositol standard. The response was measured turbidimetrically. The limit of quantitation for this study was 0.004 %.

Reference Standard:
Sigma-Aldrich, Myo-Inositol, 100%, Lot Number 065K0018

References:
Methods of Analysis for Infant Formulas, Infant Formula Council, Atlanta, Georgia, Section C-7, (1985).

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).

Iodine (IOL)
The sample was digested with a combination of alcoholic potassium hydroxide, sodium carbonate, and alcoholic magnesium nitrate, whereby the iodide was converted to potassium iodide. In the case of organic iodides, the conversion was the result of a dehydrohalogenation reaction. After preliminary charring on a hot plate with heat lamps, the sample was placed in a muffle set for 90 minutes to complete the combustion of organic material. The iodide was then extracted from the ash with hot water and filtered. The analysis was completed by colorimetrically measuring the extent of the reaction between arsenic and cerium as catalyzed by the presence of iodide. The greater the amount of iodide present, the greater the rate of reaction as determined by the difference in absorbance for a 15-minute interval. The limit of quantitation for this study was 0.0100 mg/100g.

Reference Standard:
Fisher, Potassium Iodide, 99.9%, Lot Number 061234

References:
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 932.21, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

Binnerts, W. T., "Determination of Iodine in Milk", *Analytica Chimica Acta*, 10:78-80, (1954).

Heerspink, W., Op Deweegh, G. J., *Clinica Chimica Acta*, 39:327-338, (1972).

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 and 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 mg/kg.

Reference Standard:
USP, Niacin, 99.8%, Lot Number I0E295

Reference:
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 944.13 and 960.46, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

Pantothenic Acid (PANN)
The sample was diluted with water or treated with an enzyme mixture to liberate the pantothenic acid from coenzyme A and the pH was adjusted to remove interferences. The amount of pantothenic acid was determined by comparing the growth response of the sample, using the bacteria *Lactobacillus plantarum*, with the growth response of a calcium pantothenate standard. This growth response was measured turbidimetrically. The limit of quantitation for this study was 0.400 mg/kg.

Reference Standard:
USP, Calcium pantothenate, 99.0%, Lot Number O0C331

References:
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 945.74 and 960.46, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

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 approximately 0.100%.

Reference Standard:
Sigma-Aldrich, Phytic Acid, Dodecasodium Salt Hydrate, 95%, Lot Number 077K0693

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).

Kalthoff, 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 trifluoracetic acid and analyzed by gas chromatography using a flame ionization detector. The limit of quantitation for this study was 0.100%.

Reference Standards:
Sigma-Aldrich, D(+)-Raffinose Pentahydrate, 99% (84.0% 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).

Thiamin Hydrochloride (BIDE)
The sample was autoclaved under weak acid conditions to extract the thiamin. The resulting solution was incubated with a buffered enzyme solution to release any bound thiamin. The solution was purified on a cation-exchange column. An aliquot was reacted with potassium ferricyanide to convert thiamin 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 0.10 mg/kg. Results were reported as thiamin hydrochloride.

Reference Standard:
USP, Thiamin hydrochloride, 99.8%, used as 95.9% after correction for moisture, 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).

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).

Trypsin Inhibitor (TRIP)
The sample was ground and defatted with petroleum ether. A sample of matrix was extracted with 0.01N sodium hydroxide. Varying aliquots of the sample suspension were exposed to a known amount of trypsin and benzoyl-DL-arginine~p~nitroanilide hydrochloride. The sample was allowed to react for 10 minutes at 37°C. After 10 minutes, the reaction was halted by the addition of acetic acid. The solution was centrifuged, then the absorbance was determined at 410 nm. Trypsin inhibitor activity was determined by photometrically measuring the inhibition of trypsin's reaction with benzoyl-DL-arginine~p~nitroanilide hydrochloride. The limit of quantitation for this study was 1.00 Trypsin Inhibitor Units (TIU)/mg.

Reference:
Official Methods and Recommended Practices of the American Oil Chemists' Society, 5th Ed., Method Ba 12-75, American Oil Chemists' Society: Champaign, Illinois, (1997).

Vitamin B_2 (Riboflavin) (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 rhamnosus*, with the growth response of multipoint riboflavin standards. The growth response was measured turbidimetrically. The limit of quantitation for this study was 0.200 mg/kg.

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).

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 cerevisiae,* 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 mg/kg.

Reference Standard:
USP, Pyridoxine hydrochloride, 100%, Lot Number: P

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 B_{12} (B12F)
Vitamin B_{12} was extracted from the sample into a buffer by heating in an autoclave. Utilizing the bacteria *Lactobacillus delbrueckii*, the amount of vitamin B_{12} was determined turbidimetrically by comparing the growth response of a sample against the growth response of a vitamin B_{12} standard. The limit of quantitation for this study was 0.00120 mg/kg.

Reference Standard:
USP, Cyanocobalamin, 10.7 µg/mg, Lot Number: N

References:
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Methods 952.20 and 960.46, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

The United States Pharmacopeia, Twenty-Ninth Revision, pp. 603-4, United States Pharmacopeial Convention, Inc.: Rockville, Maryland, (2005).

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

Vitamin C (VCF)
The vitamin C in the sample was extracted, oxidized, and mixed with o-phenylenediamine to produce a fluorophor having an activation maximum at approximately 350 nm and a fluorescence maximum at 430 nm. Fluorescence was proportional to concentration. Development of the fluorescence compound with the vitamin was prevented by forming a boric acid-dehydroascorbic acid complex prior to addition of the o-phenylenediamine solution. Any remaining fluorescence was due to extraneous material and served as the blank. The limit of quantitation for this study was 10 mg/kg.

Reference Standard:
USP, Ascorbic Acid, 99.9% but used as 100%, Lot Number Q1G135

Reference:
Official Methods of Analysis of AOAC INTERNATIONAL, 18th Ed., Method 967.22, AOAC INTERNATIONAL: Gaithersburg, Maryland, (2005).

Vitamin D (VDMS)
Vitamin D was extracted with reagent alcohol. After removing any solid particles by centrifuging the extraction solution was saponified by adding KOH solution. The analyte was extracted with hexane, dried down, reconstituted, and injected for LC/MS/MS measurement. The limit of quantitation for this study was 0.005 mg/kg.

Reference Standards:
USP, Cholecalciferol, 100%, Lot Number N0G038
USP, Ergocalciferol, 100%, Lot Number P0B275

Reference:
Huang, M., LaLuzerne P., and Winters, D. "Measurement of Vitamin D in Foods and Nutritional Supplements by Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS)" 2009(accepted), Journal of AOAC INTERNATIONAL.

Vitamin E (LCAT)
The sample 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 5.00 mg/kg.

Reference Standard:
USP, Alpha Tocopherol, 100%, Lot Number M

References:
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).

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 and Food Chemistry,* 31:1330-1333, (1983).

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

Appendix E—Composition Data for Individual Sites (IA, IL1, IL2, IN, NE and ON)

Appendix E Table 1. Proximate, Fiber and Mineral Analysis of Corn Forage from Individual Sites.

Proximate (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IA Site							
Protein	3.14-15.9	(0.646)	8.08	7.63 (0.479, 0.768)	7.80 (0.658, 0.861)	8.02 (0.927, 0.972)	8.54 (0.470, 0.765)
Fat	0.296-6.7	(0.247)	2.96	2.93 (0.919, 0.967)	2.52 (0.166, 0.557)	3.04 (0.779, 0.913)	2.48 (0.137, 0.537)
Ash	1.3-10.5	(**0.047**[e])	3.80	4.04 (0.595, 0.832)	3.95 (0.738, 0.898)	4.39 (0.210, 0.572)	5.31 (**0.008**[e], 0.407)
Moisture	53.3-87.5	(**0.017**[e])	68.3	68.3 (1.000, 1.000)	68.8 (0.683, 0.871)	70.2 (0.170, 0.557)	73.4 (**0.004**[e], 0.407)
Carbohydrates	66.9-94.5	(0.113)	85.0	85.4 (0.577, 0.827)	85.8 (0.298, 0.645)	84.5 (0.103, 0.497)	83.7 (0.103, 0.497)
Acid Detergent Fiber (ADF)	16.1-47.4	(**0.023**[e])	26.1	23.5 (0.139, 0.540)	23.5 (0.143, 0.545)	23.0 (0.086, 0.473)	29.0 (0.098, 0.490)
Neutral Detergent Fiber (NDF)	20.3-63.7	(0.918)	40.3	39.0 (0.613, 0.840)	40.9 (0.804, 0.923)	39.3 (0.697, 0.879)	39.2 (0.678, 0.867)
Calcium	0.071-0.6	(**0.008**[e])	0.190	0.197 (0.665, 0.864)	0.190 (1.000, 1.000)	0.203 (0.437, 0.753)	0.265 (**0.002**[e], 0.407)
Phosphorus	0.094-0.55	(0.742)	0.211	0.215 (0.733, 0.896)	0.202 (0.433, 0.751)	0.203 (0.482, 0.770)	0.207 (0.733, 0.896)

Appendix E Table 1. (Cont.) Proximate, Fiber and Mineral Analysis of Corn Forage from Individual Sites.

Proximate (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IL1 Site							
Protein	3.14-15.9	(0.329)	7.98	8.47 (0.581, 0.829)	7.00 (0.277, 0.626)	6.97 (0.264, 0.614)	8.19 (0.809, 0.925)
Fat	0.296-6.7	(0.522)	2.36	2.53 (0.770, 0.913)	1.75 (0.302, 0.648)	1.88 (0.408, 0.728)	2.50 (0.801, 0.922)
Ash	1.3-10.5	(0.798)	3.79	3.83 (0.893, 0.956)	3.74 (0.876, 0.947)	3.49 (0.362, 0.683)	3.81 (0.942, 0.978)
Moisture	53.3-87.5	(0.199)	68.1	66.9 (0.062, 0.443)	67.0 (0.081, 0.473)	68.0 (0.783, 0.913)	67.3 (0.209, 0.572)
Carbohydrates	66.9-94.5	(0.292)	85.8	85.2 (0.682, 0.870)	87.5 (0.222, 0.577)	87.6 (0.206, 0.572)	85.5 (0.865, 0.945)
Acid Detergent Fiber (ADF)	16.1-47.4	(0.107)	25.4	28.1 (0.256, 0.602)	23.6 (0.427, 0.746)	24.2 (0.592, 0.831)	21.2 (0.087, 0.473)
Neutral Detergent Fiber (NDF)	20.3-63.7	(0.144)	42.9	46.7 (0.249, 0.601)	41.1 (0.572, 0.822)	40.0 (0.376, 0.696)	37.9 (0.145, 0.545)
Calcium	0.071-0.6	(0.387)	0.240	0.235 (0.857, 0.941)	0.201 (0.137, 0.537)	0.204 (0.159, 0.557)	0.213 (0.284, 0.634)
Phosphorus	0.094-0.55	(0.943)	0.163	0.163 (0.987, 1.000)	0.167 (0.835, 0.931)	0.171 (0.690, 0.874,)	0.177 (0.507, 0.782)

Appendix E Table 1. (Cont.) Proximate, Fiber and Mineral Analysis of Corn Forage from Individual Sites.

Proximate (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IL2 Site							
Protein	3.14-15.9	(0.501)	9.32	7.09 (0.145, 0.545)	7.58 (0.244, 0.599)	7.24 (0.172, 0.557)	8.44 (0.540, 0.803)
Fat	0.296-6.7	(0.171)	2.23	1.80 (0.192, 0.571)	1.65 (0.095, 0.490)	1.76 (0.158, 0.557)	1.36 (**0.022**[e], 0.407)
Ash	1.3-10.5	(0.086)	4.26	3.81 (0.137, 0.537)	4.19 (0.819, 0.927)	4.04 (0.449, 0.754)	4.71 (0.132, 0.530)
Moisture	53.3-87.5	(0.500)	72.4	71.1 (0.134, 0.535)	71.5 (0.310, 0.651)	71.4 (0.246, 0.599)	71.1 (0.143, 0.545)
Carbohydrates	66.9-94.5	(0.303)	84.2	87.3 (0.075, 0.463)	86.7 (0.146, 0.545)	87.0 (0.105, 0.498)	85.4 (0.468, 0.765)
Acid Detergent Fiber (ADF)	16.1-47.4	(0.185)	25.3	29.2 (**0.030**[e], 0.407)	28.2 (0.089, 0.482)	28.1 (0.095, 0.490)	27.0 (0.302, 0.648)
Neutral Detergent Fiber (NDF)	20.3-63.7	(0.918)	42.3	41.8 (0.904, 0.962)	43.4 (0.779, 0.913)	41.0 (0.767, 0.912)	44.4 (0.610, 0.840)
Calcium	0.071-0.6	(0.256)	0.233	0.198 (0.066, 0.448)	0.235 (0.890, 0.954)	0.223 (0.570, 0.820)	0.226 (0.694, 0.877)
Phosphorus	0.094-0.55	(0.061)	0.197	0.189 (0.238, 0.592)	0.213 (0.050, 0.408)	0.196 (0.887, 0.952)	0.203 (0.429, 0.747)

Appendix E Table 1. (Cont.) Proximate, Fiber and Mineral Analysis of Corn Forage from Individual Sites.

