STUDY TITLE

Broiler Chicken Feeding Study with FG72 Soybeans

AUTHOR

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STUDY COMPLETION DATE

22 October 2009

SPONSOR

Bayer CropScience
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PERFORMING LABORATORY

Springborn Smithers Laboratories
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LABORATORY PROJECT ID

Springborn Smithers Laboratories (CRC) Study No. 13798.4124
Sponsor Protocol/Project No. TX99L046

STATEMENT OF DATA CONFIDENTIALITY

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

Company Name:

Company Agent:

Title:

Signature: _____ Date: _____

These data are the property of Bayer CropScience, and as such, are considered to be confidential for all purposes other than compliance with FIFRA § 10. Submission of these data in compliance with FIFRA does not constitute a waiver of any right to confidentiality which may exist under any other statute or in any other country.

FLAGGING STATEMENT

We have applied the criteria of the Code of Federal Regulations, Title 40, Part 158.34 for flagging studies for potential adverse effects to the results of the attached study. This study neither meets nor exceeds any of the applicable criteria.

Sponsor Representative: Herouet
Corinne Herouet-Guicheney
26 OCTOBER 2009
Date

Study Director: Jennifer M. Stafford
Jennifer Stafford
10/22/2009
Date

GOOD LABORATORY PRACTICE COMPLIANCE STATEMENT

The data and report for **"Broiler Chicken Feeding Study with FG72 Soybeans"** were produced and compiled in accordance with all pertinent U.S. EPA Good Laboratory Practice regulations (40 CFR, Part 160, 1989), OECD Principles of Good Laboratory Practice (OECD, 1998, ENV/MC/CHEM (98) 17) and Japan MAFF (12 Nousan, Notification No. 8628, Agricultural Product Bureau) with the following exceptions: routine water contaminant screening analyses for pesticides, polychlorinated biphenyls (PCB) and toxic metals were conducted using standard U.S. EPA procedures by GeoLabs, Inc., Braintree, Massachusetts, USA. These analyses are considered facility records under Springborn Smithers Laboratories, Carolina Research Center SOP 7.10. Compositional certificates of analysis and contaminant screens for pesticides, PCB and toxic metals were conducted by using standard methods of analysis by Eurofins Scientific Inc., Des Moines, Iowa, USA. Compliance with applicable GLP standards cannot be claimed for those procedures pertaining to the dietary composition (including crop-specific anti-nutrient) analyses performed by Eurofins Scientific Inc., USA. Diet preparation was conducted by North American Nutrition Companies, Lewisburg, Ohio, USA, in accordance with applicable Good Manufacturing Practices (GMP). DNA analyses, performed by Bayer CropScience, Research Triangle Park, North Carolina, USA were conducted by using internal procedures in the spirit of GLP (Good Laboratory Practice) regulations.

SPRINGBORN SMITHERS LABORATORIES

Jennifer M. Stafford

Jennifer Stafford
Study Director

10/22/2009
Date

QUALITY ASSURANCE STATEMENT

The study conduct, raw data and report for "**Broiler Chicken Feeding Study with FG72 Soybeans**" were inspected by the Quality Assurance Unit (QAU) at Springborn Smithers Laboratories to determine the status of compliance with the study protocol, applicable laboratory standard operating procedures (SOPs), and GLP regulations. Dates of study inspections, inspection types, and dates reported to the Study Director and to Management are listed below.

Inspection Date	Inspection Type	Reported to Study Director/Management
2/5/09	Protocol Review	2/5/09
4/7 – 8/09	Diet Preparation at NANCo	4/21/09
6/24/09	Biological Observations	6/24/09
6/24/09	Environmental Conditions	6/24/09
6/24/09	Necropsy	6/24/09
6/24/09	Feed Measurements	6/24/09
8/17/09	Data Volume I	8/17/09
8/17/09, 8/19/09	Data Volume II	8/19/09
10/2/09	Data Volume III	10/2/09
9/30/09 – 10/2/09	Draft Report Review	10/2/09
10/21/09	Final Report	10/21/09

The results presented in this report accurately describe the methods and SOPs and reflect the raw data collected during the conduct of the study.

SPRINGBORN SMITHERS LABORATORIES

Eric Steele
Quality Assurance Auditor

21 Oct 09
Date

KEY STUDY PERSONNEL

The following Springborn Smithers personnel were responsible for the conduct of the work and reporting of the study results.

Study Director:	Jennifer M. Stafford
Director, Avian Toxicology:	Larry W. Brewer
Biologist:	Christine Redmond
Biology Technician II:	Debra Foster
Biology Technician I:	Amy Littleton

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SUMMARY

Broiler Chicken Feeding Study with FG72 Soybeans

SPONSOR: Bayer CropScience

PROTOCOL TITLE: Broiler Chicken Feeding Study with FG72 Soybeans, Springborn Smithers Protocol No.: 012909/OECD/JMAFF/Broiler Chicken/FG72

SPRINGBORN SMITHERS STUDY NUMBER: 13798.4124

TEST DIETS: Test articles commercial non-genetically modified (non-GM) toasted soybean seedmeal, FG72 toasted soybean seedmeal, and non-GM counterpart toasted soybean seedmeal were received on 1/29/2009 from GLP Technologies, Navasota, Texas, USA.

The test articles were labeled as described below and provided to the Study Director, but not to the technical staff.

Crop Information		
Treatment Number	**Test Article**	**Lot #**
A	Non-GM counterpart toasted soybean seedmeal	DQ08B004-TM-A
C	FG72 toasted soybean seedmeal	DQ08B004-TM-C
D	Commercial non-GM toasted soybean seedmeal	DQ08B004-TM-D

Each regimen was formulated into separate, nutritionally balanced diets with an incorporation rate of 20%. Diets were formulated to create a starter, grower, and finisher diet phase using each regimen. Test diets were prepared by North American Nutrition Co., Lewisburg, Ohio, USA.

DEFINITIVE TEST DATES: 15 May to 26 June 2009

TEST SPECIES: ROSS#308 Broiler Chicken (*Gallus gallus domesticus*)
Age at test initiation: newly hatched (2 day)
Source: Hoover's Hatchery Rudd, IA
Identified as Springborn Smithers Colony No. 177 upon arrival

TEST CONDITIONS: 42-day duration. Brooding compartment temperatures ranged from approximately 20 to 35 ^{o}C (range generally decreasing over time). Room temperatures ranged from 20 to 33 ^{o}C (range decreasing

over time). Relative humidity ranged from 40 to 79%. Illumination averaged 12.4 foot-candles (133 lux). The photoperiod was maintained as follows:

Lighting Schedule	
Time Period	**Light Schedule (hrs Light:hr**
day 0-3	23:1
day 4-7	18:6
day 8-14	15:9
day15-35	18:6
day 36-42	21:3

OBJECTIVE AND STUDY DESIGN:

The growing broiler is a very sensitive test species, as a 15-fold increase in body weight occurs during the first 21 days of feeding. Therefore, the broiler is an appropriate species to detect differences in nutrient quality as well as toxic effects of genetically modified (GM) seed varieties.

The objective of this study is to compare the effects upon ROSS variety chickens (*Gallus gallus domesticus*) of exposure to feed containing either transgenic FG72 toasted soybean seedmeal and the non-transgenic, non-GM counterpart over a 42-day period. A non-transgenic, commercially available toasted soybean seedmeal variety was also administered in parallel (reference control).

Effects on health, mortality, body weight gain, feed conversion efficiencies and market dressed carcass, muscle (breast, thigh, leg and wing) and abdominal fat pad weights were evaluated. Test animals were housed 10 birds per pen (replicate), 7 replicates per gender per Group, 14 replicates per Group, 3 Groups, 70 birds per gender per Group 140 birds per Group.

RESULTS AND CONCLUSION:

Following 42 days of daily exposure to feed containing FG72 toasted soybean seedmeal (dietary content of approximately 20%), there were no adverse effects detected in feed consumption, feed conversion ratio, survival, body weight gain, or in weight of chilled carcass, legs, thighs, wings or breasts between ROSS#308 Broiler Chicken fed the genetically modified FG72 toasted soybean seedmeal and two control Groups consisting of a non-transgenic commercial variety and a non-transgenic non-GM counterpart. The growth and health of chickens on a diet containing FG72 toasted soybean seedmeal were comparable to chickens on two

control diets, including a commercial variety of toasted soybean seedmeal and a non-transgenic, non-GM counterpart to the FG72 toasted soybean seedmeal.

1.0 INTRODUCTION

FG72 Soybean is a transgenic crop variety that is currently undergoing regulatory testing to support its sale and use. The growing broiler is a very sensitive test species as a 40-fold increase in body weight occurs during the 42-day feeding period, with a 15-fold increase in the first 21 days. Therefore, the broiler is an appropriate species to detect differences in nutrient quality as well as toxic effects of GM seed varieties.

The objective of this study was to compare the effects upon ROSS variety chickens (*Gallus gallus domesticus*) of exposure to feed containing either the GM variety, the corresponding non-GM counterpart or a commercial non-GM variety, over a 6-week period.

Effects on health, mortality, body weight gain, feed conversion efficiencies and market dressed carcass, muscle (breast, thigh, leg and wing) and abdominal fat pad weights were evaluated.

The study was initiated on 3 February 2009, the day the Study Director signed the protocol, and was completed the day the Study Director signed the final report. The in-life phase of the definitive study began on 15 May 2009 and was terminated on 26 June 2009. The study was performed at Springborn Smithers Laboratories, Carolina Research Center (CRC), Snow Camp, North Carolina, USA. The protocol, raw data, test substance, material incineration related-documents, and the final report produced during this study will be archived by the Sponsor Representative. A copy of the final report will be stored at Springborn Smithers Laboratories, Wareham, Massachusetts, USA.

2.0 MATERIALS AND METHODS

2.1 Study Protocol

The study was conducted according to the Springborn Smithers protocol entitled "Broiler Chicken Feeding Study with FG72 Soybeans" Springborn Smithers Protocol No.: 012909/OECD/JMAFF/Broiler Chicken/FG72 (Appendix 1). The methods described in this

protocol comply with the U. S. Environmental Protection Agency's Good Laboratory Practice Standards as set forth under the Federal Insecticide, Fungicide, and Rodenticide Act (40 CFR, Part 160, 1989), OECD Principles of Good Laboratory Practice (OECD, 1998, ENV/MC/CHEM (98) 17) and Japan MAFF (12 Nousan, Notification No. 8628, Agricultural Product Bureau).

2.2 Test Diets

The test crops were grown, under direction of the study sponsor, in typical crop production areas, using standard production methods. The toasted seedmeal varieties used during this study were received on 29 January 2009 from GLP Technologies, Navasota, Texas, USA, where the soybeans were ground and toasted prior to shipment to Springborn Smithers Laboratories. Descriptions of the unformulated toasted soybean seedmeals follow:

Crop Information		
Treatment Number	**Test Article**	**Lot #**
A	Non-GM counterpart toasted soybean seedmeal	DQ08B004-TM-A
C	FG72 toasted soybean seedmeal	DQ08B004-TM-C
D	Commercial non-GM toasted soybean seedmeal	DQ08B004-TM-D

Upon receipt, each toasted soybean seedmeal variety was given a unique SSL CRC number, the shipping documents filed, and chain of custody records established.

The three toasted soybean seedmeal varieties were analyzed for nutritional content by Eurofins Scientific, Des Moines, Iowa, USA. The compositional analysis results are presented in Appendix 2. DNA analysis results are presented in Appendix 3. DNA analyses of the toasted soybean seedmeal varieties were performed at BioAnalytics, Bayer CropScience, Research Triangle Park, North Carolina, USA. The compositional analyses were provided to poultry nutritionist Dr. Todd Applegate, Purdue University. Dr. Applegate used the analyses to create formulation prescriptions for Starter (birds aged 0 to 7 days), Grower (birds aged 8 to 21 days), and Finisher (birds over 21 days of age) growth phase diets for broiler chickens using each toasted soybean seedmeal variety. The formulations were designed to meet specific poultry

nutritional requirements under typical local industry husbandry practices and ensure that the diets (for each toasted soybean seedmeal type and growth phase) were isoenergetic/isocaloric, isoproteic, and as similar as possible relative to limiting amino acids. Diets were formulated to incorporate the specified soybean variety at 20 %. This rate was selected to provide protein levels suitable for broiler chickens and in line with current industry standard dietary incorporation rates.

The diet formulation prescriptions were provided to North American Nutrition Co., Lewisburg, Ohio, USA for preparation of the final test diets. All toasted soybean seedmeal was shipped to North American Nutrition Co. on 30 March 2009. North American Nutrition Co. was provided mixing prescriptions that specified the order in which each variety should be processed, as well as purging and cleaning procedures necessary between mixing events. Detailed records of these procedures are included in the study file. North American Nutrition Co. provided mixing records including ingredient descriptions and weights, and copies of the prepared diet labels. The Starter phase diets of each soybean variety were prepared in crumble form. The Grower and Finisher phase diets of each soybean variety were prepared in pellet form. Each variety was formulated into approximately 400 lbs. of starter, approximately 500 lbs. grower, and approximately 1400 lbs. of finisher phase diets. Diets were packaged in standard, multi-layered, paper feed bags, each containing a specific diet.

The formulated diets and remaining toasted soybean seedmeal were returned to CRC on 14 April 2009. At CRC the diets were sampled for compositional and DNA analyses. Compositional analyses were conducted by Eurofins Scientific, Des Moines, Iowa, USA (Appendix 4). DNA analyses were conducted by BioAnalytics, Bayer CropScience, Research Triangle Park, North Carolina, USA (Appendix 5). All prepared diets proved suitable for use in this study.

Upon receipt at CRC, the diets were stored at room temperature in the original containers, in an isolated room, and were used during the in-life exposure. The toasted soybean seedmeal Lot Numbers associated with each diet phase within the three soybean regimens follow:

Phase	Lot #
Regimen A: Non-transgenic, non-GM toasted soybean seedmeal	
Starter	AK00558564
Grower	AK00558566
Finisher	AK00558567
Regimen C: Transgenic FG72 toasted soybean seedmeal	
Starter	AK00558568
Grower	AK00558569
Finisher	AK00558572
Regimen D: Non-transgenic commercial toasted soybean seedmeal	
Starter	AK00558573
Grower	AK00558574
Finisher	AK00558575

2.3 Compositional and DNA Analyses

Compositional analysis – crops: Analyses for compositional content were performed on the toasted soybean seedmeal (Appendix 2), before diet formulation, by Eurofins Scientific, Des Moines, Iowa, USA. The analysis parameters included nutrients (proteins, amino acids, fat, etc.), fibers, minerals, vitamin E, and gross energy. Antinutrients (trypsin inhibitor, phytic acid, lectin) were also quantified. Moreover, traces of health compromising compounds were quantified when possible (e.g., heavy metals, pesticide residues).

Compositional analysis – diets: Data from the composition analyses conducted on the transgenic and non-transgenic toasted soybean seedmeal varieties were used to formulate test diets for each growing phase within the entire feeding period, that were isoenergetic/isocaloric and isoproteic, and as similar as possible relative to limiting amino acids. Compositional analyses were conducted on the formulated test diets to ensure these parameters were met and to measure proximate amino acids (including tryptophan), vitamins and minerals, etc. Formulated diets and basal ingredients were also analyzed for bacteria (*Salmonella* and *Clostridium perfringens*) and

antinutrients (i.e., trypsin inhibitor, phytic acid, lectin). The compositional analyses of the diets were performed by Eurofins Scientific, Des Moines, Iowa, USA (Appendix 4).

These data provided information important to animal health (e.g., presence of bacteria which are known to be pathogenic, heavy metals, pesticides, etc.). The results showed very low levels of potential health compromising compounds. These data also showed that the diets were correctly balanced to be isonitrogenous, isocaloric, isoproteic and balanced for limiting amino acids. The diets were appropriately supplemented with essential compounds (e.g., salts, minerals, vitamins).

DNA analysis – crops: The DNA characterization (to identify the FG72 soybean in Group C but not in control Groups A and D) was conducted by BioAnalytics, Bayer CropScience, Research Triangle Park, North Carolina, USA (Appendix 3) and provided to CRC by the Study Sponsor. Of the soybean varieties used in this study, only Group C contained the FG72 soybean, as expected.

DNA analysis – diets: The DNA characterization (to identify the FG72 soybean in FG72 soybean-containing diets, but not in control diets) of the formulated test diets was also conducted by BioAnalytics, Bayer CropScience, Research Triangle Park, North Carolina, USA (Appendix 5) and provided to CRC by the Study Sponsor. Only the starter, grower, and finisher phases of Group C diets (diets containing the FG72 Soybean) contained the FG72 soybean, as expected.

2.4 Test System

ROSS#308 Broiler Chickens (*Gallus gallus domesticus*) were chosen as the test species. Chicks were mailed via United States Postal Service on the day of hatch from Hoover's Hatchery, Rudd, IA, and delivered to CRC on 5/15/2009. The chicks were 2 days old upon receipt. A total of 500 chicks (250 males and 250 females) from the same hatch were procured and assigned to SSL CRC colony No. 177. Of those received, 420 individuals (210 males and 210 females) were randomly selected for use in the study.

Birds exhibiting physical injury or abnormal behavior were excluded from the study. Extra chicks, not participating in the study, were euthanized. Each bird selected for use in the study was affixed with Swiftack® Tags at the time of cage assignment. These tags consist of a plastic filament attached to a colored, numbered paper tag. The plastic filament is then "tagged" to the loose skin on the animal's neck. This design does not attract attention from cage mates and allows full range of motion and unrestricted growth of the animal without threat of infection.

2.5 Physical System

Birds were housed indoors in poly-coated wire mesh (1/4" mesh floor, 1/2" mesh sides) cages that provided 12 square feet (2 ft. x 6 ft.) or 1.12 square meters. Pen space was initially restricted to half the total area by temporary dividers at time 0. A radiant heater was located at one end of this space. At the start of week two, the dividers were removed to allow test birds access to the full floor area. The mesh cage bottoms allowed excreta to drop through the cage to the floor, which was cleaned daily. Little Giant 11 lb. poultry feeders with scratch guard fins were used to deliver the test diets. These feeders were designed to prevent birds from scattering feed with their beaks or scratching in the trough with their feet, thereby reducing spillage and soiling. The watering system consisted of stainless steel nipple drinkers and Kuhl® Plastic-Matic float operated drinking dishes and supplemental watering troughs equipped with float valves, which allowed birds access to fresh water *ad libitum*.

2.6 Holding Conditions

Study rooms were illuminated by fluorescent Envir-o-light F40T8/Triten 50 Ultra fluorescent bulbs. Light intensity was measured using a Control Company electric light meter. The lighting regime was adapted from those currently used in regional commercial broiler chicken operations. Throughout the 42-day study, in order to reduce occurrence of ascites-related mortality and metabolic deficiencies associated with rapid growth and extended photoperiod, the following photoperiods were maintained:

Lighting Schedule*	
Time Period	**Light Schedule (hrs Light:hrs Dark)**
Day 0-3	23:1
Day 4-7	18:6
Day 8-14	15:9
Day15-35	18:6
Day 36-42	21:3

* Light schedule modified to include extended hours of darkness for fasting prior to day 21, 35, and 42 body weight measurements

Temperature and humidity were monitored daily. Brooder compartment heaters were mounted above one end of each cage and the heat settings gradually decreased to the lowest scheduled temperatures relative to bird age. Placement of the heaters at one end of the cages allowed the animals to move about the pen to seek their preferred air temperature. Brooder temperatures were monitored using a Control Company digital min/max thermometer. General room (away from brooder heaters) temperature and humidity were monitored using a Control Company digital min/max thermometer/hygrometer. Room conditions and maintenance were conducted according to SSL CRC SOP.

Water was supplied from a deep well located at the CRC. Representative samples of the water are analyzed periodically, in agreement with ASTM standard practices (ASTM, 2002), for the presence of pesticides, PCB and toxic metals. None of these compounds were detected at concentrations that are considered toxic in any of the samples analyzed.

2.7 Experimental Design

Treatment (diet exposure) began immediately following receipt of the hatchings (test animals) and cage assignment with no acclimation period. Birds were randomized to treatment Groups (diet Groups) and cages at experimental initiation. Thus, the hatchlings' first exposure to feed was the test starter diets. Each Group consisted of 140 chickens, housed in 14 replicate pens of 10 birds/pen (7 male pens and 7 female pens per Group) for a total of 14 pens involved in the study. Groups received the following feed:

Group Descriptions	
Treatment Number	**Test Article**
A	Non-GM counterpart toasted soybean seedmeal
C	FG72 toasted soybean seedmeal
D	Commercial non-GM toasted soybean seedmeal

Test animals consumed feed consisting of one of the three diets, exclusively, through 42 days of age and study termination.

2.8 Testing Procedures

Cages were identified by a label specifying the study number, cage number, the letter characterizing the diet Group (A, B or C), and gender. Feed was provided *ad libitum* but was weighed and refreshed at least weekly, or more frequently as needed. Birds were fasted in darkness for a minimum of 8 hours prior to body weight measurements on days 21, 35, and 42. Water was provided *ad libitum*. Animals in this test were not subjected to undue or unnecessary stress from noise or human activities.

2.9 Study Duration

The study duration was 42 days, divided into three phases:

Starting Phase: time 0 through day 7 (birds feed starter phase of assigned diet variety)

Grower Phase: day 8 through day 21 (birds feed grower phase of assigned diet variety)

Finisher Phase: day 22 through day 42 (birds feed finisher phase of assigned diet variety)

2.10 Test System Monitoring

All chickens were monitored at least daily for health status, overt signs of toxicity, and mortality. Body weights, feed consumption, and carcass and tissue weights were also recorded as described below. Gross pathology, post-mortem examination findings were recorded as appropriate.

2.10.1 Body Weight

Individual bird weights were used to determine pen means and standard deviations by pen. The body weight of each bird was recorded upon receipt of the test animals. Subsequent weights were taken on days 7, 21, 35, and 42. Weight was also recorded for any bird found dead during the study.

2.10.2 Feed Consumption

Feed consumption was calculated for each pen on a weekly basis. Feed consumption was measured by weighing the freshly filled feeders at the time of presentation, recording any additional feed added during the week, and again weighing the feeders and remaining feed at the end of each weekly interval. Mean feed consumption per bird per day was calculated by week for each cage by dividing the total amount of feed consumed in that pen by the number of birds present in that pen each day of the week (bird-days). Bird days are calculated as the sum of the number of birds alive in a given pen each day during a given week.

2.10.3 Feed Conversion

Feed conversion ratios (ratio of feed units required to yield one unit of bird mass) incorporated the total average weight gain per bird per cage and total average feed consumption per bird per cage, and were calculated as:

$$\frac{\text{total average feed consumption}}{\text{total average weight gain}} = \text{Feed Conversion Ratio}$$

2.10.4 Carcass and Tissue Weights

Carcass and tissue weights from 126 of 420 birds were necessary to achieve sufficient statistical power (> 80%) to detect differences between treatment Groups (alpha of 0.05). Therefore, 21 animals/gender/treatment Group were randomly selected, for a total of 126 sets of measurements. One day prior to processing, birds selected for processing at study termination were affixed with a small, stainless steel, Monel 1005-3 wing tags, in addition to the existing paper Swiftack® Tags already in place. These tags ensured a manner of identification that would remain with the carcass and body parts through the plucking, evisceration, dissection and weighing processes.

Processing of the 126 birds, from which carcass and tissue measurements were taken at test termination, was performed at Carolina Research Center by CRC personnel on the day of test termination (day 42). Post-mortem examinations of the viscera and carcass of processed birds were performed by Dr. Andy McRee, DVM. Birds not selected for processing were euthanized by cervical dislocation, and the bodies transferred to frozen storage at CRC. Euthanization of the extra birds occurred after the removal of those selected for processing.

The birds were processed by Group. Processing was initiated by electrically stunning the birds to render them unconscious and accelerate the heart simultaneous to severing of the carotid artery to facilitate drainage of the blood from the carcass and humane death of the bird. Once drained of blood, the carcass proceeded through the following steps: scalding, plucking, feet and head removal, evisceration, recorded examination of carcass and viscera, collection of abdominal fat pad portion attached to the viscera (viscera was discarded), and finally lung and kidney extraction (these tissues were also discarded). After evisceration, the fat pad and resulting market dressed carcass was weighed. The carcass was then placed in an ice bath to chill to approximately 4.4°C internal muscle temperature.

Once carcasses reached the appropriate internal muscle temperature (termed “chilled carcass”), they were again weighed. Carcasses were removed from the ice bath in small batches (to ensure the tissues remained chilled) and weighed. After recording the chilled carcass weight, the

carcasses were individually dissected by cutting away the following tissue samples: legs (bone in, skin on), thighs (bone in, skin on), wings (bone in, skin on), breast (bone out, skin off), skin (taken off the breast), and remaining carcass. The remaining carcass, separate of the dissected tissues, was indicated as the remaining "carcass", and is listed as such on the tissue weight data sheets. All tissue samples, fat pads, and remaining carcasses were weighed promptly after dissection.

After weighing, all carcasses and tissue samples were placed in biohazard bags and stored frozen. All bio-waste, was stored frozen to await incineration by Stericycle, Haw River, North Carolina, 27258, USA. Processed tissues and carcasses were retained until finalization of the study report. The incineration certificate will be archived with the raw data.

Tissue and chilled carcass weights as recorded included weight of water absorbed during chilling. Therefore, a water uptake ratio was calculated as:

$$\frac{(\text{"chilled" carcass weight} - \text{market dressed carcass weight})}{(\text{market dressed carcass weight})} = \text{water uptake ratio}$$

2.11 Statistical Methods

All statistical analyses were carried out separately for males and females. The analyses were conducted in two parts with Part A pertaining to the comparison between the non-transgenic near-isoline counterpart soybean variety (Group A) and the transgenic soybean variety (Group C) and Part B pertaining to the comparison between the non-transgenic near-isoline counterpart soybean (Group A) and the non-transgenic commercial soybean Group (Group D) (EFSA, 2008).

2.11.1 Part A: Comparison between the non-transgenic near-isoline counterpart toasted soybean seedmeal variety (Group A) and the transgenic toasted soybean seedmeal variety (Group C)

2.11.1.1 Mortality analysis

Mortality data was analyzed using the Fisher's exact test (1-sided) for the non-transgenic counterpart Group versus the transgenic Group comparison.

2.11.1.2 Analysis of body weight, feed consumption, feed conversion and tissue weight parameters

Feed consumption and body weight mean values and standard deviations were calculated for each treatment Group at each time period. Kolmogorov-Smirnov one-sample test was used to test data sets for normal distribution. If data failed the normality test, non-parametric Mann-Whitney, or comparable test, was evoked. F-tests were performed to compare the homogeneity of Group variances. If the F test was not significant ($p>0.05$), the mean of the transgenic Group was compared to the mean of the non-transgenic, non-GM counterpart Group using the t-test (2-sided). If the F test was significant ($p\leq0.05$), the mean of the transgenic Group was compared to the mean of the non-transgenic, non-GM counterpart Group using the modified t-test (2-sided). If one or more Group variance(s) equated 0, means were compared using the non parametric Mann-Whitney test (2-sided).

2.11.2 Part B: Comparison between the non-transgenic near-isoline counterpart toasted soybean seedmeal variety (Group A) and the non-transgenic commercial toasted soybean seedmeal variety (Group D)

2.11.2.1 Mortality analysis

Mortality data was analyzed using Fisher's exact test (1-sided) for the non-transgenic, non-GM counterpart Group versus the non-transgenic commercial Group comparison.

2.11.2.2 Analysis of body weight, feed consumption, feed conversion ratio and tissue weight parameters

Feed consumption and body weight mean values and standard deviations were calculated for each Group at each time period. Kolmogorov-Smirnov one-sample test was used to test data sets for normal distribution. If data failed the normality test, non-parametric Mann-Whitney, or comparable test, was evoked. The F test was performed to compare the homogeneity of Group variances. If the F test was not significant ($p>0.05$), the mean of the non-transgenic commercial Group was compared to the mean of the non-transgenic, non-GM Group using the t-test (2-sided). If the F test was significant ($p\leq0.05$), mean of the non-transgenic commercial Group was compared to the mean of the non-transgenic counterpart Group using the modified t-test (2-sided). If one or more Group variance(s) equated 0, means were compared using the non parametric Mann-Whitney test (2-sided).

Group means were compared with alpha = 0.05. Tests for normal distribution were conducted in SYSTAT (version 9) (SPSS, 2000). F-tests and t-tests were conducted in EXCEL and Fisher's exact tests were conducted using EXACTOID online statistical system (EXACTOID, 2009).

3.0 RESULTS

3.1 Evaluation of Test Conditions

Continuous brooder and room temperature monitoring established that appropriate temperatures were maintained during the exposure period. Brooder temperatures ranged from approximately 20 to 35°C (range gradually decreasing over time). Over the course of the study, room temperatures ranged from 20 to 33°C (range gradually decreasing over time). Relative humidity ranged from 40 to 79%. Illumination averaged 12.4 footcandles (133 lux). All test conditions were considered to be appropriate.

3.2 In-life Results

3.2.1 Clinical Observations

A total of 77 birds [23 in Group A (non-GM), 22 in Group C (GM), and 32 in Group D (non-GM)] exhibited clinical symptoms during the feeding study. Of those that exhibited abnormal conditions or behaviors, 23 died prior to study termination [6 in Group A (non-GM), 8 in Group C (GM), and 9 in Group D (commercial)]. Common abnormal conditions listed in order of frequency of observation include: splayed legs, myasthenia, and lethargy. These observations have been observed in previous studies involving this strain of chickens when the chickens are maintained under the feeding and light regimes employed in this study (*ad libitum* feeding except during 3 overnight fasting periods), and are not considered treatment-related. These symptoms generally contributed to impaired or reduced ambulation as noted in 10 birds. Eight birds were noted as having reduced growth compared to their cage mates. Such birds are typically termed "poor developers" and the classification is more commonly associated with less productive individuals rather than a reflection upon the colony, Group condition, or treatment experienced by the Group. There was no apparent pattern in these occurrences relative to treatment Group and therefore they are not considered treatment-related. Detailed observations are presented in Appendix 6.

3.2.2 In-Life Mortality

A total of 45 fatalities (11% mortality within the test system) occurred during the study (Table 1), among which 30 birds were males and 15 birds were females. Statistical analysis (Section 3.3.1.1 and Section 3.3.2.1) indicated mortality was not significantly different among treatment Groups.

The most common findings noted during post-mortem examinations were swollen kidneys (17 of 45 fatalities), splayed legs (16 of 45 fatalities), enlarged or misshapen heart (14 of 45 fatalities), ascites (12 of 45 fatalities), and enlarged gall bladder (11 of 45 fatalities). Other infrequent findings included: emaciation; reduction in size of the intestines, liver, spleen or cardiac ventricles; enlarged liver, spleen, gizzard, or proventriculus; discolored liver or kidneys;

distended ureters, and hemorrhaging in the lungs. All other findings were only observed in one or two individuals and vary considerably in description. The findings noted were found in various individuals within different Groups, with no relation to treatment. Eight birds had no abnormal gross post-mortem findings.

A summary of all in-life fatality post-mortem notations is presented in Appendix 7.

3.2.3 Body Weights

Average body weight values are presented by Group and by gender in Table 2. At test initiation, mean body weight in Groups A (non-GM), C (GM) and D (commercial) were 33.2, 33.4, and 33.8 g, respectively. At study termination, the mean body weight of Groups A (non-GM), C (GM) and D (commercial) were 2724.6, 2760.4 and 2726.5, respectively. Mean weight gain values are presented by Group in Table 3. Mean body weight gain averaged 2691.5, 2726.9 and 2692.6 g for Groups A (non-GM), C (GM) and D (commercial), respectively. Mean body weight gain values were calculated by cage and used to calculate feed conversion values presented in this report. There were no statistical differences in male or female body weight by period or total body weight gain among treatment Groups. Statistical analyses were performed on these data and the results are discussed in Section 3.3.1.2 and Section 3.3.2.2.

3.2.4 Feed Consumption and Feed Conversion

Average total feed consumption per bird during week 1 averaged 141.8 g in Group A (non-GM), 141.2 g in Group C (GM), and 135.7 g in Group D (commercial). Average total feed consumption per bird during week 6 averaged 1364.8 in Group A (non-GM), 1439.6 in Group C (GM), and 1368.0 in Group D (commercial). Average total feed consumption over the entire 42-day study ranged from 4705.7 g (Group D, commercial) to 4797.8 g per bird (Group C, GM). Feed to body weight conversion ratios averaged 1.75, 1.76, and 1.75 in Groups A (non-GM), C (GM), and D (commercial), respectively. Average feed consumption and weight conversion ratios are presented in Table 3. Results of the statistical analyses performed on feed consumption data are discussed in Section 3.3.1.3 and Section 3.3.2.3. Results of the statistical

analyses performed on feed conversion ratios are presented in Section 3.3.1.4 and Section 3.3.2.4. Statistical analyses indicated there was a transient difference in feed consumption between Group A (non-GM) and C (GM) males during week 5 where Group A (non-GM) consumed less feed than Group C (GM). Among females, there were significant differences in mean feed consumption between Group A (non-GM) and Group D (commercial) during weeks 1 and 4, and a significant difference in total feed consumption between Group A (non-GM) females and Group D (commercial) females. In all three instances, Group A (non-GM) females consumed more feed than Group D (commercial) females. Detailed feed measurements collected during this study are presented in Appendix 8.

There were no statistical differences in either male or female feed conversion ratios among treatment Groups.

3.2.5 Post-Mortem Examinations at Test Termination

A subset of 126 birds was examined during processing procedures at study termination. Only one abnormal finding was noted during these examinations. One male in Group A had ascites with associated swollen viscera. All other birds examined during processing were within normal limits.

3.2.6 Carcass and Organ Weights

Tabulated data for carcass and tissue weights taken at study termination are presented in Table 4. Group averages for market dressed carcass weights ranged from 2009.6 g (Group A, non-GM) to 2090.2 g (Group D, commercial). The range for mean chilled carcass weights was 2071.9 g (Group A, non-GM) to 2143.8 g (Group D, commercial). Average abdominal fat pad weights ranged from 53.1 g (Group A, non-GM) to 54.2 g (Group D, commercial). Average leg (skin on, bone in) weights ranged from 266.3 g (Group A, non-GM) to 274.2 g (Group D, commercial). Average thigh (skin on, bone in) weights ranged from 309.2 g (Group A, non-GM) to 315.0 g (Group D, commercial). Average wing (skin on, bone in) weights ranged from 213.8 g (Group A, non-GM) to 220.7 g (Group C, GM). Average breast (skin off, bone out) weights ranged

from 527.5 g (Group A, non-GM) to 577.0 g (Group D, commercial). Average remaining carcass (left after other tissues removed) weights ranged from 665.9 g (Group A, non-GM) to 700.8 g (Group C, GM). Statistical analyses were performed on these variables and the results are discussed in Section 3.3.1.5 and Section 3.3.2.5. There were no statistically significant mean differences in any of the tissue weight parameters among treatment Groups that were attributable to the presence of FG72 soybean in the diet.

3.3 Statistical Analyses

Appendix 9 presents statistical output generated from the data analyses described below.

3.3.1 Part A: Comparison between the non-transgenic, non-GM counterpart toasted soybean seedmeal and the FG72 transgenic toasted soybean seedmeal.

3.3.1.1 Mortality

Males	**Group A** **Non-transgenic non-GM** soybean	**Group C** **Transgenic** FG72 soybeans
Crude Rates[1]	4/70	6/70
Fisher's Exact Test (1-sided)	P = 0.744 NS[2]	

[1] Crude rates = count of number of deaths over the total number of chickens per Group
[2] NS = Not statistically significant with Alpha = 0.05

Females	**Group A** **Non-transgenic non-GM** soybean	**Group C** **Transgenic** FG72 soybeans
Crude Rates[1]	4/70	5/70
Fisher's Exact Test (1-sided)	P = 1.00 NS[2]	

[1] Crude rates = count of number of deaths over the total number of chickens per Group
[2] NS = Not statistically significant with Alpha = 0.05

Mortality was not significantly different between males or females of Group A versus Group C.