Proximate (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IN Site							
Protein	3.14-15.9	(0.740)	5.27	4.39 (0.245, 0.599)	4.58 (0.351, 0.678)	4.93 (0.645, 0.854)	4.99 (0.698, 0.880)
Fat	0.296-6.7	(0.482)	2.35	2.06 (0.490, 0.771)	1.65893 (0.321, 0.658)	2.19 (0.688, 0.874)	2.64 (0.490, 0.771)
Ash	1.3-10.5	(0.442)	3.25	4.00 (0.188, 0.568)	4.23 (0.098, 0.490)	4.03 (0.171, 0.557)	3.75 (0.363, 0.683)
Moisture	53.3-87.5	(0.119)	65.0	65.7 (0.607, 0.839)	67.4 (0.096, 0.490)	67.3 (0.108, 0.505)	64.0 (0.496, 0.777)
Carbohydrates	66.9-94.5	(0.720)	89.1	89.6 (0.534, 0.798)	89.4 (0.738, 0.898)	88.9 (0.770, 0.913)	88.6 (0.534, 0.798)
Acid Detergent Fiber (ADF)	16.1-47.4	(0.478)	25.5	26.9 (0.527, 0794.)	28.2 (0.232, 0.585)	27.8 (0.291, 0.643)	29.3 (0.103, 0.497)
Neutral Detergent Fiber (NDF)	20.3-63.7	(0.133)	36.4	44.6 (**0.038**[e], 0.407)	43.9 (0.051, 0.408)	43.8 (0.055, 0.415)	39.0 (0.449, 0.754)
Calcium	0.071-0.6	(0.275)	0.172	0.185 (0.646, 0.854)	0.201 (0.311, 0.652)	0.233 (0.050, 0.408)	0.186 (0.603, 0.839)
Phosphorus	0.094-0.55	(0.114)	0.205	0.201 (0.770, 0.913)	0.237 (**0.040**[e], 0.407)	0.225 (0.169, 0.557)	0.209 (0.733, 0.896)

Appendix E Table 1. (Cont.) Proximate, Fiber and Mineral Analysis of Corn Forage from Individual Sites.

Proximate (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
NE Site							
Protein	3.14-15.9	(0.380)	6.03	4.55 (0.297, 0.645)	4.69 (0.342, 0.677)	7.00 (0.486, 0.771)	5.10 (0.503, 0.781)
Fat	0.296-6.7	(0.287)	1.41	1.40 (0.974, 0.993)	0.97 (0.190, 0.570)	1.72 (0.351, 0.678)	1.31 (0.738, 0.898)
Ash	1.3-10.5	(0.639)	4.55	4.54 (0.976, 0.994)	4.66 (0.731, 0.896)	4.47 (0.824, 0.927)	4.93 (0.259, 0.607)
Moisture	53.3-87.5	(0.538)	73.8	72.9 (0.282, 0.632)	74.1 (0.758, 0.907)	73.8 (0.939, 0.978)	74.3 (0.619, 0.840)
Carbohydrates	66.9-94.5	(0.513)	88.1	89.6 (0.402, 0.722)	89.7 (0.382, 0.702)	86.9 (0.519, 0.789)	88.7 (0.738, 0.898)
Acid Detergent Fiber (ADF)	16.1-47.4	(0.128)	29.4	25.6 (**0.043**[e], 0.408)	30.2 (0.624, 0.845)	28.1 (0.436, 0.753)	27.7 (0.315, 0.653)
Neutral Detergent Fiber (NDF)	20.3-63.7	(0.959)	45.3	44.4 (0.795, 0.920)	46.6 (0.700, 0.881)	46.2 (0.802, 0.922)	46.3 (0.772, 0.913)
Calcium	0.071-0.6	(0.470)	0.145	0.139 (0.704, 0.882)	0.145 (0.984, 0.998)	0.167 (0.215, 0.574)	0.157 (0.477, 0.767)
Phosphorus	0.094-0.55	(0.277)	0.222	0.204 (0.171, 0.557)	0.219 (0.815, 0.926)	0.234 (0.363, 0.683)	0.220 (0.856, 0.941)

Appendix E Table 1. (Cont.) Proximate, Fiber and Mineral Analysis of Corn Forage from Individual Sites.

Proximate (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
ON Site							
Protein	3.14-15.9	(0.253)	9.20	6.94 (**0.010**[e], 0.491)	6.80 (0.084, 0.473)	8.85 (0.783, 0.913)	7.52 (0.203, 0.572)
Fat	0.296-6.7	(0.595)	2.45	1.77 (0.188, 0.569)	1.87 (0.253, 0.602)	1.99 (0.356, 0.680)	1.75 (0.180, 0.565)
Ash	1.3-10.5	(0.393)	3.78	2.81 (0.114, 0.510)	3.40 (0.508, 0.782)	3.49 (0.609, 0.839)	3.87 (0.873, 0.947)
Moisture	53.3-87.5	(0.617)	69.4	70.2 (0.639, 0.853)	68.1 (0.469, 0.765)	68.1 (0.469, 0.765)	69.9 (0.763, 0.909)
Carbohydrates	66.9-94.5	(0.130)	84.6	88.5 (**0.027**[e], 0.407)	88.0 (**0.048**[e], 0.408)	85.7 (0.473, 0.765)	86.9 (0.149, 0.550)
Acid Detergent Fiber (ADF)	16.1-47.4	(0.964)	27.5	26.6 (0.823, 0.927)	27.0 (0.900, 0.959)	25.0 (0.509, 0.782)	26.3 (0.755, 0.906)
Neutral Detergent Fiber (NDF)	20.3-63.7	(0.281)	42.5	45.2 (0.454, 0.757)	43.8 (0.725, 0.893)	37.2 (0.168, 0.557)	43.0 (0.896, 0.958)
Calcium	0.071-0.6	(0.489)	0.290	0.265 (0.608, 0.839)	0.290 (0.989, 1.000)	0.258 (0.518, 0.789)	0.340 (0.317, 0.654)
Phosphorus	0.094-0.55	(0.647)	0.184	0.166 (0.336, 0.699)	0.172 (0.522, 0.790)	0.191 (0.719, 0.893)	0.184 (1.000, 1.000)

[a] Combined range from Appendix A.
[b] Overall treatment effect estimated using an F-test.
[c] Comparison of the transgenic treatments to the control using t-tests.
[d] P-values adjusted using a False Discovery Rate (FDR) procedure.
[e] Statistical difference indicated by P-Value <0.05.

Appendix E Table 2. Proximate and Fiber Analysis of Corn Grain from Individual Sites.

Proximate (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IA Site							
Protein	6-17.3	(0.687)	10.6	11.2 (0.375, 0.696)	10.6 (0.957, 0.986)	11.1 (0.493, 0.773)	11.3 (0.301, 0.647)
Fat	1.2-18.8	(0.597)	4.31	4.15 (0.297, 0.645)	4.23 (0.593, 0.831)	4.37 (0.671, 0.865)	4.31 (0.982, 0.996)
Ash	0.62-6.28	(0.166)	1.30	1.50 (0.210, 0.572)	1.63 (0.053, 0.412)	1.37 (0.671, 0.865)	1.63 (0.053, 0.412)
Moisture	6.1-40.5	(0.106)	24.7	23.8 (0.237, 0.592)	23.4 (0.116, 0.512)	23.2 (0.077, 0.466)	22.3 (**0.012**[e], 0.407)
Cholesterol	NR[f]	NA[g]	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Carbohydrate	63.3-89.8	(0.777)	83.7	83.2 (0.504, 0.781)	83.5 (0.800, 0.922)	83.2 (0.504, 0.781)	82.8 (0.256, 0.602)
Acid Detergent Fiber (ADF)	1.82-11.3	(0.392)	3.75	3.48 (0.316, 0.654)	3.96 (0.455, 0.759)	3.92 (0.546, 0.804)	3.91 (0.562, 0.815)
Neutral Detergent Fiber (NDF)	5.59-22.6	(0.381)	9.28	9.34 (0.953, 0.985)	10.49 (0.204, 0.572)	8.63 (0.477, 0.767)	9.21 (0.932, 0.975)
Total Dietary Fiber	8.3-35.3	(0.621)	12.0	12.0 (1.000, 1.000)	12.3 (0.686, 0.873)	12.6 (0.448, 0.754)	13.1 (0.204, 0.572)

Appendix E Table 2. (Cont.) Proximate and Fiber Analysis of Corn Grain from Individual Sites.

Proximate (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IL1 Site							
Protein	6-17.3	(**0.034**[e])	11.1	10.9 (0.675, 0.867)	12.3 (**0.035**, 0.407)	10.7 (0.437, 0.753)	12.0 (0.086, 0.473)
Fat	1.2-18.8	(0.692)	3.84	4.01 (0.360, 0.681)	3.90 (0.727, 0.893)	4.08 (0.213, 0.574)	4.00 (0.340, 0.716)
Ash	0.62-6.28	(0.206)	1.23	1.59 (0.098, 0.490)	1.26 (0.853, 0.941)	1.60 (0.090, 0.487)	1.57 (0.111, 0.510)
Moisture	6.1-40.5	(0.885)	19.2	18.6 (0.406, 0.726)	18.6 (0.431, 0.749)	18.6 (0.431, 0.479)	18.7 (0.458, 0.760)
Cholesterol	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Carbohydrate	63.3-89.8	(0.122)	83.8	83.4 (0.520, 0.789)	82.6 (0.053, 0.412)	83.6 (0.723, 0.893)	82.5 (**0.040**[e], 0.407)
Acid Detergent Fiber (ADF)	1.82-11.3	(0.479)	5.07	4.10 (0.189, 0.568)	3.99 (0.148, 0.550)	3.92 (0.128, 0.521)	4.18 (0.224, 0.578)
Neutral Detergent Fiber (NDF)	5.59-22.6	(0.260)	11.4	10.6 (0.512, 0.785)	9.54 (0.136, 0.536)	10.7 (0.536, 0.799)	12.3 (0.464, 0.765)
Total Dietary Fiber	8.3-35.3	(0.587)	14.6	13.7 (0.472, 0.765)	12.6 (0.125, 0.521)	13.6 (0.395, 0.715)	13.5 (0.353, 0.679)

Appendix E Table 2. (Cont.) Proximate and Fiber Analysis of Corn Grain from Individual Sites.

Proximate (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IL2 Site							
Protein	6-17.3	(0.160)	11.8	12.6 (0.072, 0.459)	12.8 (**0.030**[e], 0.407)	12.1 (0.421, 0.737)	12.5 (0.111, 0.510)
Fat	1.2-18.8	(0.141)	4.37	4.20 (0.223, 0.578)	4.20 (0.214, 0.574)	4.21 (0.231, 0.584)	3.99 (**0.016**[e], 0.407)
Ash	0.62-6.28	(0.772)	1.53	1.49 (0.779, 0.913)	1.50 (0.823, 0.927)	1.45 (0.542, 0.803)	1.39 (0.258, 0.606)
Moisture	6.1-40.5	(**0.001**)	25.8	25.5 (0.366, 0.686)	24.5 (**0.002**[e], 0.407)	24.3 (**0.001**[e], 0.407)	24.2 (**0.0005**[e], 0.407)
Cholesterol	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Carbohydrate	63.3-89.8	(0.094)	82.3	81.7 (0.071, 0.459)	81.6 (**0.027**[e], 0.407)	82.2 (0.723, 0.893)	82.2 (0.723, 0.893)
Acid Detergent Fiber (ADF)	1.82-11.3	(0.581)	3.70	3.97 (0.415, 0.733)	3.96 (0.420, 0.737)	3.81 (0.737, 0.898)	3.52 (0.566, 0.817)
Neutral Detergent Fiber (NDF)	5.59-22.6	(0.595)	10.1	9.63 (0.459, 0.760)	9.37 (0.252, 0.602)	9.15 (0.145, 0.545)	9.65 (0.476, 0.767)
Total Dietary Fiber	8.3-35.3	(0.271)	12.4	12.3 (0.828, 0.929)	12.8 (0.591, 0.831)	13.6 (0.077, 0.469)	12.6 (0.828, 0.929)

Appendix E Table 2. (Cont.) Proximate and Fiber Analysis of Corn Grain from Individual Sites.

Proximate (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IN Site							
Protein	6-17.3	(0.468)	8.02	9.48 (0.113, 0.510)	9.21 (0.184, 0.568)	8.63 (0.477, 0.767)	9.11 (0.221, 0.577)
Fat	1.2-18.8	(0.796)	4.22	4.27 (0.741, 0.899)	4.17 (0.688, 0.874)	4.19 (0.813, 0.926)	4.32 (0.498, 0.777)
Ash	0.62-6.28	(0.922)	1.58	1.46 (0.573, 0.822)	1.44 (0.532, 0.798)	1.39 (0.396, 0.715)	1.47 (0.616, 0.840)
Moisture	6.1-40.5	(0.127)	25.0	25.9 (0.339, 0.673)	24.2 (0.375, 0.696)	24.1 (0.322, 0.658)	26.2 (0.200, 0.571)
Cholesterol	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Carbohydrate	63.3-89.8	(0.570)	86.2	84.8 (0.155, 0.557)	85.2 (0.321, 0.658)	85.8 (0.673, 0.865)	85.1 (0.276, 0.626)
Acid Detergent Fiber (ADF)	1.82-11.3	(0.353)	4.56	4.12 (0.269, 0.645)	3.92 (0.145, 0.545)	3.74 (0.073, 0.459)	4.29 (0.510, 0.783)
Neutral Detergent Fiber (NDF)	5.59-22.6	(0.489)	10.8	10.2 (0.475, 0.767)	10.0 (0.351, 0.678)	10.6 (0.822, 0.927)	11.3 (0.470, 0.765)
Total Dietary Fiber	8.3-35.3	(0.547)	14.4	13.9 (0.597, 0.834)	13.1 (0.196, 0.571)	13.1 (0.206, 0.572)	13.1 (0.206, 0.572)

Appendix E Table 2. (Cont.) Proximate and Fiber Analysis of Corn Grain from Individual Sites.

Proximate (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
NE Site							
Protein	6-17.3	(0.109)	10.2	11.2 (0.119, 0.515)	11.7 (**0.031**[e], 0.407)	10.3 (0.822, 0.927)	11.4 (0.070, 0.456)
Fat	1.2-18.8	(0.607)	4.18	3.97 (0.284, 0.635)	3.94 (0.226, 0.582)	4.16 (0.888, 0.952)	4.01 (0.380, 0.700)
Ash	0.62-6.28	(0.295)	1.69	1.77 (0.644, 0.854)	1.75 (0.714, 0.889)	1.44 (0.177, 0.563)	1.53 (0.375, 0.696)
Moisture	6.1-40.5	(0.363)	21.8	22.6 (0.235, 0.589)	21.4 (0.588, 0.831)	22.3 (0.493, 0.773)	21.5 (0.656, 0.860)
Cholesterol	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Carbohydrate	63.3-89.8	(0.168)	83.9	83.1 (0.175, 0.557)	82.7 (0.067, 0.448)	84.1 (0.782, 0.913)	83.1 (0.207, 0.572)
Acid Detergent Fiber (ADF)	1.82-11.3	(**0.027**[e])	4.11	3.96 (0.597, 0.834)	4.60 (0.110, 0.510)	4.07 (0.878, 0.947)	3.41 (**0.032**[e], 0.407)
Neutral Detergent Fiber (NDF)	5.59-22.6	(0.522)	10.2	9.25 (0.263, 0.612)	10.1 (0.909, 0.964)	10.1 (0.883, 0.950)	9.12 (0.209, 0.572)
Total Dietary Fiber	8.3-35.3	(0.208)	12.6	11.4 (0.190, 0.570)	13.6 (0.295, 0.644)	12.7 (0.940, 0.978)	11.9 (0.440, 0.754)

Appendix E Table 2. (Cont.) Proximate and Fiber Analysis of Corn Grain from Individual Sites.

Proximate (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
ON Site							
Protein	6-17.3	(0.086)	8.05	10.2 (**0.023**[e], 0.407)	10.2 (**0.022**[e], 0.407)	10.2 (**0.024**[e], 0.407)	9.32 (0.132, 0.530)
Fat	1.2-18.8	(0.267)	4.66	4.55 (0.170, 0.557)	4.52 (0.099, 0.491)	4.56 (0.220, 0.577)	4.67 (0.966, 0.989)
Ash	0.62-6.28	(0.850)	1.37	1.48 (0.404, 0.726)	1.50 (0.342, 0.677)	1.43 (0.654, 0.860)	1.47 (0.445, 0.754)
Moisture	6.1-40.5	(0.617)	34.3	36.3 (0.228, 0.583)	34.1 (0.917, 0.967)	34.6 (0.836, 0.931)	34.2 (0.967, 0.989)
Cholesterol	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Carbohydrate	63.3-89.8	(0.139)	85.9	83.8 (**0.034**[e], 0.407)	83.8 (**0.037**[e], 0.407)	83.9 (**0.039**[e], 0.407)	84.5 (0.125, 0.521)
Acid Detergent Fiber (ADF)	1.82-11.3	(0.330)	4.19	4.04 (0.671, 0.865)	3.49 (0.084, 0.473)	3.89 (0.418, 0.735)	3.60 (0.135, 0.535)
Neutral Detergent Fiber (NDF)	5.59-22.6	(0.051)	12.0	12.6 (0.488, 0.771)	9.80 (**0.038**[e], 0.407)	10.2 (0.082, 0.473)	10.5 (0.131, 0.530)
Total Dietary Fiber	8.3-35.3	(0.243)	14.0	13.6 (0.463, 0.765)	12.8 (0.054, 0.415)	12.9 (0.086, 0.473)	13.1 (0.148, 0.550)

[a] Combined range from Appendix A.
[b] Overall treatment effect estimated using an F-test.
[c] Comparison of the transgenic treatments to the control using t-tests.
[d] P-values adjusted using a False Discovery Rate (FDR) procedure.
[e] Statistical difference indicated by P-Value <0.05.
[f] NR = not reported.
[g] NA= statistical analysis was not performed since a majority of the data was < LOQ.

Appendix E Table 3. Mineral Analysis of Corn Grain from Individual Sites.

Minerals (mg/100g dry wt.)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IA Site							
Calcium	1.27-100	(0.781)	3.74	3.52 (0.386, 0.707)	3.78 (0.882, 0.950)	3.56 (0.466, 0.765)	3.66 (0.757, 0.906)
Chromium	0.006-0.016	NA[e]	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Copper	0.073-1.85	(0.576)	0.129	0.170 (0.277, 0.626)	0.148 (0.613, 0.840)	0.131 (0.961, 0.986)	0.176 (0.217, 0.576)
Iodine	7.3-81	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Iron	0.1-10	(0.250)	2.76	2.76 (0.932, 0.975)	2.73 (0.642, 0.853)	2.73 (0.673, 0.865)	2.59 (0.056, 0.417)
Magnesium	59.4-1000	(**0.008**[f])	119	127 (**0.001**[f], 0.407)	130 (**0.002**[f], 0.407)	123 (0.142, 0.545)	119 (1.0, 1.0)
Manganese	0.07-5.4	(**0.033**[f])	0.562	0.599 (**0.030**[f], 0.407)	0.577 (0.317, 0.654)	0.558 (0.783, 0.913)	0.543 (0.221, 0.577)
Molybdenum	NR	(0.525)	219	209 (0.809, 0.925)	210 (0.827, 0.929)	271 (0.242, 0.596)	208 (0.797, 0.921)
Phosphorus	147-750	(**0.027**[f])	292	312 (**0.015**[f], 0.407)	313 (**0.011**[f], 0.407)	301 (0.220, 0.577)	293 (0.877, 0.947)
Potassium	181-720	(0.593)	356	363 (0.646, 0.854)	370 (0.357, 0.680)	353 (0.826, 0.928)	348 (0.585, 0.831)
Selenium	0.001-0.1	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Sodium	0-150	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Zinc	0.65-3.72	(0.282)	2.57	2.80 (0.052, 0.408)	2.76 (0.096, 0.490)	2.74 (0.125, 0.521)	2.72 (0.169, 0.557)

Appendix E Table 3. (Cont.) Mineral Analysis of Corn Grain from Individual Sites.

Minerals (mg/100g dry wt.)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IL1 Site							
Calcium	1.27-100	(0.509)	3.45	3.58 (0.459, 0.760)	3.70 (0.187, 0.568)	3.49 (0.825, 0.928)	3.70 (0.187, 0.568)
Chromium	0.006-0.016	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Copper	0.073-1.85	(0.267)	0.119	0.117 (0.919, 0.967)	0.152 (0.068, 0.448)	0.125 (0.699, 0.880)	0.129 (0.544, 0.803)
Iodine	7.3-81	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Iron	0.1-10	(0.678)	2.46	2.78 (0.255, 0.602)	2.59 (0.626, 0.845)	2.46 (1.0, 1.0)	2.70 (0.395, 0.715)
Magnesium	59.4-1000	(0.196)	118	126 (0.221, 0.577)	128 (0.145, 0.545)	121 (0.617, 0.840)	133 (0.035, 0.407)
Manganese	0.07-5.4	(0.081)	0.540	0.524 (0.365, 0.686)	0.546 (0.748, 0.905)	0.500 (**0.044**[f], 0.408)	0.553 (0.489, 0.771)
Molybdenum	NR	(0.340)	245	200 (0.162, 0.557)	193 (0.113, 0.510)	198 (0.144, 0.545)	184 (0.070, 0.457)
Phosphorus	147-750	(**0.040**[f])	264	285 (0.054, 0.412)	287 (**0.038**[f], 0.407)	275 (0.277, 0.626)	300 (0.005, 0.407)
Potassium	181-720	(**0.038**[f])	326	355 (**0.008**[f], 0.407)	346 (**0.043**[f], 0.408)	348 (**0.028**[f], 0.407)	357 (**0.006**[f], 0.407)
Selenium	0.001-0.1	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Sodium	0-150	NA	14.367	< LOQ	< LOQ	< LOQ	< LOQ
Zinc	0.65-3.72	(0.103)	2.22	2.13 (0.378, 0.698)	2.29 (0.453, 0.757)	2.19 (0.755, 0.906)	2.41 (0.067, 0.448)

Appendix E Table 3. (Cont.) Mineral Analysis of Corn Grain from Individual Sites.

Minerals (mg/100g dry wt.)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IL2 Site							
Calcium	1.27-100	(0.473)	4.45	4.85 (0.176, 0.561)	4.78 (0.247, 0.599)	4.55 (0.703, 0.881)	4.45 (0.990, 1.0)
Chromium	0.006-0.016	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Copper	0.073-1.85	(0.415)	0.184	0.160 (0.615, 0.840)	0.166 (0.712, 0.888)	0.104 (0.128, 0.521)	0.112 (0.165, 0.557)
Iodine	7.3-81	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Iron	0.1-10	(0.132)	2.54	2.54 (0.913, 0.966)	2.69 (**0.035**[f], 0.407)	2.63 (0.197, 0.571)	2.58 (0.589, 0.831)
Magnesium	59.4-1000	(**0.025**[f])	133	133 (1.0, 1.0)	137 (0.073, 0.459)	137 (0.092, 0.490)	129 (0.115, 0.510)
Manganese	0.07-5.4	(0.421)	0.549	0.577 (0.150, 0.553)	0.573 (0.204, 0.572)	0.574 (0.193, 0.571)	0.554 (0.798, 0.921)
Molybdenum	NR	(0.274)	187	186 (0.858, 0.941)	168 (0.060, 0.434)	178 (0.330, 0.661)	176 (0.243, 0.597)
Phosphorus	147-750	(0.051)	300	301 (0.815, 0.926)	311 (0.089, 0.482)	314 (**0.035**[f], 0.407)	296 (0.489, 0.771)
Potassium	181-720	(0.480)	360	354 (0.664, 0.864)	357 (0.846, 0.939)	370 (0.460, 0.760)	345 (0.292, 0.644)
Selenium	0.001-0.1	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Sodium	0-150	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Zinc	0.65-3.72	(0.221)	2.17	2.26 (0.224, 0.578)	2.34 (**0.035**[f], 0.407)	2.30 (0.080, 0.473)	2.27 (0.169, 0.557)

Appendix E Table 3. (Cont.) Mineral Analysis of Corn Grain from Individual Sites.

Minerals (mg/100g dry wt.)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IN Site							
Calcium	1.27-100	(0.857)	4.49	4.40 (0.692, 0.876)	4.47 (0.934, 0.975)	4.44 (0.827, 0.929)	4.26 (0.345, 0.678)
Chromium	0.006-0.016	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Copper	0.073-1.85	(0.707)	0.138	0.155 (0.446, 0.754)	0.144 (0.761, 0.908)	0.154 (0.472, 0.765)	0.128 (0.672, 0.865)
Iodine	7.3-81	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Iron	0.1-10	(0.563)	2.18	2.32 (0.286, 0.637)	2.17 (0.958, 0.986)	2.12 (0.656, 0.860)	2.25 (0.566, 0.817)
Magnesium	59.4-1000	(0.919)	120	120 (0.874, 0.947)	119 (0.812, 0.926)	117 (0.582, 0.829)	120.667 (0.812, 0.926)
Manganese	0.07-5.4	(0.350)	0.445	0.470 (0.414, 0.733)	0.411 (0.281, 0.632)	0.429 (0.609, 0.839)	0.459 (0.632, 0.850)
Molybdenum	NR	(0.263)	463	372 (0.052, 0.408)	444 (0.652, 0.859)	433 (0.473, 0.765)	404 (0.179, 0.564)
Phosphorus	147-750	(0.885)	281	283 (0.802, 0.922)	280 (0.867, 0.945)	275 (0.483, 0.770)	281 (1.0, 1.0)
Potassium	181-720	(0.303)	359	339 (0.188, 0.568)	334 (0.114, 0.510)	332 (0.091, 0.490)	329 (0.065, 0.447)
Selenium	0.001-0.1	(0.974)	186	195 (0.860, 0.942)	209 (0.648, 0.856)	214 (0.574, 0.822)	207 (0.676, 0.867)
Sodium	0-150	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Zinc	0.65-3.72	(0.158)	2.41	2.43 (0.715, 0.889)	2.40 (0.916, 0.967)	2.30 (0.103, 0.497)	2.47 (0.359, 0.680)

Appendix E Table 3. (Cont.) Mineral Analysis of Corn Grain from Individual Sites.

Minerals (mg/100g dry wt.)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
NE Site							
Calcium	1.27-100	(0.244)	3.55	3.76 (0.119, 0.515)	3.48 (0.605, 0.839)	3.58 (0.775, 0.913)	3.49 (0.678, 0.867)
Chromium	0.006-0.016	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Copper	0.073-1.85	(0.592)	0.140	0.151 (0.782, 0.913)	0.136 (0.928, 0.973)	0.196 (0.194, 0.571)	0.149 (0.833, 0.931)
Iodine	7.3-81	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Iron	0.1-10	(0.104)	2.35	2.45 (0.228, 0.583)	2.55 (**0.029**[f], 0.407)	2.57 (**0.019**[f], 0.407)	2.50 (0.083, 0.473)
Magnesium	59.4-1000	(0.864)	125	129 (0.413, 0.733)	129 (0.330, 0.661)	128 (0.562, 0.815)	128 (0.562, 0.815)
Manganese	0.07-5.4	(0.147)	0.519	0.556 (0.050, 0.408)	0.511 (0.615, 0.840)	0.529 (0.535, 0.798)	0.523 (0.793, 0.918)
Molybdenum	NR	(0.956)	201	207 (0.741, 0.899)	195 (0.754, 0.906)	199 (0.897, 0.958)	195 (0.754, 0.906)
Phosphorus	147-750	(0.100)	311	316 (0.364, 0.685)	310 (0.956, 0.986)	324 (**0.049**[f], 0.408)	306 (0.482, 0.770)
Potassium	181-720	(0.569)	362	379 (0.393, 0.713)	362 (1.0, 1.0)	384 (0.276, 0.626)	357 (0.824, 0.927)
Selenium	0.001-0.1	(0.442)	815	834 (0.832, 0.931)	865 (0.579, 0.828)	963 (0.126, 0.521)	928 (0.229, 0.583)
Sodium	0-150	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Zinc	0.65-3.72	(0.977)	2.26	2.22 (0.699, 0.880)	2.28 (0.835, 0.931)	2.25 (0.905, 0.962)	2.24 (0.835, 0.931)

Appendix E Table 3. (Cont.) Mineral Analysis of Corn Grain from Individual Sites.