3.3.1.2 Body Weight

Males		Group A Non-transgenic non-GM soybean	Group C Transgenic FG72 soybeans	Calculated T statistic	P
BW Day 0	N	69	70	0.4686	0.640
	Mean	32.9	33.1		
	SD	2.69	2.79		
BW Day 7	N	68	69	1.1898	0.236
	Mean	157.6	161.5		
	SD	19.90	18.10		
BW Day 21	N	67	68	0.3943	0.694
	Mean	895.9	887.9		
	SD	113.52	122.55		
BW Day 35	N	65	67	0.3455	0.730
	Mean	2267.9	2287.3		
	SD	314.09	330.95		
BW Day 42	N	61	63	-0.9687	0.335
	Mean	2851.1	2930.1		
	SD	563.28	445.65		
BW Gain	N	61	63	0.9654	0.336
	Mean	2818.3	2896.9		
	SD	462.01	445.07		
Females		**Group A Non-transgenic non-GM soybean**	**Group C Transgenic FG72 soybeans**	**Calculated T statistic**	**P**
BW Day 0	N	70	70	0.4678	0.641
	Mean	33.5	33.7		
	SD	3.01	2.83		
BW Day 7	N	69	68	1.7422	0.084
	Mean	163.8	158.8		
	SD	15.34	18.37		
BW Day 21	N	69	65	0.2231	0.824
	Mean	859.7	856.0		
	SD	86.35	65.87		
BW Day 35	N	68	65	0.7746	0.440
	Mean	2055.1	2032.9		
	SD	183.69	133.67		
BW Day 42	N	66	65	0.5450	0.587
	Mean	2613.6	2596.0		
	SD	176.02	168.72		
BW Gain	N	66	66	0.6042	0.547
	Mean	2580.2	2562.1		
	SD	174.91	167.72		

* = Statistically significant

There were no statistically significant differences in male or female body weights during any of the measurement periods, nor in total weight gain between Groups A and C.

3.3.1.3 Feed Consumption: Weekly feed consumption (g/bird/day) and total feed consumption (g/bird)

Males		Group A Non-transgenic non-GM soybean	Group C Transgenic FG72 soybeans	Calculated T statistic	P
Week 1	N	7	7	1.6080	0.134
	Mean	19.0	20.1		
	SD	1.03	1.50		
Week 2	N	7	7	0.8771	0.398
	Mean	56.4	58.0		
	SD	3.36	3.40		
Week 3	N	7	7	0.5312	0.605
	Mean	100.1	98.5		
	SD	5.86	5.61		
Week 4	N	7	7	0.0829	0.935
	Mean	165.1	164.6		
	SD	11.32	11.24		
Week 5	N	7	7	-2.4102	0.033*
	Mean	185.3	200.8		
	SD	12.7	11.29		
Week 6	N	7	7	1.6836	0.127
	Mean	195.2	214.3		
	SD	27.06	12.84		
Total Feed	N	7	7	1.0918	0.296
	Mean	4220.7	4358.0		
	SD	279.02	181.24		

* = Statistically significant difference

Females		**Group A Non-transgenic non-GM** soybean	**Group C Transgenic** FG72 soybeans	**Calculated T statistic**	**P**
Week 1	N	7	7	1.9094	0.098
	Mean	21.5	20.2		
	SD	0.40	1.91		
Week 2	N	7	7	0.6780	0.511
	Mean	58.3	57.0		
	SD	4.42	2.48		
Week 3	N	7	7	1.4258	0.179
	Mean	97.3	92.3		
	SD	7.28	5.76		
Week 4	N	7	7	0.4385	0.669
	Mean	150.7	149.7		
	SD	4.46	4.06		
Week 5	N	7	7	0.7119	0.490
	Mean	175.9	172.7		
	SD	10.64	5.19		
Week 6	N	7	7	0.1488	0.884
	Mean	194.3	195.3		
	SD	16.25	8.93		
Total Feed	N	7	7	1.2291	0.243
	Mean	4137.5	4054.8		
	SD	140.61	109.17		

Mean male feed consumption was significantly different between Groups A and C during week 5 only. During this period Group C (FG72 soybean) consumption was greater than that of Group A (non-GM soybean) indicating that this difference was not an adverse effect related to the transgenic soybean. This difference was also transient, occurring only in week 5, but not at any other time during the study, suggesting the difference was a statistical anomaly with no biological consequence. There were no statistically significant differences in feed consumption during weeks 1 through 6 between females in Groups A and C. There were no significant differences in male or female total feed consumption between Groups A and C.

3.3.1.4 Feed Conversion Ratio Analysis (conversion per cage)

Males		Group A Non-transgenic non-GM soybean	Group C Transgenic FG72 soybeans	Calculated T statistic	P
Feed Conversion	N	7	7	1.4660	0.168
	Mean	1.766	1.690		
	SD	0.092	0.102		
Females		**Group A Non-transgenic non-GM soybean**	**Group C Transgenic FG72 soybeans**	**Calculated T statistic**	**P**
Feed Conversion	N	7	7	0.7707	0.456
	Mean	1.603	1.583		
	SD	0.059	0.035		

There were no statistically significant differences in male or female feed conversion ratios between Group A and Group C.

3.3.1.5 Tissue Weight Parameters

Males		Group A Non-transgenic non-GM soybean	Group C Transgenic FG72 soybeans	Calculated T statistic	P (2-tailed)
Chilled Carcass wt.	N	20 [a]	21	-1.5486	0.131
	Mean	2198.0	2309.7		
	SD	275.4	171.7		
Fat Pad Weight	N	20	21	0.5418	0.591
	Mean	52.0	49.2		
	SD	19.19	13.67		
Leg Weight	N	20	21	1.2190	0.233
	Mean	291.7	304.5		
	SD	41.27	22.8		
Thigh Weight	N	20	21	0.7870	0. 437
	Mean	331.5	343.4		
	SD	55.56	39.05		
Wing Weight	N	20	21	1.5325	0.137
	Mean	231.3	240.6		
	SD	24.49	12.25		

Males		Group A Non-transgenic non-GM soybean	Group C Transgenic FG72 soybeans	Calculated T statistic	P (2-tailed)
Breast Weight	N	20	21	-1.4541	0.154
	Mean	544.1	576.0		
	SD	75.79	64.09		

[a] Bird number 411 from cage 23 was determined to be a female via internal gender determination during post-mortem examination. It had been identified as a male at time 0 via external characteristics. It was not included in this evaluation.

Females		Group A Non-transgenic non-GM soybeans	Group C Transgenic FG72 soybeans	Calculated T statistic	P
Chilled Carcass wt.	N	21	21	1.0366	0.308
	Mean	1970.6	1935.6		
	SD	133.48	78.05		
Fat Pad Weight	N	21	21	0.6740	0.504
	Mean	54.9	57.6		
	SD	12.70	13.12		
Leg Weight	N	21	21	1.2836	0.209
	Mean	244.8	238.0		
	SD	21.40	11.90		
Thigh Weight	N	21	21	0.3971	0.693
	Mean	290.1	286.5		
	SD	26.80	31.39		
Wing Weight	N	21	21	0.4648	0.645
	Mean	198.5	200.8		
	SD	16.68	15.22		
Breast Weight	N	21	21	0.6268	0.535
	Mean	518.7	509.9		
	SD	54.36	34.61		

There were no statistically significant difference in male or female processed body tissues between Group A and Group C.

3.3.2 Part B: Comparison between the non-transgenic, non-GM counterpart toasted soybean seed meal and the non-transgenic commercial toasted soybean seed meal.

3.3.2.1 Mortality

Males	Group A non-GM FG72 soybeans	Group D commercial soybeans
Crude Rates[1]	8/70	15/70
Fisher's Exact Test (1-sided)	P = 0.170 NS[2]	

[1] Crude rates = count of number of deaths over the total number of chickens per Group
[2] NS = Not statistically significant with alpha = 0.05

Females	Group A non-GM FG72 soybeans	Group D commercial soybeans
Crude Rates[1]	4/70	6/70
Fisher's Exact Test (1-sided)	P = 0.745 NS[2]	

[1] Crude rates = count of number of deaths over the total number of chickens per Group
[2] NS = Not statistically significant with Alpha = 0.05

There were no significant differences in mortality between males or females of Group A versus Group D.

3.3.2.2 Body Weight

Males		Group A non-GM FG72 soybeans	Group D commercial soybeans	Calculated T statistic	P
BW Day 0	N	69[a]	70	1.3074	0.193
	Mean	32.9	33.5		
	SD	2.69	2.74		
BW Day 7	N	68	66	1.3996	0.164
	Mean	157.6	162.3		
	SD	19.90	19.11		
BW Day 21	N	67	63	2.8335	0.005*
	Mean	895.9	948.1		
	SD	113.52	95.17		
BW Day 35	N	65	59	2.3870	0.019*
	Mean	2267.9	2382.1		
	SD	314.09	213.3		

Males		Group A non-GM FG72 soybeans	Group D commercial soybeans	Calculated T statistic	P
BW Day 42	N	61	55	0.5784	0.564
	Mean	2851.1	2912.2		
	SD	462.28	648.53		
BW Gain	N	61	55	0.5705	0.570
	Mean	2818.3	2878.5		
	SD	462.01	648.62		

* Statistically significant

[a] Bird number 411 from cage 23 was determined to be a female via internal gender determination during post-mortem examination. It had been identified as a male at time 0 via external characteristics. It was not included in this evaluation.

Females		Group A non-GM FG72 soybeans	Group D commercial soybeans	Calculated T statistic	P
BW Day 0	N	70	70	1.3437	0.181
	Mean	33.5	34.1		
	SD	3.01	6.06		
BW Day 7	N	69	68	0.8365	0.404
	Mean	163.8	161.6		
	SD	15.34	15.29		
BW Day 21	N	69	67	0.2976	0.766
	Mean	859.7	863.9		
	SD	86.35	81.11		
BW Day 35	N	68	65	0.3086	0.758
	Mean	2055.1	2046.6		
	SD	183.69	131.66		
BW Day 42	N	66	64	1.3114	0.192
	Mean	2613.6	2567.0		
	SD	176.02	225.97		
BW Gain	N	66	64	1.3335	0.184
	Mean	2580.2	2532.9		
	SD	174.90	225.79		

Mean 21-day and 35-day body weights of males in Group D (commercial variety soybeans) was significantly greater than mean body weight of males in Group A (non-GM counterpart soybeans) for the same periods. However, these differences were transient as the mean body weight of these two Groups were not significantly different before day 21 or after day 35, and total weight gain over the study duration was not significantly different between the two Groups.

Additionally, Group A male body weights did not differ from Group C male body weights at any time during the study, leading to the conclusion that the transient differences in body weights between males in Groups A and D were not related to the FG72 transgenic soybeans. There were no mean differences in female body weights between Group A and Group D at any time during the study and total weight gain did not differ between females of these two Groups.

3.3.2.3 Feed Consumption: Weekly feed consumption (g/bird/day) and total consumption (g/bird)

Males		Group A non-GM FG72 soybeans	Group D commercial soybeans	Calculated T statistic	P
Week 1	N	7	7	0.2874	0.779
	Mean	19.0	18.9		
	SD	1.01	1.38		
Week 2	N	7	7	0.4534	0.658
	Mean	56.4	57.1		
	SD	3.36	2.17		
Week 3	N	7	7	0.6785	0.510
	Mean	100.1	102.0		
	SD	5.86	4.07		
Week 4	N	7	7	-0.3925	0.702
	Mean	165.1	167.0		
	SD	11.32	5.99		
Week 5	N	7	7	-1.6805	0.119
	Mean	185.3	195.1		
	SD	12.74	8.79		
Week 6	N	7	7	0.6923	0.502
	Mean	195.2	206.2		
	SD	27.06	31.89		
Total Feed	N	7	7	-0.4069	0.691
	Mean	4220.7	4275.9		
	SD	279.02	225.77		

Mean male feed consumption of Group A vs. Group D was not significantly different during any measurement period.

Females		Group A non-GM FG72 soybeans	Group D commercial soybeans	Calculated T statistic	P
Week 1	N	7	7	2.6664	0.032*
	Mean	21.5	19.9		
	SD	0.40	1.49		
Week 2	N	7	7	1.4279	0.179
	Mean	58.3	55.5		
	SD	4.42	2.50		
Week 3	N	7	7	1.4258	0.179
	Mean	97.3	92.3		
	SD	7.28	5.76		
Week 4	N	7	7	2.6822	0.020*
	Mean	150.7	143.8		
	SD	4.46	5.12		
Week 5	N	7	7	0.5708	0.579
	Mean	175.9	173.0		
	SD	10.64	8.32		
Week 6	N	7	7	1.1809	0.261
	Mean	194.3	184.7		
	SD	16.25	14.19		
Total Feed	N	7	7	3.0059	0.011*
	Mean	4137.5	3928.8		
	SD	140.61	118.21		

Females in Group A and D demonstrated statistically significant differences in mean feed consumption during weeks 1 and 4 and in mean total feed consumption. In all three cases, Group A consumed more feed than Group D. However, Group A female feed consumption was not significantly different from Group C (transgenic soybean) feed consumption during any week of the study, so Group C feed consumption, therefore, is not less than Group D feed consumption during weeks 1 and 4 or overall, indicating that any significant differences in female feed consumption between Groups C and D could only involve Group C consuming more feed than Group D, which is not an adverse effect of the transgenic cottonseed.

3.3.2.4 Feed Conversion Ratio Analysis (conversion per cage)

Males		Group A non-GM FG72 soybeans	Group D commercial soybeans	Calculated T statistic	P
Feed Conversion	N	7	7	0.4991	0.627
	Mean	1.505	1.479		
	SD	0.065	0.122		

Females		Group A non-GM FG72 soybeans	Group D commercial soybeans	Calculated T statistic	P
Feed Conversion	N	7	7	1.6411	0.127
	Mean	1.603	1.551		
	SD	0.06	0.06		

There were no statistically significant differences in mean male or female feed conversion ratio between Group A and Group C or between Group A and Group D.

3.3.2.5 Tissue Weight Parameters

Males		Group A non-GM FG72 soybeans	Group D commercial soybeans	Calculated T statistic	P (2-tailed)
Chilled Carcass wt.	N	20	21	-1.2465	0.222
	Mean	2198.0	2286.6		
	SD	275.49	162.27		
Fat Pad Weight	N	20	21	0.1509	0.881
	Mean	52.0	51.2		
	SD	19.19	13.81		
Leg Weight	N	20	21	-0.6284	0.534
	Mean	291.7	298.4		
	SD	41.27	25.10		
Thigh Weight	N	20	21	-0.7323	0.469
	Mean	331.5	342.3		
	SD	55.56	36.68		
Wing Weight	N	20	21	-0.5866	0.562
	Mean	231.3	235.1		
	SD	24.49	15.51		
Breast Weight	N	20	21	-2.8696	0.007*
	Mean	544.1	604.90		
	SD	75.95	59.06		

* = Statistically significant with alpha = 0.05

Females		Group A non-GM FG72 soybeans	Group D commercial soybeans	Calculated T statistic	P
Chilled Carcass wt.	N	21	21	-0.8356	0.408
	Mean	1970.5	2000.9		
	SD	133.48	99.79		
Fat Pad Weight	N	21	21	0.6340	0.530
	Mean	54.91	57.21		
	SD	12.70	10.68		
Leg Weight	N	21	21	-0.8856	0.381
	Mean	244.8	250.0		
	SD	21.40	16.21		
Thigh Weight	N	21	21	0.2693	0.789
	Mean	290.1	287.7		
	SD	26.80	30.92		
Wing Weight	N	21	21	1.3165	0.195
	Mean	198.5	205.5		
	SD	16.68	18.12		
Breast Weight	N	21	21	2.1354	0.040*
	Mean	518.7	549.2		
	SD	54.36	36.49		

* = Statistically significant with alpha = 0.05

Mean male and female breast weights of Group A were significantly lower than the mean breast weight of Group D. However, the mean male breast weight of Group C (FG72 soybean) was not significantly different (t = -1.5220, P = 0.136) from the mean breast weight of Group D (commercial variety soybean) indicating the difference was not related to the FG72 soybean. Conversely, the mean female breast weight of Group C was significantly lower (t = -3.5831, P = 0.001) than the mean female breast weight of Group D, suggesting that this difference could be related to the FG72 soybean. However, we further considered the following two related factors: 1) the mean final live weight of the entire population of Group A (non-GM counterpart) and Group C (FG72 soybean) females were not statistically different from the mean final live weight of the total population of Group D females; and 2) the mean total weight gain of females in the full population of Group A and Group C were not statistically different from Group D full population female mean total weight gain. This difference in breast weight between the subset of 21 female birds processed for tissue weights in both Group A and C compared to Group D was incidental. An analysis of covariance (ANCOVA) confirmed this conclusion with treatment Group as the independent variable, breast weight as the dependent variable and the final live body weight of the 21-bird subsets selected from Groups A, C and D as the covariate. The

ANCOVA found no significant difference ($F = 2.061$, $P = 0.136$) in female breast weight between Groups A, C and D. However, the covariate (final live weight) was statistically significant ($F = 34.382$, $P < 0.001$). This supports the conclusion that the randomization procedure resulted in mean bird weights in the processed subsets that did not represent the mean weights of the overall populations from which they were drawn. This was further evaluated by conducting a T-test for mean difference in final body weight of the full population of Group D females and the final live body weight of the 21-bird subset of Group D. The 21-bird subset mean final live weight was significantly ($T = -3.4277$, $P = 0.001$) greater than that of its parent population by 130.6 g. Thus, the mean breast weight of the Group D processed females was greater than that of the Group A and Group C processed females because the mean weight of the Group D female subpopulation was greater than the mean weight of the parent population from which it was drawn. This was a random chance occurrence. The statistical difference in mean female breast weight among Groups was not an FG72 treatment effect.

4.0 CONCLUSIONS

Following 42 days of daily exposure to feed containing FG72 toasted soybean seedmeal (dietary content of approximately 20%), there were no adverse effects detected in feed consumption, feed conversion ratio, survival, body weight gain, or in weight of chilled carcass, legs, thighs, wings or breasts of ROSS#308 Broiler Chickens fed diets containing the genetically modified FG72 Soybean and two control Groups consisting of a non-transgenic commercial variety and a non-transgenic counterpart. The growth and health of chickens on a diet containing FG72 toasted soybean seedmeal were comparable to chickens on two control diets, including a commercial variety of toasted soybean seedmeal and a non-transgenic, non-GM counterpart to the FG72 toasted soybean seedmeal.

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ABBREVIATIONS

%	Percent	min/max	Minimum/maximum
Adj.	adjusted	Min.	Minimum
ANOVA	Analysis of variance	N	Number of animals
ASTM	American Society for Tests and Measures	NA	Not Applicable
BW	Body weight	NS	Not statistically significant
ºC	Degree Celsius	MY	myasthenia
CFR	Code of Federal Regulations	NANCo	North American Nutrition Companies
CRC	Carolina Research Center	OECD	Organization for Economic Co-operation and Development
Dep.	dependent	P	piloerect
df	Degrees of freedom	PCB	Polychlorinated biphenyls
DNA	Deoxyribonucleic acid	PVC	Polyvinyl chloride
DVM	Doctor of Veterinarian Medicine	QAU	Quality Assurance Unit
EFSA	European Food Safety Authority	RH	Relative humidity
F	Female (where gender is being specified)	SD	Standard deviation
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act	SL	Splayed legs
ft	feet	SOP	Standard Operating Procedure
g	Gram	*SPSS*	Statistical Package for the Social Sciences.
GLP	Good Laboratory Practices	SSL	Springborn Smithers Laboratories
GMP	Good Manufacturing Practices	stat.	Statistic
kg	Kilogram	USA	United States of America
L	lethargic	U.S. EPA	United States Environmental Protection Agency
M	Male (where gender is being specified)	Var.	variable
MAFF	Ministry of Agriculture, Forestry, and Fisheries	WNL or wnl	Within Normal Limits
Max.	Maximum	Wt.	Weight

TABLES

Table 1. In-life Mortality.

Mortality Record					
Group	**External Gender**	**Date**	**Study Day**	**Cage#**	**Primary ID#**
A	F	5/20/2009	5	39	356
A	F	6/19/2009	35	18	323
A	F	6/21/2009	37	29	332
A	F	6/22/2009	38	14	314
A	M	5/19/2009	4	8	384
A	M	5/27/2009	12	23	415
A	M	6/14/2009	30	23	412
A	M	6/17/2009	33	4	376
A	M	6/21/2009	37	4	371
A	M	6/22/2009	38	23	418
A	M	6/23/2009	39	21	406
A	M	6/23/2009	39	4	379
C	F	5/17/2009	2	1	9
C	F	5/17/2009	2	42	67
C	F	5/25/2009	10	17	29
C	F	5/26/2009	11	36	56
C	F	6/5/2009	21	42	69
C	M	5/20/2009	5	13	101
C	M	6/3/2009	19	20	122
C	M	6/11/2009	27	13	105
C	M	6/19/2009	35	28	139
C	M	6/24/2009	40	16	112
C	M	6/24/2009	40	20	128
C	M	6/25/2009	41	3	85
D	F	5/17/2009	2	22	163
D	F	5/17/2009	2	22	168
D	F	6/5/2009	21	35	191
D	F	6/7/2009	23	41	212
D	F	6/12/2009	28	34	181
D	F	6/24/2009	40	26	173
D	M	5/16/2009	1	5	223
D	M	5/18/2009	3	33	273
D	M	5/20/2009	5	11	255
D	M	5/20/2009	5	9	246

Mortality Record					
Group	**External Gender**	**Date**	**Study Day**	**Cage#**	**Primary ID#**
D	M	5/25/2009	10	11	260
D	M	5/28/2009	13	11	258
D	M	5/31/2009	16	37	287
D	M	6/7/2009	23	7	232
D	M	6/7/2009	23	9	244
D	M	6/14/2009	30	11	254
D	M	6/15/2009	31	9	248
D	M	6/22/2009	38	11	259
D	M	6/22/2009	38	24	267
D	M	6/22/2009	38	37	288
D	M	6/25/2009	41	5	222

Table 2. Average body weights (g) +/- standard deviations by treatment Group and gender

Commercial Non-GM Soybean

Body Weight Data – Females Group D									
Group	Cage	Gender	Tag #	1st Weighing BW (g)	2nd Weighing BW (g)	3rd Weighing BW (g)	4th Weighing BW (g)	5th Weighing BW (g)	Total Weight Gain (g)
D	Cage# 15	F	151	36.5	170.5	900.7	2109.2	2683.0	2646.5
D	Cage# 15	F	152	36.5	165.3	895.6	2034.6	2524.2	2487.7
D	Cage# 15	F	153	33.1	158.6	839.7	2029.6	2594.2	2561.1
D	Cage# 15	F	154	39.4	188.4	939.2	2091.5	2605.6	2566.2
D	Cage# 15	F	155	32.0	159.3	860.7	1992.5	2559.3	2527.3
D	Cage# 15	F	156	34.1	167.1	942.5	2245.3	2795.9	2761.8
D	Cage# 15	F	157	33.4	160.0	811.0	1956.1	2559.5	2526.1
D	Cage# 15	F	158	30.7	162.3	854.2	2006.1	2521.5	2490.8
D	Cage# 15	F	159	33.7	146.8	846.7	1952.9	2400.9	2367.2
D	Cage# 15	F	160	33.2	166.5	920.0	2189.7	2748.1	2714.9
D	Cage# 22	F	161	37.6	172.9	846.3	2077.2	2696.4	2658.8
D	Cage# 22	F	162	31.5	119.5	744.2	1819.7	2319.9	2288.4
D	Cage# 22	F	163	34.0					
D	Cage# 22	F	164	29.3	154.0	870.3	2167.6	2777.7	2748.4
D	Cage# 22	F	165	33.8	164.5	893.8	2111.1	2634.5	2600.7
D	Cage# 22	F	166	29.4	140.6	841.2	2204.5	2877.5	2848.1
D	Cage# 22	F	167	37.1	149.4	790.0	1867.0	2388.9	2351.8
D	Cage# 22	F	168	33.4					
D	Cage# 22	F	169	32.9	143.0	834.8	2174.0	2871.9	2839.0
D	Cage# 22	F	170	31.5	153.8	845.1	1973.6	2502.6	2471.1

Body Weight Data – Females Group D									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
D	Cage# 26	F	171	32.6	167.9	861.7	2006.9	2498.4	2465.8
D	Cage# 26	F	172	34.2	167.9	965.7	2226.3	2360.2	2326.0
D	Cage# 26	F	173	36.9	167.7	853.6	1756.6		
D	Cage# 26	F	174	39.0	178.4	926.8	2168.9	2790.4	2751.4
D	Cage# 26	F	175	36.0	169.0	895.1	2031.5	2456.3	2420.3
D	Cage# 26	F	176	33.4	171.6	910.2	2157.4	1674.4	1641.0
D	Cage# 26	F	177	31.8	146.6	852.2	2190.3	2767.1	2735.3
D	Cage# 26	F	178	34.1	177.1	909.6	2115.5	2689.3	2655.2
D	Cage# 26	F	179	35.2	171.3	884.6	2203.8	2856.5	2821.3
D	Cage# 26	F	180	37.2	182.3	947.1	2184.9	2734.0	2696.8
D	Cage# 34	F	181	36.4	181.2	950.1			
D	Cage# 34	F	182	37.8	160.5	814.3	2035.6	2610.4	2572.6
D	Cage# 34	F	183	31.9	157.0	888.5	2125.4	2846.7	2814.8
D	Cage# 34	F	184	29.3	140.7	804.2	2067.3	2586.1	2556.8
D	Cage# 34	F	185	33.4	158.5	833.7	1967.2	2521.4	2488.0
D	Cage# 34	F	186	35.1	118.9	661.3	1643.7	2114.1	2079.0
D	Cage# 34	F	187	34.4	169.9	913.2	2149.8	2670.7	2636.3
D	Cage# 34	F	188	32.6	142.3	752.4	1904.6	2396.3	2363.7
D	Cage# 34	F	189	33.9	165.1	833.2	1936.5	2470.9	2437.0
D	Cage# 34	F	190	30.1	148.2	861.3	2125.3	2619.7	2589.6
D	Cage# 35	F	191	30.3	145.2				
D	Cage# 35	F	192	34.2	154.5	835.8	1929.6	2417.1	2382.9
D	Cage# 35	F	193	35.4	158.5	869.9	2075.1	2631.1	2595.7
D	Cage# 35	F	194	35.6	156.2	834.6	1986.9	2555.4	2519.8

Body Weight Data – Females Group D									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
D	Cage# 35	F	195	34.7	176.2	895.1	2172.3	2641.5	2606.8
D	Cage# 35	F	196	32.6	161.6	849.8	1987.6	2517.9	2485.3
D	Cage# 35	F	197	36.8	169.7	885.2	2064.2	2675.9	2639.1
D	Cage# 35	F	198	34.4	161.1	875.1	2135.7	2681.2	2646.8
D	Cage# 35	F	199	32.8	150.3	797.4	1916.2	2428.5	2395.7
D	Cage# 35	F	200	28.6	157.9	893.1	2127.2	2694.1	2665.5
D	Cage# 38	F	201	33.2	154.9	907.3	1959.6	2466.3	2433.1
D	Cage# 38	F	202	38.7	180.2	971.9	2189.7	2748.1	2709.4
D	Cage# 38	F	203	36.0	161.7	872.4	2075.6	2705.6	2669.6
D	Cage# 38	F	204	32.9	157.4	840.4	2090.6	2671.6	2638.7
D	Cage# 38	F	205	32.6	163.2	919.3	2079.6	2625.2	2592.6
D	Cage# 38	F	206	31.2	151.6	850.7	1922.2	2409.5	2378.3
D	Cage# 38	F	207	32.9	174.6	936.5	2083.3	2664.4	2631.5
D	Cage# 38	F	208	35.5	168.4	915.7	2195.1	2803.5	2768.0
D	Cage# 38	F	209	32.4	147.3	769.5	1798.7	2289.6	2257.2
D	Cage# 38	F	210	34.1	176.7	922.4	2160.5	1751.4	1717.3
D	Cage# 41	F	211	37.6	158.8	893.6	2064.5	2661.6	2624.0
D	Cage# 41	F	212	35.9	187.8	446.3			
D	Cage# 41	F	213	35.4	182.2	926.3	2017.1	2545.6	2510.2
D	Cage# 41	F	214	35.0	168.9	865.0	1986.4	2539.3	2504.3
D	Cage# 41	F	215	35.6	165.4	871.5	2006.1	2583.7	2548.1
D	Cage# 41	F	216	36.6	175.6	950.4	2117.7	2741.0	2704.4
D	Cage# 41	F	217	35.0	176.7	877.3	1988.8	2571.1	2536.1
D	Cage# 41	F	218	31.4	121.5	805.4	1796.2	2325.4	2294.0

Body Weight Data – Females Group D									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
D	Cage# 41	F	219	35.9	143.3	745.3	1784.9	2280.7	2244.8
D	Cage# 41	F	220	38.0	197.2	1065.3	2314.9	2934.5	2896.5
Mean				**34.1**	**161.6**	**863.9**	**2046.6**	**2567.0**	**2312.8**
SD				**2.5**	**15.3**	**81.1**	**131.7**	**226.0**	**755.3**
N				**70**	**68**	**67**	**65**	**64**	**70**

Body Weight Data – Males Group D									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
D	Cage# 05	M	221	32.4	169.9	983.7	2390.6	3113.5	3081.1
D	Cage# 05	M	222	37.1	193.2	1040.7	2383.9		
D	Cage# 05	M	223	24.5					
D	Cage# 05	M	224	34.6	175.2	983.6	2483.6	3131.4	3096.8
D	Cage# 05	M	225	35.6	180.1	1019.7	2423.4	2841.5	2805.9
D	Cage# 05	M	226	31.5	156.9	980.3	2545.7	3355.5	3324.0
D	Cage# 05	M	227	34.4	173.0	951.5	2429.3	2559.0	2524.6
D	Cage# 05	M	228	35.9	178.6	1016.7	2504.6	3201.5	3165.6
D	Cage# 05	M	229	29.8	145.8	975.6	2419.7	3214.1	3184.3
D	Cage# 05	M	230	35.5	190.1	1048.6	2595.1	3412.3	3376.8
D	Cage# 07	M	231	37.8	200.9	1041.1	2522.5	3188.6	3150.8

Body Weight Data – Males Group D									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
D	Cage# 07	M	232	33.3	101.1	673.7			
D	Cage# 07	M	233	29.8	149.6	888.4	2340.5	2852.8	2823.0
D	Cage# 07	M	234	33.1	192.9	1036.5	2150.2	1617.1	1584.0
D	Cage# 07	M	235	34.5	175.2	972.4	2369.7	3001.2	2966.7
D	Cage# 07	M	236	35.9	170.3	978.9	2370.1	2995.3	2959.4
D	Cage# 07	M	237	34.5	167.3	950.7	2420.3	3152.7	3118.2
D	Cage# 07	M	238	34.1	173.9	990.4	2539.9	3190.7	3156.6
D	Cage# 07	M	239	30.2	150.9	869.3	2404.3	3194.5	3164.3
D	Cage# 07	M	240	33.7	193.3	1087.4	2675.2	3508.1	3474.4
D	Cage# 09	M	241	29.8	165.7	1002.2	2583.9	3495.8	3466.0
D	Cage# 09	M	242	35.9	170.3	960.8	2488.2	2758.0	2722.1
D	Cage# 09	M	243	36.4	187.9	1036.6	2599.3	3504.8	3468.4
D	Cage# 09	M	244	40.5	175.6	636.4			
D	Cage# 09	M	245	34.3	163.0	923.9	2358.5	3085.9	3051.6
D	Cage# 09	M	246	32.0					
D	Cage# 09	M	247	33.4	154.3	942.1	2374.0	2989.6	2956.2
D	Cage# 09	M	248	33.3	150.1	970.8			

Body Weight Data – Males Group D									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
D	Cage# 09	M	249	33.0	166.8	1053.3	2712.3	3543.6	3510.6
D	Cage# 09	M	250	31.9	157.8	1018.9	2613.6	3509.4	3477.5
D	Cage# 11	M	251	34.0	149.3	899.0	2367.6	3272.8	3238.8
D	Cage# 11	M	252	30.1	157.9	958.6	2443.6	3302.1	3272.0
D	Cage# 11	M	253	33.8	159.4	964.2	2407.7	3185.0	3151.2
D	Cage# 11	M	254	29.6	168.8	997.0			
D	Cage# 11	M	255	35.3					
D	Cage# 11	M	256	39.6	185.3	1022.5	2475.2	3285.3	3245.7
D	Cage# 11	M	257	31.9	136.5	822.6	2157.1	2882.4	2850.5
D	Cage# 11	M	258	33.8	129.7				
D	Cage# 11	M	259	32.3	178.5	1127.1	2456.5		
D	Cage# 11	M	260	33.2	158.4				
D	Cage# 24	M	261	30.8	160.1	870.1	2240.1	2922.3	2891.5
D	Cage# 24	M	262	32.5	156.4	922.5	1949.8	1444.1	1411.6
D	Cage# 24	M	263	31.6	167.0	898.1	2439.7	3197.2	3165.6
D	Cage# 24	M	264	30.8	169.9	894.9	2209.5	2824.6	2793.8
D	Cage# 24	M	265	31.3	158.7	868.6	2256.4	2968.3	2937.0

Body Weight Data – Males Group D									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
D	Cage# 24	M	266	32.4	155.4	878.2	2322.9	3014.7	2982.3
D	Cage# 24	M	267	31.1	168.6	979.2	2435.1		
D	Cage# 24	M	268	36.1	167.5	960.7	2474.6	3205.4	3169.3
D	Cage# 24	M	269	38.1	190.1	996.1	2545.2	3405.7	3367.6
D	Cage# 24	M	270	33.5	161.9	848.1	2248.7	2842.6	2809.1
D	Cage# 33	M	271	33.8	135.2	725.3	1746.1	226.0	192.2
D	Cage# 33	M	272	32.8	110.3	801.8	2343.4	3103.7	3070.9
D	Cage# 33	M	273	35.1					
D	Cage# 33	M	274	34.7	153.8	964.3	2449.1	3177.3	3142.6
D	Cage# 33	M	275	35.0	174.3	952.9	2383.6	3060.8	3025.8
D	Cage# 33	M	276	34.8	170.0	995.6	2003.8	832.9	798.1
D	Cage# 33	M	277	32.7	144.9	908.4	2354.3	3090.7	3058.0
D	Cage# 33	M	278	29.5	147.7	938.1	2372.1	3000.6	2971.1
D	Cage# 33	M	279	30.9	150.1	903.5	2321.2	2972.2	2941.3
D	Cage# 33	M	280	37.2	164.1	961.2	2354.1	3092.7	3055.5
D	Cage# 37	M	281	37.4	190.0	1132.8	2625.6	2301.8	2264.4
D	Cage# 37	M	282	31.8	146.6	886.2	2279.8	3089.3	3057.5

Body Weight Data – Males Group D									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
D	Cage# 37	M	283	32.9	137.3	761.0	1425.1	1524.5	1491.6
D	Cage# 37	M	284	37.6	179.9	1069.3	2605.2	2106.0	2068.4
D	Cage# 37	M	285	33.6	155.3	951.7	2367.9	3071.5	3037.9
D	Cage# 37	M	286	33.1	162.6	995.4	2521.5	3270.4	3237.3
D	Cage# 37	M	287	30.1	130.9				
D	Cage# 37	M	288	30.3	160.8	1012.8	2631.5		
D	Cage# 37	M	289	37.5	149.9	987.0	2401.6	3148.8	3111.3
D	Cage# 37	M	290	31.3	140.0	843.6	2227.6	2931.0	2899.7
Mean				**33.5**	**162.3**	**948.1**	**2382.1**	**2912.2**	**2254.7**
SD				**2.7**	**19.1**	**95.2**	**213.3**	**648.5**	**1333.0**
N				**70**	**66**	**63**	**59**	**55**	**70**

FG72 Soybean

Body Weight Data – Females Group C									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
C	Cage# 01	F	001	35.4	172.8	909.4	2077.0	2617.1	2581.7
C	Cage# 01	F	002	30.3	148.0	873.0	2075.1	2601.8	2571.5
C	Cage# 01	F	003	33.3	167.3	832.3	1854.6	2364.0	2330.7

Body Weight Data – Females Group C									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
C	Cage# 01	F	004	30.9	144.9	808.2	1917.2	2496.6	2465.7
C	Cage# 01	F	005	37.9	183.5	866.9	2058.6	2608.5	2570.6
C	Cage# 01	F	006	32.7	164.5	826.1	1969.4	2550.1	2517.4
C	Cage# 01	F	007	32.7	145.6	786.3	1873.6	2436.7	2404.0
C	Cage# 01	F	008	37.4	167.1	858.2	1962.6	2489.6	2452.2
C	Cage# 01	F	009	28.6					
C	Cage# 01	F	010	32.1	182.0	952.7	2067.5	2581.5	2549.4
C	Cage# 06	F	011	35.4	162.1	883.9	2113.4	2708.8	2673.4
C	Cage# 06	F	012	38.0	184.6	867.4	1978.9	2563.3	2525.3
C	Cage# 06	F	013	35.6	176.4	888.3	2029.6	2606.0	2570.4
C	Cage# 06	F	014	33.6	155.5	742.1	1707.0	2148.7	2115.1
C	Cage# 06	F	015	35.4	154.6	835.9	2069.5	2661.6	2626.2
C	Cage# 06	F	016	35.6	177.8	920.3	2128.6	2661.5	2625.9
C	Cage# 06	F	017	27.8	115.3	744.3	1799.1	2238.1	2210.3
C	Cage# 06	F	018	31.6	165.5	882.4	2074.3	2660.1	2628.5
C	Cage# 06	F	019	33.1	173.5	885.3	1987.7	2556.4	2523.3
C	Cage# 06	F	020	34.1	197.2	1039.8	2395.0	2876.7	2842.6