Minerals (mg/100g dry wt.)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
ON Site							
Calcium	1.27-100	(0.571)	4.63	5.12 (0.236, 0.590)	4.50 (0.757, 0.906)	4.64 (0.980, 0.996)	4.82 (0.635, 0.852)
Chromium	0.006-0.016	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Copper	0.073-1.85	(0.137)	0.156	0.153 (0.887, 0.952)	0.132 (0.351, 0.678)	0.136 (0.438, 0.753)	0.200 (0.115, 0.510)
Iodine	7.3-81	NA	< LOQ	0.018	< LOQ	< LOQ	0.018
Iron	0.1-10	(0.376)	2.66	2.77 (0.545, 0.803)	2.60 (0.760, 0.907)	2.54 (0.533, 0.798)	2.89 (0.229, 0.583)
Magnesium	59.4-1000	(0.350)	118	139 (0.056, 0.419)	128 (0.327, 0.660)	129 (0.297, 0.645)	132 (0.188, 0.568)
Manganese	0.07-5.4	(0.601)	0.536	0.579 (0.287, 0.637)	0.524 (0.757, 0.906)	0.566 (0.451, 0.756)	0.562 (0.512, 0.785)
Molybdenum	NR	(0.116)	250	200 (0.060, 0.434)	207 (0.101, 0.493)	187 (**0.025**[f], 0.407)	236 (0.557, 0.813)
Phosphorus	147-750	(0.388)	284	321 (0.073, 0.459)	302 (0.353, 0.679)	306 (0.254, 0.602)	312 (0.156, 0.557)
Potassium	181-720	(0.433)	407	419 (0.523, 0.792)	382 (0.224, 0.578)	396 (0.601, 0.836)	403 (0.852, 0.939)
Selenium	0.001-0.1	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Sodium	0-150	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Zinc	0.65-3.72	(0.716)	1.96	2.11 (0.387, 0.708)	1.95 (0.969, 0.991)	1.94 (0.908, 0.964)	2.10 (0.417, 0.735)

[a] Combined range from Appendix A.
[b] Overall treatment effect estimated using an F-test.
[c] Comparison of the transgenic treatments to the control using t-tests.
[d] P-values adjusted using a False Discovery Rate (FDR) procedure.
[e] NA= statistical analysis was not performed since a majority of the data was < LOQ.
[f] Statistical difference indicated by P-Value <0.05.

Appendix E Table 4. Amino Acid Analysis of Corn Grain from Individual Sites.

Amino Acids (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IA Site							
Alanine	0.44-1.39	(0.554)	0.865	0.934 (0.157, 0.557)	0.883 (0.686, 0.873)	0.898 (0.476, 0.767)	0.922 (0.232, 0.585)
Arginine	0.12-0.64	(0.309)	0.518	0.500 (0.468, 0.765)	0.516 (0.924, 0.970)	0.513 (0.848, 0.939)	0.470 (0.076, 0.464)
Aspartic Acid	0.34-1.21	(0.732)	0.751	0.788 (0.261, 0.611)	0.758 (0.818, 0.927)	0.769 (0.562, 0.815)	0.781 (0.350, 0.678)
Cysteine	0.08-0.51	(0.486)	0.224	0.226 (0.868, 0.945)	0.240 (0.144, 0.545)	0.231 (0.471, 0.765)	0.224 (0.973, 0.993)
Glutamic Acid	0.97-3.54	(0.517)	2.14	2.32 (0.130, 0.526)	2.20 (0.569, 0.820)	2.22 (0.440, 0.754)	2.28 (0.210, 0.572)
Glycine	0.18-0.54	(0.369)	0.393	0.409 (0.068, 0.450)	0.403 (0.211, 0.572)	0.399 (0.406, 0.726)	0.404 (0.174, 0.557)
Histidine	0.14-0.43	(0.375)	0.295	0.311 (0.075, 0.463)	0.306 (0.197, 0.571)	0.304 (0.283, 0.634)	0.308 (0.127, 0.521)
Isoleucine	0.18-0.71	(0.497)	0.406	0.448 (0.135, 0.535)	0.424 (0.484, 0.771)	0.431 (0.354, 0.679)	0.446 (0.154, 0.557)
Leucine	0.64-2.49	(0.587)	1.47	1.61 (0.162, 0.557)	1.52 (0.610, 0.839)	1.55 (0.415, 0.733)	1.59 (0.233, 0.586)
Lysine	0.05-0.56	(0.946)	0.311	0.312 (0.867, 0.945)	0.315 (0.591, 0.831)	0.310 (0.933, 0.975)	0.315 (0.619, 0.840)
Methionine	0.10-0.47	(0.285)	0.204	0.216 (0.063, 0.443)	0.215 (0.082, 0.473)	0.213 (0.167, 0.557)	0.210 (0.350, 0.678)
Phenylalanine	0.24-0.93	(0.753)	0.594	0.637 (0.254, 0.602)	0.616 (0.550, 0.808)	0.617 (0.538, 0.802)	0.633 (0.294, 0.644)
Proline	0.46-1.63	(0.147)	0.994	1.077 (**0.031**[e], 0.407)	1.000 (0.846, 0.939)	1.043 (0.158, 0.557)	1.039 (0.196, 0.571)
Serine	0.24-0.91	(0.996)	0.542	0.551 (0.755, 0.906)	0.541 (0.972, 0.993)	0.543 (0.982, 0.996)	0.545 (0.917, 0.967)

Appendix E Table 4. (Cont.) Amino Acid Analysis of Corn Grain from Individual Sites.

Amino Acids (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IA Site							
Threonine	0.22-0.67	(0.799)	0.380	0.393 (0.370, 0.691)	0.393 (0.346, 0.678)	0.387 (0.614, 0.840)	0.394 (0.313, 0.653)
Tryptophan	0.03-0.22	(0.929)	0.057	0.055 (0.736, 0.898)	0.058 (0.731, 0.896)	0.056 (0.846, 0.939)	0.055 (0.663, 0.864)
Tyrosine	0.10-0.79	(0.162)	0.395	0.310 (0.211, 0.572)	0.383 (0.849, 0.939)	0.365 (0.641, 0.853)	0.237 (**0.035**[e], 0.407)
Valine	0.21-0.86	(0.478)	0.518	0.556 (0.120, 0.515)	0.531 (0.552, 0.810)	0.541 (0.327, 0.660)	0.550 (0.177, 0.561)

Appendix E Table 4. (Cont.) Amino Acid Analysis of Corn Grain from Individual Sites.

Amino Acids (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IL1 Site							
Alanine	0.44-1.39	(0.097)	0.868	0.917 (0.351, 0.678)	1.00 (**0.028**[e], 0.407)	0.875 (0.885, 0.951)	0.974 (0.064, 0.443)
Arginine	0.12-0.64	(0.539)	0.531	0.522 (0.743, 0.899)	0.560 (0.305, 0.649)	0.516 (0.586, 0.831)	0.538 (0.789, 0.917)
Aspartic Acid	0.34-1.21	(0.067)	0.753	0.777 (0.430, 0.749)	0.830 (**0.027**[e], 0.407)	0.741 (0.709, 0.886)	0.813 (0.072, 0.459)
Cysteine	0.08-0.51	(0.868)	0.226	0.230 (0.560, 0.815)	0.227 (0.834, 0.931)	0.225 (0.900, 0.959)	0.232 (0.457, 0.760)
Glutamic Acid	0.97-3.54	(0.102)	2.15	2.27 (0.359, 0.680)	2.48 (**0.030**[e], 0.407)	2.16 (0.899, 0.959)	2.42 (0.066, 0.447)
Glycine	0.18-0.54	(0.060)	0.411	0.410 (0.921, 0.967)	0.431 (0.078, 0.466)	0.396 (0.161, 0.557)	0.421 (0.349, 0.678)
Histidine	0.14-0.43	(0.059)	0.301	0.312 (0.309, 0.651)	0.328 (**0.028**[e], 0.407)	0.296 (0.624, 0.843)	0.321 (0.076, 0.464)
Isoleucine	0.18-0.71	(0.123)	0.422	0.437 (0.591, 0.831)	0.480 (0.065, 0.447)	0.412 (0.710, 0.886)	0.473 (0.097, 0.490)
Leucine	0.64-2.49	(0.096)	1.46	1.56 (0.335, 0.669)	1.74 (**0.024**[e], 0.407)	1.50 (0.679, 0.867)	1.69 (**0.049**[e], 0.408)
Lysine	0.05-0.56	(0.063)	0.330	0.331 (0.863, 0.944)	0.342 (0.158, 0.557)	0.315 (0.086, 0.473)	0.337 (0.400, 0.720)
Methionine	0.10-0.47	(**0.037**[e])	0.205	0.213 (0.127, 0.521)	0.223 (**0.006**[e], 0.407)	0.208 (0.633, 0.851)	0.216 (**0.047**[e], 0.408)
Phenylalanine	0.24-0.93	(0.146)	0.592	0.632 (0.357, 0.680)	0.692 (**0.041**[e], 0.408)	0.610 (0.669, 0.865)	0.683 (0.057, 0.420)
Proline	0.46-1.63	(0.059)	1.01	1.05 (0.361, 0.683)	1.14 (**0.017**[e], 0.407)	0.989 (0.676, 0.867)	1.06 (0.229, 0.583)
Serine	0.24-0.91	(0.201)	0.528	0.557 (0.390, 0.710)	0.608 (**0.040**[e], 0.407)	0.548 (0.557, 0.813)	0.588 (0.103, 0.497)

Appendix E Table 4. (Cont.) Amino Acid Analysis of Corn Grain from Individual Sites.

Amino Acids (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IL1 Site							
Threonine	0.22-0.67	(0.175)	0.382	0.401 (0.322, 0.658)	0.423 (**0.049**[e], 0.408)	0.395 (0.486, 0.771)	0.423 (**0.049**[e], 0.408)
Tryptophan	0.03-0.22	(0.389)	0.057	0.055 (0.601, 0.836)	0.062 (0.164, 0.557)	0.058 (0.804, 0.923)	0.057 (0.929, 0.973)
Tyrosine	0.10-0.79	(0.763)	0.341	0.313 (0.713, 0.889)	0.393 (0.497, 0.777)	0.389 (0.532, 0.798)	0.383 (0.583, 0.830)
Valine	0.21-0.86	(0.059)	0.537	0.549 (0.609, 0.839)	0.595 (**0.036**[e], 0.407)	0.518 (0.444, 0.754)	0.578 (0.117, 0.514)

Appendix E Table 4. (Cont.) Amino Acid Analysis of Corn Grain from Individual Sites.

Amino Acids (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IL2 Site							
Alanine	0.44-1.39	(0.125)	0.976	1.05 (**0.035**[e], 0.407)	1.05 (**0.049**[e], 0.408)	1.02 (0.160, 0.557)	1.06 (**0.025**[e], 0.407)
Arginine	0.12-0.64	(0.407)	0.542	0.562 (0.394, 0.715)	0.538 (0.875, 0.947)	0.528 (0.543, 0.803)	0.517 (0.300, 0.648)
Aspartic Acid	0.34-1.21	(0.398)	0.852	0.884 (0.182, 0.567)	0.880 (0.228, 0.583)	0.863 (0.622, 0.843)	0.893 (0.097, 0.490)
Cysteine	0.08-0.51	(0.558)	0.223	0.230 (0.508, 0.782)	0.219 (0.702, 0.881)	0.235 (0.269, 0.619)	0.231 (0.488, 0.771)
Glutamic Acid	0.97-3.54	(**0.038**)	2.39	2.60 (**0.014**[e], 0.407)	2.57 (**0.026**[e], 0.407)	2.53 (0.068, 0.448)	2.64 (**0.005**[e], 0.407)
Glycine	0.18-0.54	0.974)	0.425	0.425 (1.0, 1.0)	0.425 (0.964, 0.988)	0.421 (0.593, 0.831)	0.423 (0.822, 0.927)
Histidine	0.14-0.43	(0.619)	0.326	0.332 (0.349, 0.678)	0.330 (0.515, 0.787)	0.329 (0.650, 0.858)	0.336 (0.155, 0.557)
Isoleucine	0.18-0.71	(0.200)	0.466	0.489 (0.265, 0.614)	0.501 (0.106, 0.500)	0.492 (0.212, 0.574)	0.517 (**0.027**[e], 0.407)
Leucine	0.64-2.49	(**0.042**[e])	1.68	1.84 (**0.015**[e], 0.407)	1.84 (**0.018**[e], 0.407)	1.79 (0.071, 0.459)	1.87 (**0.006**[e], 0.407)
Lysine	0.05-0.56	(0.400)	0.344	0.338 (0.346, 0.678)	0.340 (0.466, 0.765)	0.332 (0.073, 0.459)	0.336 (0.213, 0.574)
Methionine	0.10-0.47	(0.739)	0.214	0.214 (1.0, 1.0)	0.211 (0.540, 0.803)	0.218 (0.465, 0.765)	0.214 (0.951, 0.984)
Phenylalanine	0.24-0.93	(0.120)	0.676	0.730 (**0.044**[e], 0.408)	0.728 (0.050, 0.408)	0.708 (0.188, 0.568)	0.741 (**0.021**[e], 0.407)
Proline	0.46-1.63	(0.145)	1.08	1.15 (0.095, 0.490)	1.15 (0.109, 0.507)	1.13 (0.213, 0.574)	1.19 (**0.018**[e], 0.407)
Serine	0.24-0.91	(0.304)	0.603	0.659 (0.056, 0.417)	0.630 (0.315, 0.653)	0.614 (0.683, 0.871)	0.633 (0.273, 0.625)

Appendix E Table 4. (Cont.) Amino Acid Analysis of Corn Grain from Individual Sites.