Body Weight Data – Females Group C

Group	Cage	Gender	Tag #	1st Weighing BW (g)	2nd Weighing BW (g)	3rd Weighing BW (g)	4th Weighing BW (g)	5th Weighing BW (g)	Total Weight Gain (g)
C	Cage# 17	F	021	37.4	152.4	845.9	2063.2	2698.9	2661.5
C	Cage# 17	F	022	34.6	154.2	769.2	1859.9	2449.3	2414.7
C	Cage# 17	F	023	32.3	132.6	778.3	1795.4	2337.1	2304.8
C	Cage# 17	F	024	34.4	169.1	881.1	2120.7	2681.4	2647.0
C	Cage# 17	F	025	35.2	170.4	901.1	2203.5	2830.6	2795.4
C	Cage# 17	F	026	35.2	166.5	875.2	2170.4	2790.6	2755.4
C	Cage# 17	F	027	29.5	137.5	837.2	2134.1	2735.9	2706.4
C	Cage# 17	F	028	32.4	127.5	715.8	1829.7	2460.6	2428.2
C	Cage# 17	F	029	34.7	113.4				
C	Cage# 17	F	030	35.5	187.6	977.1	2315.4	2924.3	2888.8
C	Cage# 27	F	031	32.5	145.6	765.7	1979.9	2558.2	2525.7
C	Cage# 27	F	032	35.7	161.6	842.4	1982.4	2534.3	2498.6
C	Cage# 27	F	033	30.0	129.0	800.1	2010.9	2586.6	2556.6
C	Cage# 27	F	034	34.3	175.0	900.4	2110.4	2564.6	2530.3
C	Cage# 27	F	035	35.3	159.1	921.2	2215.9	2862.7	2827.4
C	Cage# 27	F	036	35.9	162.7	875.6	2049.0	2033.4	1997.5
C	Cage# 27	F	037	32.6	154.0	838.9	2028.7	2604.6	2572.0

Body Weight Data – Females Group C									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
C	Cage# 27	F	038	26.6	132.0	759.8	1937.1	2533.6	2507.0
C	Cage# 27	F	039	33.5	166.8	901.2	2108.8	2664.5	2631.0
C	Cage# 27	F	040	35.4	145.9	784.7	1957.6	2604.5	2569.1
C	Cage# 30	F	041	38.3	189.5	921.7	2094.5	2588.6	2550.3
C	Cage# 30	F	042	36.4	169.1	917.7	2033.1	2541.6	2505.2
C	Cage# 30	F	043	37.6	176.1	861.8	2109.4	2693.4	2655.8
C	Cage# 30	F	044	37.1	172.6	948.8	2261.5	2852.9	2815.8
C	Cage# 30	F	045	38.1	185.1	965.6	2148.5	2649.1	2611.0
C	Cage# 30	F	046	35.3	161.6	866.1	2069.2	2690.2	2654.9
C	Cage# 30	F	047	34.2	167.0	928.9	2248.7	2841.8	2807.6
C	Cage# 30	F	048	35.0	145.9	824.3	2111.7	2667.5	2632.5
C	Cage# 30	F	049	39.1	181.1	905.6	2133.6	2712.5	2673.4
C	Cage# 30	F	050	33.2	140.1	752.4	1859.2	2381.5	2348.3
C	Cage# 36	F	051	34.8	173.9	884.3	2146.0	2748.6	2713.8
C	Cage# 36	F	052	32.5	156.6	819.1	1955.1	2540.1	2507.6
C	Cage# 36	F	053	30.0	161.6	790.4	1945.4	2556.2	2526.2
C	Cage# 36	F	054	38.0	177.1	948.6	2156.7	2734.3	2696.3

Body Weight Data – Females Group C

Group	Cage	Gender	Tag #	1st Weighing BW (g)	2nd Weighing BW (g)	3rd Weighing BW (g)	4th Weighing BW (g)	5th Weighing BW (g)	Total Weight Gain (g)
C	Cage# 36	F	055	27.5	139.6	787.4	1876.4	2515.3	2487.8
C	Cage# 36	F	056	33.4	160.9				
C	Cage# 36	F	057	35.0	157.1	861.3	2063.1	2706.6	2671.6
C	Cage# 36	F	058	31.2	171.1	926.3	2063.2	2637.5	2606.3
C	Cage# 36	F	059	35.1	155.5	872.8	2116.4	2677.6	2642.5
C	Cage# 36	F	060	31.8	155.6	813.5	1945.4	2518.2	2486.4
C	Cage# 42	F	061	33.4	161.9	861.2	1944.3	2467.9	2434.5
C	Cage# 42	F	062	33.7	139.0	864.6	2087.0	2764.8	2731.1
C	Cage# 42	F	063	34.2	153.9	886.4	2092.8	2765.4	2731.2
C	Cage# 42	F	064	35.2	164.4	875.9	2023.9	2591.6	2556.4
C	Cage# 42	F	065	34.3	143.0	832.8	2086.5	2743.4	2709.1
C	Cage# 42	F	066	30.1	151.2	862.5	1973.0	2586.6	2556.5
C	Cage# 42	F	067	33.9					
C	Cage# 42	F	068	28.9	127.9	761.4	1862.2	2427.8	2398.9
C	Cage# 42	F	069	32.5	155.6				
C	Cage# 42	F	070	27.7	117.1	725.8	1717.0	2254.8	2227.1
Mean				**33.7**	**158.7**	**856.0**	**2032.9**	**2596.0**	**2376.8**
SD				**2.8**	**18.4**	**65.9**	**133.7**	**168.7**	**692.2**

Body Weight Data – Females Group C									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
N				**70**	**68**	**65**	**65**	**65**	**70**

Body Weight Data – Males Group C									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
C	Cage# 02	M	071	30.2	145.7	719.0	1720.6	2179.2	2149.0
C	Cage# 02	M	072	31.3	152.0	779.2	1905.7	2501.4	2470.1
C	Cage# 02	M	073	31.6	164.1	857.2	2095.6	2840.8	2809.2
C	Cage# 02	M	074	33.3	182.5	978.4	2541.9	3256.9	3223.6
C	Cage# 02	M	075	33.5	154.1	856.3	2171.1	2765.5	2732.0
C	Cage# 02	M	076	35.0	169.2	970.7	2551.6	3234.5	3199.5
C	Cage# 02	M	077	27.7	149.8	882.3	2242.9	2926.2	2898.5
C	Cage# 02	M	078	33.3	152.2	842.5	2290.8	2976.8	2943.5
C	Cage# 02	M	079	32.1	178.4	1008.3	2469.7	3171.6	3139.5
C	Cage# 02	M	080	34.3	167.3	877.3	2203.4	2944.6	2910.3
C	Cage# 03	M	081	28.7	157.7	857.3	2185.8	2064.0	2035.3
C	Cage# 03	M	082	31.4	174.0	933.6	2231.6	2402.4	2371.0
C	Cage# 03	M	083	34.1	141.4	852.1	2171.2	2691.4	2657.3
C	Cage# 03	M	084	38.5	173.9	982.5	2526.8	2827.0	2788.5

Body Weight Data – Males Group C									
Group	Cage	Gender	Tag #	1st Weighing BW (g)	2nd Weighing BW (g)	3rd Weighing BW (g)	4th Weighing BW (g)	5th Weighing BW (g)	Total Weight Gain (g)
C	Cage# 03	M	085	37.4	180.9	1068.5	2260.7		
C	Cage# 03	M	086	33.8	181.7	938.7	2409.5	3073.9	3040.1
C	Cage# 03	M	087	32.3	162.0	943.2	2435.7	3063.8	3031.5
C	Cage# 03	M	088	33.9	172.2	927.7	2404.7	3111.9	3078.0
C	Cage# 03	M	089	33.5	183.7	1000.2	2329.1	2955.3	2921.8
C	Cage# 03	M	090	26.9	152.6	893.7	2302.4	2848.7	2821.8
C	Cage# 12	M	091	30.2	140.9	811.4	2122.1	2758.9	2728.7
C	Cage# 12	M	092	37.2	175.8	913.3	2454.6	3220.7	3183.5
C	Cage# 12	M	093	31.4	141.8	868.0	2357.5	3011.8	2980.4
C	Cage# 12	M	094	29.9	131.8	830.1	2313.5	3005.8	2975.9
C	Cage# 12	M	095	36.8	174.8	945.5	2514.1	3276.8	3240.0
C	Cage# 12	M	096	35.4	194.9	1013.6	2682.0	1871.5	1836.1
C	Cage# 12	M	097	37.8	177.5	983.0	2610.2	3385.1	3347.3
C	Cage# 12	M	098	33.3	171.0	944.8	2510.7	3248.3	3215.0
C	Cage# 12	M	099	37.3	181.5	969.0	2582.2	3347.9	3310.6
C	Cage# 12	M	100	34.9	166.8	881.3	2315.8	3004.0	2969.1
C	Cage# 13	M	101	30.4					

Body Weight Data – Males Group C									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
C	Cage# 13	M	102	29.9	137.7	584.9	1786.4	2080.7	2050.8
C	Cage# 13	M	103	33.3	179.7	967.4	2362.4	3139.8	3106.5
C	Cage# 13	M	104	29.4	152.0	958.7	2405.1	2658.6	2629.2
C	Cage# 13	M	105	30.5	103.4	341.4			
C	Cage# 13	M	106	34.9	160.0	895.5	2428.6	3216.7	3181.8
C	Cage# 13	M	107	35.5	159.4	895.6	2261.6	3009.9	2974.4
C	Cage# 13	M	108	32.1	165.0	1033.2	2443.6	3317.6	3285.5
C	Cage# 13	M	109	29.8	137.9	780.1	2044.1	2652.6	2622.8
C	Cage# 13	M	110	28.6	147.2	943.5	2559.1	3442.4	3413.8
C	Cage# 16	M	111	32.6	158.6	856.1	2403.2	3291.4	3258.8
C	Cage# 16	M	112	32.6	159.1	511.7	868.0		
C	Cage# 16	M	113	35.9	174.7	974.4	2424.4	2252.2	2216.3
C	Cage# 16	M	114	33.9	167.8	940.1	2421.8	3219.3	3185.4
C	Cage# 16	M	115	36.9	190.4	996.4	1924.8	1846.5	1809.6
C	Cage# 16	M	116	35.5	179.0	1015.9	2540.5	3144.3	3108.8
C	Cage# 16	M	117	33.9	168.4	909.2	2408.3	3153.3	3119.4
C	Cage# 16	M	118	35.4	163.9	951.1	2422.9	3172.0	3136.6

Body Weight Data – Males Group C									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
C	Cage# 16	M	119	33.2	169.5	929.1	2476.4	3265.3	3232.1
C	Cage# 16	M	120	40.7	184.8	978.0	2591.2	3428.8	3388.1
C	Cage# 20	M	121	34.3	173.8	1033.5	2701.4	3460.4	3426.1
C	Cage# 20	M	122	30.8	166.1				
C	Cage# 20	M	123	30.1	137.1	825.9	2241.8	2977.3	2947.2
C	Cage# 20	M	124	34.1	144.6	632.2	1737.3	1616.0	1581.9
C	Cage# 20	M	125	31.2	165.6	948.8	2525.2	3656.7	3625.5
C	Cage# 20	M	126	33.5	172.3	929.3	2443.9	3176.5	3143.0
C	Cage# 20	M	127	31.6	163.5	906.4	2356.4	3137.6	3106.0
C	Cage# 20	M	128	32.8	174.8	992.5	2429.6		
C	Cage# 20	M	129	30.7	149.8	914.4	2509.1	3251.5	3220.8
C	Cage# 20	M	130	30.6	137.7	826.8	2284.3	3104.5	3073.9
C	Cage# 28	M	131	28.7	98.9	712.9	2097.6	2830.2	2801.5
C	Cage# 28	M	132	35.0	173.0	925.3	2437.6	3209.3	3174.3
C	Cage# 28	M	133	37.4	146.0	811.1	2224.2	2845.7	2808.3
C	Cage# 28	M	134	37.2	185.2	1007.3	2667.2	3481.9	3444.7
C	Cage# 28	M	135	34.6	172.4	875.4	2371.7	3012.8	2978.2

Body Weight Data – Males Group C									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
C	Cage# 28	M	136	33.0	146.5	749.9	2121.3	2866.7	2833.7
C	Cage# 28	M	137	30.7	153.3	894.7	1943.2	1802.4	1771.7
C	Cage# 28	M	138	32.4	162.9	875.3	2272.5	2970.1	2937.7
C	Cage# 28	M	139	32.3	151.0	842.9	864.8		
C	Cage# 28	M	140	32.7	155.6	880.8	2332.5	2937.5	2904.8
Mean				**33.1**	**161.5**	**887.9**	**2287.3**	**2930.1**	**2604.0**
SD				**2.8**	**18.1**	**122.5**	**330.9**	**445.6**	**980.5**
N				**70**	**69**	**68**	**67**	**63**	**70**

Non-GM Counterpart Soybean

Body Weight Data – Females Group A									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
A	Cage# 10	F	301	35.7	172.8	833.6	1900.7	2424.7	2389.0
A	Cage# 10	F	302	34.8	168.7	935.5	2184.3	2752.0	2717.2
A	Cage# 10	F	303	29.1	158.9	877.7	2080.6	2620.8	2591.7
A	Cage# 10	F	304	29.4	151.0	852.2	1998.7	2461.4	2432.0
A	Cage# 10	F	305	35.7	157.8	769.6	1851.4	2373.5	2337.8
A	Cage# 10	F	306	33.3	169.5	957.1	2279.7	2706.8	2673.5
A	Cage# 10	F	307	38.9	170.9	824.7	1928.2	2416.6	2377.7

Body Weight Data – Females Group A									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
A	Cage# 10	F	308	28.7	148.2	829.2	1978.1	2514.6	2485.9
A	Cage# 10	F	309	38.6	180.3	964.5	2184.0	2781.1	2742.5
A	Cage# 10	F	310	36.8	166.7	866.4	2068.2	2656.4	2619.6
A	Cage# 14	F	311	33.3	162.4	812.7	1922.7	2421.5	2388.2
A	Cage# 14	F	312	39.1	196.7	1027.1	2471.2	2912.6	2873.5
A	Cage# 14	F	313	34.6	167.9	929.4	2285.3	2861.5	2826.9
A	Cage# 14	F	314	32.4	158.6	456.3	1080.9		
A	Cage# 14	F	315	34.5	174.7	971.6	2193.8	2673.2	2638.7
A	Cage# 14	F	316	33.0	175.7	844.6	1964.1	2481.6	2448.6
A	Cage# 14	F	317	37.1	170.5	879.9	2019.6	2587.7	2550.6
A	Cage# 14	F	318	27.6	160.5	885.3	2291.3	2360.0	2332.4
A	Cage# 14	F	319	32.9	169.4	881.6	2089.1	2743.3	2710.4
A	Cage# 14	F	320	34.5	184.4	951.2	2334.6	2926.7	2892.2
A	Cage# 18	F	321	31.6	131.0	781.2	1944.1	2593.2	2561.6
A	Cage# 18	F	322	39.0	184.3	1012.0	2329.0	2932.8	2893.8
A	Cage# 18	F	323	32.4	169.0	916.3			
A	Cage# 18	F	324	34.4	158.6	811.1	1976.9	2580.2	2545.8

Body Weight Data – Females Group A									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
A	Cage# 18	F	325	36.2	185.9	1000.7	2363.5	2988.6	2952.4
A	Cage# 18	F	326	33.5	157.1	830.6	1977.2	2450.7	2417.2
A	Cage# 18	F	327	32.3	160.4	920.5	2134.9	2711.7	2679.4
A	Cage# 18	F	328	31.5	143.5	860.3	1989.5	2509.1	2477.6
A	Cage# 18	F	329	32.0	146.7	839.7	2084.6	2694.1	2662.1
A	Cage# 18	F	330	28.9	113.1	691.9	1761.5	1985.4	1956.5
A	Cage# 29	F	331	37.6	169.4	825.8	1975.8	2543.1	2505.5
A	Cage# 29	F	332	39.0	200.6	1109.8	2115.9		
A	Cage# 29	F	333	35.1	169.9	868.7	2124.5	2726.7	2691.6
A	Cage# 29	F	334	32.9	175.3	943.2	2251.7	2825.4	2792.5
A	Cage# 29	F	335	31.0	166.8	837.7	2052.5	2661.7	2630.7
A	Cage# 29	F	336	33.6	148.8	803.7	1995.3	2595.0	2561.4
A	Cage# 29	F	337	33.5	154.8	854.9	2096.4	2666.8	2633.3
A	Cage# 29	F	338	37.2	190.3	953.0	2284.6	2903.4	2866.2
A	Cage# 29	F	339	28.2	141.2	830.7	2021.7	2645.4	2617.2
A	Cage# 29	F	340	27.2	142.6	816.5	1945.5	2536.0	2508.8
A	Cage# 31	F	341	33.8	164.8	904.9	2089.2	2686.9	2653.1

Body Weight Data – Females Group A									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
A	Cage# 31	F	342	36.9	174.1	885.2	2132.2	2629.5	2592.6
A	Cage# 31	F	343	33.4	164.4	862.7	1979.7	2457.7	2424.3
A	Cage# 31	F	344	31.7	148.4	798.4	1859.2	2412.6	2380.9
A	Cage# 31	F	345	34.8	174.2	936.7	2124.7	2715.0	2680.2
A	Cage# 31	F	346	35.3	173.6	927.1	2192.5	2738.5	2703.2
A	Cage# 31	F	347	34.5	169.1	778.3	1925.4	2460.8	2426.3
A	Cage# 31	F	348	28.3	134.4	833.7	2186.5	2791.7	2763.4
A	Cage# 31	F	349	33.8	171.3	921.9	2133.7	2737.7	2703.9
A	Cage# 31	F	350	35.3	154.8	791.5	1933.6	2411.4	2376.1
A	Cage# 39	F	351	32.4	148.5	775.2	1946.6	2555.7	2523.3
A	Cage# 39	F	352	37.0	136.2	797.0	2232.4	2902.9	2865.9
A	Cage# 39	F	353	33.2	163.6	810.3	2006.0	2588.1	2554.9
A	Cage# 39	F	354	34.4	165.9	851.1	2140.8	2693.5	2659.1
A	Cage# 39	F	355	33.6	162.8	825.7	2048.8	2657.5	2623.9
A	Cage# 39	F	356	37.8					
A	Cage# 39	F	357	32.2	156.2	800.5	2050.2	2676.5	2644.3
A	Cage# 39	F	358	33.4	162.3	837.1	2038.9	2439.1	2405.7

Body Weight Data – Females Group A									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
A	Cage# 39	F	359	32.4	158.3	836.8	2041.6	2644.9	2612.5
A	Cage# 39	F	360	35.2	167.1	816.8	1914.7	2462.2	2427.0
A	Cage# 40	F	361	31.4	163.0	842.8	2001.9	2534.9	2503.5
A	Cage# 40	F	362	29.9	156.6	781.6	1853.9	2376.3	2346.4
A	Cage# 40	F	363	31.1	168.1	893.1	2239.1	2806.3	2775.2
A	Cage# 40	F	364	32.0	173.3	902.4	2044.8	2450.7	2418.7
A	Cage# 40	F	365	27.3	150.9	824.7	2031.4	2582.7	2555.4
A	Cage# 40	F	366	38.1	184.9	893.1	2116.0	2688.4	2650.3
A	Cage# 40	F	367	34.9	186.6	885.5	2042.7	2543.1	2508.2
A	Cage# 40	F	368	30.3	175.5	852.5	1958.2	2476.3	2446.0
A	Cage# 40	F	369	30.9	151.5	775.7	1925.0	2454.8	2423.9
A	Cage# 40	F	370	33.6	166.6	815.2	2023.9	2699.5	2665.9
Mean				**33.5**	**163.8**	**859.7**	**2055.1**	**2613.6**	**2430.8**
SD				**3.0**	**15.3**	**86.4**	**183.7**	**176.0**	**634.6**
N				**70**	**69**	**69**	**68**	**66**	**70**

Body Weight Data – Males Group A									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
A	Cage# 04	M	371	34.4	178.7	824.7	1308.5		-34.4

Body Weight Data – Males Group A									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
A	Cage# 04	M	372	33.6	178.4	937.1	2411.6	3188.7	3155.1
A	Cage# 04	M	373	35.8	188.7	997.2	2482.1	3030.6	2994.8
A	Cage# 04	M	374	34.8	180.0	1021.5	2383.7	2582.2	2547.4
A	Cage# 04	M	375	37.4	159.4	746.6	1832.9	2304.1	2266.7
A	Cage# 04	M	376	31.4	168.1	861.6			
A	Cage# 04	M	377	26.3	127.4	825.0	2242.8	2964.9	2938.6
A	Cage# 04	M	378	31.2	158.5	933.6	2346.7	3031.1	2999.9
A	Cage# 04	M	379	33.5	182.9	957.0	2036.1		
A	Cage# 04	M	380	32.0	166.5	991.3	2437.2	2077.1	2045.1
A	Cage# 08	M	381	29.3	125.9	691.9	1538.5	1589.6	1560.3
A	Cage# 08	M	382	32.3	178.5	996.9	2413.5	3107.0	3074.7
A	Cage# 08	M	383	33.2	159.1	973.7	2604.1	3275.0	3241.8
A	Cage# 08	M	384	33.8					
A	Cage# 08	M	385	33.1	170.8	972.2	2515.2	3261.3	3228.2
A	Cage# 08	M	386	30.8	169.1	955.0	2362.9	3014.0	2983.2
A	Cage# 08	M	387	29.2	147.4	891.2	2433.5	3190.5	3161.3
A	Cage# 08	M	388	30.9	155.9	882.9	2337.4	2987.3	2956.4

Body Weight Data – Males Group A									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
A	Cage# 08	M	389	34.8	184.7	1072.7	2750.1	3572.5	3537.7
A	Cage# 08	M	390	31.0	146.7	874.2	2330.4	3016.1	2985.1
A	Cage# 19	M	391	34.7	165.8	898.7	2297.4	3088.4	3053.7
A	Cage# 19	M	392	38.0	188.5	971.7	2335.9	2982.1	2944.1
A	Cage# 19	M	393	33.2	146.6	882.2	2338.1	3061.3	3028.1
A	Cage# 19	M	394	34.4	160.3	792.4	1806.4	2287.8	2253.4
A	Cage# 19	M	395	32.8	177.4	1019.8	2578.1	3275.7	3242.9
A	Cage# 19	M	396	34.1	163.7	902.9	2237.1	2757.2	2723.1
A	Cage# 19	M	397	31.0	147.8	860.1	2214.2	2790.3	2759.3
A	Cage# 19	M	398	38.5	171.4	978.6	2540.5	3230.0	3191.5
A	Cage# 19	M	399	34.3	163.4	937.8	2413.2	2919.0	2884.7
A	Cage# 19	M	400	25.3	134.6	836.1	2271.2	2936.9	2911.6
A	Cage# 21	M	401	31.7	156.2	920.3	2406.4	3232.7	3201.0
A	Cage# 21	M	402	35.8	187.4	961.0	2348.7	3057.8	3022.0
A	Cage# 21	M	403	32.9	152.3	393.6	1155.4	1738.8	1705.9
A	Cage# 21	M	404	34.3	126.5	725.9	2183.5	2924.7	2890.4
A	Cage# 21	M	405	31.0	171.1	996.1	2419.9	3076.8	3045.8

Body Weight Data – Males Group A									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
A	Cage# 21	M	406	35.9	174.6	968.1	2379.2		
A	Cage# 21	M	407	30.0	89.2	659.3	2022.5	2686.7	2656.7
A	Cage# 21	M	408	29.4	140.9	741.8	1778.3	1424.1	1394.7
A	Cage# 21	M	409	34.7	179.9	982.1	2448.9	3226.6	3191.9
A	Cage# 21	M	410	31.5	125.0	645.3	1917.6	1688.7	1657.2
A	Cage# 23	M	411	33.7	144.3	756.9	1809.9	2337.0	2303.3
A	Cage# 23	M	412	33.1	153.7	836.6			
A	Cage# 23	M	413	33.1	118.7	826.7	2333.5	2972.1	2939.0
A	Cage# 23	M	414	29.2	163.1	984.1	2452.5	3080.7	3051.5
A	Cage# 23	M	415	36.7	175.0				
A	Cage# 23	M	416	35.8	182.5	970.7	2357.4	2955.5	2919.7
A	Cage# 23	M	417	31.4	152.4	964.5	1820.2	2367.8	2336.4
A	Cage# 23	M	418	27.0	138.6	878.9	1580.3		
A	Cage# 23	M	419	34.7	165.1	984.5	2577.5	3379.7	3345.0
A	Cage# 23	M	420	28.6	149.8	902.2	2289.0	2959.8	2931.2
A	Cage# 25	M	421	34.9	165.9	791.7	1903.4	2413.8	2378.9
A	Cage# 25	M	422	31.9	174.1	947.0	2533.2	3347.8	3315.9

Body Weight Data – Males Group A									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
A	Cage# 25	M	423	29.0	157.0	927.3	2552.1	2771.7	2742.7
A	Cage# 25	M	424	35.7	166.0	936.8	2574.5	3342.9	3307.2
A	Cage# 25	M	425	36.9	132.2	710.5	2192.5	2000.6	1963.7
A	Cage# 25	M	426	32.5	166.2	867.9	2231.6	2849.0	2816.5
A	Cage# 25	M	427	33.5	165.5	932.2	2464.6	2449.6	2416.1
A	Cage# 25	M	428	34.7	156.0	774.6	1862.7	2281.1	2246.4
A	Cage# 25	M	429	33.4	163.4	909.5	2418.9	3111.2	3077.8
A	Cage# 25	M	430	34.9	177.7	1009.1	2612.1	3144.4	3109.5
A	Cage# 32	M	431	33.7	162.5	1043.2	2619.6	3207.7	3174.0
A	Cage# 32	M	432	33.8	141.9	948.9	2432.2	3161.5	3127.7
A	Cage# 32	M	433	33.7	152.9	1027.5	2519.0	3136.0	3102.3
A	Cage# 32	M	434	29.4	116.1	822.6	2279.7	2869.5	2840.1
A	Cage# 32	M	435	29.8	131.9	877.6	2363.7	2931.8	2902.0
A	Cage# 32	M	436	31.8	148.2	950.4	2438.9	3085.2	3053.4
A	Cage# 32	M	437	35.9	163.9	934.6	2167.5	2638.7	2602.8
A	Cage# 32	M	438	32.6	135.3	863.8	2225.7	2864.2	2831.6
A	Cage# 32	M	439	32.8	135.1	924.4	2280.7	2928.3	2895.5

Body Weight Data – Males Group A									
Group	**Cage**	**Gender**	**Tag #**	**1st Weighing BW (g)**	**2nd Weighing BW (g)**	**3rd Weighing BW (g)**	**4th Weighing BW (g)**	**5th Weighing BW (g)**	**Total Weight Gain (g)**
A	Cage# 32	M	440	34.8	156.5	997.9	2468.5	3088.9	3054.1
Mean				**32.9**	**157.4**	**893.9**	**2260.9**	**2842.8**	**2485.0**
SD				**2.7**	**19.8**	**113.9**	**316.7**	**463.1**	**1009.7**
N				**70**	**69**	**68**	**66**	**62**	**70**

Table 3. Feed Consumption, body weight and feed conversion

		Mean feed consumption (Consumption per bird per week) (g)								
Group	**Cage**	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Total Consumed (g)**	**Mean Body Weight Gain (g)**	**Feed Conversion Ratio**
A	04	142.1	403.2	683.9	1087.8	956.9	1033.2	4307.1	2706.8	1.59
	08	130.9	416.5	742.0	1224.3	1105.3	1630.3	5249.3	2969.9	1.77
	10	144.2	387.1	626.5	1023.4	898.1	1267.0	4346.3	2536.7	1.71
	14	150.5	418.6	662.2	1046.5	1005.9	1283.1	4566.8	2629.1	1.74
	18	151.2	387.1	667.1	1036.7	923.3	1338.4	4503.8	2571.8	1.75
	19	142.1	403.2	697.9	1139.6	1073.8	1517.6	4974.2	2899.2	1.72
	21	125.3	343.7	620.2	1058.4	970.9	1276.1	4394.6	2529.5	1.74
	23	134.4	403.9	732.2	1103.2	985.6	1322.3	4681.6	2832.3	1.65
	25	133.7	396.2	704.9	1271.2	1082.9	1386.0	4974.9	2737.5	1.82
	29	151.9	412.3	707.0	1088.5	948.5	1439.9	4748.1	2645.2	1.79
	31	151.2	389.2	660.1	1089.9	979.3	1376.9	4646.6	2570.4	1.81
	32	124.6	398.3	725.2	1206.1	1122.1	1401.4	4977.7	2958.4	1.68
	39	150.5	471.8	784.0	1017.1	945.0	1247.4	4615.8	2590.7	1.78
	40	152.6	389.9	662.9	1080.8	1095.5	1587.6	4969.3	2529.4	1.96
Mean		**141.8**	**401.5**	**691.2**	**1105.3**	**1006.7**	**1364.8**	**4711.2**	**2691.5**	**1.75**
SD		**10.2**	**27.3**	**45.6**	**78.1**	**74.5**	**152.3**	**283.1**	**160.7**	**0.1**
C	01	128.1	398.3	632.1	996.1	941.5	1294.3	4390.4	2493.7	1.76
	02	136.5	422.8	636.3	1032.5	1008.0	1453.9	4690.0	2847.5	1.65
	03	143.5	419.3	732.2	1117.2	1197.0	1477.7	5086.9	2749.5	1.85
	06	161.7	393.4	664.3	1043.7	1004.5	1415.4	4683.0	2534.1	1.85
	12	140.0	410.2	707.0	1175.3	1103.2	1505.0	5040.7	2978.7	1.69
	13	125.3	355.6	635.6	1107.4	1168.3	1512.0	4904.2	2908.1	1.69
	16	145.6	417.9	718.9	1141.0	1127.7	1395.8	4946.9	2939.5	1.68
	17	132.3	373.8	660.1	1066.8	964.6	1430.1	4627.7	2622.5	1.76
	20	136.5	397.6	684.6	1270.5	1200.5	1642.2	5331.9	3015.6	1.77
	27	136.5	396.2	672.7	1065.4	959.0	1274.7	4504.5	2521.5	1.79
	28	159.6	419.3	711.9	1222.2	1129.1	1595.3	5237.4	2850.5	1.84
	30	151.2	413.7	679.7	1059.1	977.2	1405.6	4686.5	2625.5	1.79
	36	146.3	389.2	637.0	1025.5	938.0	1346.8	4482.8	2593.2	1.73
	42	133.0	427.7	565.6	1089.9	935.2	1404.9	4556.3	2543.1	1.79
Mean		**141.2**	**402.5**	**667.0**	**1100.9**	**1046.7**	**1439.6**	**4797.8**	**2726.9**	**1.76**
SD		**10.9**	**20.4**	**44.2**	**78.4**	**102.1**	**103.2**	**294.9**	**188.4**	**0.06**

		Mean feed consumption (Consumption per bird per week) (g)								
Group	**Cage**	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Total Consumed (g)**	**Mean Body Weight Gain (g)**	**Feed Conversion Ratio**
D	05	139.3	414.4	727.3	1175.3	1120.7	1405.6	4982.6	3069.9	1.62
	07	141.4	412.3	707.7	1241.8	1127.7	1430.1	5061.0	2933.0	1.73
	09	133.0	408.8	725.9	1190.7	1127.0	1758.4	5343.8	3236.1	1.65
	11	119.7	377.3	749.7	1141.7	1302.7	1612.8	5303.9	3151.6	1.68
	15	140.7	397.6	661.5	1039.5	975.8	1379.7	4594.8	2565.0	1.79
	22	118.3	363.3	634.2	1023.4	1001.7	1303.4	4444.3	2600.8	1.71
	24	139.3	410.2	711.2	1177.4	991.2	1318.8	4748.1	2836.4	1.67
	26	150.5	405.3	704.2	1053.5	988.4	1115.1	4417.0	2501.5	1.77
	33	117.6	383.6	716.8	1110.9	1012.9	1519.0	4860.8	2472.8	1.97
	34	136.5	389.9	663.6	966.0	1024.1	1429.4	4609.5	2504.2	1.84
	35	140.0	366.8	693.7	1001.0	954.1	1262.8	4418.4	2548.6	1.73
	37	133.7	392.0	657.3	1145.9	1031.8	1058.4	4419.1	2646.0	1.67
	38	142.1	407.4	669.9	1005.2	915.6	1279.6	4419.8	2479.6	1.78
	41	147.7	391.3	599.9	956.9	882.0	1278.9	4256.7	2540.3	1.68
Mean		**135.7**	**394.3**	**687.4**	**1087.8**	**1032.6**	**1368.0**	**4705.7**	**2692.6**	**1.75**
SD		**10.4**	**16.8**	**41.2**	**92.3**	**107.2**	**183.5**	**352.5**	**270.7**	**0.09**

Table 4. Average Carcass and Tissue weights at study termination.