Amino Acids (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IL2 Site							
Threonine	0.22-0.67	(0.461)	0.428	0.448 (0.127, 0.521)	0.444 (0.212, 0.572)	0.436 (0.543, 0.803)	0.446 (0.171, 0.557)
Tryptophan	0.03-0.22	(0.613)	0.057	0.060 (0.400, 0.720)	0.058 (0.720, 0.893)	0.061 (0.314, 0.653)	0.062 (0.171, 0.557)
Tyrosine	0.10-0.79	(0.319)	0.397	0.495 (0.183, 0.568)	0.419 (0.750, 0.905)	0.366 (0.666, 0.864)	0.352 (0.525, 0.793)
Valine	0.21-0.86	(0.228)	0.583	0.607 (0.173, 0.557)	0.612 (0.112, 0.510)	0.603 (0.246, 0.599)	0.625 (**0.032**[e], 0.407)

Appendix E Table 4. (Cont.) Amino Acid Analysis of Corn Grain from Individual Sites.

Amino Acids (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IN Site							
Alanine	0.44-1.39	(0.495)	0.646	0.755 (0.121, 0.515)	0.711 (0.332, 0.664)	0.685 (0.549, 0.808)	0.735 (0.194, 0.571)
Arginine	0.12-0.64	(0.669)	0.455	0.480 (0.436, 0.753)	0.451 (0.907, 0.964)	0.446 (0.775, 0.913)	0.481 (0.407, 0.727)
Aspartic Acid	0.34-1.21	(0.579)	0.572	0.641 (0.161, 0.557)	0.601 (0.529, 0.796)	0.593 (0.645, 0.854)	0.627 (0.247, 0.599)
Cysteine	0.08-0.51	(0.204)	0.203	0.215 (0.257, 0.604)	0.204 (0.972, 0.993)	0.203 (1.0, 1.0)	0.223 (0.063, 0.443)
Glutamic Acid	0.97-3.54	(0.481)	1.59	1.87 (0.120, 0.515)	1.75 (0.345, 0.678)	1.69 (0.569, 0.820)	1.83 (0.184, 0.568)
Glycine	0.18-0.54	(0.665)	0.351	0.369 (0.331, 0.662)	0.355 (0.850, 0.939)	0.355 (0.821, 0.927)	0.372 (0.253, 0.602)
Histidine	0.14-0.43	(0.537)	0.248	0.274 (0.174, 0.557)	0.260 (0.505, 0.781)	0.257 (0.641, 0.853)	0.274 (0.179, 0.564)
Isoleucine	0.18-0.71	(0.385)	0.314	0.363 (0.100, 0.491)	0.332 (0.521, 0.790)	0.329 (0.593, 0.831)	0.356 (0.149, 0.550)
Leucine	0.64-2.49	(0.398)	1.04	1.27 (0.085, 0.473)	1.18 (0.256, 0.602)	1.13 (0.472, 0.765)	1.22 (0.157, 0.557)
Lysine	0.05-0.56	(0.720)	0.287	0.296 (0.506, 0.781)	0.284 (0.842, 0.936)	0.286 (0.960, 0.986)	0.299 (0.368, 0.689)
Methionine	0.10-0.47	(0.285)	0.182	0.196 (0.105, 0.498)	0.191 (0.269, 0.619)	0.185 (0.724, 0.893)	0.197 (0.085, 0.473)
Phenylalanine	0.24-0.93	(0.472)	0.438	0.516 (0.119, 0.515)	0.482 (0.347, 0.678)	0.466 (0.544, 0.803)	0.505 (0.169, 0.557)
Proline	0.46-1.63	(0.424)	0.735	0.885 (0.076, 0.464)	0.821 (0.279, 0.630)	0.807 (0.358, 0.680)	0.836 (0.210, 0.572)
Serine	0.24-0.91	(0.655)	0.412	0.476 (0.181, 0.566)	0.457 (0.327, 0.660)	0.433 (0.642, 0.853)	0.453 (0.377, 0.697)

Appendix E Table 4. (Cont.) Amino Acid Analysis of Corn Grain from Individual Sites.

Amino Acids (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IN Site							
Threonine	0.22-0.67	(0.636)	0.314	0.345 (0.214, 0.574)	0.328 (0.550, 0.808)	0.320 (0.790, 0.917)	0.341 (0.273, 0.625)
Tryptophan	0.03-0.22	(0.939)	0.048	0.051 (0.532, 0.798)	0.051 (0.505, 0.781)	0.052 (0.484, 0.771)	0.051 (0.550, 0.808)
Tyrosine	0.10-0.79	(0.692)	0.300	0.330 (0.571, 0.821)	0.285 (0.781, 0.913)	0.279 (0.695, 0.878)	0.340 (0.446, 0.754)
Valine	0.21-0.86	(0.431)	0.417	0.469 (0.112, 0.510)	0.438 (0.487, 0.771)	0.435 (0.556, 0.813)	0.463 (0.157, 0.557)

Appendix E Table 4. (Cont.) Amino Acid Analysis of Corn Grain from Individual Sites.

Amino Acids (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
NE Site							
Alanine	0.44-1.39	(0.558)	0.845	0.920 (0.291, 0.643)	0.937 (0.201, 0.572)	0.862 (0.803, 0.923)	0.928 (0.246, 0.599)
Arginine	0.12-0.64	(0.920)	0.486	0.471 (0.592, 0.831)	0.485 (0.981, 0.996)	0.466 (0.478, 0.767)	0.481 (0.848, 0.939)
Aspartic Acid	0.34-1.21	(0.492)	0.744	0.784 (0.310, 0.651)	0.795 (0.204, 0.572)	0.750 (0.875, 0.947)	0.796 (0.191, 0.570)
Cysteine	0.08-0.51	(0.114)	0.213	0.228 (0.051, 0.408)	0.230 (**0.029**[e], 0.407)	0.228 (0.055, 0.415)	0.231 (**0.023**[e], 0.407)
Glutamic Acid	0.97-3.54	(0.519)	2.08	2.28 (0.254, 0.602)	2.32 (0.184, 0.568)	2.13 (0.797, 0.921)	2.29 (0.239, 0.593)
Glycine	0.18-0.54	(0.320)	0.381	0.391 (0.326, 0.660)	0.396 (0.171, 0.557)	0.388 (0.493, 0.773)	0.403 (0.057, 0.420)
Histidine	0.14-0.43	(0.348)	0.286	0.303 (0.155, 0.557)	0.302 (0.186, 0.568)	0.292 (0.595, 0.832)	0.308 (0.085, 0.473)
Isoleucine	0.18-0.71	(0.454)	0.402	0.441 (0.245, 0.599)	0.440 (0.253, 0.602)	0.401 (0.958, 0.986)	0.443 (0.220, 0.577)
Leucine	0.64-2.49	(0.600)	1.43	1.59 (0.288, 0.638)	1.61 (0.227, 0.583)	1.46 (0.851, 0.939)	1.58 (0.308, 0.650)
Lysine	0.05-0.56	(0.417)	0.303	0.304 (0.832, 0.931)	0.307 (0.614, 0.840)	0.304 (0.865, 0.945)	0.317 (0.103, 0.497)
Methionine	0.10-0.47	(0.268)	0.201	0.212 (0.186, 0.568)	0.216 (0.076, 0.464)	0.212 (0.186, 0.568)	0.218 (0.050, 0.408)
Phenylalanine	0.24-0.93	(0.643)	0.580	0.633 (0.298, 0.645)	0.636 (0.276, 0.626)	0.588 (0.877, 0.947)	0.631 (0.321, 0.658)
Proline	0.46-1.63	(0.470)	0.947	1.02 (0.305, 0.649)	1.04 (0.174, 0.557)	0.977 (0.655, 0.860)	1.05 (0.135, 0.535)
Serine	0.24-0.91	(0.715)	0.512	0.551 (0.324, 0.660)	0.564 (0.200, 0.572)	0.540 (0.469, 0.765)	0.546 (0.390, 0.710)

Appendix E Table 4. (Cont.) Amino Acid Analysis of Corn Grain from Individual Sites.

Amino Acids (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
NE Site							
Threonine	0.22-0.67	(0.675)	0.375	0.398 (0.272, 0.625)	0.402 (0.209, 0.572)	0.388 (0.519, 0.789)	0.397 (0.298, 0.645)
Tryptophan	0.03-0.22	(0.060)	0.048	0.057 (**0.012**[e], 0.407)	0.053 (0.123, 0.518)	0.056 (**0.028**[e], 0.407)	0.057 (**0.015**[e], 0.407)
Tyrosine	0.10-0.79	(0.882)	0.387	0.326 (0.479, 0.768)	0.367 (0.815, 0.926)	0.320 (0.440, 0.754)	0.321 (0.445, 0.754)
Valine	0.21-0.86	(0.472)	0.508	0.542 (0.314, 0.653)	0.547 (0.257, 0.603)	0.508 (0.992, 1.0)	0.554 (0.187, 0.568)

Appendix E Table 4. (Cont.) Amino Acid Analysis of Corn Grain from Individual Sites.

Amino Acids (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
ON Site							
Alanine	0.44-1.39	(0.132)	0.636	0.824 (**0.039**[e], 0.407)	0.824 (**0.039**[e], 0.407)	0.831 (**0.033**[e], 0.407)	0.743 (0.196, 0.571)
Arginine	0.12-0.64	(**0.021**[e])	0.384	0.462 (**0.001**[e], 0.407)	0.479 (**0.003**[e], 0.407)	0.454 (**0.017**[e], 0.407)	0.419 (0.172, 0.557)
Aspartic Acid	0.34-1.21	(0.138)	0.599	0.732 (**0.042**[e], 0.408)	0.720 (0.059, 0.428)	0.741 (**0.032**[e], 0.407)	0.662 (0.287, 0.637)
Cysteine	0.08-0.51	(0.093)	0.189	0.218 (**0.024**[e], 0.407)	0.218 (**0.024**[e], 0.407)	0.218 (**0.025**[e], 0.407)	0.213 (0.052, 0.408)
Glutamic Acid	0.97-3.54	(0.119)	1.49	1.98 (**0.034**[e], 0.407)	1.96 (**0.039**[e], 0.407)	2.00 (**0.029**[e], 0.407)	1.76 (0.191, 0.570)
Glycine	0.18-0.54	(0.078)	0.336	0.379 (**0.022**[e], 0.407)	0.379 (**0.022**[e], 0.407)	0.380 (**0.021**[e], 0.407)	0.361 (0.142, 0.545)
Histidine	0.14-0.43	(0.081)	0.241	0.287 (**0.025**[e], 0.407)	0.287 (**0.026**[e], 0.407)	0.291 (**0.018**[e], 0.407)	0.267 (0.157, 0.557)
Isoleucine	0.18-0.71	(0.131)	0.304	0.383 (**0.047**[e], 0.408)	0.388 (**0.038**[e], 0.407)	0.394 (**0.029**[e], 0.407)	0.351 (0.197, 0.571)
Leucine	0.64-2.49	(0.131)	0.999	1.36 (**0.041**[e], 0.408)	1.37 (**0.037**[e], 0.407)	1.38 (**0.032**[e], 0.407)	1.21 (0.196, 0.571)
Lysine	0.05-0.56	(0.241)	0.282	0.305 (0.079, 0.469)	0.307 (0.063, 0.443)	0.305 (0.083, 0.473)	0.294 (0.350, 0.678)
Methionine	0.10-0.47	(**0.045**[e])	0.164	0.201 (**0.009**[e], 0.407)	0.201 (**0.010**[e], 0.407)	0.192 (**0.031**[e], 0.407)	0.196 (**0.019**[e], 0.407)
Phenylalanine	0.24-0.93	(0.128)	0.424	0.556 (**0.039**[e], 0.407)	0.558 (0.368, 0.407)	0.562 (**0.033**[e], 0.407)	0.498 (0.207, 0.572)
Proline	0.46-1.63	(0.078)	0.689	0.889 (**0.023**[e], 0.407)	0.883 (**0.026**[e], 0.407)	0.901 (**0.017**[e], 0.407)	0.801 (0.154, 0.557)
Serine	0.24-0.91	(0.141)	0.392	0.504 (**0.035**[e], 0.407)	0.500 (**0.040**[e], 0.407)	0.495 (**0.048**[e], 0.408)	0.450 (0.221, 0.577)

Appendix E Table 4. (Cont.) Amino Acid Analysis of Corn Grain from Individual Sites.