Commercial Non-GM Soybean

CARCASS AND TISSUE WEIGHTS – Females Group D													
Group	Cage	Gender	Tag #	Secondary ID#	Market dressed carcass (g)	Abdominal fat pad (g)	Chilled Carcass (g)	Leg - bone in, skin on (g)	Thigh - bone in, skin on (g)	Wing - bone in, skin on (g)	Breast - bone out, skin off (g)	Skin (g)	Remaining carcass (g)
D	Cage# 15	F	151	4250	1925.7	59.5	1956.0	255.3	256.0	207.3	526.7	59.9	651.0
D	Cage# 15	F	155	4249	1861.4	46.0	1912.4	248.9	222.5	180.5	534.8	35.5	688.9
D	Cage# 15	F	156	4248	2042.1	65.0	2089.4	255.5	294.7	225.5	551.1	47.5	711.3
D	Cage# 22	F	161	4262	1944.6	47.5	1998.8	243.6	292.5	197.2	625.6	85.6	545.4
D	Cage# 22	F	164	4260	2022.0	76.6	2076.9	271.1	295.8	221.3	574.9	46.5	657.1
D	Cage# 22	F	166	4261	2082.2	65.0	2137.2	275.7	322.0	235.1	546.4	51.2	697.6
D	Cage# 26	F	177	4283	1983.7	67.7	2073.5	266.2	347.2	226.8	561.4	51.2	587.2
D	Cage# 26	F	179	4281	2119.7	47.8	2161.1	267.2	328.9	219.0	606.7	38.5	702.8
D	Cage# 26	F	180	4282	2013.0	62.5	2070.3	271.1	296.8	204.5	556.1	41.3	685.7
D	Cage# 34	F	182	4764	1908.2	71.8	1847.0	236.3	254.0	181.0	478.7	50.5	639.2
D	Cage# 34	F	185	4765	1782.3	62.7	1824.8	223.7	238.4	191.2	528.0	37.7	606.6
D	Cage# 34	F	190	4763	1916.7	59.9	1976.0	257.0	292.2	196.4	508.5	43.9	672.7
D	Cage# 35	F	193	4770	1879.7	58.1	1928.1	222.3	271.8	180.2	562.3	53.5	636.2
D	Cage# 35	F	198	4771	1879.1	69.8	1923.0	245.6	271.9	189.0	531.9	39.7	643.8
D	Cage# 35	F	200	4769	1972.1	45.6	2017.7	230.8	290.4	205.7	563.9	41.3	682.3
D	Cage# 38	F	201	4780	1773.2	58.4	1854.9	233.4	284.6	197.2	481.8	48.7	586.0

CARCASS AND TISSUE WEIGHTS – Females Group D

Group	Cage	Gender	Tag #	Secondary ID#	Market dressed carcass (g)	Abdominal fat pad (g)	Chilled Carcass (g)	Leg - bone in, skin on (g)	Thigh - bone in, skin on (g)	Wing - bone in, skin on (g)	Breast - bone out, skin off (g)	Skin (g)	Remaining carcass (g)
D	Cage# 38	F	202	4778	1963.2	36.3	2082.0	266.6	313.3	245.0	540.4	47.2	646.3
D	Cage# 38	F	204	4779	1918.2	56.5	2000.6	231.6	311.4	198.3	577.7	71.3	596.4
D	Cage# 41	F	215	4789	1883.5	49.2	1938.2	256.4	253.9	198.5	524.8	40.6	656.3
D	Cage# 41	F	216	4787	1956.8	40.5	2000.6	245.5	287.9	199.4	556.6	43.4	662.1
D	Cage# 41	F	220	4788	2063.9	55.0	2151.1	246.4	315.4	217.4	594.6	82.9	672.1
Mean					**1947.2**	**57.2**	**2000.9**	**250.0**	**287.7**	**205.5**	**549.2**	**50.4**	**648.9**
SD					**90.7**	**10.7**	**99.8**	**16.2**	**30.9**	**18.1**	**36.5**	**13.9**	**43.6**
N					**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**

CARCASS AND TISSUE WEIGHTS – Males Group D

Group	Cage	Gender	Tag #	Secondary ID#	Market dressed carcass (g)	Abdominal fat pad (g)	Chilled Carcass (g)	Leg - bone in, skin on (g)	Thigh - bone in, skin on (g)	Wing - bone in, skin on (g)	Breast - bone out, skin off (g)	Skin (g)	Remaining carcass (g)
D	Cage# 05	M	224	4194	2212.9	50.4	2255.8	293.7	364.2	229.8	602.7	58.5	702.6
D	Cage# 05	M	225	4195	2010.7	51.4	2037.3	263.2	288.3	221.3	524.0	45.9	695.4
D	Cage# 05	M	228	4196	2288.1	59.9	2339.5	318.2	363.6	233.9	579.5	46.4	788.8
D	Cage# 07	M	235	4472	2150.6	48.1	2199.3	308.2	326.3	225.0	570.7	53.3	713.6
D	Cage# 07	M	237	4471	2251.8	62.1	2308.6	281.6	365.4	219.5	639.0	74.7	718.1
D	Cage# 07	M	240	4470	2463.8	52.2	2533.0	319.6	333.7	257.5	668.9	55.4	888.7
D	Cage# 09	M	243	4239	2498.7	74.9	2544.4	336.0	363.3	259.1	717.2	60.4	805.5

CARCASS AND TISSUE WEIGHTS – Males Group D

Group	Cage	Gender	Tag #	Secondary ID#	Market dressed carcass (g)	Abdominal fat pad (g)	Chilled Carcass (g)	Leg - bone in, skin on (g)	Thigh - bone in, skin on (g)	Wing - bone in, skin on (g)	Breast - bone out, skin off (g)	Skin (g)	Remaining carcass (g)
D	Cage# 09	M	247	4241	2141.3	25.3	2203.0	327.8	339.3	228.2	539.2	54.9	697.5
D	Cage# 09	M	250	4240	2497.6	51.1	2555.3	344.9	404.6	255.8	665.1	55.6	823.8
D	Cage# 11	M	251	4468	2344.5	39.5	2396.9	287.4	334.1	228.6	682.8	47.3	803.6
D	Cage# 11	M	252	4200	2353.7	74.4	2406.3	322.2	341.6	247.9	614.5	72.5	804.0
D	Cage# 11	M	257	4469	2002.3	49.8	2042.3	290.5	287.8	213.1	515.8	48.1	686.4
D	Cage# 24	M	263	4273	2248.3	52.4	2318.6	295.7	381.5	245.5	607.7	74.7	700.6
D	Cage# 24	M	269	4274	2414.5	56.3	2464.6	329.5	397.7	268.7	581.5	71.2	809.6
D	Cage# 24	M	270	4272	2076.1	28.4	2122.7	287.7	317.2	244.7	541.1	36.6	690.8
D	Cage# 33	M	276	4296	1923.7	24.8	1982.2	249.4	272.8	231.3	498.6	47.3	677.0
D	Cage# 33	M	277	4298	2150.0	70.9	2205.3	278.9	329.5	216.3	608.4	57.0	696.6
D	Cage# 33	M	280	4297	2212.3	49.0	2260.0	285.1	387.3	228.1	641.8	73.8	632.6
D	Cage# 37	M	282	4777	2188.9	53.1	2263.9	289.3	338.6	234.6	611.9	68.0	713.6
D	Cage# 37	M	285	4775	2249.2	45.3	2288.1	284.4	294.2	223.3	627.3	44.1	811.7
D	Cage# 37	M	289	4776	2219.5	55.9	2291.0	273.8	358.1	224.4	665.3	76.0	681.0
Mean					**2233.3**	**51.2**	**2286.6**	**298.4**	**342.3**	**235.1**	**604.9**	**58.2**	**740.1**
SD					**159.0**	**13.8**	**162.3**	**25.1**	**36.7**	**15.5**	**59.1**	**12.1**	**66.6**
N					**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**

FG72 Soybean

CARCASS AND TISSUE WEIGHTS – Females Group C

Group	Cage	Gender	Tag #	Secondary ID#	Market dressed carcass (g)	Abdominal fat pad (g)	Chilled Carcass (g)	Leg - bone in, skin on (g)	Thigh - bone in, skin on (g)	Wing - bone in, skin on (g)	Breast - bone out, skin off (g)	Skin (g)	Remaining carcass (g)
C	Cage# 01	F	001	4183	1874.7	69.1	1943.6	239.9	259.7	195.7	511.1	56.8	658.4
C	Cage# 01	F	006	4184	1775.3	41.8	1828.3	237.5	238.0	189.5	467.4	31.6	658.2
C	Cage# 01	F	010	4182	1926.2	40.7	1983.6	231.8	337.5	182.6	588.0	72.6	559.4
C	Cage# 06	F	012	4197	1855.5	61.4	1894.4	228.5	280.8	197.5	510.6	46.1	626.5
C	Cage# 06	F	015	4199	1853.2	78.6	1895.6	230.7	270.4	195.2	497.9	63.6	656.5
C	Cage# 06	F	019	4198	1856.6	57.7	1933.0	236.1	317.0	177.8	525.0	66.7	596.5
C	Cage# 17	F	024	4257	1961.4	39.2	2037.3	249.7	340.4	195.1	557.8	68.5	597.0
C	Cage# 17	F	026	4259	2021.4	44.5	2068.2	263.5	270.4	247.9	527.9	51.3	704.7
C	Cage# 17	F	028	4258	1688.8	62.8	1742.4	230.9	248.4	195.9	426.1	59.3	565.7
C	Cage# 27	F	031	4288	1824.9	50.4	1901.9	211.4	321.6	188.7	474.7	84.2	599.4
C	Cage# 27	F	037	4289	1849.1	79.7	1896.1	247.3	270.3	200.6	506.3	38.9	623.2
C	Cage# 27	F	040	4287	1890.0	51.4	1946.7	228.2	305.6	200.0	535.1	71.4	596.5
C	Cage# 30	F	041	4768	1914.8	64.0	1953.5	226.5	284.3	199.6	506.5	56.2	670.5
C	Cage# 30	F	046	4767	1967.4	72.8	1997.7	252.6	326.8	221.4	488.6	55.6	647.4
C	Cage# 30	F	049	4766	1919.5	47.4	1972.2	241.8	283.9	209.6	500.4	53.3	666.5
C	Cage# 36	F	052	4774	1908.3	36.7	1944.7	238.4	269.8	193.6	551.3	46.3	640.0
C	Cage# 36	F	054	4772	1931.9	60.3	1991.4	254.0	284.5	206.4	538.1	61.0	643.0

CARCASS AND TISSUE WEIGHTS – Females Group C

Group	Cage	Gender	Tag #	Secondary ID#	Market dressed carcass (g)	Abdominal fat pad (g)	Chilled Carcass (g)	Leg - bone in, skin on (g)	Thigh - bone in, skin on (g)	Wing - bone in, skin on (g)	Breast - bone out, skin off (g)	Skin (g)	Remaining carcass (g)
C	Cage# 36	F	055	4773	1825.8	53.1	1863.2	231.8	280.2	199.8	480.6	52.6	616.6
C	Cage# 42	F	064	4791	1895.2	65.7	1931.4	233.9	273.5	207.8	496.4	57.7	658.7
C	Cage# 42	F	065	4792	2036.6	57.4	2071.0	230.1	321.8	221.0	504.3	53.0	719.1
C	Cage# 42	F	066	4790	1829.0	74.9	1870.9	252.4	232.1	190.3	513.0	37.4	638.2
Mean					**1886.0**	**57.6**	**1936.5**	**238.0**	**286.5**	**200.8**	**509.9**	**56.4**	**635.3**
SD					**79.3**	**13.1**	**78.0**	**12.0**	**31.4**	**15.2**	**34.6**	**12.5**	**40.8**
N					**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**

CARCASS AND TISSUE WEIGHTS – Males Group C													
Group	**Cage**	**Gender**	**Tag #**	**Secondary ID#**	**Market dressed carcass (g)**	**Abdominal fat pad (g)**	**Chilled Carcass (g)**	**Leg - bone in, skin on (g)**	**Thigh - bone in, skin on (g)**	**Wing - bone in, skin on (g)**	**Breast - bone out, skin off (g)**	**Skin (g)**	**Remaining carcass (g)**
C	Cage# 02	M	076	4187	2377.6	61.5	2473.7	334.7	329.7	235.0	602.0	64.3	853.4
C	Cage# 02	M	077	4186	2145.3	44.1	2194.5	277.9	331.4	240.1	563.5	43.0	726.2
C	Cage# 02	M	080	4185	2104.9	65.3	2179.6	285.1	314.8	236.0	511.9	65.3	744.9
C	Cage# 03	M	083	4189	1947.0	41.7	2008.4	267.7	303.5	236.2	500.8	41.5	639.4
C	Cage# 03	M	086	4188	2179.1	54.1	2219.5	286.5	349.0	220.6	587.7	70.2	699.5
C	Cage# 03	M	089	4190	2113.6	35.9	2178.9	289.7	351.3	246.2	493.9	43.2	746.2
C	Cage# 12	M	091	4474	1985.7	27.5	2036.5	274.8	310.6	234.2	518.1	53.5	639.7
C	Cage# 12	M	097	4475	2404.2	53.9	2471.9	307.9	339.0	262.6	534.9	71.9	849.6
C	Cage# 12	M	098	4473	2279.7	42.4	2335.6	302.1	367.9	245.4	555.3	48.6	808.4
C	Cage# 13	M	103	4238	2290.1	47.0	2357.8	290.0	392.0	231.1	619.1	57.0	743.6
C	Cage# 13	M	108	4237	2375.7	30.9	2422.4	289.2	397.4	240.4	689.2	73.3	724.3
C	Cage# 13	M	110	4236	2533.1	61.8	2614.7	344.6	348.9	248.0	671.6	60.6	916.8
C	Cage# 16	M	111	4251	2352.0	35.4	2438.6	335.0	343.4	257.0	599.4	76.3	821.4
C	Cage# 16	M	117	4252	2243.9	65.6	2321.6	309.2	364.8	250.5	549.5	84.0	755.3
C	Cage# 16	M	119	4253	2286.4	76.7	2370.0	324.7	345.1	246.9	552.6	52.5	822.6
C	Cage# 20	M	121	4275	2553.2	31.5	2642.0	330.4	438.1	267.2	668.8	79.6	836.3
C	Cage# 20	M	125	4276	2387.6	58.5	2427.2	283.8	392.3	228.3	694.7	78.3	745.0

CARCASS AND TISSUE WEIGHTS – Males Group C

Group	Cage	Gender	Tag #	Secondary ID#	Market dressed carcass (g)	Abdominal fat pad (g)	Chilled Carcass (g)	Leg - bone in, skin on (g)	Thigh - bone in, skin on (g)	Wing - bone in, skin on (g)	Breast - bone out, skin off (g)	Skin (g)	Remaining carcass (g)
C	Cage# 20	M	127	4277	2260.6	49.2	2312.5	328.8	291.0	237.9	606.1	41.5	801.7
C	Cage# 28	M	133	4295	2094.1	60.7	2157.0	306.2	310.4	220.5	564.4	50.3	697.5
C	Cage# 28	M	138	4294	2114.3	54.9	2171.6	299.8	308.2	239.9	507.9	45.1	764.5
C	Cage# 28	M	140	4293	2106.4	34.1	2168.9	325.7	282.0	229.4	503.7	50.0	754.2
Mean					**2244.5**	**49.2**	**2309.7**	**304.5**	**343.4**	**240.6**	**576.0**	**59.5**	**766.2**
SD					**164.5**	**13.7**	**171.7**	**22.8**	**39.1**	**12.2**	**64.1**	**14.0**	**70.0**
N					**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**

Non-GM Counterpart Soybean

CARCASS AND TISSUE WEIGHTS – Females Group A

Group	Cage	Gender	Tag #	Secondary ID#	Market dressed carcass (g)	Abdominal fat pad (g)	Chilled Carcass (g)	Leg - bone in, skin on (g)	Thigh - bone in, skin on (g)	Wing - bone in, skin on (g)	Breast - bone out, skin off (g)	Skin (g)	Remaining carcass (g)
A	Cage# 10	F	308	4245	1846.0	56.8	1913.2	217.5	311.2	194.0	511.7	80.0	576.6
A	Cage# 10	F	309	4246	2089.5	34.1	2153.1	278.9	287.0	214.2	648.8	95.1	624.8
A	Cage# 10	F	310	4247	1929.4	46.2	1991.2	272.0	295.4	182.5	478.4	58.1	687.8
A	Cage# 14	F	311	4242	1706.2	37.4	1747.7	223.7	273.5	186.6	449.9	51.9	550.1
A	Cage# 14	F	315	4244	1918.1	59.0	2003.5	232.9	285.4	211.3	487.5	69.3	692.0
A	Cage# 14	F	317	4243	1865.0	59.8	1921.9	237.1	300.0	202.8	485.2	69.9	611.4
A	Cage# 18	F	321	4265	1863.1	51.4	1938.0	258.1	255.2	196.6	454.2	93.8	658.9
A	Cage# 18	F	325	4263	2232.2	46.9	2289.6	269.1	374.4	211.2	626.6	61.7	726.7
A	Cage# 18	F	327	4264	1968.5	65.9	2119.0	249.1	294.1	188.3	540.7	57.5	673.5
A	Cage# 29	F	333	4300	1974.5	88.3	2041.8	242.6	318.7	215.0	560.4	75.2	624.2
A	Cage# 29	F	338	4299	2109.3	55.8	2157.3	278.6	305.0	226.5	564.8	78.8	687.9
A	Cage# 29	F	340	4762	1832.2	65.0	1884.2	212.6	283.5	187.1	518.1	55.1	604.2
A	Cage# 31	F	342	4284	1897.7	75.3	1963.6	220.0	263.2	197.2	511.0	85.6	667.9
A	Cage# 31	F	344	4285	1743.5	59.4	1787.7	214.5	291.5	163.6	507.0	55.9	540.3
A	Cage# 31	F	345	4286	1954.5	60.0	2009.3	264.1	269.8	199.2	561.4	56.2	642.1
A	Cage# 39	F	351	4782	1879.4	47.1	1932.4	254.8	290.8	209.5	434.6	61.0	673.1
A	Cage# 39	F	357	4781	1953.4	48.0	1989.4	238.3	280.1	215.3	533.9	61.1	654.2

CARCASS AND TISSUE WEIGHTS – Females Group A

Group	Cage	Gender	Tag #	Secondary ID#	Market dressed carcass (g)	Abdominal fat pad (g)	Chilled Carcass (g)	Leg - bone in, skin on (g)	Thigh - bone in, skin on (g)	Wing - bone in, skin on (g)	Breast - bone out, skin off (g)	Skin (g)	Remaining carcass (g)
A	Cage# 39	F	358	4783	1766.0	46.1	1825.8	219.9	270.2	176.5	528.6	56.0	557.5
A	Cage# 40	F	361	4786	1849.1	46.4	1903.2	255.9	299.5	205.3	459.6	36.2	631.6
A	Cage# 40	F	362	4784	1726.3	62.5	1797.5	246.6	242.9	169.8	497.9	60.2	563.5
A	Cage# 40	F	370	4785	1968.5	41.8	2011.8	254.9	300.7	215.4	531.9	80.7	615.7
Mean					**1908.2**	**54.9**	**1970.5**	**244.8**	**290.1**	**198.5**	**518.7**	**66.6**	**631.6**
SD					**129.2**	**12.7**	**133.5**	**21.4**	**26.8**	**16.7**	**54.4**	**14.9**	**52.4**
N					**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**

CARCASS AND TISSUE WEIGHTS – Males Group A

Group	Cage	Gender	Tag #	Secondary ID#	Market dressed carcass (g)	Abdominal fat pad (g)	Chilled Carcass (g)	Leg - bone in, skin on (g)	Thigh - bone in, skin on (g)	Wing - bone in, skin on (g)	Breast - bone out, skin off (g)	Skin (g)	Remaining carcass (g)
A	Cage# 04	M	372	4192	2263.6	56.2	2324.3	354.9	299.5	218.0	563.8	101.7	762.9
A	Cage# 04	M	374	4191	1494.7	2.3	1538.4	196.1	220.1	169.6	416.7	37.9	483.7
A	Cage# 04	M	378	4193	2153.0	67.7	2228.3	347.4	332.2	234.2	474.7	72.6	746.1
A	Cage# 08	M	382	4234	2229.1	64.2	2282.4	309.4	355.7	234.0	591.0	67.4	715.1
A	Cage# 08	M	383	4476	2295.3	49.2	2354.5	296.1	363.5	248.0	585.0	90.0	748.0
A	Cage# 08	M	387	4235	2255.4	83.1	2388.5	305.2	379.7	235.4	605.5	75.4	729.8
A	Cage# 19	M	391	4269	2197.9	72.0	2286.4	308.2	368.6	240.7	550.6	65.2	718.1
A	Cage# 19	M	392	4270	2134.9	62.8	2177.7	292.2	323.1	252.0	513.1	76.5	716.5

CARCASS AND TISSUE WEIGHTS – Males Group A

Group	Cage	Gender	Tag #	Secondary ID#	Market dressed carcass (g)	Abdominal fat pad (g)	Chilled Carcass (g)	Leg - bone in, skin on (g)	Thigh - bone in, skin on (g)	Wing - bone in, skin on (g)	Breast - bone out, skin off (g)	Skin (g)	Remaining carcass (g)
A	Cage# 19	M	394	4271	1560.3	71.2	1618.1	217.9	208.4	174.8	357.7	52.5	592.6
A	Cage# 21	M	401	4254	2304.0	56.6	2378.0	300.1	374.2	249.4	577.5	94.7	766.8
A	Cage# 21	M	402	4255	2157.6	47.9	2225.9	292.2	324.7	242.5	533.6	77.3	739.2
A	Cage# 21	M	409	4256	2310.8	68.0	2364.2	304.8	320.7	228.2	597.8	62.3	765.0
A	Cage# 23	M	411	4267	1625.1	39.0	1678.9	207.5	263.7	187.7	379.3	63.0	568.4
A	Cage# 23	M	417	4268	1656.5	28.2	1700.4	223.1	241.7	210.9	432.9	46.8	532.1
A	Cage# 23	M	420	4266	2161.0	27.9	2226.8	287.0	337.7	222.5	628.5	83.1	649.6
A	Cage# 25	M	422	4278	2415.3	48.3	2474.7	333.2	437.3	255.0	582.5	67.3	775.2
A	Cage# 25	M	424	4280	2475.7	36.0	2543.5	316.8	384.5	270.8	645.7	68.3	828.5
A	Cage# 25	M	430	4279	2317.6	56.2	2373.7	326.2	335.3	243.2	634.9	70.2	744.1
A	Cage# 32	M	435	4290	2143.3	51.7	2188.7	270.4	340.7	231.1	532.0	76.2	726.0
A	Cage# 32	M	437	4291	1951.2	30.4	2009.7	261.3	329.2	223.7	512.7	51.8	628.5
A	Cage# 32	M	440	4292	2226.4	59.8	2275.9	291.3	353.5	242.0	545.8	75.3	766.5
Mean					**2110.9**	**51.4**	**2173.3**	**287.7**	**328.3**	**229.2**	**536.3**	**70.3**	**700.1**
SD					**284.4**	**18.9**	**291.4**	**44.2**	**56.1**	**25.7**	**82.3**	**15.4**	**89.7**
N					**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**	**21**

APPENDIX 1 – STUDY PROTOCOL

TEST PROTOCOL

TITLE: BROILER CHICKEN FEEDING STUDY WITH FG72 SOYBEANS

TO BE COMPLETED BY THE STUDY SPONSOR:

Study Sponsor: Bayer Crop Science

Address: Alfred Nobel Str. 50, 40789 Monheim, Germany

Sponsor Representative: David Rouquié, Ph.D. **Phone:** 33-(0)4-92-94-34-76

Sponsor Representative Address: 355 rue Dostoïevski, BP 153, Sophia Antipolis Cedex France 06560

Sponsor Protocol/Project No.: TX99L046

Test Substance Name(s): FG72 Soybeans

Purity: 20 % incorporation rate **Batch or Lot #:** * Meal A = DQ08B004-TM-A gr 2/3/09

Analytical Standard: NA

Purity: NA **Batch or Lot #:** NA

Additional Comments and Modifications:

Meal C lot* = DQ08B004-TM-C ; Meal D lot * = DQ08B004-TM-D gr 2/3/09

Sponsor Approval: _____ **Date:** January 30, 2009

TO BE COMPLETED BY SPRINGBORN SMITHERS LABORATORIES BEFORE EXPERIMENT INITIATION:

Testing Facility: Springborn Smithers Laboratories, Carolina Research Center
2900 Quakenbush Road, Snow Camp, NC 27349, USA

Study Director: Jennifer M. Stafford Study No.: 13798.4124

Test Concentration: 20% soybean toasted meal by weight Exposure Method: Feed

Proposed Experimental Dates: (Start) * Apr. 2, 2009 gr 2/3/09 (Termination) * May 14, 2009 gr 2/3/09

Study Director Signature **Study Initiation Date**

Jennifer M. Stafford Feb. 3, 2009

* To be provided by protocol amendment, if applicable.

BROILER CHICKEN FEEDING STUDY WITH FG72 SOYBEANS

OBJECTIVE

The growing broiler is a very sensitive test species as a 40 fold increase in body weight occurs during the 42-day feeding period, with a 15-fold increase in the first 21 days. Therefore, the broiler is an appropriate species to detect differences in nutrient quality as well as toxic effects of genetically modified seed varieties.

The objective of this study is to compare the effects upon Cobb or ROSS variety chickens (*Gallus gallus domesticus*) of exposure to feed containing either the genetically modified (GM) variety, the corresponding non-GM counterpart or a commercial non-GM variety, over a 6-week period.

Effects on health, mortality, body weight gain, feed conversion efficiencies and market dressed carcass, muscle (breast, thigh, leg and wing) and abdominal fat pad weights will be evaluated.

SUMMARY

Three treatment groups of 140 birds each, housed in 14 replicates (7 male and 7 female pens) of 10 birds/pen, will receive experimental feed formulated with 20% of either test material (the GM variety), control material (the non-GM counterpart) or reference material (a commercial non-GM variety). The birds will be fed the diet from hatching until 42 days of age. Birds will be delivered to the testing facility on the day they hatch, but will not receive any feed until they are in their respective cages at the testing facility. During the test, all chickens will be monitored for overt signs of toxicity, general health and mortality. In addition, the test material group (GM feed) and the reference material group (commercial non-GM feed) will be compared to the control group (non-GM counterpart feed) in order to examine differences in body weight, feed consumption and feed conversion efficiency. At test termination, all test birds will be euthanized, necropsied, and then dressed carcass, abdominal fat pad and muscle (breast, leg, thigh and wing) weights will be determined. Carcass yield and carcass yield after chilling will be recorded.

MATERIALS AND METHODS

1. Animal Feeds

The GM, non-GM counterpart and commercial soybean toasted meals will be provided by the Sponsor, and sent to Springborn Smithers Laboratories (SSL) (Snow Camp, NC, USA), in coordination with the BioAnalytics Department, Bayer CropScience, RTP, USA. The test group will be defined as the GM fed group, the control group as the non-GM counterpart fed group and the reference group as the commercial non-GM fed group. SSL will send a sample of each meal type (GM, non-GM counterpart, commercial) to Eurofins Laboratories for compositional analysis, and another set to Bayer CropScience, RTP, for DNA identification. The certificate of analysis (COA) on the meal from Eurofins and Bayer will be sent back to SSL.

Data from the compositional analyses of the meal will be used to formulate a starter, grower, and finisher diet phase for each meal variety (OECD 2001). Each diet (N=9) will be formulated based on an incorporation rate of 20% toasted soybean meal of the appropriate variety. The formulations will be calculated such that diets within each individual phase (i.e. starter, grower and finisher) among three meal varieties are isoenergetic/isocaloric, isoproteic, and contain similar quantities of limiting amino acids.

Once the compositional and DNA analyses of each meal type have been reviewed and approved by the sponsor, a copy of the diet formulations will be sent to North American Nutrition Companies (NANCo, Lewisburg, OH, USA) for diet preparation. The meal will be labeled by SSL study number and meal variety letter code. Additional information will be provided to NANCo to specify which meal is the commercial variety, which is the GM variety, and which is the non-GM variety, along with specific directions for the order in which to prepare each diet. Commercial diets will be prepared first, then non-GM counterpart diets, then GM diets. NANCo will prepare the specified test diets according to the prepared diet formulation specifications to meet nutrient requirements and will furnish the diets in the appropriate form (crumble or pellet, see Section 6). NANCo will package the finished diets in triple layer paper meal bags, with color-coded labels indicating the SSL study number, meal group designation (A, B, or C), and diet phase (starter, grower, finisher) represented by the diet contained in each bag.

Upon arrival at SSL, the test diets will be stored and records will be maintained in accordance with GLP (Good Laboratory Practice) requirements, and a Chain-of-Custody established. The condition of the external packaging will be recorded and any damage noted. Major damage that may affect the use or quantity of usable diet will be reported to the Sponsor. Diets will be stored under ambient internal laboratory conditions (cool, dry).

SSL, again in coordination with BioAnalytics at Bayer CropScience, RTP, will send a subset of diet samples to Eurofins Laboratories and BioAnalytics, Bayer CropScience, RTP for compositional analysis and DNA identification, respectively. The starter, grower, and finisher phase of group A, B, and C diets will each be sampled for analysis. The certificate of analysis (COA) on the diets from Eurofins and Bayer will be sent back to SSL and later attached to the study report.

The following information should be provided by the Study Sponsor, if applicable: safe handling procedures and a verified expiration date.

2. Certificate of Analysis

The certificates of analysis of the soybean toasted meals (test, control and reference) will be prepared by Eurofins laboratories on composition and by BioAnalytics, Bayer CropScience on gene identification. The analysis will be retained with the raw data.

1) Composition of toasted meals

The toasted meals will be analyzed and the certificate of analyses should include the following parameters:

Proximates (crude fat, protein as nitrogen, acid detergent and neutral fibers, lignin, ash, calculated carbohydrates, dry matter)
Moisture (forced draft oven)

Full profile of amino acids including tryptophan
Alpha, beta, gamma and total tocopherols
Minerals (Ca, P, K, Mg, S, Fe, Na, Zn, Cu, Mn)
Bacteria (total, aerobic population)
Heavy Metals (Cd, Pb, As, Cr, Hg, Ni, Se)
Pesticide screen including glufosinate ammonium
Mycotoxins (aflatoxins)
Crop-specific anti-nutrients (Trypsin Inhibitor, phytic acid, and lectin if possible)

2) Composition of diets

The toasted meals will be mixed with commercial poultry premixes and nutrients. The procedure will be recorded and archived with raw data.

The certificate of analysis of diets should include the following data:
Proximates (crude fat, protein as nitrogen, crude fiber, ash, dry matter, calories, starch)
Amino acids (methionine, lysine, cystine, threonine, tryptophan, arginine, aspartic acid, serine, glutamic acid, proline, glycine, alanine, valine, isoleucine, leucine, tyrosine, phenylalanine, histidine)
Minerals (Ca, P, K, Mg, Fe, Na, Zn, Cu, Mn)
Bacteria (Salmonella, Clostridium perfringens)
Crop-specific anti-nutrients (Trypsin Inhibitor, phytic acid, and lectin if possible)

3) Target gene identification of toasted meals

The presence or absence of the transgene will be assessed by Polymerase Chain Reaction (PCR) in the GM, non-GM control and commercial reference soybean toasted meals.

4) Target gene identification of diets

The presence or absence of the transgene will be assessed by PCR in the GM, non-GM control and commercial reference diets.

Once prepared, the formulated diets will be balanced as appropriate to be equivalent. If this is balanced, the certificates of analysis for all the formulated and calculated test diets will also be retained.

3. Test System

The test animal will be ROSS or COBB variety broiler chickens (*Gallus gallus domesticus*). All birds will be from the same hatch and will be obtained from a commercial chicken breeder/hatchery and will be shipped from the hatchery on the day of hatch. If this is not possible, the birds may be hatched at the testing facility, as one uniform hatch. Arrival of the test animals at the testing facility is expected within 24-48 hr of shipment. Any birds exhibiting signs of a debilitating physical injury or abnormal behavior will be rejected for use. Feeding of the test material will begin upon arrival of the birds at the testing facility.

4. Physical System

Birds will be housed indoors in specially designed pens. Each pen will provide a maximum floor area of 1.2 ft^2/bird. Initially, hatchlings may be confined to a smaller area. As the chicks grow, the area of the cages will be expanded until the full area (12 ft^2) of each cage is available to the birds. Cages will be designed to allow excreta to drop through the bottom to the floor and the room floor will be cleaned daily.

Water will be provided *ad libitum* through automatic drinkers fed by the test facility well. This water is periodically analyzed for pesticides and metals by GeoLabs Inc., Braintree, USA and Massachusetts, USA using standard U.S. EPA procedures and is considered facility records under Springborn Smithers Laboratories' SOP 7.10.

5. Holding Conditions

The photoperiod for this study will be maintained as follows:

Study Day	Light Schedule (light hours:dark hours)
0 – 3	23:1
4 – 7	18:6
8 – 14	15:9
15 - 35	18:6
36 – 42	21:3

This lighting regime reflects current programs utilized in local commercial chicken farms where minimizing the occurrence of light-related metabolic problems is of concern. Previous studies have verified that altering the lighting schedule can be effective in decreasing such problems. It is intended to allow very young chicks to find feed and water and gain energy quickly within the first few days. Light hours are reduced during the middle portion of the study, lowering the pace of food consumption, allowing development of the chickens' skeletal and vascular system, and thereby circumventing metabolic diseases and associated mortality. Light hours are again increased towards the end of the study, after the chicken's skeletal and vascular systems have developed, allowing for maximized muscle deposition prior to processing.

Lighting schedules will be modified slightly to include a fast in darkness prior to specified body weight measurements. Light intensity will be measured prior to Time 0 and again anytime thereafter that a bulb is changed or repairs are made to the lighting system.

Ambient temperature and relative humidity will be monitored daily. The temperature in the brooding compartment of the pens will be maintained at approximately 32°C (± 2°C) at the beginning of the test (day 0). This will be gradually decreased to approximately 20° – 25°C by day 21 and maintained within that range through the end of the test (day 42).

6. Definitive Testing

➢ **Experimental Design**

In this experiment, all groups will receive experimental feed from hatching until 42 days of age. There will be no acclimation period for the test birds. The methods, levels of incorporation of the test item at each growth phase, and route of administration (as in feed) will be based upon common commercial practice. In order to control bias, birds will be assigned to cages based on a computer-generated randomized list (EXCEL 2003) of available cages. Cage numbers will also be randomly assigned to treatment groups using EXCEL 2003, prior to initiation of the test. No other potential sources of bias are expected to affect the results of the study. This route of administration was selected because it represents the main possible route of exposure.

There will be one test group (GM variety), one control group (non-GM counterpart variety) and one reference group (non-GM commercial variety). Each group will consist of 70 chickens per gender (140 per treatment group), housed in 14 replicate pens (7 male pens and 7 female pens) of 10 birds/pen at the beginning of the experiment.

➢ **Testing Procedures**

The chickens and the pens will be identified just prior to time 0. The chickens will be randomly assigned to a pen and a treatment group. There will be seven pens per gender in a treatment group. The pens will be identified by a label that will specify the study number, the letter characterizing the treatment (A, B, or C), and the initials corresponding to the gender of the animals.

The chickens will receive diets immediately upon being introduced into their respective pens (time 0). Feed and water will be provided *ad libitum*. Fresh feed will be provided at least weekly with feed consumption measured at least weekly.

Animals in this test will not be subjected to undue or unnecessary stress from noise or human activities. Human activity within the animal test room will be kept to the minimum necessary to assure adequate husbandry.

➢ **Study Duration**

The study duration will be 42 days. This study will be divided into three phases:

Starting phase: time 0 through day 7
Growing phase: day 8 through day 21
Finishing phase: day 22 through day 42

➢ **Animal Feed Characteristics**

Crumbs: Mash size particles fed to birds from time 0 through day 7

Pellets: Approximate diameter = 3mm. This feed will be given to the animals for the growing and finishing period from day 8 through day 42.

7. Test Monitoring

All chickens will be observed at least daily for general condition, overt signs of toxicity, abnormal behavior and mortality.

Individual bird weights will be used to determine the pen means. The pen will be the experimental unit for body weights. Individual body weights of each of the 10 birds/pen will be taken at the initiation of the test as birds are randomized into cages just prior to time 0, and on days 7, 21, 35 and prior to euthanasia at the end of the test on day 42. Time 0 body weights will be taken as soon as possible upon receipt of the test animals. Subsequent body weights, beginning with day 7 through day 42, will be taken at approximately the same time of day (± 1 hr). Birds will be fasted in darkness for a minimum of 8 hours during the night before body weight measurements taken on days 21, 35, and 42. Birds will not be fasted prior to body weight measurements on days 0 and 7 to avoid negative health effects upon birds of this young age. The body weight and general appearance/condition will be recorded for any bird found dead during the study.

Ambient temperature and relative humidity will be recorded daily during the study. Light intensity will be measured at the beginning of the experimental period, and after any light bulb changes or intensity adjustments made during the study.

8. Feed Consumption

The pen will be the experimental unit for feed consumption. Feed consumption of the birds will be reported by pen weekly. Birds will receive fresh feed weekly. Feed consumption will be measured by weighing the freshly filled feeder at the time of presentation, recording any additional feed added and weighing the feeder and remaining feed at the end of each 7 day interval.

The accuracy of feed consumption values may be affected by unavoidable wastage of feed by birds. No attempt will be made to quantify the amount of wasted feed as it is normally scattered and mixed with water and excreta. However, feeder design will be such as to minimize potential spillage.

9. Sacrifice and Measurements

Processing of the birds at test termination will be done at a local private poultry processing facility (JBM Processing, Pittsboro, NC, USA), in conjunction with CRC personnel participation, on day 42 (test termination). CRC personnel will collect samples, record data, and verify calibration of scales according to Springborn Smithers calibration weights.

Carcass and tissue measurements from 126 of 420 birds are necessary to achieve sufficient statistical power (> 80%) to detect differences between treatment groups (alpha of 0.05). Therefore, 126 birds (3 birds/pen) will be randomly selected using a computer program (such as the random number generator function in EXCEL 2003), with equal representation of all groups and genders, to pass through the tissue and carcass sample collection process described below. Remaining birds will be weighed for collection of final body weights, and then euthanized either by CO_2 euthanization or

cervical dislocation. Remaining birds will not undergo post-mortem examinations or be used for sample collection.

The following observations and measurements will be recorded for a total of 126 birds (21 animals/sex/treatment group, 3 birds per pen/sex/treatment group as defined by a randomization method): macroscopic viscera examination, fresh market dressed carcass weight, chilled market dressed carcass weight, breast weight, thigh weight, leg weight, wing weight, abdominal fat pad weight (as available), and remaining carcass weight. Values such as carcass yield will be calculated from these data. Viscera examination will be conducted under the supervision of a qualified veterinarian. Any abnormalities will be recorded. Market dressed carcasses will be weighed fresh, then chilled to muscle temperature of 4.4 – 7.2°C (40° – 45°F) and the chilled weights recorded. Muscle and tissue samples will be collected from the chilled carcasses.

10. Necropsy

All birds that die during the study will be subjected to a gross necropsy. All macroscopic findings will be recorded. The cause of death will be identified if determinable. Birds that are not selected for processing, but survive until study termination, will be weighed and euthanized by CO_2 or cervical dislocation.

The individual body weight of the dead animals, as well as the quantity of remaining feed in the cages will be measured to make final corrections to the feed consumption data.

11. Incineration

At the termination of the study, once the final has been issued, all carcasses and remaining feed material will be disposed of by incineration. Documentation of incineration will be maintained in the study records.

12. Statistical Analysis

The experimental unit will be the pen for body weight, feed consumption and feed conversion ratio. The pen values for these variables will be calculated as the mean for each animal to correct for possible differences in the number of animals in each pen. The variables will be calculated as follows:

Weight gain = final mean weight/pen – initial mean weight/pen for survivors
Feed consumption = weight of given feed/bird – weight of remaining feed/per bird
Feed conversion ratio = mean feed consumption/mean weight gain

For carcass, abdominal fat pad, breast, thigh, wing and leg muscle weights, the experimental unit will be the individual bird.
A. Comparison will be made between the treated group (GM) and the control group (non-GM counterpart) as follows:

Mortality analysis: Mortality data will be analyzed using the Fisher's exact test (1-sided).

Statistical analysis of body weight, food consumption, feed conversion and tissue weight parameters: Mean and standard deviation will be calculated for each group and per time period for body weight and food consumption parameters. The F test will be performed to compare the homogeneity of group variances. If data are homogeneous (F test $p>0.05$), the mean value for the corresponding parameter calculated for the treated (GM) group will be compared to the mean of the control (non-GM counterpart) group using a two-sided t-test. If data are non-homogeneous (F test $p\leq0.05$), the mean value for the corresponding parameter of the treated (GM) group will be compared to the mean of the control (non-GM counterpart) group using a modified two-sided t-test. If one or more group variance(s) equals 0, mean values will be compared using the non parametric Mann-Whitney test (2-sided).

B. Comparison will be made between the reference group (commercial) and the control group (non-GM counterpart) as follows:

Mortality analysis: Mortality data will be analyzed using the Fisher's exact test (1-sided).

Statistical analysis of body weight, food consumption, feed conversion and tissue weight parameters: Mean and standard deviation will be calculated for each group and per time period for body weight and food consumption parameters. The F test will be performed to compare the homogeneity of group variances. If data are homogeneous (F test $p>0.05$), the mean value for the corresponding parameter calculated for the treatment (GM) group will be compared to the mean of the control (non-GM counterpart) group using a two-sided t-test. If data are non-homogeneous (F test $p\leq0.05$), the mean value for the corresponding parameter of the treatment (GM) group will be compared to the mean of the control (non-GM counterpart) group using a modified two-sided t-test. If one or more group variance(s) equals 0, mean values will be compared using the non parametric Mann-Whitney test (2-sided).

All statistical analyses will be carried out separately for males and females. Group means will be compared at the 5% and 1% levels of signification. The statistical program used to evaluate the data will be specified in the study data.

RECORDS TO BE MAINTAINED

Records to be maintained will include, but are not limited to, correspondence and other documents relating to the interpretation and evaluation of data as well as all raw data and documentation generated as a result of the study. The document that proves the incineration of the remaining test substance material will also be maintained.

REPORTING

The raw data and final draft report will be reviewed by the Study Director and the Quality Assurance Unit. A single copy of the draft report will be initially submitted to the Study Sponsor for review. Upon acceptance by the Sponsor, three copies of the final report will be submitted. All reports will include, but will not be limited to, the following information:

- The study number from Springborn Smithers Laboratories and Sponsor Study number (if any).
- Laboratory and site, dates of testing and personnel involved in the study, i.e., Program Coordinator (if applicable), Study Director and Principal Investigator.
- Objectives and procedures stated in the approved protocol, including any changes in the original protocol.
- The test items and vehicles identified by name, code number, composition and other appropriate characteristics, as provided by the Sponsor or other analytical laboratory. Certificates of analysis of the test items that specify identity of each item will be attached to the report if provided by the Sponsor.
- A description of the test system used. Where applicable, the final report shall include the number of animals used, sex, body weight range, source of supply, species, age, and procedure for identification.
- A description of methods used.
- A description of the dosage, route of administration and duration.
- A description of all circumstances that may have affected the quality or integrity of the data.
- Description or reference to statistical procedures applied. A description of all transformations, calculations or operations performed on the data, a summary and analysis of the data and a statement of the conclusions drawn.
- Good Laboratory Practice (GLP) compliance statement signed by the Study Director.
- Date(s) of Quality Assurance reviews, and dates reported to the Study Director and management, signed by the Quality Assurance Unit.
- Location of the raw data and report.

PROTOCOL CHANGES

All amendments to the approved protocol must be documented in writing and signed by both the Study Director and the Sponsor. Protocol amendments must include the reasons for the change and the impact of the change on results of the study, if any. If necessary, amendments other than the one providing the information required on page one of this protocol, initially may be in the form of verbal authorization, followed by Springborn Smithers Laboratories' written documentation of the amendment. In such a case, the effective date of the amendment will be the date of verbal authorization.

SPECIAL PROVISIONS

GOOD LABORATORY PRACTICES (GLP): All test procedures, documentation, records, and reports will comply with the U. S. Environmental Protection Agency (EPA)'s Good Laboratory Practice Standards as set forth under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) 40 CFR, Part 160 (Final rule, August 17, 1989), Organization for Economic Cooperation and Development (OECD) Principles of Good Laboratory Practice (1997) and Good Laboratory Practice standards for Toxicology Studies on Agricultural Chemicals, Japanese Ministry of Agriculture, Forestry and Fisheries (J.M.A.F.F), notification 11 Nousan n°6283 (October 01, 1999) modified by notification 12 Nousan n°8628 (December 06, 2000).

TEST SUBSTANCE DISPOSAL: After the issuance of the final report, an identified sample of each type of seed tested in the study (~100 g) will be sent to the sponsor. The remaining test substance will be incinerated as described previously.

ARCHIVAL: The protocol, raw data, test substance and other material incineration related-documents, and the final report will be archived by the Sponsor Representative in the designed area, for at least 10- years, at the address specified on the cover page of this protocol. A copy of the final report will be maintained at Springborn Smithers Laboratories.

REFERENCES

Fisher's Exact Test, in Sokal R.R. and Rohlf F.J. (1981): Biometry, W.H. Freeman, New York, pp. 738-743.

Good Laboratory Practice standards for Toxicology Studies on Agricultural Chemicals, Ministry of Agriculture, Forestry and Fisheries (M.A.F.F), notification 11 Nousan n°6283 (October 01, 1999) modified by notification 12 Nousan n°8628 (December 06, 2000).

Mann H.B. and Whitney D.R. (1947): On a test of whether one of two random variables is stochastically larger than the other, *Ann. Math. Statist.*, 18, pp. 50-60.

Organization for Economic Cooperation and Development (OECD), 1997. Good Laboratory Practice in the Testing of Chemicals. Paris, France.

T-test and modified t-test in Snedecor G.W. and Cochran W.G. (1989): Statistical Methods, Eighth Edition – Chap 6 The comparison of two samples, Iowa State University Press/Ames.

U.S. Environmental Protection Agency (EPA). 40 CFR, Part 160. Federal Insecticide, Fungicide, and Rodenticide Act. Good Laboratory Practices Standards; Final Rule: August 17, 1989. Office of the Federal Register, National Archives and Records Administration. U.S. Government Printing Office, Washington, D.C.

Amendment 1

Springborn Smithers Laboratories, LLC
Carolina Research Center P.O. Box 620, Snow Camp, North Carolina 27349

PROTOCOL AMENDMENT

Amendment No.:	1
Effective Date:	27 March 2009
Protocol Title:	Broiler Chicken Feeding Study with FG72 Soybeans
Protocol Number:	012909/OECD/JMAFF/Broiler Chicken/FG72
Species:	*Gallus gallus domesticus*
Study Sponsor:	Bayer CropScience
Test Substance:	FG72 Soybeans
Springborn Study No.:	13798.4124

The cover page of the protocol is amended as follows:

Sponsor Representative: Corinne Hérouet-Guicheney
Phone: 33-4-92-94-34-45
Address: 355 rue Dostoievski, BP153, Sophia-Antipolis, Cedex France 06903
Justification: A personnel change took place within the sponsor's organization.

Protocol section 1. Animal Feeds, is amended as follows:

SSL will send a subset of diet samples to Eurofins Laboratories, Des Moines, Iowa, and Bayer CropScience, Research Triangle Park (RTP), North Carolina, for compositional analysis and DNA identification, respectively.

Justification: This serves to add clarification to the locations of each testing laboratory.

Protocol section 9. Sacrifice and Measurements, is amended as follows:

Processing of the birds at test termination will be done at CRC by CRC personnel on day 42.

Justification: Transferring the processing operation to the laboratory facility increased the laboratory's control of bird handling, sample preparation, collection and handling and data collection. It is anticipated this change will improve data quality and study security.

None of the above changes will have a negative impact on the study.

Approval Signatures:

Jennifer M. Stafford — 4/1/09
Jennifer M. Stafford — Date
Springborn Smithers Laboratories Study Director

Corinne Hérouet-Guicheney — 26. MARCH. 2009
Corinne Hérouet-Guicheney — Date
Study Sponsor Representative

Deviation 1

Springborn Smithers Laboratories, LLC
Carolina Research Center P.O. Box 620, Snow Camp, North Carolina 27349

PROTOCOL DEVIATION

Deviation No.: 1
SSL Study No.: 13798.4124

Deviation from protocol section 5 Holding Conditions, is as follows:

The protocol states that brooding compartment temperatures will be gradually decreased to approximately 20 – 25 °C by day 21 and maintained within that range through the end of the test (day 42). During this study, temperatures reached a maximum of 28.1 °C on day 21, and 26 °C during the interval between days 22 through the end of the test.

No negative effects upon bird health or behavior were observed related to this slight and transient temperature excursion.

This deviation does not affect the quality or integrity of the study.

Approval Signatures:

Jennifer M. Stafford 8/10/2009
Jennifer M. Stafford Date
Springborn Smithers Laboratories Study Director

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APPENDIX 2 – COMPOSITIONAL CERTIFICATES OF ANALYSIS – CROPS

Eurofins Scientific Inc., Des Moines
3507 Delaware
Des Moines, IA 50313

Tel.+1 515 265 1461
Fax:+1 515 266 5453

Eurofins Sample Code: 464-2009-02090471
Sample Description: Soybean Meal Study No. 13798.4124
Client Sample Code: A 8711
PO Number: 4500000542
Client Code: QD0000094

Reporting Date:03/02/2009
Entry Date:02/09/2009

Bayer CropScience
attn: Bill Kowite
2 T.W. Alexander Dr.
Research Triangle Park, NC 27709

Bayer CropScience
attn: Bill Kowite
2 T.W. Alexander Dr.
Research Triangle Park, NC 27709

AR-09-QD-018052-01

REPORT OF ANALYSIS

Test	Result
Moisture by Forced Draft Oven	5.45 %
Protein, Combustion	47.79 %
Crude Fat	1.74 %
Ash	6.28 %
Carbohydrates, Calculated	38.74 %
Dry matter	94.55 %
Fiber, Acid Detergent	5.9 %
Fiber, Neutral Detergent	19.7 %
Lignin	<0.5 %
Tryptophan	0.69 %
Cystine	0.63 %
Methionine	0.67 %
Aspartic Acid	5.70 %
Threonine	2.03 %
Serine	2.68 %
Glutamic Acid	8.90 %
Proline	2.41 %
Glycine	2.12 %
Alanine	2.13 %
Valine	2.02 %
Isoleucine	1.94 %
Leucine	3.72 %
Tyrosine	1.60 %
Phenylalanine	2.37 %
Total Lysine	2.77 %
Histidine	1.24 %
Arginine	3.45 %
Alpha-Tocopherol	0.421 mg/100 g
Beta-Tocopherol	<0.1 mg/100 g
Gamma Tocopherol	3.06 mg/100 g
Delta-Tocopherol	1.00 mg/100 g
Total Vitamin E (Tocopherols)	4.49 mg/100 g

Eurofins Scientific Inc., Des Moines
3507 Delaware
Des Moines, IA 50313

Tel.+1 515 265 1461
Fax:+1 515 266 5453

Eurofins Sample Code: 464-2009-02090471 **Client Sample Code: A 8711**

AR-09-QD-018052-01

REPORT OF ANALYSIS

Test	Result
Arsenic	< 0.5 ppm
Cadmium	< 0.25 ppm
Calcium	0.31 %
Chromium	< 1.2 ppm
Copper	16 ppm
Iron	0.0098 %
Lead	< 1.0 ppm
Magnesium	0.30 %
Manganese	37 ppm
Mercury	< 0.1 ppm
Nickel	5.1 ppm
Phosphorus	0.73 %
Potassium	2.33 %
Selenium	0.73 ppm
Sodium	0.021 %
Zinc	48 ppm
Phytic acid	1.88 %
a-BHC	< 0.01 mg/kg
b-BHC	< 0.01 mg/kg
Heptachlor	< 0.01 mg/kg
Aldrin	< 0.01 mg/kg
Heptachlor epoxide	< 0.01 mg/kg
DDE	< 0.01 mg/kg
Dieldrin	< 0.01 mg/kg
Endrin	< 0.01 mg/kg
DDD	< 0.01 mg/kg
DDT	< 0.01 mg/kg
Chlorpyrifos	< 0.01 mg/kg
HCB	< 0.01 mg/kg
PCB	< 0.1 mg/kg
Lindane	< 0.1 mg/kg
Toxaphene	< 0.01 mg/kg
Methoxychlor	< 0.01 mg/kg
Mirex	< 0.01 mg/kg
Chlordane	< 0.1 mg/kg
Diazinon	< 0.1 mg/kg
Ethion	< 0.1 mg/kg
Malathion	< 0.1 mg/kg
Ethyl parathion	< 0.1 mg/kg
Parathion-methyl	< 0.1 mg/kg
Ronnel	< 0.1 mg/kg
Cyclopropene Fatty Acids	Listed
Dihydrosterculic Acid	< 0.100 %
Malvic Acid	< 0.100 %

Eurofins Scientific Inc., Des Moines
3507 Delaware
Des Moines, IA 50313

Tel.+1 515 265 1461
Fax:+1 515 266 5453

Eurofins Sample Code: 464-2009-02090471

Client Sample Code: A 8711

AR-09-QD-018052-01

REPORT OF ANALYSIS

Test	Result
Sterculic Acid	0.110 %
Sulfur	0.55 %
Aflatoxin By ELISA	< 5 ppb
Aerobic Plate Count	130 cfu/g

Respectfully Submitted,
Eurofins Scientific Inc.

David Gross, Support Services Manager

Eurofins Scientific Inc., Des Moines
3507 Delaware
Des Moines, IA 50313

Tel.+1 515 265 1461
Fax:+1 515 266 5453

Eurofins Sample Code: 464-2009-02090472
Sample Description: Soybean Meal Study No. 13798.4124
Client Sample Code: C 8713
PO Number: 4500000542
Client Code: QD0000094

Reporting Date:03/02/2009
Entry Date:02/09/2009

Bayer CropScience
attn: Bill Kowite
2 T.W. Alexander Dr.
Research Triangle Park, NC 27709

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2 T.W. Alexander Dr.
Research Triangle Park, NC 27709

AR-09-QD-018053-01

REPORT OF ANALYSIS

Test	Result
Moisture by Forced Draft Oven	4.79 %
Protein, Combustion	48.42 %
Crude Fat	1.84 %
Ash	6.40 %
Carbohydrates, Calculated	38.56 %
Dry matter	95.21 %
Fiber, Acid Detergent	5.7 %
Fiber, Neutral Detergent	19.2 %
Lignin	0.6 %
Tryptophan	0.71 %
Cystine	0.63 %
Methionine	0.71 %
Aspartic Acid	5.75 %
Threonine	2.03 %
Serine	2.70 %
Glutamic Acid	9.37 %
Proline	2.55 %
Glycine	2.16 %
Alanine	2.15 %
Valine	2.04 %
Isoleucine	1.94 %
Leucine	3.78 %
Tyrosine	1.59 %
Phenylalanine	2.40 %
Total Lysine	2.83 %
Histidine	1.25 %
Arginine	3.43 %
Alpha-Tocopherol	0.413 mg/100 g
Beta-Tocopherol	<0.1 mg/100 g
Gamma Tocopherol	2.59 mg/100 g
Delta-Tocopherol	0.575 mg/100 g
Total Vitamin E (Tocopherols)	3.57 mg/100 g

Eurofins Scientific Inc., Des Moines
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Eurofins Sample Code: 464-2009-02090472 **Client Sample Code: C 8713**

AR-09-QD-018053-01

REPORT OF ANALYSIS

Test	Result
Arsenic	< 0.5 ppm
Cadmium	< 0.25 ppm
Calcium	0.28 %
Chromium	< 1.2 ppm
Copper	11 ppm
Iron	0.0080 %
Lead	< 1.0 ppm
Magnesium	0.27 %
Manganese	29 ppm
Mercury	< 0.1 ppm
Nickel	4.4 ppm
Phosphorus	0.67 %
Potassium	2.38 %
Selenium	0.68 ppm
Sodium	0.018 %
Zinc	39 ppm
Phytic acid	1.67 %
a-BHC	< 0.01 mg/kg
b-BHC	< 0.01 mg/kg
Heptachlor	< 0.01 mg/kg
Aldrin	< 0.01 mg/kg
Heptachlor epoxide	< 0.01 mg/kg
DDE	< 0.01 mg/kg
Dieldrin	< 0.01 mg/kg
Endrin	< 0.01 mg/kg
DDD	< 0.01 mg/kg
DDT	< 0.01 mg/kg
Chlorpyrifos	< 0.01 mg/kg
HCB	< 0.01 mg/kg
PCB	< 0.1 mg/kg
Lindane	< 0.1 mg/kg
Toxaphene	< 0.01 mg/kg
Methoxychlor	< 0.01 mg/kg
Mirex	< 0.01 mg/kg
Chlordane	< 0.1 mg/kg
Diazinon	< 0.1 mg/kg
Ethion	< 0.1 mg/kg
Malathion	< 0.1 mg/kg
Ethyl parathion	< 0.1 mg/kg
Parathion-methyl	< 0.1 mg/kg
Ronnel	< 0.1 mg/kg
Cyclopropene Fatty Acids	Listed
Dihydrosterculic Acid	< 0.100 %
Malvic Acid	< 0.100 %

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Eurofins Sample Code: 464-2009-02090472

Client Sample Code: C 8713

AR-09-QD-018053-01

REPORT OF ANALYSIS

Test	Result
Sterculic Acid	< 0.100 %
Sulfur	0.49 %
Aflatoxin By ELISA	< 5 ppb
Aerobic Plate Count	60 cfu/g

Respectfully Submitted,
Eurofins Scientific Inc.

David Gross, Support Services Manager

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Eurofins Sample Code: 464-2009-02090473
Sample Description: Soybean Meal Study No. 13798.4124
Client Sample Code: D 8715
PO Number: 4500000542
Client Code: QD0000094

Reporting Date:03/02/2009
Entry Date:02/09/2009

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Bayer CropScience
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AR-09-QD-018054-01

REPORT OF ANALYSIS

Test	Result
Moisture by Forced Draft Oven	6.58 %
Protein, Combustion	47.57 %
Crude Fat	1.22 %
Ash	6.12 %
Carbohydrates, Calculated	38.51 %
Dry matter	93.42 %
Fiber, Acid Detergent	6.9 %
Fiber, Neutral Detergent	22.6 %
Lignin	<0.5 %
Tryptophan	0.72 %
Cystine	0.63 %
Methionine	0.68 %
Aspartic Acid	5.65 %
Threonine	2.01 %
Serine	2.68 %
Glutamic Acid	8.91 %
Proline	2.51 %
Glycine	2.15 %
Alanine	2.11 %
Valine	2.02 %
Isoleucine	1.91 %
Leucine	3.74 %
Tyrosine	1.54 %
Phenylalanine	2.35 %
Total Lysine	2.78 %
Histidine	1.24 %
Arginine	3.33 %
Alpha-Tocopherol	0.392 mg/100 g
Beta-Tocopherol	<0.1 mg/100 g
Gamma Tocopherol	2.76 mg/100 g
Delta-Tocopherol	0.845 mg/100 g
Total Vitamin E (Tocopherols)	4.00 mg/100 g

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Eurofins Sample Code: 464-2009-02090473

Client Sample Code: D 8715

AR-09-QD-018054-01

REPORT OF ANALYSIS

Test	Result
Arsenic	< 0.5 ppm
Cadmium	< 0.25 ppm
Calcium	0.30 %
Chromium	< 1.2 ppm
Copper	13 ppm
Iron	0.0095 %
Lead	< 1.0 ppm
Magnesium	0.29 %
Manganese	36 ppm
Mercury	< 0.1 ppm
Nickel	5.1 ppm
Phosphorus	0.73 %
Potassium	2.23 %
Selenium	0.82 ppm
Sodium	0.0074 %
Zinc	49 ppm
Phytic acid	1.89 %
a-BHC	< 0.01 mg/kg
b-BHC	< 0.01 mg/kg
Heptachlor	< 0.01 mg/kg
Aldrin	< 0.01 mg/kg
Heptachlor epoxide	< 0.01 mg/kg
DDE	< 0.01 mg/kg
Dieldrin	< 0.01 mg/kg
Endrin	< 0.01 mg/kg
DDD	< 0.01 mg/kg
DDT	< 0.01 mg/kg
Chlorpyrifos	< 0.01 mg/kg
HCB	< 0.01 mg/kg
PCB	< 0.1 mg/kg
Lindane	< 0.1 mg/kg
Toxaphene	< 0.01 mg/kg
Methoxychlor	< 0.01 mg/kg
Mirex	< 0.01 mg/kg
Chlordane	< 0.1 mg/kg
Diazinon	< 0.1 mg/kg
Ethion	< 0.1 mg/kg
Malathion	< 0.1 mg/kg
Ethyl parathion	< 0.1 mg/kg
Parathion-methyl	< 0.1 mg/kg
Ronnel	< 0.1 mg/kg
Cyclopropene Fatty Acids	Listed
Dihydrosterculic Acid	< 0.100 %
Malvic Acid	< 0.100 %

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Eurofins Sample Code: 464-2009-02090473

Client Sample Code: D 8715

AR-09-QD-018054-01

REPORT OF ANALYSIS

Test	Result
Sterculic Acid	0.110 %
Sulfur	0.45 %
Aflatoxin By ELISA	< 5 ppb
Aerobic Plate Count	20 cfu/g

Respectfully Submitted,
Eurofins Scientific Inc.

David Gross, Support Services Manager

APPENDIX 3 – DNA ANALYSIS – CROPS

BioAnalytics
Bayer CropScience
BioScience
2 TW Alexander Drive
RTP, NC 27709
USA

CERTIFICATE OF ANALYSIS NO. BTS-0007/09

General

This Certificate fulfills the requirement for the characterization of seed and/or sample used in a study. It documents the identity and/or purity/content of the seed and/or sample.

Designation of the Certified Material:

Material:	Toasted soybean meal made from soybean grain of transgenic event FG72, its non-transgenic counterpart, and a non-transgenic commercial variety.
Study No.:	DQ08B004
Sample Nos.:	Biotechnology Identification (BTID) Numbers 1827A-L BTID 1827A-D: Regimen A, Non-Transgenic Counterpart (DQ08B004-TM-A; Barrels 1-4) BTID 1827E-H: Regimen C, Transgenic FG72 (DQ08B004-TM-C; Barrels 1-4) BTID 1827I-L: Regimen D, Non-Transgenic Commercial Variety (DQ08B004-TM-D; Barrels 1-4)
Additional information:	Soybean grain was produced under study HT08SOY001.

Origin of the Certified Material

Meal samples obtained from:

Jennifer M. Stafford
Springborn Smithers Laboratories (SSL)
Carolina Research Center
2900 Quakenbush Rd.
Snow Camp, NC 27349
Phone: 336-376-0141
E-mail: jstafford@springbornsmithers.com

Methods

The ☒ Identity
☐ Purity
☐ Content

of the material was established by use of the following method(s):

☐ Discriminating PCR
☐ Southern Blotting
☐ ELISA
☐ Bradford Assay
☒ Real Time Discriminating PCR (PGS0475 and MDP0678)

This COA was produced according to SOP 98003.01

BioAnalytics
Bayer CropScience
BioScience
2 TW Alexander Drive
RTP, NC 27709
USA

Dates of Analysis
February 23, 2009

Methods and Results
There were four barrels of meal from each regimen. A sample from each barrel was analyzed in order to ensure that all barrels were labeled correctly.

Two grams of toasted meal was ground in a small vial using a Genogrinder. DNA was extracted from each sample using a Promega Maxwell personal automation system with a DNA extraction kit (part no. AS1030).

DNA extracts were analyzed by real time discriminating PCR (RTdPCR) for event FG72 using primers from methods PGS0475 and MDP0678.

Results for PCR analyses are shown in Table 1. Results from the FG72 Real Time Discriminating PCR (RTdPCR) showed the expected pattern for the FG72 event for the Regimen C transgenic meal (BTID 1827E-H); meal from Regimens A (BTID 1827A-D) and D (1827I-L) did not contain event FG72 DNA, as expected.

TABLE 1 PCR analyses for toasted soybean meal BTID 1827A-L

		FG72 RTdPCR	
BTID	***Sample Description***	***ENDO***	***FG72***
1827A	Regimen A Barrel 1	+	-
1827B	Regimen A Barrel 2	+	-
1827C	Regimen A Barrel 3	+	-
1827D	Regimen A Barrel 4	+	-
1827E	Regimen C Barrel 1	+	+
1827F	Regimen C Barrel 2	+	+
1827G	Regimen C Barrel 3	+	+
1827H	Regimen C Barrel 4	+	+
1827I	Regimen D Barrel 1	+	-
1827J	Regimen D Barrel 2	+	-
1827K	Regimen D Barrel 3	+	-
1827L	Regimen D Barrel 4	+	-

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USA

Testing Facilities

BioAnalytics
Bayer CropScience
BioScience
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Research Triangle Park, NC 27709
USA

Report and raw data are archived at Bayer CropScience, RTP, NC.

	Name (Typed)	Signature	Date (M/D/Y)
Responsible Scientist:	Martha R. Poe	Martha R Poe	March 31, 2009
Authorized by:	Sandra J. W. Mackie	Sandra J. W. Mackie	March 31, 2009

APPENDIX 4 – DIET COMPOSITIONAL ANALYSIS

Eurofins Scientific Inc., Des Moines
3507 Delaware
Des Moines, IA 50313

Tel.+1 515 265 1461
Fax:+1 515 266 5453

Eurofins Sample Code: 464-2009-04210362
Sample Description: Feed Study #13798.4124
Client Sample Code: A 8927
PO Number: 4500000542
Client Code: QD0000094

Reporting Date:04/30/2009
Entry Date:04/21/2009

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Bayer CropScience
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Research Triangle Park, NC 27709

AR-09-QD-035930-01

REPORT OF ANALYSIS

Test	Result
Moisture by Forced Draft Oven	13.15 %
Protein, Combustion	22.35 %
Crude Fat	5.87 %
Crude Fiber	2.9 %
Ash	5.81 %
Dry matter	86.85 %
Tryptophan	0.36 %
Cystine	0.30 %
Methionine	0.69 %
Aspartic Acid	2.41 %
Threonine	0.93 %
Serine	1.06 %
Glutamic Acid	4.16 %
Proline	1.43 %
Glycine	0.99 %
Alanine	1.12 %
Valine	1.18 %
Isoleucine	1.09 %
Leucine	1.98 %
Tyrosine	0.61 %
Phenylalanine	1.14 %
Total Lysine	1.33 %
Histidine	0.63 %
Arginine	1.52 %
Calcium	1.00 %
Chloride-Soluble	0.39 %
Cobalt	< 0.75 ppm
Copper	14 ppm
Iron	0.0304 %
Magnesium	0.17 %
Manganese	132 ppm
Phosphorus	0.75 %

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Eurofins Sample Code: 464-2009-04210362

Client Sample Code: A 8927

AR-09-QD-035930-01

REPORT OF ANALYSIS

Test	Result
Potassium	1.00 %
Selenium	0.40 ppm
Sodium	0.18 %
Zinc	128 ppm
Phytic acid	1.03 %
Iodine	1.20 ppm
Starch, Ewers	37.0 %
Trypsin inhibitor	2,400 TIU/g
Clostridium Perfringens,Presumptive	listed
Clostridium perfringens, Confirmation	21 cfu/g
Salmonella by PCR	negative in 25g
Calories By Bomb Calorimeter	1,820 kcal/lb
Lectin	< 0.100 H.U./mg

Respectfully Submitted,
Eurofins Scientific Inc.

David Gross, Support Services Manager

Eurofins Scientific Inc., Des Moines
3507 Delaware
Des Moines, IA 50313

Tel.+1 515 265 1461
Fax:+1 515 266 5453

Eurofins Sample Code: 464-2009-04210363
Sample Description: Feed Study #13798.4124
Client Sample Code: A 8928
PO Number: 4500000542
Client Code: QD0000094

Reporting Date:04/30/2009
Entry Date:04/21/2009

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Bayer CropScience
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Research Triangle Park, NC 27709

AR-09-QD-035931-01

REPORT OF ANALYSIS

Test	Result
Moisture by Forced Draft Oven	12.13 %
Protein, Combustion	21.25 %
Crude Fat	6.18 %
Crude Fiber	2.8 %
Ash	5.94 %
Dry matter	87.87 %
Tryptophan	0.36 %
Cystine	0.29 %
Methionine	0.53 %
Aspartic Acid	2.30 %
Threonine	0.91 %
Serine	1.01 %
Glutamic Acid	3.96 %
Proline	1.35 %
Glycine	0.96 %
Alanine	1.09 %
Valine	1.12 %
Isoleucine	1.01 %
Leucine	1.88 %
Tyrosine	0.64 %
Phenylalanine	1.07 %
Total Lysine	1.32 %
Histidine	0.59 %
Arginine	1.45 %
Calcium	1.13 %
Chloride-Soluble	0.45 %
Cobalt	< 0.75 ppm
Copper	17 ppm
Iron	0.0300 %
Magnesium	0.17 %
Manganese	149 ppm
Phosphorus	0.73 %

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Eurofins Sample Code: 464-2009-04210363 **Client Sample Code: A 8928**

AR-09-QD-035931-01

REPORT OF ANALYSIS

Test	Result
Potassium	0.95 %
Selenium	0.50 ppm
Sodium	0.23 %
Zinc	143 ppm
Phytic acid	0.99 %
Iodine	3.70 ppm
Starch, Ewers	38.4 %
Trypsin inhibitor	2,100 TIU/g
Clostridium Perfringens,Presumptive	listed
Clostridium perfringens, Confirmation	46 cfu/g
Salmonella by PCR	negative in 25g
Calories By Bomb Calorimeter	1,840 kcal/lb
Lectin	< 0.100 H.U./mg

Respectfully Submitted,
Eurofins Scientific Inc.

David Gross, Support Services Manager

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Des Moines, IA 50313

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Eurofins Sample Code: 464-2009-04210364
Sample Description: Feed Study #13798.4124
Client Sample Code: A 8929
PO Number: 4500000542
Client Code: QD0000094

Reporting Date:04/30/2009
Entry Date:04/21/2009

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Bayer CropScience
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Research Triangle Park, NC 27709

AR-09-QD-035932-01

REPORT OF ANALYSIS

Test	Result
Moisture by Forced Draft Oven	13.50 %
Protein, Combustion	18.77 %
Crude Fat	6.08 %
Crude Fiber	2.7 %
Ash	4.82 %
Dry matter	86.50 %
Tryptophan	0.23 %
Cystine	0.26 %
Methionine	0.52 %
Aspartic Acid	1.99 %
Threonine	0.76 %
Serine	0.93 %
Glutamic Acid	3.48 %
Proline	1.21 %
Glycine	0.85 %
Alanine	0.98 %
Valine	0.96 %
Isoleucine	0.87 %
Leucine	1.69 %
Tyrosine	0.56 %
Phenylalanine	0.97 %
Total Lysine	1.12 %
Histidine	0.53 %
Arginine	1.29 %
Calcium	0.87 %
Chloride-Soluble	0.35 %
Cobalt	< 0.75 ppm
Copper	15 ppm
Iron	0.0246 %
Magnesium	0.15 %
Manganese	145 ppm
Phosphorus	0.60 %

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Eurofins Sample Code: 464-2009-04210364 **Client Sample Code: A 8929**

AR-09-QD-035932-01

REPORT OF ANALYSIS

Test	Result
Potassium	0.84 %
Selenium	0.47 ppm
Sodium	0.19 %
Zinc	140 ppm
Phytic acid	0.92 %
Iodine	0.906 ppm
Starch, Ewers	42.4 %
Trypsin inhibitor	<2,000 TIU/g
Clostridium Perfringens,Presumptive	listed
Clostridium perfringens, Confirmation	< 10 cfu/g
Salmonella by PCR	negative in 25g
Calories By Bomb Calorimeter	1,840 kcal/lb
Lectin	< 0.100 H.U./mg

Respectfully Submitted,
Eurofins Scientific Inc.

David Gross, Support Services Manager

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Des Moines, IA 50313

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Eurofins Sample Code: 464-2009-04210365
Sample Description: Feed Study #13798.4124
Client Sample Code: C 8930
PO Number: 4500000542
Client Code: QD0000094

Reporting Date:04/30/2009
Entry Date:04/21/2009

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Research Triangle Park, NC 27709

AR-09-QD-035933-01

REPORT OF ANALYSIS

Test	Result
Moisture by Forced Draft Oven	13.32 %
Protein, Combustion	21.72 %
Crude Fat	5.23 %
Crude Fiber	3.0 %
Ash	5.87 %
Dry matter	86.68 %
Tryptophan	0.29 %
Cystine	0.30 %
Methionine	0.70 %
Aspartic Acid	2.36 %
Threonine	0.97 %
Serine	1.11 %
Glutamic Acid	4.02 %
Proline	1.34 %
Glycine	0.99 %
Alanine	1.09 %
Valine	1.07 %
Isoleucine	0.98 %
Leucine	1.90 %
Tyrosine	0.65 %
Phenylalanine	1.11 %
Total Lysine	1.49 %
Histidine	0.59 %
Arginine	1.54 %
Calcium	1.12 %
Chloride-Soluble	0.40 %
Cobalt	< 0.75 ppm
Copper	14 ppm
Iron	0.0309 %
Magnesium	0.17 %
Manganese	119 ppm
Phosphorus	0.78 %

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Eurofins Sample Code: 464-2009-04210365

Client Sample Code: C 8930

AR-09-QD-035933-01

REPORT OF ANALYSIS

Test	Result
Potassium	0.97 %
Selenium	0.53 ppm
Sodium	0.19 %
Zinc	115 ppm
Phytic acid	1.02 %
Iodine	1.66 ppm
Starch, Ewers	37.0 %
Trypsin inhibitor	<2,000 TIU/g
Clostridium Perfringens,Presumptive	listed
Clostridium perfringens, Confirmation	74 cfu/g
Salmonella by PCR	negative in 25g
Calories By Bomb Calorimeter	1,810 kcal/lb
Lectin	< 0.100 H.U./mg

Respectfully Submitted,
Eurofins Scientific Inc.

David Gross, Support Services Manager

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Des Moines, IA 50313

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Eurofins Sample Code: 464-2009-04210366
Sample Description: Feed Study #13798.4124
Client Sample Code: C 8931
PO Number: 4500000542
Client Code: QD0000094

Reporting Date:04/30/2009
Entry Date:04/21/2009

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Bayer CropScience
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AR-09-QD-035934-01

REPORT OF ANALYSIS

Test	Result
Moisture by Forced Draft Oven	12.74 %
Protein, Combustion	21.01 %
Crude Fat	5.76 %
Crude Fiber	3.0 %
Ash	5.66 %
Dry matter	87.26 %
Tryptophan	0.26 %
Cystine	0.29 %
Methionine	0.54 %
Aspartic Acid	2.30 %
Threonine	0.92 %
Serine	1.07 %
Glutamic Acid	3.90 %
Proline	1.33 %
Glycine	0.96 %
Alanine	1.08 %
Valine	1.09 %
Isoleucine	0.98 %
Leucine	1.86 %
Tyrosine	0.63 %
Phenylalanine	1.09 %
Total Lysine	1.24 %
Histidine	0.60 %
Arginine	1.45 %
Calcium	0.99 %
Chloride-Soluble	0.45 %
Cobalt	< 0.75 ppm
Copper	13 ppm
Iron	0.0300 %
Magnesium	0.17 %
Manganese	138 ppm
Phosphorus	0.74 %

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Eurofins Sample Code: 464-2009-04210366

Client Sample Code: C 8931

AR-09-QD-035934-01

REPORT OF ANALYSIS

Test	Result
Potassium	0.97 %
Selenium	0.45 ppm
Sodium	0.23 %
Zinc	129 ppm
Phytic acid	1.01 %
Iodine	0.867 ppm
Starch, Ewers	38.2 %
Trypsin inhibitor	<2,000 TIU/g
Clostridium Perfringens,Presumptive	listed
Clostridium perfringens, Confirmation	< 10 cfu/g
Salmonella by PCR	negative in 25g
Calories By Bomb Calorimeter	1,830 kcal/lb
Lectin	< 0.100 H.U./mg

Respectfully Submitted,
Eurofins Scientific Inc.