Amino Acids (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
ON Site							
Threonine	0.22-0.67	(0.103)	0.307	0.377 (**0.028**[e], 0.407)	0.375 (**0.030**[e], 0.407)	0.375 (**0.031**[e], 0.407)	0.342 (0.210, 0.572)
Tryptophan	0.03-0.22	(0.169)	0.045	0.051 (0.140, 0.544)	0.051 (0.128, 0.521)	0.055 (**0.020**[e], 0.407)	0.051 (0.111, 0.510)
Tyrosine	0.10-0.79	(**0.040**[e])	0.193	0.355 (**0.021**[e], 0.407)	0.402 (**0.006**[e], 0.407)	0.315 (0.064, 0.443)	0.254 (0.314, 0.653)
Valine	0.21-0.86	(0.108)	0.408	0.498 (**0.037**[e], 0.407)	0.501 (**0.032**[e], 0.407)	0.508 (**0.024**[e], 0.407)	0.461 (0.179, 0.564)

[a] Combined range from Appendix A.
[b] Overall treatment effect estimated using an F-test.
[c] Comparison of the transgenic treatments to the control using t-tests.
[d] P-values adjusted using a False Discovery Rate (FDR) procedure.
[e] Statistical difference indicated by P-Value <0.05.

Appendix E Table 5. Fatty Acid Analysis of Corn Grain from Individual Sites.

Fatty Acids (% total fatty acids)[a]	Literature Values[b]	Overall Trt Effect (Pr>F)[c]	Control	Unsprayed (P-value,[d] Adj. P)[e]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IA Site							
8:0 Caprylic	0.13–0.34	NA[f]	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
10:0 Capric	ND	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
12:0 Lauric	ND–0.687	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
14:0 Myristic	ND-0.3	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
16:0 Palmitic	7–20.7	(0.055)	9.32	9.73 (**0.021**[g], 0.407)	9.76 (**0.015**[g], 0.407)	9.77 (**0.014**[g], 0.407)	9.75 (**0.016**[g], 0.407)
16:1 Palmitoleic	ND–1.0		< LOQ	< LOQ	< LOQ	< LOQ	0.086
17:0 Heptadecanoic	ND–0.11	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	ND– 0.1	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
18:0 Stearic	ND-3.4	(0.090)	1.88	1.95 (0.136, 0.535)	1.97 (**0.048**[g], 0.408)	1.99 (**0.024**[g], 0.407)	2.00 (**0.016**[g], 0.407)
18:1 Oleic	17.4 - 46	(0.194)	30.3	29.7 (0.299, 0.646)	31.0 (0.251, 0.602)	30.8 (0.392, 0.712)	30.9 (0.293, 0.644)
18:2 Linoleic	34.0-70	(**0.035**)	46.4	48.9 (**0.013**[g], 0.407)	48.9 (**0.013**[g], 0.407)	49.1 (**0.010**[g], 0.407)	49.2 (**0.008**[g], 0.407)
18:3 Gamma Linolenic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ

Appendix E Table 5. (Cont.) Fatty Acid Analysis of Corn Grain from Individual Sites.

Fatty Acids (% total fatty acids)[a]	Literature Values[b]	Overall Trt Effect (Pr>F)[c]	Control	Unsprayed (P-value,[d] Adj. P)[e]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IA Site							
18:3 Linolenic	ND-2.25	(0.072)	1.01	1.04 (**0.040**[g], 0.407)	1.04 (**0.022**[g], 0.407)	1.04 (**0.022** [g], 0.407)	1.02 (0.378, 0.698)
20:0 Arachidic	0.1-2	(0.121)	0.365	0.379 (0.085, 0.473)	0.381 (**0.047**[g], 0.408)	0.386 (**0.018**[g], 0.407)	0.381 (**0.047**[g], 0.408)
20:1 Eicosenoic	0.17–1.92	(0.364)	0.218	0.217 (0.941, 0.978)	0.224 (0.162, 0.557)	0.224 (0.162, 0.557)	0.221 (0.508, 0.782)
20:2 Eicosadienoic	ND–0.53	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	0.275	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	0.465	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
22:0 Behenic	ND–0.5	NA	< LOQ	< LOQ	< LOQ	0.081	0.123

Appendix E Table 5. (Cont.) Fatty Acid Analysis of Corn Grain from Individual Sites.

Fatty Acids (% total fatty acids)[a]	Literature Values[b]	Overall Trt Effect (Pr>F)[c]	Control	Unsprayed (P-value,[d] Adj. P)[e]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IL1 Site							
8:0 Caprylic	0.13–0.34	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
10:0 Capric	ND	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
12:0 Lauric	ND–0.687	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
14:0 Myristic	ND-0.3	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
16:0 Palmitic	7–20.7	(0.506)	9.61	9.72 (0.618, 0.840)	9.63 (0.924, 0.970)	9.38 (0.305, 0.649)	9.73 (0.584, 0.831)
16:1 Palmitoleic	ND–1.0	(0.478)	0.085	0.087 (0.651, 0.859)	< LOQ	0.083 (0.591, 0.831)	0.128 (0.920, 0.967)
17:0 Heptadecanoic	ND–0.11	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	ND– 0.1	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
18:0 Stearic	ND-3.4	(0.687)	2.13	2.15 (0.852, 0.939)	2.07 (0.309, 0.651)	2.10 (0.582, 0.829)	2.09 (0.448, 0.754)
18:1 Oleic	17.4 - 46	(0.770)	32.8	33.1 (0.790, 0.917)	32.5 (0.755, 0.906)	32.0 (0.489, 0.771)	31.9 (0.421, 0.737)
18:2 Linoleic	34.0-70	(0.369)	46.0	47.0 (0.293, 0.644)	45.7 (0.779, 0.913)	45.8 (0.856, 0.941)	47.2 (0.204, 0.572)
18:3 Gamma Linolenic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ

Appendix E Table 5. (Cont.) Fatty Acid Analysis of Corn Grain from Individual Sites.

Fatty Acids (% total fatty acids)[a]	Literature Values[b]	Overall Trt Effect (Pr>F)[c]	Control	Unsprayed (P-value,[d] Adj. P)[e]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IL1 Site							
18:3 Linolenic	ND-2.25	(0.340)	1.02	1.05 (0.155, 0.557)	1.03 (0.533, 0.798)	1.02 (0.910, 0.964)	1.05 (0.223, 0.578)
20:0 Arachidic	0.1-2	(0.661)	0.417	0.411 (0.654, 0.860)	0.407 (0.421, 0.737)	0.399 (0.171, 0.557)	0.411 (0.617, 0.840)
20:1 Eicosenoic	0.17–1.92	(0.895)	0.234	0.235 (0.967, 0.989)	0.234 (1.00, 1.00)	0.229 (0.512, 0.785)	0.230 (0.565, 0.817)
20:2 Eicosadienoic	ND–0.53	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	0.275	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	0.465	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
22:0 Behenic	ND–0.5	(0.780)	0.137	0.134 (0.662, 0.863)	0.089 (0.655, 0.860)	0.086 (0.253, 0.602)	0.134 (0.662, 0.863)

Appendix E Table 5. (Cont.) Fatty Acid Analysis of Corn Grain from Individual Sites.

Fatty Acids (% total fatty acids)[a]	Literature Values[b]	Overall Trt Effect (Pr>F)[c]	Control	Unsprayed (P-value,[d] Adj. P)[e]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IL2 Site							
8:0 Caprylic	0.13–0.34	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
10:0 Capric	ND	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
12:0 Lauric	ND–0.687	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
14:0 Myristic	ND-0.3	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
16:0 Palmitic	7–20.7	(0.628)	9.85	9.78 (0.724, 0.893)	9.96 (0.623, 0.843)	9.64 (0.343, 0.677)	9.73 (0.563, 0.815)
16:1 Palmitoleic	ND–1.0		< LOQ	< LOQ	0.080	< LOQ	< LOQ
17:0 Heptadecanoic	ND–0.11	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	ND– 0.1	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
18:0 Stearic	ND-3.4	(0.538)	1.91	1.88 (0.504, 0.781)	1.97 (0.301, 0.648)	1.92 (0.852, 0.939)	1.93 (0.782, 0.913)
18:1 Oleic	17.4 - 46	(0.309)	30.9	30.0 (0.216, 0.574)	30.6 (0.667, 0.864)	29.6 (0.086, 0.473)	29.7 (0.119, 0.515)
18:2 Linoleic	34.0-70	(0.336)	49.2	48.7 (0.529, 0.796)	49.3 (0.859, 0.942)	47.8 (0.097, 0.490)	48.5 (0.413, 0.733)
18:3 Gamma Linolenic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ

Appendix E Table 5. (Cont.) Fatty Acid Analysis of Corn Grain from Individual Sites.

Fatty Acids (% total fatty acids)[a]	Literature Values[b]	Overall Trt Effect (Pr>F)[c]	Control	Unsprayed (P-value,[d] Adj. P)[e]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IL2 Site							
18:3 Linolenic	ND-2.25	(0.340)	1.06	1.06 (0.801, 0.922)	1.07 (0.499, 0.777)	1.03 (0.328, 0.660)	1.08 (0.304, 0.649)
20:0 Arachidic	0.1-2	(0.301)	0.373	0.365 (0.248, 0.599)	0.380 (0.348, 0.678)	0.368 (0.448, 0.754)	0.372 (0.809, 0.925)
20:1 Eicosenoic	0.17–1.92	(0.560)	0.228	0.221 (0.379, 0.698)	0.225 (0.671, 0.865)	0.217 (0.144, 0.545)	0.220 (0.273, 0.625)
20:2 Eicosadienoic	ND–0.53	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	0.275	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	0.465	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
22:0 Behenic	ND–0.5	NA	0.126	< LOQ	0.089	< LOQ	< LOQ

Appendix E Table 5. (Cont.) Fatty Acid Analysis of Corn Grain from Individual Sites.

Fatty Acids (% total fatty acids)[a]	Literature Values[b]	Overall Trt Effect (Pr>F)[c]	Control	Unsprayed (P-value,[d] Adj. P)[e]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IN Site							
8:0 Caprylic	0.13–0.34	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
10:0 Capric	ND	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
12:0 Lauric	ND–0.687	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
14:0 Myristic	ND-0.3	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
16:0 Palmitic	7–20.7	(0.403)	9.80	9.70 (0.669, 0.865)	10.11 (0.194, 0.571)	9.78 (0.949, 0.984)	9.72 (0.726, 0.893)
16:1 Palmitoleic	ND–1.0		< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
17:0 Heptadecanoic	ND–0.11	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	ND– 0.1	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
18:0 Stearic	ND-3.4	(0.532)	2.29	2.21 (0.441, 0.754)	2.29 (0.979, 0.996)	2.18 (0.274, 0.625)	2.16 (0.209, 0.572)
18:1 Oleic	17.4 - 46	(0.407)	33.1	31.7 (0.128, 0.521)	32.2 (0.294, 0.644)	31.7 (0.123, 0.518)	31.6 (0.117, 0.514)
18:2 Linoleic	34.0-70	(0.491)	45.7	45.2 (0.619, 0.840)	46.7 (0.338, 0.673)	45.0 (0.488, 0.771)	45.9 (0.856, 0.941)
18:3 Gamma Linolenic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ

Appendix E Table 5. (Cont.) Fatty Acid Analysis of Corn Grain from Individual Sites.

Fatty Acids (% total fatty acids)[a]	Literature Values[b]	Overall Trt Effect (Pr>F)[c]	Control	Unsprayed (P-value,[d] Adj. P)[e]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
<u>IN Site</u>							
18:3 Linolenic	ND-2.25	(0.591)	1.08	1.04 (0.345, 0.678)	1.09 (0.875, 0.947)	1.06 (0.561, 0.815)	1.03 (0.254, 0.602)
20:0 Arachidic	0.1-2	(0.230)	0.446	0.413 (0.154, 0.557)	0.445 (0.963, 0.988)	0.424 (0.325, 0.660)	0.407 (0.100, 0.491)
20:1 Eicosenoic	0.17–1.92	(0.073)	0.246	0.225 (**0.010**[g], 0.407)	0.240 (0.329, 0.660)	0.234 (0.083, 0.473)	0.231 (**0.044**[g], 0.408)
20:2 Eicosadienoic	ND–0.53	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	0.275	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	0.465	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
22:0 Behenic	ND–0.5	(0.153)	0.152	0.090 (0.084, 0.473)	0.149 (0.636, 0.852)	0.140 (0.132, 0.530)	0.133 (**0.038**[g], 0.407)

Appendix E Table 5. (Cont.) Fatty Acid Analysis of Corn Grain from Individual Sites.

Fatty Acids (% total fatty acids)[a]	Literature Values[b]	Overall Trt Effect (Pr>F)[c]	Control	Unsprayed (P-value,[d] Adj. P)[e]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
NE Site							
8:0 Caprylic	0.13–0.34	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
10:0 Capric	ND	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
12:0 Lauric	ND–0.687	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
14:0 Myristic	ND-0.3	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
16:0 Palmitic	7–20.7	(0.067)	9.94	10.23 (0.104, 0.497)	9.88 (0.738, 0.898)	9.77 (0.327, 0.660)	9.69 (0.158, 0.557)
16:1 Palmitoleic	ND–1.0	(0.479)	0.084	0.126 (0.821, 0.927)	0.081 (0.938, 0.978)	0.080 (0.782, 0.913)	0.102 (0.194, 0.571)
17:0 Heptadecanoic	ND–0.11	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	ND– 0.1	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
18:0 Stearic	ND-3.4	(0.337)	2.09	2.00 (0.141, 0.545)	1.98 (0.078, 0.466)	2.05 (0.499, 0.777)	2.00 (0.161, 0.557)
18:1 Oleic	17.4 - 46	(0.470)	31.8	31.0 (0.347, 0.678)	30.8 (0.234, 0.587)	30.4 (0.121, 0.516)	30.6 (0.165, 0.557)
18:2 Linoleic	34.0-70	(0.157)	48.1	49.8 (0.127, 0.521)	48.6 (0.652, 0.859)	47.9 (0.896, 0.958)	46.8 (0.265, 0.614)
18:3 Gamma Linolenic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ

Appendix E Table 5. (Cont.) Fatty Acid Analysis of Corn Grain from Individual Sites.