David Gross, Support Services Manager

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Des Moines, IA 50313

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Eurofins Sample Code: 464-2009-04210367
Sample Description: Feed Study #13798.4124
Client Sample Code: C 8932
PO Number: 4500000542
Client Code: QD0000094

Reporting Date:04/30/2009
Entry Date:04/21/2009

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Bayer CropScience
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Research Triangle Park, NC 27709

AR-09-QD-035935-01

REPORT OF ANALYSIS

Test	Result
Moisture by Forced Draft Oven	12.92 %
Protein, Combustion	18.60 %
Crude Fat	6.19 %
Crude Fiber	2.7 %
Ash	4.89 %
Dry matter	87.08 %
Tryptophan	0.23 %
Cystine	0.26 %
Methionine	0.52 %
Aspartic Acid	1.97 %
Threonine	0.75 %
Serine	0.95 %
Glutamic Acid	3.41 %
Proline	1.05 %
Glycine	0.84 %
Alanine	0.96 %
Valine	0.93 %
Isoleucine	0.84 %
Leucine	1.64 %
Tyrosine	0.54 %
Phenylalanine	0.95 %
Total Lysine	1.02 %
Histidine	0.51 %
Arginine	1.24 %
Calcium	0.89 %
Chloride-Soluble	0.36 %
Cobalt	< 0.75 ppm
Copper	14 ppm
Iron	0.0259 %
Magnesium	0.15 %
Manganese	135 ppm
Phosphorus	0.63 %

Eurofins Scientific Inc., Des Moines
3507 Delaware
Des Moines, IA 50313

Tel.+1 515 265 1461
Fax:+1 515 266 5453

Eurofins Sample Code: 464-2009-04210367

Client Sample Code: C 8932

AR-09-QD-035935-01

REPORT OF ANALYSIS

Test	Result
Potassium	0.84 %
Selenium	0.43 ppm
Sodium	0.19 %
Zinc	130 ppm
Phytic acid	0.94 %
Iodine	1.62 ppm
Starch, Ewers	42.7 %
Trypsin inhibitor	<2,000 TIU/g
Clostridium Perfringens,Presumptive	listed
Clostridium perfringens, Confirmation	< 10 cfu/g
Salmonella by PCR	negative in 25g
Calories By Bomb Calorimeter	1,830 kcal/lb
Lectin	< 0.100 H.U./mg

Respectfully Submitted,
Eurofins Scientific Inc.

David Gross, Support Services Manager

Eurofins Scientific Inc., Des Moines
3507 Delaware
Des Moines, IA 50313

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Eurofins Sample Code: 464-2009-04210368
Sample Description: Feed Study #13798.4124
Client Sample Code: D 8933
PO Number: 4500000542
Client Code: QD0000094

Reporting Date:04/30/2009
Entry Date:04/21/2009

Bayer CropScience
attn: Bill Kowite
2 T.W. Alexander Dr.
Research Triangle Park, NC 27709

Bayer CropScience
attn: Bill Kowite
2 T.W. Alexander Dr.
Research Triangle Park, NC 27709

AR-09-QD-035936-01

REPORT OF ANALYSIS

Test	Result
Moisture by Forced Draft Oven	12.94 %
Protein, Combustion	22.63 %
Crude Fat	5.60 %
Crude Fiber	2.7 %
Ash	5.67 %
Dry matter	87.06 %
Tryptophan	0.29 %
Cystine	0.31 %
Methionine	0.64 %
Aspartic Acid	2.54 %
Threonine	0.96 %
Serine	1.02 %
Glutamic Acid	4.31 %
Proline	1.34 %
Glycine	1.02 %
Alanine	1.14 %
Valine	1.21 %
Isoleucine	1.08 %
Leucine	1.97 %
Tyrosine	0.65 %
Phenylalanine	1.17 %
Total Lysine	1.50 %
Histidine	0.63 %
Arginine	1.57 %
Calcium	0.95 %
Chloride-Soluble	0.39 %
Cobalt	< 0.75 ppm
Copper	16 ppm
Iron	0.0316 %
Magnesium	0.17 %
Manganese	132 ppm
Phosphorus	0.73 %

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Eurofins Sample Code: 464-2009-04210368

Client Sample Code: D 8933

AR-09-QD-035936-01

REPORT OF ANALYSIS

Test	Result
Potassium	1.05 %
Selenium	0.39 ppm
Sodium	0.19 %
Zinc	159 ppm
Phytic acid	1.01 %
Iodine	1.99 ppm
Starch, Ewers	35.6 %
Trypsin inhibitor	2,000 TIU/g
Clostridium Perfringens,Presumptive	listed
Clostridium perfringens, Confirmation	< 10 cfu/g
Salmonella by PCR	negative in 25g
Calories By Bomb Calorimeter	1,830 kcal/lb
Lectin	< 0.100 H.U./mg

Respectfully Submitted,
Eurofins Scientific Inc.

David Gross, Support Services Manager

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Des Moines, IA 50313

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Eurofins Sample Code: 464-2009-04210369
Sample Description: Feed Study #13798.4124
Client Sample Code: D 8934
PO Number: 4500000542
Client Code: QD0000094

Reporting Date:04/30/2009
Entry Date:04/21/2009

Bayer CropScience
attn: Bill Kowite
2 T.W. Alexander Dr.
Research Triangle Park, NC 27709

Bayer CropScience
attn: Bill Kowite
2 T.W. Alexander Dr.
Research Triangle Park, NC 27709

AR-09-QD-035937-01

REPORT OF ANALYSIS

Test	Result
Moisture by Forced Draft Oven	12.61 %
Protein, Combustion	20.85 %
Crude Fat	6.59 %
Crude Fiber	2.8 %
Ash	5.94 %
Dry matter	87.39 %
Tryptophan	0.26 %
Cystine	0.28 %
Methionine	0.53 %
Aspartic Acid	2.24 %
Threonine	0.86 %
Serine	0.95 %
Glutamic Acid	3.86 %
Proline	1.22 %
Glycine	0.91 %
Alanine	1.01 %
Valine	1.08 %
Isoleucine	0.95 %
Leucine	1.79 %
Tyrosine	0.55 %
Phenylalanine	1.05 %
Total Lysine	1.31 %
Histidine	0.57 %
Arginine	1.36 %
Calcium	1.10 %
Chloride-Soluble	0.45 %
Cobalt	< 0.75 ppm
Copper	20 ppm
Iron	0.0319 %
Magnesium	0.16 %
Manganese	151 ppm
Phosphorus	0.71 %

Eurofins Scientific Inc., Des Moines
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Eurofins Sample Code: 464-2009-04210369

Client Sample Code: D 8934

AR-09-QD-035937-01

REPORT OF ANALYSIS

Test	Result
Potassium	0.95 %
Selenium	0.52 ppm
Sodium	0.23 %
Zinc	148 ppm
Phytic acid	0.92 %
Iodine	0.961 ppm
Starch, Ewers	38.3 %
Trypsin inhibitor	2,000 TIU/g
Clostridium Perfringens,Presumptive	listed
Clostridium perfringens, Confirmation	< 10 cfu/g
Salmonella by PCR	negative in 25g
Calories By Bomb Calorimeter	1,840 kcal/lb
Lectin	< 0.100 H.U./mg

Respectfully Submitted,
Eurofins Scientific Inc.

David Gross, Support Services Manager

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Eurofins Sample Code: 464-2009-04210370
Sample Description: Feed Study #13798.4124
Client Sample Code: D 8935
PO Number: 4500000542
Client Code: QD0000094

Reporting Date:04/30/2009
Entry Date:04/21/2009

Bayer CropScience
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Research Triangle Park, NC 27709

Bayer CropScience
attn: Bill Kowite
2 T.W. Alexander Dr.
Research Triangle Park, NC 27709

AR-09-QD-035938-01

REPORT OF ANALYSIS

Test	Result
Moisture by Forced Draft Oven	12.07 %
Protein, Combustion	18.86 %
Crude Fat	6.75 %
Crude Fiber	2.2 %
Ash	5.71 %
Dry matter	87.93 %
Tryptophan	0.23 %
Cystine	0.26 %
Methionine	0.54 %
Aspartic Acid	2.02 %
Threonine	0.74 %
Serine	0.90 %
Glutamic Acid	3.56 %
Proline	1.16 %
Glycine	0.84 %
Alanine	0.96 %
Valine	0.97 %
Isoleucine	0.87 %
Leucine	1.68 %
Tyrosine	0.56 %
Phenylalanine	0.97 %
Total Lysine	1.11 %
Histidine	0.52 %
Arginine	1.24 %
Calcium	1.10 %
Chloride-Soluble	0.35 %
Cobalt	< 0.75 ppm
Copper	14 ppm
Iron	0.0278 %
Magnesium	0.19 %
Manganese	146 ppm
Phosphorus	0.63 %

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Eurofins Sample Code: 464-2009-04210370 **Client Sample Code: D 8935**

AR-09-QD-035938-01

REPORT OF ANALYSIS

Test	Result
Potassium	0.86 %
Selenium	0.40 ppm
Sodium	0.20 %
Zinc	136 ppm
Phytic acid	0.84 %
Iodine	1.16 ppm
Starch, Ewers	41.6 %
Trypsin inhibitor	<2,000 TIU/g
Clostridium Perfringens,Presumptive	listed
Clostridium perfringens, Confirmation	< 10 cfu/g
Salmonella by PCR	negative in 25g
Calories By Bomb Calorimeter	1,840 kcal/lb
Lectin	< 0.100 H.U./mg

Respectfully Submitted,
Eurofins Scientific Inc.

David Gross, Support Services Manager

APPENDIX 5 – DNA ANALYSIS – DIETS

BioAnalytics
Bayer CropScience
BioScience
2 TW Alexander Drive
RTP, NC 27709
USA

CERTIFICATE OF ANALYSIS NO. BTS-0010/09

General

This Certificate fulfills the requirement for the characterization of seed and/or sample used in a study. It documents the identity and/or purity/content of the seed and/or sample.

Designation of the Certified Material:

Material:	Poultry feeding diets containing toasted soybean meal made from soybean grain transgenic event FG72, its non-transgenic counterpart, and a non-transgenic commercial variety.
Study No.:	DQ09B006
Sample Nos.:	Biotechnology Identification (BTID) numbers: 2351AA-2359A BTID 2351A-2353A: Type A BTID 2354A-2356A: Type C BTID 2357A-2359A: Type D
Additional information:	Soybean grain was produced under study HT08SOY01

Origin of the Certified Material

Poultry diet samples obtained from:

Jennifer M. Stafford
Springborn Smithers Laboratories (SSL)
Carolina Research Center
2900 Quakenbush Rd.
Snow Camp, NC 27349

Methods

The ☒ Identity
☐ Purity
☐ Content

of the material was established by use of the following method(s):

☐ Discriminating PCR
☐ Southern Blotting
☐ ELISA
☐ Bradford Assay
☒ Real Time Discriminating PCR (Methods BAM/011/01, primers from PGS0475 and MDP0678)

This COA was produced according to SOP 98003.01

BioAnalytics
Bayer CropScience
BioScience
2 TW Alexander Drive
RTP, NC 27709
USA

Dates of Analysis
April 30, 2009

Methods and Results

The diet samples were ground in the Geno Grinder in order to obtain a more homogenous particle size prior to DNA extraction. Each Regimen consists of three separate diet samples, Starter, Grower, and Finisher. Duplicate DNA extractions were performed from each sample using a Promega Maxwell personal automation system with a DNA extraction kit (part no. AS 1030).
Real time discriminating PCR (RTdPCR) was performed according to methods PGS0475 (soybean endogenous reference gene) and MDP0678 (event FG72).

Results for the RTdPCR analyses are shown in Table 1. Results from the FG72 Real Time Discriminating PCR (RT dPCR) showed the expected pattern for the FG72 event for BTID 2354A -2356A; samples 2351A -2353A & 2357A – 2359A were shown not to contain FG72 event DNA.

Table 1: *PCR results from poultry feeding diets BTID 1563A-I*

			FG72 dPCR	
BTID	***Springborn Smithers Sample No.***	***Description***	***ENDO***	***FG72***
2351A	8936	Starter A	+	-
2352A	8937	Grower A	+	-
2353A	8938	Finisher A	+	-
2354A	8939	Starter C	+	+
2355A	8940	Grower C	+	+
2356A	8941	Finisher C	+	+
2357A	8942	Starter D	+	-
2358A	8943	Grower D	+	-
2359A	8944	Finisher D	+	-

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No. BTS-0010/09
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Testing Facilities

BioAnalytics
Bayer CropScience
BioScience
2 T.W. Alexander Dr.
Research Triangle Park, NC 27709
USA

Report and raw data are archived at Bayer CropScience, RTP, NC.

	Name (Typed)	Signature	Date (M/D/Y)
Responsible Scientist:	Aaron T Jeffries	A T J	5-21-09
Authorized by:	Sandra J. W. Mackie	Sandra J.W. Mackie	May 21, 2009

APPENDIX 6 – SUMMARIZED CLINICAL OBSERVATION

Avian Daily Observations Summary			
Cage	**Cage**	**Date**	**Comments**
A	04	6/6/2009	#376 developing SL*
A	04	6/7/2009	# 376 SL
A	04	6/8/2009	#376 SL
A	04	6/9/2009	#376 SL (not down yet)
A	04	6/10/2009	# 376 SL
A	04	6/11/2009	#376 SL
A	04	6/12/2009	#376 SL
A	04	6/13/2009	#371 SL, #376 SL
A	04	6/14/2009	#371 SL, #376 SL
A	04	6/15/2009	#376 SL ,#371 SL
A	04	6/16/2009	#371 SL, #376 SL
A	04	6/17/2009	#371 SL, #376 dead
A	04	6/18/2009	# 371 SL
A	04	6/19/2009	#371 SL
A	04	6/20/2009	# 371 L, SL
A	04	6/21/2009	# 371 dead
A	04	6/22/2009	#380 SL
A	04	6/23/2009	# 379 dead # 380 SL
A	04	6/24/2009	# 380 SL, #373 SL
A	04	6/25/2009	#373 SL, # 380 MY
A	04	6/26/2009	#373 SL, #380 MY
A	08	5/19/2009	#384 dead
A	08	6/21/2009	# 381 non-ambulatory
A	08	6/22/2009	#381 non- ambulatory
A	08	6/23/2009	# 381 non-ambulatory
A	08	6/24/2009	# 381 non-ambulatory
A	14	5/28/2009	#314 SL
A	14	5/29/2009	#314 SL
A	14	5/30/2009	#314 SL
A	14	5/31/2009	#314 SL
A	14	6/1/2009	#314 SL
A	14	6/2/2009	#314 SL
A	14	6/3/2009	#314 SL
A	14	6/4/2009	# 314 SL
A	14	6/6/2009	# 314 small**
A	14	6/7/2009	# 314 small, MY, SL
A	14	6/8/2009	#314 SL, small
A	14	6/9/2009	#314 small
A	14	6/10/2009	# 314 small
A	14	6/11/2009	# 314 small
A	14	6/12/2009	#314 small
A	14	6/13/2009	#314 small
A	14	6/14/2009	#314 small
A	14	6/15/2009	#314 small

Avian Daily Observations Summary			
Cage	**Cage**	**Date**	**Comments**
A	14	6/16/2009	#314 small
A	14	6/17/2009	#314 small
A	14	6/18/2009	# 314 small
A	14	6/19/2009	# 314 small
A	14	6/20/2009	# 314 small
A	14	6/21/2009	# 314 SL
A	14	6/22/2009	#314 dead
A	14	6/23/2009	# 318 crop hyper-extended, full of feed and water, starting to tear from tension. Suspect peristalsis has stopped, so food ingested is not passing gizzard as in previous fatality. Vent relatively clean (suggesting food not being processed).
A	14	6/24/2009	# 318 hyper-extended crop
A	14	6/25/2009	#318 crop hyperextended, full
A	14	6/26/2009	#318 crop hyper-extended
A	18	6/19/2009	#323 dead
A	18	6/25/2009	#329 coughing
A	18	6/26/2009	#329 coughing
A	21	5/21/2009	#410 showing signs of SL.
A	21	5/25/2009	#410 developing SL
A	21	5/26/2009	#410 SL
A	21	5/27/2009	#410 SL
A	21	5/28/2009	#410 SL
A	21	5/29/2009	#410 SL
A	21	5/30/2009	#410 SL
A	21	5/31/2009	#410 SL, #403 non ambulatory
A	21	6/1/2009	#403 SL
A	21	6/2/2009	#403 SL
A	21	6/3/2009	#403 SL
A	21	6/4/2009	# 403 SL
A	21	6/5/2009	#403 small
A	21	6/6/2009	# 403 small, MY
A	21	6/7/2009	#403 small, SL, MY
A	21	6/8/2009	#403 SL, small
A	21	6/9/2009	# 403 small, SL
A	21	6/10/2009	#403 small, SL
A	21	6/11/2009	#403 small, SL
A	21	6/12/2009	#403 small, SL
A	21	6/13/2009	#403 small, SL
A	21	6/14/2009	#403 small, SL
A	21	6/15/2009	#403 small, SL
A	21	6/16/2009	#403 small, SL
A	21	6/17/2009	# 403 small, SL
A	21	6/18/2009	#403 small, SL
A	21	6/19/2009	# 403 small, SL
A	21	6/20/2009	# 410 SL, # 403 small, SL
A	21	6/21/2009	# 410 SL # 403 small, SL
A	21	6/22/2009	#410 SL, #403 SL, small
A	21	6/23/2009	# 406 dead, #403 SL, #410 SL
A	21	6/24/2009	# 410 SL, 403 small, SL ,#408 l,
A	21	6/25/2009	#403 small, SL; #408 L, MY; #410 SL, MY, P, L

Avian Daily Observations Summary			
Cage	**Cage**	**Date**	**Comments**
A	21	6/26/2009	#410 SL, MY, P, L; #403 small, SL; #408 L, MY
A	23	5/27/2009	#415 dead
A	23	6/13/2009	#412 lethargic
A	23	6/14/2009	#412 dead
A	23	6/16/2009	#418 SL
A	23	6/17/2009	#418 SL
A	23	6/18/2009	# 418 SL
A	23	6/19/2009	# 418 SL
A	23	6/20/2009	# 418 L, SL
A	23	6/21/2009	# 418 SL
A	23	6/22/2009	#418 dead
A	25	6/22/2009	#427 SL
A	25	6/23/2009	# 427 SL
A	25	6/24/2009	#425 SL, #427 SL
A	25	6/25/2009	#425 MY, P, L; #427 SL, # 423 SL
A	25	6/26/2009	#425 MY, P, L; #427 SL; #423 SL
A	29	6/20/2009	# 332 SL
A	29	6/21/2009	# 332 dead
A	39	5/20/2009	#356 dead
C	01	5/16/2009	#9 lethargic
C	01	5/17/2009	# 9 died
C	03	6/5/2009	#376 SL
C	03	6/21/2009	#85 SL
C	03	6/22/2009	#85 SL, #82 SL
C	03	6/23/2009	# 85 SL, #82 SL
C	03	6/24/2009	#82 SL,# 85 SL #81 non-ambulatory
C	03	6/25/2009	#81 MY, #85 dead
C	03	6/26/2009	#81 MY
C	12	6/21/2009	# 96 non-ambulatory
C	12	6/22/2009	#96 non ambulatory
C	12	6/23/2009	# 96 non-ambulatory
C	12	6/24/2009	# 96 l, non-ambulatory
C	13	5/20/2009	#101 dead
C	13	5/27/2009	#102 SL
C	13	6/5/2009	#105 small
C	13	6/6/2009	# 105 small
C	13	6/7/2009	# 105 small
C	13	6/8/2009	#105 small
C	13	6/9/2009	#105 small
C	13	6/10/2009	# 105 small
C	13	6/11/2009	#105 dead
C	13	6/25/2009	#104 MY, #102 small, wing droop
C	13	6/26/2009	#104 MY; #102 small, wing droop
C	16	5/30/2009	#112 SL
C	16	5/31/2009	#112 SL
C	16	6/1/2009	#112SL
C	16	6/2/2009	#112 SL

Avian Daily Observations Summary			
Cage	**Cage**	**Date**	**Comments**
C	16	6/3/2009	#112 SL
C	16	6/4/2009	#112 SL
C	16	6/5/2009	# 112 small, SL
C	16	6/6/2009	# 112 small, L, MY
C	16	6/7/2009	# 112 small, SL, L, MY
C	16	6/8/2009	#112 SL, small
C	16	6/9/2009	#112 small, SL
C	16	6/10/2009	# 112 small, SL
C	16	6/11/2009	# 112 small, SL
C	16	6/12/2009	#112 small, SL
C	16	6/13/2009	#112 small, SL
C	16	6/14/2009	#112 small, SL
C	16	6/15/2009	#112 small, SL
C	16	6/16/2009	#112 small, SL
C	16	6/17/2009	#112 small, SL #115 SL
C	16	6/18/2009	# 112 small, SL #115 SL
C	16	6/19/2009	#112 small, #115 SL
C	16	6/20/2009	# 112 SL, #115 SL
C	16	6/21/2009	# 112 SL, #115 SL
C	16	6/22/2009	#115 SL, #112 SL, small
C	16	6/23/2009	#112 SL, #115 SL
C	16	6/24/2009	# 115 SL, #113 SL, #112 dead
C	16	6/25/2009	#113 MY, P, L; # 115 MY, P, L
C	16	6/26/2009	#113 MY, P, L; #115 MY, P, L
C	17	5/21/2009	#29 showing signs of SL.
C	17	5/23/2009	#29 lethargic, trouble walking
C	17	5/24/2009	#29 lethargic, trouble walking
C	17	5/25/2009	#29 dead
C	17	6/24/2009	
C	20	5/25/2009	#122 developing SL
C	20	5/26/2009	#122 SL
C	20	5/27/2009	#122 SL
C	20	5/28/2009	#122 SL
C	20	5/29/2009	#122 SL
C	20	5/30/2009	#122 SL
C	20	5/31/2009	#122 SL
C	20	6/1/2009	#122 SL
C	20	6/2/2009	#122 SL
C	20	6/3/2009	#122 dead
C	20	6/13/2009	#124 developing SL
C	20	6/14/2009	#124 developing SL
C	20	6/15/2009	#124 developing SL
C	20	6/16/2009	#124 SL
C	20	6/17/2009	#124 SL
C	20	6/18/2009	# 124 SL
C	20	6/19/2009	#124 SL
C	20	6/20/2009	# 124 SL

Avian Daily Observations Summary			
Cage	**Cage**	**Date**	**Comments**
C	20	6/21/2009	# 124 SL
C	20	6/22/2009	#124 SL
C	20	6/23/2009	#124 SL
C	20	6/24/2009	#124 SL, 128 dead
C	20	6/25/2009	#124 small, SL, MY
C	20	6/26/2009	#124 small, SL, MY
C	27	6/24/2009	#36 non-ambulatory
C	28	6/14/2009	#139 lethargic
C	28	6/15/2009	#139 lethargic, MY
C	28	6/16/2009	#139 L, MY
C	28	6/17/2009	# 139 l, MY
C	28	6/18/2009	# 139 l, MY, SL
C	28	6/19/2009	#139 dead
C	28	6/20/2009	# 137 SL
C	28	6/21/2009	# 137 SL
C	28	6/22/2009	#137 SL
C	28	6/23/2009	# 137 SL
C	28	6/24/2009	#137 SL
C	28	6/25/2009	#137 SL, L
C	28	6/26/2009	# 137 SL, L
C	36	5/26/2009	#56 dead
C	42	5/17/2009	# 67 dead
C	42	5/26/2009	#69 SL
C	42	5/27/2009	#69 SL
C	42	5/28/2009	#69 SL
C	42	5/29/2009	#69 SL
C	42	5/30/2009	#69 SL
C	42	5/31/2009	#69 SL
C	42	6/1/2009	#69 SL
C	42	6/2/2009	#69 SL
C	42	6/3/2009	#69 SL
C	42	6/4/2009	#69 SL
C	42	6/5/2009	# 69 dead
C	42	6/7/2009	approx. 100 g spill, unrecoverable
D	05	5/16/2009	#223 dead
D	05	6/22/2009	#222 SL
D	05	6/23/2009	# 222 SL
D	05	6/24/2009	# 222 non-ambulatory
D	05	6/25/2009	#222 dead, #227 MY
D	05	6/26/2009	#227 MY
D	07	6/5/2009	#232 L, developing water belly
D	07	6/6/2009	#232 L
D	07	6/7/2009	# 232 dead
D	07	6/17/2009	# 234 SL
D	07	6/18/2009	# 234 SL
D	07	6/19/2009	#234 SL
D	07	6/20/2009	# 234 SL

Avian Daily Observations Summary			
Cage	**Cage**	**Date**	**Comments**
D	07	6/21/2009	# 234 SL
D	07	6/22/2009	#234 SL
D	07	6/23/2009	# 234 SL
D	07	6/24/2009	#234 SL
D	07	6/25/2009	#234 MY
D	07	6/26/2009	#234 MY
D	09	5/20/2009	#246 dead
D	09	5/26/2009	#244 SL
D	09	5/27/2009	#244 SL
D	09	5/28/2009	#244 SL
D	09	5/29/2009	#244 SL
D	09	5/30/2009	#244 SL
D	09	5/31/2009	#244 SL
D	09	6/1/2009	#244 SL
D	09	6/2/2009	#244 SL
D	09	6/3/2009	#244 SL
D	09	6/4/2009	#244 SL
D	09	6/5/2009	#244 SL
D	09	6/6/2009	# 244 SL
D	09	6/7/2009	# 244 dead
D	09	6/12/2009	#248 lethargic, gasping for air.
D	09	6/13/2009	#248 gasping for air, lethargic
D	09	6/14/2009	#248 lethargic, gasping for air
D	09	6/15/2009	#248 dead
D	09	6/25/2009	#242 MY
D	09	6/26/2009	#242 MY
D	11	5/20/2009	#255 dead
D	11	5/25/2009	#260 dead, #258 seems to be blind or visually impaired (does not respond to visual stimuli).
D	11	5/27/2009	#258 lethargic
D	11	5/28/2009	#258 dead
D	11	6/14/2009	#254 dead
D	11	6/22/2009	#259 dead
D	22	5/17/2009	#163 & # 168 dead
D	24	6/13/2009	#262 SL
D	24	6/14/2009	#262 SL
D	24	6/15/2009	#262 SL
D	24	6/16/2009	#262 SL
D	24	6/17/2009	# 262 SL
D	24	6/18/2009	# 262 SL
D	24	6/19/2009	# 262 SL
D	24	6/20/2009	#262 SL
D	24	6/21/2009	# 262 SL
D	24	6/22/2009	#267 dead, #262 SL
D	24	6/23/2009	#262 SL
D	24	6/24/2009	# 262 SL
D	24	6/25/2009	#262 SL, P, MY
D	24	6/26/2009	#262 SL, P, MY

Avian Daily Observations Summary			
Cage	**Cage**	**Date**	**Comments**
D	26	5/21/2009	#177 showing signs of SL.
D	26	6/16/2009	#173 developing SL
D	26	6/17/2009	# 173 SL
D	26	6/18/2009	# 173 SL
D	26	6/19/2009	#173 SL
D	26	6/20/2009	# 173 SL
D	26	6/21/2009	# 173 SL
D	26	6/22/2009	#173 SL, #176 SL
D	26	6/23/2009	#173 SL #176 SL
D	26	6/24/2009	# 173 dead, # 176 SL, #172 SL
D	26	6/25/2009	#176 MY, P, L
D	26	6/26/2009	#176 MY, P, L
D	33	5/18/2009	# 273 dead
D	34	6/12/2009	#181 dead
D	35	5/26/2009	#191 SL
D	35	5/27/2009	#191 SL
D	35	5/28/2009	#191 SL
D	35	5/29/2009	#191 SL
D	35	5/30/2009	#191 SL
D	35	5/31/2009	#191 SL
D	35	6/1/2009	#191 SL
D	35	6/2/2009	#191 SL
D	35	6/3/2009	#191 SL
D	35	6/4/2009	# 191 SL
D	35	6/5/2009	# 191 dead
D	37	5/31/2009	#287 dead
D	37	6/17/2009	# 283 SL
D	37	6/18/2009	# 283 SL
D	37	6/19/2009	# 283 SL
D	37	6/20/2009	# 283 SL, # 288 L, non-ambulatory.
D	37	6/21/2009	# 283 SL, # 284 SL, # 288 non-ambulatory
D	37	6/22/2009	#288 dead, #284 SL, #283 SL
D	37	6/23/2009	# 284 SL,#283 SL
D	37	6/24/2009	#281 l, SL #284 SL, #283 non-ambulatory
D	37	6/25/2009	#281 MY, L, P; #283 MY; # 284 MY, L, P
D	37	6/26/2009	# 281 MY, L, P; # 283 MY, # 284 MY, L, P
D	38	6/21/2009	# 210 SL
D	38	6/22/2009	#210 SL
D	38	6/23/2009	#210 SL
D	38	6/24/2009	# 210 L,
D	38	6/25/2009	#210 small, L, P, MY
D	38	6/26/2009	#210 small, L, P, MY
D	41	5/25/2009	#212 developing SL
D	41	5/26/2009	#212 SL
D	41	5/30/2009	#212 SL
D	41	5/31/2009	#212 non ambulatory
D	41	6/1/2009	#212 SL

Avian Daily Observations Summary			
Cage	**Cage**	**Date**	**Comments**
D	41	6/2/2009	#212 SL
D	41	6/3/2009	#212 SL
D	41	6/4/2009	#212 SL
D	41	6/5/2009	# 212 P, L, not ambulating, small
D	41	6/6/2009	# 212 small, P, L, waterbelly, cannot ambulate
D	41	6/7/2009	# 212 dead

* developing SL – for monitoring purposes, SL (splayed leg) condition not fully developed yet.
** small = bird < 75% the size of others.

Clinical Observations Tally

		Group		
	Data	**Non-transgenic, non-GM**	**GM**	**Commercial**
Number of bird affected		23	22	32
Number of birds that died without prior symptoms		6	4	12
Number of birds that had symptoms and ultimately died		6	8	9
Type of symptom	Splayed leg	12	12	14
	Myasthenia	5	7	9
	Impaired ambulation	2	4	4
	75% or less the size of cage mates	2	4	2
	Piloerection	2	2	6
	Lethargic	4	7	9
	Other (see details in above summary	2	1	5

APPENDIX 7 – SUMMARIZED IN-LIFE FATALITY POST MORTEM NOTATIONS

POST-MORTEM NOTATIONS										
Date	**Study Day**	**Group**	**Cage #**	**Tag #**	**Circulatory System Comments**	**Gastrointestinal System Comments**	**Musculoskeletal System Comments**	**Respiratory System Comments**	**Urogenital System Comments**	**Additional Comments**
5/16/09	1	D	5	223	wnl	wnl	wnl	wnl	wnl	
5/17/09	2	C	1	9	wnl	wnl, gall bladder was very full, dark liquid.	wnl	wnl	wnl	Still had egg sac partially full.
5/17/09	2	C	42	67	wnl	wnl	wnl	wnl	wnl	
5/17/09	2	D	22	163	wnl	gall bladder very full, dark liquid. wnl	wnl	wnl	wnl	
5/17/09	2	D	22	168	wnl	wnl	wnl	wnl	wnl	
5/18/09	3	D	33	273	wnl	gall bladder full. wnl	wnl	wnl	wnl	Egg sac still attached.
5/19/09	4	A	8	384	wnl	wnl	wnl	wnl	wnl	
5/20/09	5	A	39	356	wnl	wnl	wnl	wnl	wnl	
5/20/09	5	C	13	101	wnl	Intestines appeared large and full of gas.	wnl	wnl	wnl	
5/20/09	5	D	11	255	wnl	wnl	wnl	wnl	wnl	
5/20/09	5	D	9	246	wnl	wnl	wnl	wnl	wnl	
5/25/09	10	C	17	29	Pericarditis	liver moderately swollen. Retained yolk very firm.	wnl	airsaculitis (mostly left abdominal)	wnl	
5/25/09	10	D	11	260	wnl	liver off-color (dark greenish brown), intestines full of gas, food in crop.	wnl	hemorrhaging / blood in lungs.	wnl	
5/26/09	11	C	36	56	wnl	wnl	wnl	wnl	wnl	
5/27/09	12	A	23	415	wnl	wnl	wnl	wnl	wnl	
5/28/09	13	D	11	258	wnl	wnl	wnl	wnl	wnl	subcranial hemorrhaging in occipital lobes.
5/31/09	16	D	37	287	wnl	wnl	wnl	wnl	wnl	
6/3/09	19	C	20	122	kidneys are pale	Ascites in and around abdominal cavity, around liver. Intestines full of gas. Gall bladder is enlarged.	Has SL on left side.	wnl	wnl	

POST-MORTEM NOTATIONS										
Date	**Study Day**	**Group**	**Cage #**	**Tag #**	**Circulatory System Comments**	**Gastrointestinal System Comments**	**Musculoskeletal System Comments**	**Respiratory System Comments**	**Urogenital System Comments**	**Additional Comments**
6/5/09	21	C	42	69	ureters full of urates	gall bladder full and enlarged	breast blister, emaciated	hemorrhaging in lungs, both full of old blood (dark, no free-flowing liquid)	wnl	
6/5/09	21	D	35	191	ureters full of urates	crop empty	emaciated	wnl	wnl	
6/7/09	23	D	41	212	kidneys inflamed; ascites and fat around heart, ventricles small	spleen enlarged, food in crop	splayed legs	wnl	wnl	
6/7/09	23	D	7	232	kidneys inflamed	crop engorged, contents = some food, mostly yellowish fluid; gall bladder enlarged; proventriculus and gizzard also enlarged, gizzard very flaccid	wnl	wnl	wnl	Based on the condition it appears that contents were not passing readily from the gizzard to intestines though the intestines were not entirely empty. They were less developed than others (i.e.: smaller, less vascularized).
6/7/09	23	D	9	244	wnl	crop engorged, spleen enlarged, ceca distended with gas (ceca condition may not be "abnormal" considering the function of the ceca, but it is rarely seen in these studies).	breast blister	wnl	wnl	
6/11/09	27	C	13	105	kidneys are Slightly swollen.	Ascites fluid in abdominal cavity.	wnl	wnl	wnl	

POST-MORTEM NOTATIONS										
Date	**Study Day**	**Group**	**Cage #**	**Tag #**	**Circulatory System Comments**	**Gastrointestinal System Comments**	**Musculoskeletal System Comments**	**Respiratory System Comments**	**Urogenital System Comments**	**Additional Comments**
6/12/09	28	D	34	181	kidneys are inflamed, ascites in pericardium sac and heart.	liver appears small, also intestines. ascites fluid in abdominal cavity.	wnl	blood in both lungs.	wnl	
6/14/09	30	A	23	412	wnl	liver encased by congealed ascites fluid, proventriculus enlarged	wnl	wnl	wnl	
6/14/09	30	D	11	254	wnl	entire abdominal cavity surrounded by ascites fluid, liver pale	wnl	wnl	wnl	
6/15/09	31	D	9	248	kidneys are swollen, heart enlarged	ascites fluid in abdominal cavity. gall bladder full of dark liquid. proventriculus empty, gizzard has dark liquid. intestines are small, spleen is small.	wnl	blood in both lungs.	wnl	
6/17/09	33	A	4	376	ascites fluid in pericardium sac, kidneys are swollen.	gall bladder enlarged, full of dark fluid. intestines are small.	emaciated	wnl	wnl	
6/19/09	35	A	18	323	heart is amorphic, kidneys Slightly swollen and pale.	liver is pale	wnl	blood in right lung	wnl	
6/19/09	35	C	28	139	heart is amorphic, kidneys are swollen	intestines are small, spleen is enlarged.	emaciated	wnl	wnl	
6/21/09	37	A	29	332	heart enlarged, pericardium is full of ascites fluid.	liver and abdominal cavity full of ascites fluid.	splayed legs	blood in lungs	wnl	
6/21/09	37	A	4	371	heart is amorphic, kidneys are swollen.	spleen is pale, intestines are small.	emaciated, splayed legs.	wnl	wnl	
6/22/09	38	A	14	314	wnl	wnl	small, SLged	wnl	wnl	