Fatty Acids (% total fatty acids)[a]	Literature Values[b]	Overall Trt Effect (Pr>F)[c]	Control	Unsprayed (P-value,[d] Adj. P)[e]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
NE Site							
18:3 Linolenic	ND-2.25	(0.123)	1.08	1.12 (0.072, 0.459)	1.09 (0.821, 0.927)	1.06 (0.353, 0.679)	1.08 (0.897, 0.958)
20:0 Arachidic	0.1-2	(0.092)	0.401	0.393 (0.365, 0.686)	0.380 (**0.032**[g], 0.407)	0.393 (0.328, 0.660)	0.378 (**0.021**[g], 0.407)
20:1 Eicosenoic	0.17–1.92	(0.055)	0.226	0.230 (0.459, 0.760)	0.222 (0.385, 0.706)	0.215 (**0.048**[g], 0.408)	0.216 (0.060, 0.434)
20:2 Eicosadienoic	ND–0.53	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	0.275	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	0.465	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
22:0 Behenic	ND–0.5	(0.166)	0.133	0.131 (0.321, 0.658)	< LOQ	0.127 (**0.043**[g], 0.408)	0.127 (**0.043**[g], 0.408)

Appendix E Table 5. (Cont.) Fatty Acid Analysis of Corn Grain from Individual Sites.

Fatty Acids (% total fatty acids)[a]	Literature Values[b]	Overall Trt Effect (Pr>F)[c]	Control	Unsprayed (P-value,[d] Adj. P)[e]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
ON Site							
8:0 Caprylic	0.13–0.34	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
10:0 Capric	ND	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
12:0 Lauric	ND–0.687	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
14:0 Myristic	ND-0.3	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
14:1 Myristoleic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
15:0 Pentadecanoic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
15:1 Pentadecenoic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
16:0 Palmitic	7–20.7	(0.438)	10.5	10.2 (0.326, 0.660)	10.4 (0.706, 0.884)	10.3 (0.640, 0.853)	10.8 (0.389, 0.710)
16:1 Palmitoleic	ND–1.0		< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
17:0 Heptadecanoic	ND–0.11	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
17:1 Heptadecenoic	ND– 0.1	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
18:0 Stearic	ND-3.4	(0.145)	1.92	1.70 (0.057, 0.420)	1.77 (0.167, 0.557)	1.74 (0.106, 0.500)	1.94 (0.912, 0.966)
18:1 Oleic	17.4 - 46	(0.071)	28.9	26.8 (**0.030**[g], 0.407)	28.0 (0.286, 0.637)	27.9 (0.238, 0.592)	29.5 (0.492, 0.773)
18:2 Linoleic	34.0-70	(0.193)	50.0	50.3 (0.830, 0.930)	51.3 (0.370, 0.691)	52.4 (0.123, 0.518)	53.2 (**0.047**[g], 0.408)
18:3 Gamma Linolenic	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ

Appendix E Table 5. (Cont.) Fatty Acid Analysis of Corn Grain from Individual Sites.

Fatty Acids (% total fatty acids)[a]	Literature Values[b]	Overall Trt Effect (Pr>F)[c]	Control	Unsprayed (P-value,[d] Adj. P)[e]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
ON Site							
18:3 Linolenic	ND-2.25		1.00	0.986	1.04	1.02	1.09
20:0 Arachidic	0.1-2	(0.188)	0.397	0.355 (**0.049**[g], 0.408)	0.365 (0.115, 0.510)	0.368 (0.148, 0.550)	0.392 (0.776, 0.913)
20:1 Eicosenoic	0.17–1.92	(0.135)	0.240	0.229 (0.222, 0.578)	0.234 (0.481, 0.769)	0.220 (**0.045**[g], 0.408)	0.243 (0.707, 0.884)
20:2 Eicosadienoic	ND–0.53	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
20:3 Eicosatrienoic	0.275	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
20:4 Arachidonic	0.465	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
22:0 Behenic	ND–0.5	(0.286)	0.138	0.127 (0.263, 0.612)	0.088 (0.592, 0.831)	< LOQ	0.090 (0.779, 0.913)

a Results converted from units of % dry weight to % fatty acids.
b Combined range from Appendix A.
c Overall treatment effect estimated using an F-test.
d Comparison of the transgenic treatments to the control using t-tests.
e P-values adjusted using a False Discovery Rate (FDR) procedure.
f NA= statistical analysis was not performed since a majority of the data was < LOQ.
g Statistical difference indicated by P-Value <0.05.

Appendix E Table 6. Vitamin Analysis of Corn Grain from Individual Sites.

Vitamins (mg/kg dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IA Site							
Beta Carotene (Vitamin A)	0.19 – 46.8	(0.530)	1.61	1.72 (0.340, 0.674)	1.75 (0.216, 0.574)	1.71 (0.354, 0.679)	1.79 (0.115, 0.510)
Vitamin B1 (Thiamin)	1.3 - 40	(0.655)	3.28	3.47 (0.194, 0.571)	3.41 (0.353, 0.679)	3.46 (0.231, 0.584)	3.38 (0.464, 0.765)
Vitamin B2 (Riboflavin)	0.25 - 5.6	(0.153)	2.42	2.10 (0.222, 0.577)	1.83 (**0.043**[e], 0.408)	1.89 (0.062, 0.443)	1.79 (**0.033**[e], 0.407)
Vitamin B5 (Pantothenic acid)	NR[f]	(0.288)	4.68	5.19 (0.368, 0.689)	5.26 (0.315, 0.653)	5.68 (0.100, 0.492)	4.52 (0.778, 0.913)
Vitamin B6 (Pyridoxine)	3.68 – 11.3	(**0.042**[e])	7.85	6.56 (**0.011**[e], 0.407)	6.52 (**0.010**[e], 0.407)	6.94 (**0.049**[e], 0.408)	7.36 (0.252, 0.602)
Vitamin B12	NR	NA[g]	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Vitamin C	NR	(0.174)	24.3	21.8 (0.315, 0.653)	20.1 (0.104, 0.497)	12.3 (0.054, 0.412)	18.6 (**0.041**[e], 0.407)
Vitamin D	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Vitamin E (alpha Tocopherol)	1.5 - 68.7	(0.532)	7.49	5.35 (0.556, 0.813)	5.28 (0.622, 0.843)	< LOQ	< LOQ
Niacin (Nicotinic acid,Vit. B3)	9.3 - 70	(0.284)	24.6	21.6 (0.096, 0.490)	23.2 (0.388, 0.710)	22.7 (0.253, 0.602)	24.9 (0.837, 0.932)
Folic Acid	0.15 - 683	(0.482)	0.638	0.635 (0.952, 0.984)	0.551 (0.139, 0.540)	0.623 (0.776, 0.913)	0.592 (0.408, 0.728)

Appendix E Table 6. (Cont.) Vitamin Analysis of Corn Grain from Individual Sites.

Vitamins (mg/kg dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IL1 Site							
Beta Carotene (Vitamin A)	0.19 – 46.8	(0.564)	2.11	2.08 (0.809, 0.925)	1.95 (0.256, 0.602)	1.93 (0.199, 0.572)	2.07 (0.754, 0.906)
Vitamin B1 (Thiamin)	1.3 - 40	(0.478)	3.17	3.23 (0.718, 0.893)	3.38 (0.241, 0.596)	3.09 (0.618, 0.840)	3.30 (0.441, 0.754)
Vitamin B2 (Riboflavin)	0.25 - 5.6	(0.281)	2.02	1.74 (0.409, 0.728)	2.40 (0.262, 0.612)	1.74 (0.404, 0.726)	2.11 (0.776, 0.913)
Vitamin B5 (Pantothenic acid)	NR[f]	(0.414)	4.90	4.72 (0.600, 0.836)	4.61 (0.418, 0.735)	4.81 (0.788, 0.917)	5.27 (0.307, 0.649)
Vitamin B6 (Pyridoxine)	3.68 – 11.3	(0.980)	7.23	7.01 (0.697, 0.879)	7.28 (0.935, 0.975)	7.20 (0.958, 0.986)	7.33 (0.856, 0.941)
Vitamin B12	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Vitamin C	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Vitamin D	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Vitamin E (alpha Tocopherol)	1.5 - 68.7	(0.841)	6.07	8.40 (0.603, 0.839)	5.32 (0.459, 0.760)	6.00 (0.941, 0.978)	7.94 (0.405, 0.726)
Niacin (Nicotinic acid,Vit. B3)	9.3 - 70	(0.369)	24.6	22.3 (0.230, 0.583)	21.9 (0.162, 0.557)	22.0 (0.181, 0.566)	20.8 (0.065, 0.447)
Folic Acid	0.15 - 683	(0.406)	0.629	0.559 (0.215, 0.574)	0.539 (0.121, 0.516)	0.535 (0.109, 0.507)	0.542 (0.134, 0.535)

Appendix E Table 6. (Cont.) Vitamin Analysis of Corn Grain from Individual Sites.

Vitamins (mg/kg dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IL2 Site							
Beta Carotene (Vitamin A)	0.19 – 46.8	(0.874)	1.86	1.89 (0.809, 0.925)	1.85 (0.862, 0.944)	1.90 (0.730, 0.896)	1.81 (0.560, 0.815)
Vitamin B1 (Thiamin)	1.3 - 40	(0.172)	3.76	3.77 (0.961, 0.986)	3.87 (0.415, 0.733)	3.75 (0.961, 0.986)	4.07 (**0.047**[e], 0.408)
Vitamin B2 (Riboflavin)	0.25 - 5.6	(0.675)	2.13	2.39 (0.496, 0.777)	2.19 (0.873, 0.947)	2.28 (0.685, 0.873)	2.64 (0.202, 0.572)
Vitamin B5 (Pantothenic acid)	NR[f]	(0.725)	6.24	5.44 (0.313, 0.653)	5.50 (0.346, 0.678)	5.27 (0.228, 0.583)	5.46 (0.324, 0.660)
Vitamin B6 (Pyridoxine)	3.68 – 11.3	(0.699)	6.61	6.80 (0.742, 0.899)	6.84 (0.690, 0.874)	7.37 (0.203, 0.572)	6.76 (0.791, 0.917)
Vitamin B12	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Vitamin C	NR	(0.285)	29.6	25.8 (0.164, 0.557)	24.5 (0.073, 0.459)	24.5 (0.073, 0.459)	24.9 (0.096, 0.490)
Vitamin D	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Vitamin E (alpha Tocopherol)	1.5 - 68.7	NA	< LOQ	< LOQ	< LOQ	< LOQ	5.070
Niacin (Nicotinic acid,Vit. B3)	9.3 - 70	(0.518)	22.2	24.4 (0.450, 0.754)	20.8 (0.630, 0.848)	23.5 (0.638, 0.852)	20.0 (0.450, 0.754)
Folic Acid	0.15 - 683	(0.879)	0.618	0.603 (0.782, 0.913)	0.617 (0.976, 0.995)	0.568 (0.381, 0.701)	0.609 (0.873, 0.947)

Appendix E Table 6. (Cont.) Vitamin Analysis of Corn Grain from Individual Sites.

Vitamins (mg/kg dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IN Site							
Beta Carotene (Vitamin A)	0.19 – 46.8	(0.592)	2.04	2.18 (0.113, 0.510)	2.03 (0.163, 0.557)	2.00 (0.327, 0.660)	2.14 (**0.025**[e], 0.407)
Vitamin B1 (Thiamin)	1.3 - 40	(0.180)	3.24	3.43 (0.724, 0.893)	3.41 (0.724, 0.893)	3.35 (0.724, 0.893)	3.54 (0.724, 0.893)
Vitamin B2 (Riboflavin)	0.25 - 5.6	(0.917)	1.98	1.74 (0.526, 0.794)	1.78 (0.608, 0.839)	1.69 (0.457, 0.760)	1.67 (0.427, 0.746)
Vitamin B5 (Pantothenic acid)	NR[f]	(0.447)	4.81	4.21 (0.094, 0.490)	4.53 (0.407, 0.727)	4.51 (0.375, 0.696)	4.34 (0.174, 0.557)
Vitamin B6 (Pyridoxine)	3.68 – 11.3	(**0.033**[e])	5.79	6.24 (0.528, 0.795)	6.27 (0.498, 0.777)	6.22 (0.543, 0.803)	8.38 (**0.005**[e], 0.407)
Vitamin B12	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Vitamin C	NR	(0.339)	23.7	24.7 (0.769, 0.913)	19.2 (0.243, 0.597)	21.0 (0.470, 0.765)	26.3 (0.470, 0.765)
Vitamin D	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Vitamin E (alpha Tocopherol)	1.5 - 68.7	(0.628)	7.99	12.23 (0.349, 0.678)	8.84 (0.282, 0.632)	5.00 (0.870, 0.947)	8.69 (0.872, 0.947)
Niacin (Nicotinic acid,Vit. B3)	9.3 - 70	(0.302)	28.3	27.7 (0.759, 0.907)	25.7 (0.201, 0.572)	27.0 (0.501, 0.779)	24.3 (0.067, 0.448)
Folic Acid	0.15 - 683	(0.274)	0.507	0.618 (0.063, 0.443)	0.577 (0.211, 0.572)	0.604 (0.096, 0.490)	0.542 (0.516, 0.787)

Appendix E Table 6. (Cont.) Vitamin Analysis of Corn Grain from Individual Sites.