POST-MORTEM NOTATIONS										
Date	**Study Day**	**Group**	**Cage #**	**Tag #**	**Circulatory System Comments**	**Gastrointestinal System Comments**	**Musculoskeletal System Comments**	**Respiratory System Comments**	**Urogenital System Comments**	**Additional Comments**
6/22/09	38	A	23	418	wnl	wnl	SLged	wnl	wnl	
6/22/09	38	D	11	259	heart and kidneys enlarged. pericardial sac full of ascites fluid.	liver pale, abdominal cavity full of ascites fluid, intestines full of gas, liver, gall bladder enlarged also spleen	wnl	wnl	wnl	
6/22/09	38	D	24	267	pericardium sac filled with ascites fluid, heart enlarged, kidneys enlarged.	abdominal cavity filled with ascites fluid, liver enlarged and pale.	wnl	wnl	wnl	
6/22/09	38	D	37	288	heart and kidneys enlarged.	proventriculus and gall bladder enlarged.	wnl	wnl	wnl	
6/23/09	39	A	21	406	heart and kidneys enlarged, pericardium sac is full of ascites.	liver and abdominal cavity full of ascites.	wnl	blood in lungs	wnl	
6/23/09	39	A	4	379	heart is amorphic, ascites in pericardium sac, kidneys are swollen.	liver and abdominal cavity full of ascites.	wnl	wnl	wnl	
6/24/09	40	C	16	112	heart is amorphic, kidneys are swollen.	liver is dark around the edges, gall bladder is full. intestines are small in size.	emaciated, splayed legs	wnl	wnl	
6/24/09	40	C	20	128	heart is amorphic, pericardium sac is full of ascites.	liver and abdominal cavity full of ascites.	wnl	wnl	wnl	
6/24/09	40	D	26	173	ascites fluid in pericardium sac.	intestines are small.	splayed legs, Slightly emaciated.	wnl	wnl	
6/25/09	41	C	3	85	heart is amorphic, fluid in the pericardium sac. kidneys are swollen.	wnl	splayed legs	wnl	wnl	

POST-MORTEM NOTATIONS										
Date	**Study Day**	**Group**	**Cage #**	**Tag #**	**Circulatory System Comments**	**Gastrointestinal System Comments**	**Musculoskeletal System Comments**	**Respiratory System Comments**	**Urogenital System Comments**	**Additional Comments**
6/25/09	41	D	5	222	heart is amorphic, ascites fluid in the pericardium sac. kidneys are swollen.	wnl	splayed legs	blood in the lungs	wnl	

APPENDIX 8 – FEED CONSUMPTION

FEED CONSUMPTION DATA												
Group	**Cage**	**Study Week #**	**Pre Weight (g)**	**Added Feed#1 (g)**	**Added Feed#2 (g)**	**Added Feed#3 (g)**	**Added Feed#4 (g)**	**Added Feed#5 (g)**	**Post Weight (g)**	**Total Consumed (g)**	**Bird-Days**	**Consumption / Bird / Day (g)**
A	04	1	4675.9						3255.7	1420.2	70	20.3
A	04	2	4924.5						892.5	4032.0	70	57.6
A	04	3	4987.6	2444.1					592.1	6839.6	70	97.7
A	04	4	4329.7		3679.3	3797.6			927.5	10879.1	70	155.4
A	04	5	4665.3	.0	3424.3	3682.4			2475.9	9296.1	68	136.7
A	04	6	4815.7	2683.0	1470.6	2407.7			3257.8	8119.2	55	147.6
A	08	1	4676.9						3421.3	1255.6	67	18.7
A	08	2	4895.3						1148.4	3746.9	63	59.5
A	08	3	5030.8	2254.0					609.7	6675.1	63	106.0
A	08	4	4293.6		3596.1	3982.1			850.6	11021.2	63	174.9
A	08	5	4479.4	.0	3494.7	3905.7			1930.2	9949.6	63	157.9
A	08	6	4756.0	3886.3	3042.9	3648.3			659.4	14674.1	63	232.9
A	10	1	4591.7						3151.6	1440.1	70	20.6
A	10	2	5002.0						1128.8	3873.2	70	55.3
A	10	3	4862.5	2170.9					766.3	6267.1	70	89.5
A	10	4	4300.9		3396.2	3659.6			1122.2	10234.5	70	146.2
A	10	5	4612.7	.0	3112.3	3434.8			2176.1	8983.7	70	128.3
A	10	6	4520.3	3329.0	2634.7	3317.7			1133.7	12668.0	70	181.0
A	14	1	4683.6						3177.7	1505.9	70	21.5
A	14	2	5250.1						1064.9	4185.2	70	59.8
A	14	3	5050.4	2502.6					930.6	6622.4	70	94.6
A	14	4	4776.0		3887.1	3208.8			1407.3	10464.6	70	149.5
A	14	5	4724.8	.0	3553.3	4000.8			2217.5	10061.4	70	143.7
A	14	6	5017.2	3536.2	2414.7	3321.3			2193.2	12096.2	66	183.3
A	18	1	4787.2						3278.3	1508.9	70	21.6
A	18	2	4895.0						1022.2	3872.8	70	55.3
A	18	3	4998.9	2637.4					968.7	6667.6	70	95.3
A	18	4	4543.9		3622.9	3746.1			1546.5	10366.4	70	148.1
A	18	5	4815.1	.0	3243.1	3691.1			2515.1	9234.2	70	131.9
A	18	6	4792.1	3439.4	2959.6	3295.1			2438.6	12047.6	63	191.2
A	19	1	4659.7						3239.0	1420.7	70	20.3
A	19	2	4843.7						813.0	4030.7	70	57.6
A	19	3	4951.7	2742.7					717.9	6976.5	70	99.7
A	19	4	4552.6		3784.7	3813.4			755.1	11395.6	70	162.8
A	19	5	4554.9	.0	3395.5	4024.3			1236.5	10738.2	70	153.4
A	19	6	4767.4	4020.3	3082.6	3980.0			677.3	15173.0	70	216.8
A	21	1	4644.9						3394.4	1250.5	70	17.9

FEED CONSUMPTION DATA												
Group	**Cage**	**Study Week #**	**Pre Weight (g)**	**Added Feed#1 (g)**	**Added Feed#2 (g)**	**Added Feed#3 (g)**	**Added Feed#4 (g)**	**Added Feed#5 (g)**	**Post Weight (g)**	**Total Consumed (g)**	**Bird-Days**	**Consumption / Bird / Day (g)**
A	21	2	4791.7						1356.2	3435.5	70	49.1
A	21	3	5018.2	2319.4					1137.1	6200.5	70	88.6
A	21	4	4499.4		3701.8	3722.9			1337.7	10586.4	70	151.2
A	21	5	4778.7	.0	3426.6	3603.9			2103.5	9705.7	70	138.7
A	21	6	5009.2	4005.4	2748.5	2868.5			2416.5	12215.1	67	182.3
A	23	1	4558.6						3212.6	1346.0	70	19.2
A	23	2	4910.5						989.5	3921.0	68	57.7
A	23	3	5048.1	2677.2					1137.3	6588.0	63	104.6
A	23	4	4640.2		3650.4	3603.4			1964.4	9929.6	63	157.6
A	23	5	4958.0	.0	3256.2	2988.3			3034.0	8168.5	58	140.8
A	23	6	5146.8	2734.7	2301.1	2595.4			2956.7	9821.3	52	188.9
A	25	1	4613.6						3276.4	1337.2	70	19.1
A	25	2	4855.5						894.2	3961.3	70	56.6
A	25	3	4882.9	2781.5					612.0	7052.4	70	100.7
A	25	4	4823.8	918.6	4001.1	3847.5			880.8	12710.2	70	181.6
A	25	5	4626.3	.0	3793.3	4127.3			1716.2	10830.7	70	154.7
A	25	6	4774.8	4024.4	3102.4	3640.7			1683.2	13859.1	70	198.0
A	29	1	4779.9						3258.2	1521.7	70	21.7
A	29	2	4998.7						879.1	4119.6	70	58.9
A	29	3	5018.4	2975.6					925.4	7068.6	70	101.0
A	29	4	4637.0		3806.7	3949.0			1506.6	10886.1	70	155.5
A	29	5	4864.9	.0	3359.4	3873.4			2611.9	9485.8	70	135.5
A	29	6	5008.8	3423.6	2904.9	3713.0			1682.6	13367.7	65	205.7
A	31	1	4803.3						3292.3	1511.0	70	21.6
A	31	2	4957.1						1066.9	3890.2	70	55.6
A	31	3	5050.6	2580.3					1029.6	6601.3	70	94.3
A	31	4	4615.5		3887.3	3903.5			1508.7	10897.6	70	155.7
A	31	5	4821.9	.0	3373.6	4035.0			2440.3	9790.2	70	139.9
A	31	6	4982.3	3735.0	3090.5	3457.0			1497.6	13767.2	70	196.7
A	32	1	4845.2						3601.7	1243.5	70	17.8
A	32	2	4940.4						954.9	3985.5	70	56.9
A	32	3	4850.6	3300.8					898.8	7252.6	70	103.6
A	32	4	4808.4		3941.7	3930.5			623.1	12057.5	70	172.3
A	32	5	4830.2	.0	3444.2	4168.7			1223.4	11219.7	70	160.3
A	32	6	4694.5	3727.2	2787.5	3672.0			869.6	14011.6	70	200.2
A	39	1	4740.9						3278.5	1462.4	68	21.5
A	39	2	4841.3						596.2	4245.1	63	67.4
A	39	3	4915.9	3192.4					1049.2	7059.1	63	112.0
A	39	4	4331.0		3231.3	3446.3			1857.5	9151.1	63	145.3
A	39	5	4576.1	.0	2724.5	3604.7			2402.8	8502.5	63	135.0
A	39	6	4769.6	3647.9	2609.4	3266.1			1819.1	12473.9	70	178.2
A	40	1	4789.7						3262.2	1527.5	70	21.8

FEED CONSUMPTION DATA												
Group	**Cage**	**Study Week #**	**Pre Weight (g)**	**Added Feed#1 (g)**	**Added Feed#2 (g)**	**Added Feed#3 (g)**	**Added Feed#4 (g)**	**Added Feed#5 (g)**	**Post Weight (g)**	**Total Consumed (g)**	**Bird-Days**	**Consumption / Bird / Day (g)**
A	40	2	5083.9						1186.5	3897.4	70	55.7
A	40	3	4946.1	2893.3					1211.0	6628.4	70	94.7
A	40	4	4732.5		3688.7	3627.3			1242.9	10805.6	70	154.4
A	40	5	4823.2	.0	3735.4	4459.2			2062.4	10955.4	70	156.5
A	40	6	5400.1	4339.3	3384.5	3949.4			1196.5	15876.8	70	226.8
C	01	1	4542.6						3355.4	1187.2	65	18.3
C	01	2	4630.2						1046.8	3583.4	63	56.9
C	01	3	4703.7	2074.6					1086.6	5691.7	63	90.3
C	01	4	4220.7		3462.3	3009.1			1728.3	8963.8	63	142.3
C	01	5	4801.5	.0	2976.8	2981.3			2284.4	8475.2	63	134.5
C	01	6	4700.8	3309.3	2511.1	3054.3			1929.0	11646.5	63	184.9
C	02	1	4818.4						3452.6	1365.8	70	19.5
C	02	2	4914.6						686.7	4227.9	70	60.4
C	02	3	4790.7	2171.9					601.0	6361.6	70	90.9
C	02	4	3767.4		3598.1	3832.4			871.5	10326.4	70	147.5
C	02	5	4750.0	.0	2728.8	4023.7			1425.8	10076.7	70	144.0
C	02	6	4783.6	3986.5	3030.4	3587.3			847.0	14540.8	70	207.7
C	03	1	4683.6						3252.1	1431.5	70	20.5
C	03	2	4852.2						659.6	4192.6	70	59.9
C	03	3	4901.1	3012.1					594.2	7319.0	70	104.6
C	03	4	4366.1		3666.3	3749.5			607.5	11174.4	70	159.6
C	03	5	4484.8	1224.2	3260.2	4054.0			1054.6	11968.6	70	171.0
C	03	6	4621.1	3963.8	2921.6	3707.4			649.1	14564.8	69	211.1
C	06	1	4794.4						3175.8	1618.6	70	23.1
C	06	2	4915.7						982.9	3932.8	70	56.2
C	06	3	4919.2	2595.5					869.8	6644.9	70	94.9
C	06	4	4459.9		3887.5	3756.8			1667.4	10436.8	70	149.1
C	06	5	4867.7	.0	3273.4	3733.5			1827.4	10047.2	70	143.5
C	06	6	5002.8	4030.4	2760.8	3493.1			1132.2	14154.9	70	202.2
C	12	1	4575.7						3118.2	1401.4	70	20.0
C	12	2	4908.9						808.2	4100.7	70	58.6
C	12	3	4799.1	2868.4					599.0	7068.5	70	101.0
C	12	4	4355.5	879.2	3635.9	3762.2			879.6	11753.2	70	167.9
C	12	5	4805.1	.0	3718.9	3895.0			1390.3	11028.7	70	157.6
C	12	6	4546.1	4407.8	3326.3	3474.2			703.6	15050.8	70	215.0
C	13	1	4716.1						3497.9	1218.2	68	17.9
C	13	2	4813.8						1611.8	3202.0	63	50.8
C	13	3	4790.3	2160.5					1231.7	5719.1	63	90.8
C	13	4	4172.6		3709.9	3565.1			1640.2	9807.4	62	158.2
C	13	5	4764.9	.0	2900.0	3789.4			2107.4	9346.9	56	166.9
C	13	6	4634.6	3670.3	2732.6	2819.6			1759.5	12097.6	56	216.0
C	16	1	4658.9						3257.5	1457.5	70	20.8

FEED CONSUMPTION DATA												
Group	**Cage**	**Study Week #**	**Pre Weight (g)**	**Added Feed#1 (g)**	**Added Feed#2 (g)**	**Added Feed#3 (g)**	**Added Feed#4 (g)**	**Added Feed#5 (g)**	**Post Weight (g)**	**Total Consumed (g)**	**Bird-Days**	**Consumption / Bird / Day (g)**
C	16	2	4867.2						688.3	4178.9	70	59.7
C	16	3	4819.6	2994.2					627.1	7186.7	70	102.7
C	16	4	4253.8	854.4	3522.1	4081.5			1299.1	11412.7	70	163.0
C	16	5	4577.7	1270.1	3109.1	3904.5			1585.6	11275.8	70	161.1
C	16	6	4628.1	3982.4	2690.8	3402.7			1146.3	13557.7	68	199.4
C	17	1	4543.6						3223.9	1319.7	70	18.9
C	17	2	4738.3						1214.9	3523.4	66	53.4
C	17	3	4880.6	2144.6					1084.8	5940.4	63	94.3
C	17	4	4237.9		3818.2	3235.3			1688.5	9602.9	63	152.4
C	17	5	4722.8	.0	3051.7	3215.6			2309.3	8680.8	63	137.8
C	17	6	4714.8	3532.2	2731.0	3158.3			1262.8	12873.5	63	204.3
C	20	1	4678.1						3316.6	1361.5	70	19.5
C	20	2	4841.4						867.8	3973.6	70	56.8
C	20	3	4874.7	2654.1					877.8	6651.0	68	97.8
C	20	4	4447.9	861.5	3793.0	3567.8			1235.8	11434.4	63	181.5
C	20	5	4678.1	1249.2	2916.3	3570.0			1606.7	10806.9	63	171.5
C	20	6	4806.7	3968.8	2928.9	3551.6			943.6	14312.4	61	234.6
C	27	1	4772.9						3411.1	1361.8	70	19.5
C	27	2	5100.5						1140.5	3960.0	70	56.6
C	27	3	5017.3	2658.2					949.3	6726.2	70	96.1
C	27	4	4414.3		3962.9	3675.9			1395.9	10657.2	70	152.2
C	27	5	4775.9	.0	3410.6	3567.3			2163.5	9590.3	70	137.0
C	27	6	4773.7	3819.6	2582.2	3192.1			1619.7	12747.9	70	182.1
C	28	1	4776.1						3178.1	1598.0	70	22.8
C	28	2	4953.9						757.7	4196.2	70	59.9
C	28	3	4911.0	2788.8					584.1	7115.7	70	101.7
C	28	4	4439.3	864.1	3582.7	4031.2			696.3	12221.0	70	174.6
C	28	5	4715.8	.0	3696.4	4090.0			1213.4	11288.8	70	161.3
C	28	6	4580.4	4025.3	3174.8	3309.7			734.4	14355.8	63	227.9
C	30	1	4578.8						3064.2	1514.6	70	21.6
C	30	2	4759.1						619.2	4139.9	70	59.1
C	30	3	4818.2	2813.5					833.6	6798.1	70	97.1
C	30	4	4170.8	838.8	3416.7	3361.0			1197.3	10590.0	70	151.3
C	30	5	4774.2	.0	3221.0	3574.9			1798.6	9771.5	70	139.6
C	30	6	4682.1	3629.9	2854.7	3583.8			691.5	14059.0	70	200.8
C	36	1	4592.4						3130.3	1462.1	70	20.9
C	36	2	4814.0						1087.8	3726.2	67	55.6
C	36	3	4780.3	2529.4					1574.9	5734.8	63	91.0
C	36	4	4446.5		3460.6	3241.8			1921.9	9227.0	63	146.5
C	36	5	4965.6	.0	2957.8	2945.6			2425.1	8443.9	63	134.0
C	36	6	5025.6	3130.2	2530.5	3109.9			1672.9	12123.3	63	192.4
C	42	1	4661.4						3428.3	1233.1	65	19.0

FEED CONSUMPTION DATA												
Group	**Cage**	**Study Week #**	**Pre Weight (g)**	**Added Feed#1 (g)**	**Added Feed#2 (g)**	**Added Feed#3 (g)**	**Added Feed#4 (g)**	**Added Feed#5 (g)**	**Post Weight (g)**	**Total Consumed (g)**	**Bird-Days**	**Consumption / Bird / Day (g)**
C	42	2	4973.9						1126.8	3847.1	63	61.1
C	42	3	4994.2	2104.1					2010.3	5088.0	63	80.8
C	42	4	4640.9		3358.1	2830.9			2111.1	8718.8	56	155.7
C	42	5	5035.7	.0	2579.3	2675.9			2811.2	7479.7	56	133.6
C	42	6	4962.1	3058.8	2383.0	2823.5			1986.2	11241.2	56	200.7
D	05	1	4736.2						3460.3	1275.9	64	19.9
D	05	2	5001.0						1272.4	3728.6	63	59.2
D	05	3	4910.7	2430.5					795.8	6545.4	63	103.9
D	05	4	3955.4	817.6	3450.2	3689.2			1336.1	10576.3	63	167.9
D	05	5	4503.7	.0	3080.4	4010.8			1510.6	10084.3	63	160.1
D	05	6	4475.6	3539.5	2767.2	3261.3			1594.7	12448.9	62	200.8
D	07	1	4735.3						3322.9	1412.4	70	20.2
D	07	2	5189.2						1067.1	4122.1	70	58.9
D	07	3	5278.4	2585.3					784.2	7079.5	70	101.1
D	07	4	4565.4		4029.8	4090.9			1156.4	11529.7	65	177.4
D	07	5	4460.6	.0	3669.6	4008.5			1990.4	10148.3	63	161.1
D	07	6	4853.2	4067.6	2148.5	3233.3			1429.4	12873.2	63	204.3
D	09	1	4773.0						3483.9	1289.1	68	19.0
D	09	2	5452.1						1770.0	3682.1	63	58.4
D	09	3	5200.4	2384.3					1053.2	6531.5	63	103.7
D	09	4	4388.8		3780.6	3251.8			2234.8	9186.4	54	170.1
D	09	5	4841.0	.0	2882.2	3189.6			2539.8	8373.0	52	161.0
D	09	6	5063.8	3271.8	2355.6	3360.9			1741.6	12310.5	49	251.2
D	11	1	4749.5						3586.0	1163.5	68	17.1
D	11	2	5171.7						2046.0	3125.7	58	53.9
D	11	3	5143.2	1845.0					1741.3	5246.9	49	107.1
D	11	4	4349.0		3541.6	2805.9			2704.3	7992.2	49	163.1
D	11	5	4897.2	.0	2311.9	2840.9			1860.2	8189.8	44	186.1
D	11	6	5002.8	2550.5	1360.3	2564.2			2723.1	8754.7	38	230.4
D	15	1	4631.8						3224.9	1406.9	70	20.1
D	15	2	5091.3						1114.8	3976.5	70	56.8
D	15	3	5285.4	2422.8					1090.3	6617.9	70	94.5
D	15	4	4434.1		3821.1	3854.6			1712.5	10397.3	70	148.5
D	15	5	4845.3	.0	3273.4	3905.9			2266.4	9758.2	70	139.4
D	15	6	5096.7	3685.6	2742.9	3531.7			1259.6	13797.3	70	197.1
D	22	1	4927.7						3912.3	1015.4	60	16.9
D	22	2	4899.7						1991.5	2908.2	56	51.9
D	22	3	5003.9	2063.7					1996.0	5071.6	56	90.6
D	22	4	4267.4		3303.4	2933.2			2316.4	8187.6	56	146.2
D	22	5	4892.6	.0	2387.0	3355.0			2622.7	8011.9	56	143.1
D	22	6	5054.0	2766.2	2329.6	2498.0			2220.1	10427.7	56	186.2
D	24	1	5031.8						3638.7	1393.1	70	19.9

FEED CONSUMPTION DATA												
Group	**Cage**	**Study Week #**	**Pre Weight (g)**	**Added Feed#1 (g)**	**Added Feed#2 (g)**	**Added Feed#3 (g)**	**Added Feed#4 (g)**	**Added Feed#5 (g)**	**Post Weight (g)**	**Total Consumed (g)**	**Bird-Days**	**Consumption / Bird / Day (g)**
D	24	2	4946.3						846.8	4099.5	70	58.6
D	24	3	5010.2	2699.4					600.6	7109.0	70	101.6
D	24	4	4348.8	837.9	3771.3	3934.1			1115.0	11777.1	70	168.2
D	24	5	4746.0	.0	3639.6	3735.6			2207.5	9913.7	70	141.6
D	24	6	4793.3	3679.1	2472.0	3332.5			1839.6	12437.3	66	188.4
D	26	1	4916.7						3412.3	1504.4	70	21.5
D	26	2	5024.9						973.6	4051.3	70	57.9
D	26	3	5148.0	2843.0					951.4	7039.6	70	100.6
D	26	4	4424.6		3775.7	3537.4			1205.5	10532.2	70	150.5
D	26	5	4658.8	.0	3495.8	3932.2			2203.9	9882.9	70	141.2
D	26	6	4967.7	3457.8	2224.1	3132.4			2946.3	10835.7	68	159.3
D	33	1	4832.9						3724.3	1108.6	66	16.8
D	33	2	5037.1						1585.7	3451.4	63	54.8
D	33	3	5067.1	2558.2					1171.6	6453.7	63	102.4
D	33	4	4253.1		3761.1	3677.9			1695.5	9996.6	63	158.7
D	33	5	4744.7	.0	3108.0	3783.3			2520.0	9116.0	63	144.7
D	33	6	5026.1	3362.5	2916.3	3759.9			1392.8	13672.0	63	217.0
D	34	1	4921.9						3556.1	1365.8	70	19.5
D	34	2	5158.9						1258.7	3900.2	70	55.7
D	34	3	5124.2	2768.8					1255.1	6637.9	70	94.8
D	34	4	4406.1		3839.1	3297.2			1883.3	9659.1	70	138.0
D	34	5	4985.8	.0	3187.3	3655.5			2609.1	9219.5	63	146.3
D	34	6	5183.3	3313.1	2627.9	3571.6			1833.2	12862.7	63	204.2
D	35	1	4862.2						3461.5	1400.7	70	20.0
D	35	2	5142.3						1477.2	3665.1	70	52.4
D	35	3	4966.9	3385.1		-1019.6			1416.0	6936.0	70	99.1
D	35	4	4269.1		3838.7	3052.0			2153.8	9006.0	63	143.0
D	35	5	4785.2	.0	2758.5	3516.7			2471.9	8588.5	63	136.3
D	35	6	4892.3	3298.3	2482.7	2840.2			2148.1	11365.4	63	180.4
D	37	1	4768.3						3432.0	1336.3	70	19.1
D	37	2	5039.5						1118.5	3921.0	70	56.0
D	37	3	5029.1	2269.3					1194.0	6104.4	65	93.9
D	37	4	4380.4		3714.4	3663.5			1445.5	10312.8	63	163.7
D	37	5	4802.1	.0	3407.0	3424.0			2349.1	9284.0	63	147.4
D	37	6	5236.0	3355.4	2455.7	2531.0			3147.7	10430.4	69	151.2
D	38	1	4657.4						3235.9	1421.5	70	20.3
D	38	2	4943.6						867.1	4076.5	70	58.2
D	38	3	4837.4	2988.4					1128.1	6697.7	70	95.7
D	38	4	4221.5		3597.3	3288.0			1052.4	10054.4	70	143.6
D	38	5	4518.9	.0	3121.3	3566.8			2048.2	9158.8	70	130.8
D	38	6	4590.3	3308.9	2981.9	2458.7			1823.8	11516.0	63	182.8
D	41	1	4732.4						3254.8	1477.6	70	21.1

FEED CONSUMPTION DATA												
Group	**Cage**	**Study Week #**	**Pre Weight (g)**	**Added Feed#1 (g)**	**Added Feed#2 (g)**	**Added Feed#3 (g)**	**Added Feed#4 (g)**	**Added Feed#5 (g)**	**Post Weight (g)**	**Total Consumed (g)**	**Bird-Days**	**Consumption / Bird / Day (g)**
D	41	2	5147.5						1233.2	3914.3	70	55.9
D	41	3	4973.1	2598.2					1572.7	5998.6	70	85.7
D	41	4	4512.9		3641.5	2807.4			2073.1	8888.7	65	136.7
D	41	5	4782.6	.0	3000.1	3082.6			2926.6	7938.7	63	126.0
D	41	6	4958.9	3054.5	2380.2	3334.9			2215.3	11513.2	63	182.7

APPENDIX 9 – STATISTICAL ANALYSES

Part A: Comparison Between the Non-transgenic, Near Isoline Counterpart Toasted Soybean Seedmeal and the FG72 Transgenic Toasted Soybean Seedmeal.

Fisher's Exact Test for Difference in Mortality Between Females and Males in Group A vs. group D

eXactoid web based statistics software

Fisher's Exact Test

Males

# males dead	# males alive	Total males	Group
4	66	70	A
6	64	70	C
10	130	140	Total

1-tail p = 0.372326
2-tail p = 0.744652

Females

# Females dead	# Females Alive	Total Females	Group
4	66	70	A
5	65	70	C
9	131	140	Total

1-tail p = 0.5
2-tail p = 1

Komogorov-Smirnov Pair-wise Two-sample Test for Normal Distribution of Weeks 1 Through 6 Male Body Weight and Total Weight GainSYSTAT Rectangular file C:\Program Files\SYSTAT 9\Data\13798.4124 male body weight data,

created Tue Sep 08, 2009 at 19:53:20, contains variables:

GROUP$ CAGENO$ GENDER$ IDNO$ TIME0 DAY7WT

DAY21WT DAY35WT DAY42WT TOTALWTGAIN

Time 0

Categorical values encountered during processing are:

GROUP$ (3 levels)

A, C, D

Kolmogorov-Smirnov Two Sample Test results

Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.085	0.000	
D	0.131	0.100	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.967	.	
D	0.607	0.875	.

Komogorov-Smirnov Pair-wise Two-sample Test for Normal Distribution of Weeks 1 Through 6 Male Body Weight and Total Weight Gain, Continued.

Day 7

Categorical values encountered during processing are:

GROUP$ (3 levels)

A, C, D

Kolmogorov-Smirnov Two Sample Test results

Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.140	0.000	
D	0.146	0.107	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.514	.	
D	0.485	0.841	.

Day 21

Categorical values encountered during processing are:

GROUP$ (3 levels)

A, C, D

Kolmogorov-Smirnov Two Sample Test results

Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.094	0.000	
D	0.277	0.341	0.000

Komogorov-Smirnov pair-wise Two-sample Test for Normal Distribution of Weeks 1 Through 6 Male Body Weight and Total Weight Gain, Continued

Two-sided probabilities

	A	C	D
A	.		
C	0.932	.	
D	0.115	0.001	.

Day 35

Categorical values encountered during processing are:

GROUP$ (3 levels)

A, C, D

Kolmogorov-Smirnov Two Sample Test results

Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.081	0.000	
D	0.240	0.229	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.985	.	
D	0.064	0.076	.

Day 42

Categorical values encountered during processing are:

GROUP$ (3 levels)

A, C, D

Kolmogorov-Smirnov Two Sample Test results

Komogorov-Smirnov pair-wise Two-sample Test for Normal Distribution of Weeks 1 Through 6 Male Body Weight and Total Weight Gain, Continued

Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.167	0.000	
D	0.232	0.124	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.374	.	
D	0.098	0.766	.

Total food consumption

Categorical values encountered during processing are:

GROUP$ (3 levels)

A, C, D

Kolmogorov-Smirnov Two Sample Test results

Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.167	0.000	
D	0.232	0.124	0.000

Two-sided probabilities

	A	C	D
A	.		

C	0.374	.	
D	0.098	0.766	.

Two-sample F-test for Equal Variance of Male Body Weight for Group A vs. Group C at Time 0, Day 7, Day21, Day 35, Day 42 and Total Weight Gain.

F-Test Two-Sample for Variances

Male Group A vs C time 0 wt

	A time 0 wt	*C time 0 wt*
Mean	32.86376812	33.08142857
Variance	7.231167945	7.759505176
Std Dev	2.69	2.79
Observations	69	70
df	68	69
F	0.931910964	
P(F<=f) one-tail	0.38586788	
F Critical one-tail	0.6699189	

* Cage 23 bird 411is left out of analyses because its time 0 gender was erroneous.

F-Test Two-Sample for Variances

Male Group A vs C 7 day wt

	A 7 day wt	*C 7 day wt*
Mean	157.5955882	161.4608696
Variance	396.0344579	327.4341816
Std Dev	19.9	18.1
Observations	68	69
df	67	68
F	1.209508598	
P(F<=f) one-tail	0.218085455	
F Critical one-tail	1.49616852	

Two-sample F-test for Equal Variance of Male Body Weight for Group A vs Group C at Time 0, Day 7, Day21, Day 35, Day 42 and Total Weight Gain, Continued

F-Test Two-Sample for Variances

Male Group A vs C 21 day wt

	A day 21 wt	*C day 21 wt*
Mean	895.9074627	887.8882353
Variance	12886.96161	15017.34434
Std Dev	113.52	122.55
Observations	67	68
df	66	67
F	0.858138518	
P(F<=f) one-tail	0.267496459	
F Critical one-tail	0.66585756	

F-Test Two-Sample for Variances

Male Group A vs C 35 day wt

	A 35 day wt	*C 35 day wt*
Mean	2267.864615	2287.276119
Variance	98654.52576	109526.3791
Std Dev	314.09	330.95
Observations	65	67
df	64	66
F	0.900737581	
P(F<=f) one-tail	0.337875044	
F Critical one-tail	0.662430117	

Two-sample F-test for Equal Variance of Male Body Weight for Group A vs Group C at Time 0, Day 7, Day21, Day 35, Day 42 and Total Weight Gain, Continued

F-Test Two-Sample for Variances

Male Group A vs C 42 day wt

	A 42 day wt	*C 42 day wt*
Mean	2851.1	2930.08254
Variance	213701.1247	198600.3518
Std Dev	562.28	445.65
Observations	61	63
df	60	62
F	1.076035983	
P(F<=f) one-tail	0.387285113	
F Critical one-tail	1.527616222	

F-Test Two-Sample for Variances

Male Group A vs C total wt gain

	A tot wt gain	*C tot wt gain*
Mean	2818.283607	2896.925397
Variance	213451.2274	198087.8261
Std Dev	462.01	445.07
Observations	61	63
df	60	62
F	1.077558533	
P(F<=f) one-tail	0.385181257	
F Critical one-tail	1.527616222	

Two-sample T-test for Mean Differences in Group A vs. C Male Body Weight at Time 0, Day 7, Day 21, Day 35, Day 42 and Total Weight Gain

t-Test: Two-Sample Assuming Equal Variances

Male Group A vs C time 0 wt

	A time 0 wt	*C time 0 wt*
Mean	32.86376812	33.08142857
Variance	7.231167945	7.759505176
Observations	69	70
Pooled Variance	7.497264799	
Hypothesized Mean Difference	0	
Df	137	
t Stat	-0.468591357	
P(T<=t) one-tail	0.320053246	
t Critical one-tail	1.656052081	
P(T<=t) two-tail	0.640106493	
t Critical two-tail	1.977431183	

t-Test: Two-Sample Assuming Equal Variances

Male Group A vs C 7 day wt

	A 7 day wt	*C 7 day wt*
Mean	157.5955882	161.4608696
Variance	396.0344579	327.4341816
Observations	68	69
Pooled Variance	361.4802446	
Hypothesized Mean Difference	0	
Df	135	
t Stat	-1.189755013	
P(T<=t) one-tail	0.118115447	
t Critical one-tail	1.656219133	
P(T<=t) two-tail	0.236230893	
t Critical two-tail	1.977692248	

Two-sample T-test for Mean Differences in Group A vs. C Male Body Weight at Time 0, Day 7, Day 21, Day 35, Day 42 and Total Weight Gain, Continued

t-Test: Two-Sample Assuming Equal Variances

Male Group A vs C 21 day wt

	A day 21 wt	*C day 21 wt*
Mean	895.9074627	887.8882353
Variance	12886.96161	15017.34434
Observations	67	68
Pooled Variance	13960.16193	
Hypothesized Mean Difference	0	
Df	133	
t Stat	0.394286833	
P(T<=t) one-tail	0.34700039	
t Critical one-tail	1.656391245	
P(T<=t) two-tail	0.69400078	
t Critical two-tail	1.977961236	

t-Test: Two-Sample Assuming Equal Variances

Male Group A vs C 35 day wt

	A 35 day wt	*C 35 day wt*
Mean	2267.864615	2287.276119
Variance	98654.52576	109526.3791
Observations	65	67
Pooled Variance	104174.0821	
Hypothesized Mean Difference	0	
Df	130	
t Stat	-0.345451004	
P(T<=t) one-tail	0.365156845	
t Critical one-tail	1.656659413	

Two-sample T-test for Mean Differences in Group A vs. C Male Body Weight at Time 0, Day 7, Day 21, Day 35, Day 42 and Total Weight Gain, Continued

P(T<=t) two-tail	0.73031369
t Critical two-tail	1.978380378

t-Test: Two-Sample Assuming Equal Variances

Male Group A vs C 42 day wt

	A 42 day wt	*C 42 day wt*
Mean	2851.1	2930.08254
Variance	213701.1247	198600.3518
Observations	61	63
Pooled Variance	206026.9614	
Hypothesized Mean Difference	0	
Df	122	
t Stat	-0.96870918	
P(T<=t) one-tail	0.167303415	
t Critical one-tail	1.6574395	
P(T<=t) two-tail	0.334606831	
t Critical two-tail	1.979599854	

Two-sample T-test for Mean Differences in Group A vs. C Male Body Weight at Time 0, Day 7, Day 21, Day 35, Day 42 and Total Weight Gain, Continued

t-Test: Two-Sample Assuming Equal Variances

Male Group A vs C total wt gain

	A tot wt gain	*C tot wt gain*
Mean	2818.283607	2896.925397
Variance	213451.2274	198087.8261
Observations	61	63
Pooled Variance	205643.5972	
Hypothesized Mean Difference	0	
Df	122	
t Stat	-0.965428566	
P(T<=t) one-tail	0.168120017	
t Critical one-tail	1.6574395	
P(T<=t) two-tail	0.336240035	
t Critical two-tail	1.979599854	

Kolmogorov-Smirnov Two Sample Test for Normal Distribution of Female Body Weight Gain Measured on Days 0, 7, 21, 35, and 42 Plus Total Weight Gain

STAT Rectangular file C:\Program Files\SYSTAT 9\Data\13798.4124 female body weight data.syd,

created Mon Aug 31, 2009 at 20:59:52, contains variables:

GROUP$ CAGENO$ GENDER$ IDNO$ TIME0 DAY7WT

DAY21WT DAY35WT DAY42WT TOTALWTGAIN

Categorical values encountered during processing are:

GROUP$ (3 levels)

A, C, D

Time 0

Kolmogorov-Smirnov Two Sample Test results

Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.129	0.000	
D	0.157	0.100	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.609	.	
D	0.353	0.875	.

Day 7

Categorical values encountered during processing are:

GROUP$ (3 levels)

A, C, D

Kolmogorov-Smirnov Two Sample Test results

Maximum differences for pairs of groups

Kolmogorov-Smirnov Two Sample Test for Normal Distribution of Female Body Weight Gain Measured on Days 0, 7, 21, 35, and 42 Plus Total Weight Gain, Continued

	A	C	D
A	0.000		
C	0.166	0.000	
D	0.109	0.132	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.306	.	
D	0.815	0.591	.

Day 21

Categorical values encountered during processing are:

GROUP$ (3 levels)

A, C, D

Kolmogorov-Smirnov Two Sample Test results

Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.150	0.000	
D	0.212	0.159	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.449	.	
D	0.102	0.391	.