Vitamins (mg/kg dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
NE Site							
Beta Carotene (Vitamin A)	0.19 – 46.8	(0.627)	1.68	1.92 (0.230, 0.583)	1.94 (0.191, 0.571)	1.91 (0.236, 0.590)	1.85 (0.378, 0.698)
Vitamin B1 (Thiamin)	1.3 - 40	(0.670)	3.66	3.52 (0.505, 0.781)	3.80 (0.525, 0.787)	3.59 (0.748, 0.905)	3.55 (0.588, 0.831)
Vitamin B2 (Riboflavin)	0.25 - 5.6	(0.977)	2.16	2.33 (0.578, 0.827)	2.23 (0.819, 0.927)	2.28 (0.690, 0.874)	2.20 (0.909, 0.4964)
Vitamin B5 (Pantothenic acid)	NR[f]	(0.934)	5.18	5.23 (0.918, 0.967)	5.14 (0.951, 0.984)	5.53 (0.524, 0.793)	5.13 (0.932, 0.975)
Vitamin B6 (Pyridoxine)	3.68 – 11.3	(0.361)	5.72	6.41 (0.143, 0.545)	6.19 (0.296, 0.645)	6.43 (0.135, 0.535)	6.59 (0.075, 0.463)
Vitamin B12	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Vitamin C	NR	(0.191)	16.7	19.7 (0.114, 0.510)	10.2 (0.466, 0.765)	16.6 (0.954, 0.985)	15.7 0.542, 0.803)
Vitamin D	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Vitamin E (alpha Tocopherol)	1.5 - 68.7	NA	< LOQ	8.143 (0.799, 0.922)	5.113 (0.895, 0.958)	< LOQ	< LOQ
Niacin (Nicotinic acid,Vit. B3)	9.3 - 70	(0.565)	25.7	22.8 (0.446, 0.754)	19.5 (0.127, 0.521)	21.4 (0.274, 0.625)	21.6 (0.292, 0.643)
Folic Acid	0.15 - 683	(0.445)	0.553	0.563 (0.776, 0.913)	0.567 (0.674, 0.866)	0.605 (0.152, 0.556)	0.601 (0.182, 0.567)

Appendix E Table 6. (Cont.) Vitamin Analysis of Corn Grain from Individual Sites.

Vitamins (mg/kg dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[a]	Control	Unsprayed (P-value,[b] Adj. P)[c]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
ON Site							
Beta Carotene (Vitamin A)	0.19 – 46.8	(0.124)	1.49	1.31 (0.094, 0.490)	1.29 (0.076, 0.464)	1.44 (0.642, 0.853)	1.53 (0.666, 0.864)
Vitamin B1 (Thiamin)	1.3 - 40	(0.223)	3.73	4.36 (**0.034**[e], 0.407)	4.17 (0.114, 0.510)	3.99 (0.328, 0.660)	4.00 (0.305, 0.649)
Vitamin B2 (Riboflavin)	0.25 - 5.6	(0.929)	2.16	2.01 (**0.044**[e], 0.754)	2.05 (0.568, 0.819)	2.07 (0.661, 0.893)	2.01 (0.453, 0.757)
Vitamin B5 (Pantothenic acid)	NR[f]	(0.902)	5.89	6.23 (0.660, 0.863)	5.48 (0.607, 0.839)	5.94 (0.942, 0.978)	5.89 (**0.043**[e], 0.408)
Vitamin B6 (Pyridoxine)	3.68 – 11.3	(0.110)	5.91	6.43 (0.203, 0.572)	6.86 (**0.034**[e], 0.407)	5.81 (0.790, 0.917)	6.05 (0.718, 0.893)
Vitamin B12	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Vitamin C	NR	(0.124)	35.0	30.7 (0.085, 0.473)	30.9 (0.097, 0.490)	28.3 (**0.016**[e], 0.407)	32.4 (0.277, 0.626)
Vitamin D	NR	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Vitamin E (alpha Tocopherol)	1.5 - 68.7	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Niacin (Nicotinic acid,Vit. B3)	9.3 - 70	(**0.046**[e])	31.3	26.4 (**0.019**[e], 0.407)	26.4 (**0.020**[e], 0.407)	25.8 (**0.012**[e], 0.407)	25.6 (**0.010**[e], 0.407)
Folic Acid	0.15 - 683	(0.142)	0.620	0.548 (0.179, 0.564)	0.595 (0.614, 0.840)	0.619 (0.979, 0.996)	0.694 (0.168, 0.557)

[a] Combined range from Appendix A.
[b] Overall treatment effect estimated using an F-test.
[c] Comparison of the transgenic treatments to the control using t-tests.
[d] P-values adjusted using a False Discovery Rate (FDR) procedure.
[e] Statistical difference indicated by P-Value <0.05.
[f] NR = not reported.
[g] NA= statistical analysis was not performed since a majority of the data was < LOQ.

Appendix E Table 7. Secondary Metabolite Analysis of Corn Grain from Individual Sites.

Secondary Metabolite (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IA Site							
Coumaric Acid	0.003-0.058	(0.580)	0.018	0.015 (0.199, 0.572)	0.017 (0.638, 0.842)	0.015 (0.204, 0.572)	0.017 (0.626, 0.845)
Ferulic Acid	0.02-0.389	(0.266)	0.198	0.186 (0.098, 0.491)	0.194 (0.593, 0.831)	0.184 (0.066, 0.448)	0.189 (0.209, 0.572)
Furfural	0.0003-0.0006	NA[e]	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Inositol	0.0089-0.377	(0.499)	0.244	0.236 (0.814, 0.926)	0.250 (0.873, 0.947)	0.256 (0.749, 0.905)	0.197 (0.207, 0.572)
IL1 Site							
Coumaric Acid	0.003-0.058	(0.619)	0.021	0.023 (0.268, 0.618)	0.022 (0.635, 0.852)	0.022 (0.414, 0.733)	0.023 (0.172, 0.557)
Ferulic Acid	0.02-0.389	(0.726)	0.189	0.196 (0.707, 0.884)	0.178 (0.587, 0.831)	0.204 (0.439, 0.754)	0.192 (0.877, 0.947)
Furfural	0.0003-0.0006	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Inositol	0.0089-0.377	(0.053)	0.214	0.242 (0.174, 0.557)	0.214 (1.000, 1.000)	0.178 (0.095, 0.490)	0.240 (0.209, 0.572)
IL2 Site							
Coumaric Acid	0.003-0.058	(0.166)	0.023	0.022 (0.723, 0.893)	0.024 (0.582, 0.829)	0.020 (0.093, 0.491)	0.021 (0.174, 0.557)
Ferulic Acid	0.02-0.389	(0.192)	0.204	0.203 (0.778, 0.913)	0.204 (1.000, 1.000)	0.196 (0.106, 0.500)	0.195 (0.085, 0.473)
Furfural	0.0003-0.0006	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Inositol	0.0089-0.377	(0.656)	0.231	0.240 (0.668, 0.854)	0.223 (0.668, 0.864)	0.236 (0.809, 0.925)	0.214 (0.372, 0.694)

Appendix E Table 7. (Cont.) Secondary Metabolite Analysis of Corn Grain from Individual Sites.

Secondary Metabolite (% dry weight)	Literature Values[a]	Overall Trt Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IN Site							
Coumaric Acid	0.003-0.058	(0.071)	0.021	0.017 (**0.027**[f], 0.407)	0.018 (**0.040**[f], 0.407)	0.019 (0.188, 0.568)	0.016 (**0.012**[f], 0.407)
Ferulic Acid	0.02-0.389	(0.051)	0.238	0.218 (**0.020**, 0.407)	0.212 (**0.006**[f], 0.407)	0.224 (0.083, 0.473)	0.221 (**0.042**[f], 0.408)
Furfural	0.0003-0.0006	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Inositol	0.0089-0.377	(0.742)	0.218	0.240 (0.440, 0.754)	0.221 (0.916, 0.967)	0.203 (0.608, 0.839)	0.212 (0.851, 0.939)
NE Site							
Coumaric Acid	0.003-0.058	(0.621)	0.020	0.019 (0.242, 0.596)	0.019 (0.454, 0.757)	0.020 (0.662, 0.863)	0.018 (0.190, 0.570)
Ferulic Acid	0.02-0.389	(0.169)	0.189	0.182 (0.164, 0.557)	0.184 (0.315, 0.653)	0.191 (0.658, 0.861)	0.180 (0.169, 0.473)
Furfural	0.0003-0.0006	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Inositol	0.0089-0.377	(0.864)	0.215	0.205 (0.514, 0.786)	0.220 (0.742, 0.899)	0.216 (0.947, 0.982)	0.217 (0.860, 0.942)
ON Site							
Coumaric Acid	0.003-0.058	(0.215)	0.024	0.022 (0.147, 0.550)	0.020 (0.052, 0.408)	0.020 (**0.043**[f], 0.408)	0.021 (0.120, 0.515)
Ferulic Acid	0.02-0.389	**(0.042[f])**	0.229	0.211 (**0.045**[f], 0.408)	0.204 (**0.010**[f], 0.407)	0.203 (**0.008**[f], 0.407)	0.207 (**0.019**[f], 0.407)
Furfural	0.0003-0.0006	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Inositol	0.0089-0.377	0.865)	0.183	0.178 (0.634, 0.852)	0.180 (0.750, 0.905)	0.187 (0.726, 0.893)	0.187 (0.726, 0.893)

a Combined range from Appendix A.
b Overall treatment effect estimated using an F-test.
c Comparison of the transgenic treatments to the control using t-tests.
d P-values adjusted using a False Discovery Rate (FDR) procedure.
e NA= statistical analysis was not performed since a majority of the data was < LOQ.
f Statistical difference indicated by P-Value <0.05.

Appendix E Table 8. Anti-Nutrient Analysis of Corn Grain from Individual Sites.

Anti-Nutrient (% dry weight)	Literature Values[a]	Overall Treatment Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
IA Site							
Phytic Acid	0.11-1.57	**(0.011[e])**	0.747	0.899 (**0.002**[e], 0.407)	0.758 (0.765, 0.911)	0.751 (0.918, 0.967)	0.800 (0.163, 0.557)
Raffinose	0.02-0.32	NA[f]	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Trypsin Inhibitor (TIU/mg)	1.09-7.18	(0.068)	4.93	6.45 (0.091, 0.490)	4.06 (0.303, 0.648)	6.19 (0.151, 0.553)	4.64 (0.726, 0.893)
IL1 Site							
Phytic Acid	0.11-1.57	(0.138)	0.680	0.789 (**0.017**[e], 0.407)	0.719 (0.306, 0.649)	0.720 (0.302, 0.648)	0.715 (0.359, 0.680)
Raffinose	0.02-0.32	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Trypsin Inhibitor (TIU/mg)	1.09-7.18	(0.504)	5.66	4.54 (0.203, 0.572)	5.67 (0.997, 1.000)	4.71 (0.271, 0.624)	4.81 (0.323, 0.659)
IL2 Site							
Phytic Acid	0.11-1.57	(0.439)	0.825	0.802 (0.556, 0.813)	0.774 (0.210, 0.572)	0.778 (0.242, 0.596)	0.755 (0.099, 0.491)
Raffinose	0.02-0.32	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Trypsin Inhibitor (TIU/mg)	1.09-7.18	**(0.028[e])**	5.34	4.35 (0.170, 0.557)	5.24 (0.879, 0.947)	6.50 (0.115, 0.510)	6.87 (**0.048**[e], 0.408)
IN Site							
Phytic Acid	0.11-1.57	(0.249)	0.728	0.772 (0.309, 0.651)	0.804 (0.096, 0.490)	0.723 (0.903, 0.962)	0.791 (0.153, 0.557)
Raffinose	0.02-0.32	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Trypsin Inhibitor (TIU/mg)	1.09-7.18	(0.992)	4.94	4.95 (0.992, 1.000)	5.25 (0.755, 0.906)	4.87 (0.947, 0.982)	5.18 (0.813, 0.926)

Appendix E Table 8. (Cont.) Anti-Nutrient Analysis of Corn Grain from Individual Sites.

Anti-Nutrient (% dry weight)	Literature Values[a]	Overall Treatment Effect (Pr>F)[b]	Control	Unsprayed (P-value,[c] Adj. P)[d]	Sprayed Quizalofop (P-value, Adj. P)	Sprayed 2,4-D (P-value, Adj. P)	Sprayed Both (P-value, Adj. P)
NE Site							
Phytic Acid	0.11-1.57	(0.483)	0.765	0.786 (0.733, 0.897)	0.856 (0.165, 0.557)	0.855 (0.169, 0.557)	0.803 (0.541, 0.803)
Raffinose	0.02-0.32	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Trypsin Inhibitor (TIU/mg)	1.09-7.18	(0.691)	4.99	5.48 (0.624, 0.843)	4.71 (0.780, 0.913)	5.76 (0.447, 0.754)	5.94 (0.355, 0.679)
ON Site							
Phytic Acid	0.11-1.57	(0.228)	0.614	0.787 (**0.029**[e], 0.407)	0.692 (0.265, 0.614)	0.701 (0.217, 0.575)	0.702 (0.215, 0.574)
Raffinose	0.02-0.32	NA	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ
Trypsin Inhibitor (TIU/mg)	1.09-7.18	(0.303)	4.61	4.85 (0.680, 0.868)	4.32 (0.615, 0.840)	4.67 (0.913, 0.966)	3.64 (0.120, 0.515)

[a] Combined range from Appendix A.
[b] Overall treatment effect estimated using an F-test.
[c] Comparison of the transgenic treatments to the control using t-tests.
[d] P-values adjusted using a False Discovery Rate (FDR) procedure.
[e] Statistical difference indicated by P-Value <0.05.
[f] NA= statistical analysis was not performed since a majority of the data was < LOQ.