Kolmogorov-Smirnov Two Sample Test for Normal Distribution of Female Body Weight Gain Measured on Days 0, 7, 21, 35, and 42 Plus Total Weight Gain, Continued

Day 35

Categorical values encountered during processing are:

GROUP$ (3 levels)

A, C, D

Kolmogorov-Smirnov Two Sample Test results

Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.143	0.000	
D	0.131	0.138	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.510	.	
D	0.623	0.572	.

Day 42

Categorical values encountered during processing are:

GROUP$ (3 levels)

A, C, D

Kolmogorov-Smirnov Two Sample Test results

Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.118	0.000	
D	0.112	0.113	0.000

Kolmogorov-Smirnov Two Sample Test for Normal Distribution of Female Body Weight Gain Measured on Days 0, 7, 21, 35, and 42 Plus Total Weight Gain, Continued

Two-sided probabilities

	A	C	D
A	.		
C	0.761	.	
D	0.819	0.807	.

Total Weight Gain

Categorical values encountered during processing are:

GROUP$ (3 levels)

A, C, D

Kolmogorov-Smirnov Two Sample Test results

Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.118	0.000	
D	0.112	0.113	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.761	.	
D	0.819	0.807	.

Two-sample F-test for Homogeneity of Variance of Female Body Weight for Group A vs C at Time 0, 7 Days, 21 Days, 35 Days and 42 Days Plus Total Weight Gain

F-Test Two-Sample for Variances

Females groups A vs C time 0 wt

	A time 0 wt	*C Time 0 wt*
Mean	33.51428571	33.74285714
Variance	9.049358178	8.024803313
Std Dev	3.01	2.83
Observations	70	70
df	69	69
F	1.144105187	
P(F<=f) one-tail	0.28926673	
F Critical one-tail	1.49170802	

F-Test Two-Sample for Variances

Females Group A vs C* 7 day wt

	A 7day wt	*C 7day wt*
Mean	163.7956522	158.7088235
Variance	235.4133632	337.4312643
Std Dev	15.34	18.37
Observations	69	68
df	68	67
F	0.708030772	
P(F<=f) one-tail	0.080107863	
F Critical one-tail	0.667131608	

* Group A bird # 411 was removed from analysis due to wrong gender ID at time 0.

Two-sample F-test for Homogeneity of Variance of Female Body Weight for Group A vs C at Time 0, 7 Days, 21 Days, 35 Days and 42 Days Plus Total Weight Gain

F-Test Two-Sample for Variances

Females Group A vs C Day 21 wt

	A 21 day wt	*C 21 day wt*
Mean	859.6521739	856.0138462
Variance	7457.172826	4339.379962
Std Dev	86.35	65.87
Observations	69	65
Df	68	64
F	1.736991668	
P(F<=f) one-tail	0.013728322	
F Critical one-tail	1.50782005	

F-Test Two-Sample for Variances

Females Group A v C 35 day wt

	A 35 day wt	*C 35 day wt*
Mean	2055.076471	2032.853846
Variance	33741.83765	17868.60971
Std Dev	183.69	133.67
Observations	68	65
df	67	64
F	1.915939303	

P(F<=f) one-tail	0.004899316
F Critical one-tail	1.509593199

Two-sample F-test for Homogeneity of Variance of Female Body Weight for Group A vs C at Time 0, 7 Days, 21 Days, 35 Days and 42 Days Plus Total Weight Gain

F-Test Two-Sample for Variances

Females Group A vs C 42 day wt

	A 42 day wt	*C day 42 day wt*
Mean	2613.643939	2595.978462
Variance	30982.35019	28467.83609
Std Dev	176.02	168.72
Observations	66	65
Df	65	64
F	1.115555531	
P(F<=f) one-tail	0.331930937	
F Critical one-tail	1.515212231	

F-Test Two-Sample for Variances

Female Group A vs C Total Weight Gain

	A total wt gain	*C total wt gain*
Mean	2580.243939	2562.149231
Variance	30592.80681	28129.91504
Std Dev	174.91	167.72
Observations	66	65
Df	65	64
F	1.101553482	

P(F<=f) one-tail	0.350006568
F Critical one-tail	1.513287171

Two-sample T-tests for Mean Differences in Body Weight at Time 0, Day 7, Day 21, Day 35, Day 42, and Total Weight Gain for Females in Group A vs Group C

t-Test: Two-Sample Assuming Equal Variances
Female Group A vs C Time 0

	A time 0 wt	*C time 0 wt*
Mean	33.51428571	33.74285714
Variance	9.049358178	8.024803313
Observations	70	70
Pooled Variance	0	
Hypothesized Mean Difference	0	
df	137	
t Stat	0.467806936	
P(T<=t) one-tail	0.320332988	
t Critical one-tail	1.656052081	
P(T<=t) two-tail	0.640665975	
t Critical two-tail	1.977431183	

t-Test: Two-Sample Assuming Equal Variances
Females Group A vs C Day 7

	A 7 day wt	*C 7 day wt*
Mean	163.7956522	158.7088235
Variance	235.4133632	337.4312643
Observations	69	68
Pooled Variance	288.1714914	
Hypothesized Mean Difference	0	
df	134	
t Stat	1.742200897	
P(T<=t) one-tail	0.041883848	
t Critical one-tail	1.656304542	
P(T<=t) two-tail	0.083767695	
t Critical two-tail	1.97782573	

Two-sample T-tests for Mean Differences in Body Weight at Time 0, Day 7, Day 21, Day 35, Day 42, and Total Weight Gain for Females in Group A vs Group C, Continued

t-Test: Two-Sample Assuming Unequal Variances
Females Group A vs C 21 day wt

	A 21 day wt	*C 21 day wt*
Mean	859.6521739	856.0138462
Variance	7457.172826	4339.379962
Observations	69	65
Hypothesized Mean Difference	0	
df	125	
t Stat	0.22307745	
P(T<=t) one-tail	0.411919679	
t Critical one-tail	1.657135179	
P(T<=t) two-tail	0.823839359	
t Critical two-tail	1.979124084	

t-Test: Two-Sample Assuming Unequal Variances
Females Group A vs C 35 day wt

	A 35 day wt	*C 35 day wt*
Mean	2055.076471	2032.85384
Variance	33741.83765	17868.6097
Observations	68	65
Hypothesized Mean Difference	0	
df	120	
t Stat	0.774550293	
P(T<=t) one-tail	0.22006445	
t Critical one-tail	1.6576509	
P(T<=t) two-tail	0.440128899	
t Critical two-tail	1.979930381	

Two-sample T-tests for Mean Differences in Body Weight at Time 0, Day 7, Day 21, Day 35, Day 42, and Total Weight Gain for Females in Group A vs Group C, Continued

t-Test: Two-Sample Assuming Equal Variances
Females Group A vs C 42 day wt

	A 42 day wt	*B 42 day wt*
Mean	2613.643939	2595.97846
Variance	30982.35019	28467.8360
Observations	66	65
Pooled Variance	29924.57235	
Hypothesized Mean Difference	0	
df	128	
t Stat	0.545033017	
P(T<=t) one-tail	0.29333961	
t Critical one-tail	1.656845227	
P(T<=t) two-tail	0.58667922	
t Critical two-tail	1.978670823	

t-Test: Two-Sample Assuming Equal Variances
Female Group A vs C Total Weight Gain

	A total wt gain	*C total wt gain*
Mean	2580.243939	2562.149231
Variance	30592.80681	28129.91504
Observations	66	65
Pooled Variance	29370.90702	
Hypothesized Mean Difference	0	
df	129	
t Stat	0.604207224	
P(T<=t) one-tail	0.273383515	
t Critical one-tail	1.656751594	
P(T<=t) two-tail	0.546767029	
t Critical two-tail	1.978524465	

Komogorov-Smirnov Pairwise Two-Sample Test for Normal Distribution of Weeks 1 through 6 Male Feed Consumption (g/bird/day), Continued

t-Test: Two-Sample Assuming Equal Variances
males-Group A vs C week 3 feed consumption

	Group A	*Group C*
Mean	100.1285714	98.5
Variance	34.30571429	31.48
Observations	7	7
Pooled Variance	32.89285714	
Hypothesized Mean Difference	0	
df	12	
t Stat	0.531239102	
P(T<=t) one-tail	0.302473544	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.604947088	
t Critical two-tail	2.178812827	

t-Test: Two-Sample Assuming Equal Variances
Males - Group A vs C week 4 feed consumption

	Group A	*Group C*
Mean	165.1142857	164.6142857
Variance	128.1614286	126.2380952
Observations	7	7
Pooled Variance	127.1997619	
Hypothesized Mean Difference	0	
df	12	
t Stat	0.082939398	
P(T<=t) one-tail	0.467633594	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.935267187	
t Critical two-tail	2.178812827	

Komogorov-Smirnov Pairwise Two-Sample Test for Normal Distribution of Weeks 1 through 6 Male Feed Consumption (g/bird/day), Continued

t-Test: Two-Sample Assuming Equal Variances

Males - Group A vs C wk 5 feed consumption

	Group A	*Group C*
Mean	185.3142857	200.8142857
Variance	162.2480952	127.2580952
Observations	7	7
Pooled Variance	144.7530952	
Hypothesized Mean Difference	0	
df	12	
t Stat	-2.410192834	
P(T<=t) one-tail	0.016450593	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.032901185	
t Critical two-tail	2.178812827	

t-Test: Two-Sample Assuming Unequal Varianc

Males - Group A vs C wk 6 feed consumption

	Group A	*Group C*
Mean	195.2428571	214.3
Variance	732.0895238	164.7866667
Observations	7	7
Hypothesized Mean Differance	0	
df	9	
t Stat	-1.683606377	
P(T<=t) one-tail	0.063273168	
t Critical one-tail	1.833112923	
P(T<=t) two-tail	0.126546337	

t Critical two-tail	2.262157158

Two-sample T-test for Mean Differences Between Group A vs C Male Feed Consumption During Weeks 1 through 6 and Total Feed Consumption

t-Test: Two-Sample Assuming Equal Variances

Males - Group A vs C wk 1 feed consumption

	Group A	*Group C*
Mean	19.04285714	20.14285714
Variance	1.026190476	2.24952381
Observations	7	7
Pooled Variance	1.637857143	
Hypothesized Mean Difference	0	
Df	12	
t Stat	-1.608009824	
P(T<=t) one-tail	0.066904853	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.133809705	
t Critical two-tail	2.178812827	

t-Test: Two-Sample Assuming Equal Variances

Males - Group A vs C week 2 feed consumption

	Group A	*Group C*
Mean	56.42857143	58.01428571
Variance	11.29238095	11.5847619
Observations	7	7
Pooled Variance	11.43857143	
Hypothesized Mean Difference	0	
Df	12	
t Stat	-0.877148382	
P(T<=t) one-tail	0.198813431	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.397626863	

t Critical two-tail	2.178812827

Two-sample T-test for Mean Differences Between Group A vs C Male Feed Consumption During Weeks 1 through 6 and Total Feed Consumption, Continued

t-Test: Two-Sample Assuming Equal Variances
males-Group A vs C week 3 feed consumption

	Group A	*Group C*
Mean	100.1285714	98.5
Variance	34.30571429	31.48
Observations	7	7
Pooled Variance	32.89285714	
Hypothesized Mean Difference	0	
Df	12	
t Stat	0.531239102	
P(T<=t) one-tail	0.302473544	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.604947088	
t Critical two-tail	2.178812827	

t-Test: Two-Sample Assuming Equal Variances
Males - Group A vs C week 4 feed consumption

	Group A	*Group C*
Mean	165.1142857	164.6142857
Variance	128.1614286	126.2380952
Observations	7	7
Pooled Variance	127.1997619	
Hypothesized Mean Difference	0	
Df	12	
t Stat	0.082939398	
P(T<=t) one-tail	0.467633594	

t Critical one-tail	1.782287548
P(T<=t) two-tail	0.935267187
t Critical two-tail	2.178812827

Two-sample T-test for Mean Differences Between Group A vs C Male Feed Consumption During Weeks 1 through 6 and Total Feed Consumption, Continued

t-Test: Two-Sample Assuming Equal Variances

Males - Group A vs C wk 5 feed consumption

	Group A	*Group C*
Mean	185.3142857	200.8142857
Variance	162.2480952	127.2580952
Observations	7	7
Pooled Variance	144.7530952	
Hypothesized Mean Difference	0	
Df	12	
t Stat	-2.410192834	
P(T<=t) one-tail	0.016450593	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.032901185	
t Critical two-tail	2.178812827	

t-Test: Two-Sample Assuming Unequal Variances

Males - Group A vs C wk 6 feed consumption

	Group A	*Group C*
Mean	195.2428571	214.3
Variance	732.0895238	164.7866667
Observations	7	7
Hypothesized Mean Difference	0	
df	9	
t Stat	-1.683606377	
P(T<=t) one-tail	0.063273168	
t Critical one-tail	1.833112923	

P(T<=t) two-tail	0.126546337
t Critical two-tail	2.262157158

Two-sample T-test for Mean Differences Between Group A vs C Male Feed Consumption During Weeks 1 through 6 and Total Feed Consumption, Continued

t-Test: Two-Sample Assuming Equal Variances
Males - group A vs C Total feed consumed (g/bird)

	Group A	*Group C*
Mean	4220.7	4358
Variance	77849.87	32848.41
Observations	7	7
Pooled Variance	55349.14	
Hypothesized Mean Difference	0	
Df	12	
t Stat	-1.091815161	
P(T<=t) one-tail	0.148175208	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.296350417	
t Critical two-tail	2.178812827	

Komogorov-Smirnov Pairwise Two-Sample Test for Normal Distribution of Weeks 1 through 6 Female Feed Consumption (g/bird/day)

Week 1

Categorical values encountered during processing are:
GROUP$ (3 levels)
A, C, D
Kolmogorov-Smirnov Two Sample Test results
Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.571	0.000	
D	0.714	0.286	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.189	.	
D	0.047	0.919	.

Week 2
Categorical values encountered during processing are:
GROUP$ (3 levels)
A, C, D

Kolmogorov-Smirnov Two Sample Test results
Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.286	0.000	
D	0.429	0.286	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.919	.	
D	0.516	0.919	.

Week 3

Categorical values encountered during processing are:
GROUP$ (3 levels)
A, C, D

Kolmogorov-Smirnov Two Sample Test results
Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.429	0.000	
D	0.286	0.143	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.516	.	
D	0.919	1.000	.

Week 4

```
Categorical values encountered during processing are:
GROUP$ (3 levels)
   A, C, D

Kolmogorov-Smirnov Two Sample Test results
  Maximum differences for pairs of groups
                        A           C           D
            A           0.000
            C           0.429       0.000
            D           0.571       0.571       0.000
  Two-sided probabilities
                        A           C           D
            A             .
            C           0.516         .
            D           0.189       0.189         .
```

Week 5

```
Categorical values encountered during processing are:GROUP$ (3 levels)
   A, C, D

Kolmogorov-Smirnov Two Sample Test results
  Maximum differences for pairs of groups
                        A           C           D
            A           0.000
            C           0.286       0.000
            D           0.143       0.143       0.000
  Two-sided probabilities
                        A           C           D
            A             .
            C           0.919         .
            D           1.000       1.000         .
```

Week 6

```
Categorical values encountered during processing are:
GROUP$ (3 levels)
   A, C, D

Kolmogorov-Smirnov Two Sample Test results
  Maximum differences for pairs of groups
                        A           C           D
            A           0.000
            C           0.286       0.000
            D           0.286       0.429       0.000
  Two-sided probabilities
                        A           C           D
            A             .
            C           0.919         .
            D           0.919       0.516         .
```

Two-sample F -tests for Equal Variance for Group A vs C female Feed Consumption (g/bird/day) During Week 1 Through Week 6 and Total Feed Consumption

F-Test Two-Sample for Variances
Females - group A vs C wk 1 feed consumption

	Group A	*Group C*
Mean	21.47142857	20.38333333
Variance	0.159047619	3.289666667
Std Dev	0.4	1.91
Observations	7	6
df	6	5
F	0.04834764	
P(F<=f) one-tail	0.001016067	
F Critical one-tail	0.227926764	

F-Test Two-Sample for Variances
Females - group A vs C wk 2 feed consumption (g/birc

	Group A	*Group C*
Mean	58.28571429	56.98571429
Variance	19.57809524	6.158095238
Std Dev	4.42	2.48
Observations	7	7
df	6	6
F	3.179245283	
P(F<=f) one-tail	0.09253169	
F Critical one-tail	4.283865714	

F-Test Two-Sample for Variances
Females - group A vs C wk 3 feed consumption (g/birc

	Group A	*Group C*
Mean	97.34285714	92.07142857
Variance	52.94285714	30.96904762
Std Dev	7.28	0.56
Observations	7	7
df	6	6
F	1.709541016	
P(F<=f) one-tail	0.265491651	
F Critical one-tail	4.283865714	

Two-sample F -tests for Equal Variance for Group A vs C female Feed Consumption (g/bird/day) During Week 1 Through Week 6 and Total Feed Consumption, Continued

F-Test Two-Sample for Variances
Females - group A vs C wk 4 feed consumption (g/bird

	Group A	*Group C*
Mean	150.6714286	149.6714286
Variance	19.88904762	16.51571429
Std Dev	4.46	4.06
Observations	7	7
df	6	6
F	1.204249921	
P(F<=f) one-tail	0.413625475	
F Critical one-tail	4.283865714	

F-Test Two-Sample for Variances
Females - group A vs C wk 5 feed consumption (g/bird/da

	Group A	*Group D*
Mean	175.9142857	172.7285714
Variance	113.1447619	27.01571429
Std Dev	10.64	5.19
Observations	7	7
df	6	6
F	4.188109213	
P(F<=f) one-tail	0.052502076	
F Critical one-tail	4.283865714	

F-Test Two-Sample for Variances
Females - group A vs C wk 6 feed consumption (g/bird/day)

	Group A	*Group C*
Mean	194.3	195.3428571
Variance	264.0866667	79.80285714
Std Dev	16.25	8.93
Observations	7	7
df	6	6
F	3.309238242	
P(F<=f) one-tail	0.085505742	
F Critical one-tail	4.283865714	

Two-sample F -tests for Equal Variance for Group A vs C female Feed Consumption (g/bird/day) During Week 1 Through Week 6 and Total Feed Consumption, Continued

F-Test Two-Sample for Variances
Females group A vs C Total feed consumed (g/bird)

	Group A	*Group C*
Mean	4137.5	4054.8
Variance	19770.14667	11918.73667
Std Dev	140.61	109.17
Observations	7	7
df	6	6
F	1.658745152	
P(F<=f) one-tail	0.277050932	
F Critical one-tail	4.283865714	

13709.4124 Two-sample T-tests for Mean Difference Between Group A vs C Female Feed Consumption (g/bird/day) During Week 1 through Week 6 and Total Feed Consumption

t-Test: Two-Sample Assuming Unequal Variances

Females - group A vs C wk 1 feed consumption (g/bird/day)

	Group A	*Group C*
Mean	21.47142857	20.18571429
Variance	0.159047619	3.014761905
Observations	7	7
Hypothesized Mean	0	
df	7	
t Stat	1.909427002	
P(T<=t) one-tail	0.048920004	
t Critical one-tail	1.894578604	
P(T<=t) two-tail	0.097840007	
t Critical two-tail	2.364624251	

t-Test: Two-Sample Assuming Equal Variances

Females - group A vs C wk 2 feed consumption (g/bird/day)

	Group A	*Group C*
Mean	58.28571429	56.98571429
Variance	19.57809524	6.158095238
Observations	7	7
Pooled Variance	12.86809524	
Hypothesized Mean	0	
df	12	
t Stat	0.677985243	
P(T<=t) one-tail	0.255321479	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.510642958	
t Critical two-tail	2.178812827	

Two-sample T-tests for Mean Difference Between Group A vs C Female Feed Consumption (g/bird/day) During Week 1 through Week 6 and Total Feed Consumption, Continued

t-Test: Two-Sample Assuming Equal Variances

Females - group A vs D wk 3 feed consumption

	Group A	*Group D*
Mean	97.34285714	92.34285714
Variance	52.94285714	33.13619048
Observations	7	7
Pooled Variance	43.03952381	
Hypothesized Mea	0	
df	12	
t Stat	1.42583837	
P(T<=t) one-tail	0.089703423	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.179406845	
t Critical two-tail	2.178812827	

t-Test: Two-Sample Assuming Equal Variances

Females - group A vs C wk 4 feed consumption (g/bird/day)

	Group A	*Group C*
Mean	150.6714286	149.6714286
Variance	19.88904762	16.51571429
Observations	7	7
Pooled Variance	18.20238095	
Hypothesized Mean Difference	0	
df	12	
t Stat	0.438500328	
P(T<=t) one-tail	0.334406993	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.668813985	
t Critical two-tail	2.178812827	

Two-sample T-tests for Mean Difference Between Group A vs C Female Feed Consumption (g/bird/day) During Week 1 through Week 6 and Total Feed Consumption, Continued

t-Test: Two-Sample Assuming Equal Variances
Females - group A vs C wk 5 feed consumption

	Group A	*Group D*
Mean	175.9142857	172.7285714
Variance	113.1447619	27.01571429
Observations	7	7
Pooled Variance	70.0802381	
Hypothesized Mean Difference	0	
Df	12	
t Stat	0.711939454	
P(T<=t) one-tail	0.245056262	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.490112523	
t Critical two-tail	2.178812827	

t-Test: Two-Sample Assuming Equal
Females – group A vs C wk 6 feed consumption (g/bird/day)

	Group A	*Group C*
Mean	194.3	195.3428571
Variance	264.0866667	79.80285714
Observations	7	7
Pooled Variance	171.9447619	
Hypothesized Mean	0	
Df	12	
t Stat	-0.148786788	
P(T<=t) one-tail	0.442096495	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.884192991	
t Critical two-tail	2.178812827	

Two-sample T-tests for Mean Difference Between Group A vs C Female Feed Consumpt During Week 1 through Week 6 and Total Feed Consumption, Continued

t-Test: Two-Sample Assuming Equal Variances

Females group A vs C Total feed consumed

	Group A	*Group C*
Mean	4137.5	4054.8
Variance	19770.14667	11918.73667
Observations	7	7
Pooled Variance	15844.44167	
Hypothesized Mean Difference	0	
Df	12	
t Stat	1.229139178	
P(T<=t) one-tail	0.121288622	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.242577243	
t Critical two-tail	2.178812827	

Kolmogorov-Smirnov Two Sample Test for normal distribution of male feed conversion ratios

```
Categorical values encountered during processing are:

GROUP$ (3 levels)
   A, B, C

Kolmogorov-Smirnov Two Sample Test results
  Maximum differences for pairs of groups
                         A            B            C
            A           0.000
            B           0.286        0.000
            C           0.429        0.571        0.000
  Two-sided probabilities
                         A            B            C
            A             .
            B           0.919          .
            C           0.516        0.189          .
```

Two-sample F-tests for equal variance between male group A vs group C and group feed conversion ratios

F-Test Two-Sample for Variances

Males - Group A vs C Feed Conversion Ratio

	Group A	*Group C*
Mean	1.505272719	1.504379757
Variance	0.004237546	0.004655985
Std Dev	0.065	0.068
Observations	7	7
df	6	6
F	0.910128655	
P(F<=f) one-tail	0.45595578	

Two-sample t-tests for mean differences between male group A vs Group C feed conversion ratios

t-Test: Two-Sample Assuming Equal Variances
Males - Group A vs C Feed Conversion Ratio

	Group A	*Group C*
Mean	1.50527272	1.504379757
Variance	0.00423755	0.004655985
Observations	7	7
Pooled Variance	0.00444677	
Hypothesized Mean Difference	0	
df	12	
t Stat	0.02505214	
P(T<=t) one-tail	0.49021258	
t Critical one-tail	1.78228755	
P(T<=t) two-tail	0.98042515	
t Critical two-tail	2.17881283	

Kolmogorov-Smirnov Two Sample Test for normal distribution of female feed conversion ratios for groups A, B and C.

```
Categorical values encountered during processing are:

GROUP$ (3 levels)

   A, B, C

 Kolmogorov-Smirnov Two Sample Test results
  Maximum differences for pairs of groups
                            A            B         C
            A           0.000
            B           0.286       0.000
            C           0.429       0.429       0.000
  Two-sided probabilities
                            A            B         C
            A             .
            B           0.919          .
            C           0.516       0.516          .
```

Two-sample F-tests for equal variance between female group A vs group C feed conversion ratios

F-Test Two-Sample for Variances
Females - group A vs C Feed Conversion Ratio

	Group A	*Group C*
Mean	1.602811618	1.582831679
Variance	0.003457928	0.001247059
Std Dev	0.059	0.035
Observations	7	7
df	6	6
F	2.772866103	
P(F<=f) one-tail	0.120021624	
F Critical one-tail	4.283865714	

Two-sample t-tests for mean differences between female group A vs group C feed conversion ratios

t-Test: Two-Sample Assuming Equal Variances
Females - Group A vs C Feed Conversion Ratio

	Group A	*Group C*
Mean	1.60281162	1.582831679
Variance	0.00345793	0.001247059
Observations	7	7
Pooled Variance	0.00235249	
Hypothesized Mean Difference	0	
Df	12	
t Stat	0.77066197	
P(T<=t) one-tail	0.2279066	
t Critical one-tail	1.78228755	
P(T<=t) two-tail	0.45581321	
t Critical two-tail	2.17881283	

Kolmogorov-Smirnov Two Sample Test for Normal Distribution of Male Processed Body Tissues for Groups A, B and C

SYSTAT Rectangular file C:\Program Files\SYSTAT 9\13798.4124 KS test of normality male body parts wt.syo,
created Wed Sep 09, 2009 at 00:02:54, contains variables:

GROUP$	TAGNO$	VAR00003$	MKTCARCASS$	FATPAD	CHILLEDCARC
LEG	THIGH	WING	BREAST	SKIN	FINALCARCASS

Fat Pad

Categorical values encountered during processing are:
GROUP$ (3 levels)
A, C, D

Kolmogorov-Smirnov Two Sample Test results
Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.226	0.000	
D	0.212	0.238	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.609	.	
D	0.686	0.546	.

Chilled Carcass

Categorical values encountered during processing are:
GROUP$ (3 levels)
A, C, D

Kolmogorov-Smirnov Two Sample Test results
Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.233	0.000	
D	0.186	0.190	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.571	.	
D	0.820	0.797	.

Kolmogorov-Smirnov Two Sample Test for Normal Distribution of Male Processed Body Tissues for Groups A, B and C, Continued

Leg

Categorical values encountered during processing are:
GROUP$ (3 levels)
A, C, D

Kolmogorov-Smirnov Two Sample Test results
Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.202	0.000	
D	0.224	0.190	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.736	.	
D	0.622	0.797	.

Thigh

Categorical values encountered during processing are:
GROUP$ (3 levels)
A, C, D

Kolmogorov-Smirnov Two Sample Test results
Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.150	0.000	
D	0.150	0.143	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.954	.	
D	0.954	0.969	.

Wing

Categorical values encountered during processing are:
GROUP$ (3 levels)
A, C, D

Kolmogorov-Smirnov Two Sample Test results
Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.255	0.000	
D	0.219	0.381	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.460	.	
D	0.648	0.082	.

Kolmogorov-Smirnov Two Sample Test for Normal Distribution of Male Processed Body Tissues for Groups A, B and C, Continued

Breast

```
Categorical values encountered during processing are:
GROUP$ (3 levels)
   A, C, D

Kolmogorov-Smirnov Two Sample Test results
  Maximum differences for pairs of groups
                         A            C            D
            A            0.000
            C            0.200        0.000
            D            0.421        0.333        0.000
  Two-sided probabilities
                         A            C            D
            A              .
            C            0.749          .
            D            0.040        0.172          .
```

Two-sample F-tests for Equal Variance for Group A and D Male Processed Body Parts Weight (g).

F-Test Two-Sample for Variances
Males - group A vs D fat pad wt

	Group A	*Group D*
Mean	51.985	51.2
Variance	368.3908158	190.654
Std Dev	19.19	13.81
Observations	20	21
df	19	20
F	1.932248029	
P(F<=f) one-tail	0.076266222	
F Critical one-tail	2.137008959	

F-Test Two-Sample for Variances
Males - group A vs D chilled carcass wt

	Group A	*Group D*
Mean	2198.005	2286.57619
Variance	75895.25945	26331.3329
Observations	20	21
df	19	20
F	2.882317417	
P(F<=f) one-tail	0.011595901	
F Critical one-tail	2.137008959	

F-Test Two-Sample for Variances
Males - group A vs D leg wt

	Group A	*Group D*
Mean	291.69	298.4333333
Variance	1703.206211	630.1093333
Std Dev	41.27	25.10
Observations	20	21
df	19	20
F	2.703032824	
P(F<=f) one-tail	0.016276839	
F Critical one-tail	2.137008959	

Two-sample F-tests for Equal Variance for Group A and D Male Processed Body Parts Weight (g), Continued

F-Test Two-Sample for Variances
Males - group A vs D thigh wt

	Group A	*Group D*
Mean	331.515	342.3380952
Variance	3086.713974	1345.697476
Std Dev	55.56	36.68
Observations	20	21
Df	19	20
F	2.29376515	
P(F<=f) one-tail	0.036376019	
F Critical one-tail	2.137008959	

F-Test Two-Sample for Variances
Males - group A vs D wing wt

	Group A	*Group D*
Mean	231.3	235.0761905
Variance	599.8094737	240.4709048
Std Dev	24.49	15.51
Observations	20	21
Df	19	20
F	2.494312043	
P(F<=f) one-tail	0.024405131	
F Critical one-tail	2.137008959	

F-Test Two-Sample for Variances
Males - group A vs D breast wt

	Group A	*Group D*
Mean	544.1	604.9047619
Variance	5768.48	3488.638476
Std Dev	75.95	50.06
Observations	20	21
Df	19	20
F	1.653504666	
P(F<=f) one-tail	0.136440897	
F Critical one-tail	2.137008959	

Two-sample F-tests for Equal Variance for Group A and D Male Processed Body Parts Weight (g), Continued

F-Test Two-Sample for Variances

Males - group A vs D remaining carcass wt

	Group A	*Group D*
Mean	706.715	740.0714286
Variance	7515.642395	4435.685143
Observations	20	21
Df	19	20
F	1.694358854	
P(F<=f) one-tail	0.125275613	
F Critical one-tail	2.137008959	

Two-sample t-tests for mean differences between group A and D male processed body parts weight (g)

t-Test: Two-Sample Assuming Equal Variances

Males - group A vs D fat pad wt

	Group A	*Group D*
Mean	51.985	51.2
Variance	368.3908158	190.654
Std Dev	19.19	13.81
Observations	20	21
Pooled Variance	277.2437308	
Hypothesized Mean Difference	0	
df	39	
t Stat	0.150893838	
P(T<=t) one-tail	0.440418623	
t Critical one-tail	1.684875122	
P(T<=t) two-tail	0.880837247	
t Critical two-tail	2.022690901	

t-Test: Two-Sample Assuming Unequal Variances

Males - group A vs D chilled carcass wt

	Group A	*Group D*
Mean	2198.005	2286.57619
Variance	75895.25945	26331.3329
Observations	20	21
Hypothesized Mean Difference	0	
df	30	
t Stat	-1.246537803	
P(T<=t) one-tail	0.111106381	
t Critical one-tail	1.697260851	
P(T<=t) two-tail	0.222212762	
t Critical two-tail	2.042272449	

Two-sample t-tests for mean differences between group A and D male processed body parts weight (g), Continued

t-Test: Two-Sample Assuming Unequal Variances
Males - group A vs D leg wt

	Group A	*Group D*
Mean	291.69	298.4333333
Variance	1703.206211	630.1093333
Std Dev	41.27	25.10
Observations	20	21
Hypothesized Mean Difference	0	
Df	31	
t Stat	-0.628367041	
P(T<=t) one-tail	0.26718305	
t Critical one-tail	1.695518742	
P(T<=t) two-tail	0.5343661	
t Critical two-tail	2.039513438	

t-Test: Two-Sample Assuming Unequal Variances
Males - group A vs D thigh wt

	Group A	*Group D*
Mean	331.515	342.3380952
Variance	3086.713974	1345.697476
Std Dev	55.56	36.68
Observations	20	21
Hypothesized Mean Difference	0	
Df	33	
t Stat	-0.732333208	
P(T<=t) one-tail	0.234567486	
t Critical one-tail	1.692360258	
P(T<=t) two-tail	0.469134971	
t Critical two-tail	2.034515287	

,

Two-sample t-tests for mean differences between group A and D male processed body parts weight (g), Continued

t-Test: Two-Sample Assuming Unequal Variances

Males - group A vs D wing wt

	Group A	*Group D*
Mean	231.3	235.0761905
Variance	599.8094737	240.4709048
Std Dev	24.49	15.51
Observations	20	21
Hypothesized Mean Difference	0	
Df	32	
t Stat	-0.58659225	
P(T<=t) one-tail	0.28079662	
t Critical one-tail	1.693888703	
P(T<=t) two-tail	0.561593241	
t Critical two-tail	2.036933334	

t-Test: Two-Sample Assuming Equal Variances

Males - group A vs D breast wt

	Group A	*Group D*
Mean	544.1	604.9047619
Variance	5768.48	3488.638476
Std Dev	75.79	59.06
Observations	20	21
Pooled Variance	4599.330501	
Hypothesized Mean Difference	0	
Df	39	
t Stat	-2.869610811	
P(T<=t) one-tail	0.003302325	
t Critical one-tail	1.684875122	
P(T<=t) two-tail	0.006604649	
t Critical two-tail	2.022690901	

Kolmogorov-Smirnov Two Sample Test for Normal Distribution of Processed Female Body Tissue Weights

Categorical values encountered during processing are:
GROUP$ (3 levels)
A, C, D

Fat Pad

Kolmogorov-Smirnov Two Sample Test results
Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.249	0.000	
D	0.219	0.143	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.490	.	
D	0.650	0.969	.

Chilled carcass

Categorical values encountered during processing are:
GROUP$ (3 levels)
A, C, D

Kolmogorov-Smirnov Two Sample Test results
Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.221	0.000	
D	0.219	0.429	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.638	.	
D	0.650	0.135	.

Leg

Categorical values encountered during processing are:
GROUP$ (3 levels)
A, C, D

Kolmogorov-Smirnov Two Sample Test results
Maximum differences for pairs of groups

	A	C	D
A	0.000		
C	0.361	0.000	
D	0.273	0.429	0.000

Two-sided probabilities

	A	C	D
A	.		
C	0.112	.	
D	0.377	0.135	.

Kolmogorov-Smirnov Two Sample Test for Normal Distribution of Processed Female Body Tissue Weights, Continued

Thigh

```
Categorical values encountered during processing are:
GROUP$ (3 levels)
   A, C, D

Kolmogorov-Smirnov Two Sample Test results
  Maximum differences for pairs of groups
                         A            C            D
             A           0.000
             C           0.258        0.000
             D           0.195        0.333        0.000
  Two-sided probabilities
                         A            C            D
             A             .
             C           0.447          .
             D           0.775        0.172          .
```

Wing

```
Categorical values encountered during processing are:
GROUP$ (3 levels)
   A, C, D

Kolmogorov-Smirnov Two Sample Test results
  Maximum differences for pairs of groups
                         A            C            D
             A           0.000
             C           0.268        0.000
             D           0.288        0.238        0.000
  Two-sided probabilities
                         A            C            D
             A             .
             C           0.396          .
             D           0.315        0.546          .
```

Breast

```
Categorical values encountered during processing are:
GROUP$ (3 levels)
   A, C, D

Kolmogorov-Smirnov Two Sample Test results
  Maximum differences for pairs of groups
                         A            C            D
             A           0.000
             C           0.180        0.000
             D           0.448        0.524        0.000


 Two-sided probabilities
                         A            C            D
             A             .
```

C	0.849	.	
D	0.224	0.0**84**	.

Two-sample F-test for Evariance of Group A and C Female Processed Body Parts Weight (g)

F-Test Two-Sample for Variances
Females - group A vs C Fat pad weight

	Group A	*Group D*
Mean	54.91428571	57.6
Variance	161.2282857	172.209
Std Dev	12.7	13.12
Observations	21	21
df	20	20
F	0.936236118	
P(F<=f) one-tail	0.442163306	
F Critical one-tail	0.470775391	

F-Test Two-Sample for Variances
Females - group A vs C chilled carcass weight

	Group A	*Group B*
Mean	1970.552381	1935.57619
Variance	17817.68362	6091.399905
Std Dev	133.48	78.05
Observations	21	21
df	20	20
F	2.925055635	
P(F<=f) one-tail	0.010240671	
F Critical one-tail	2.124155213	

F-Test Two-Sample for Variances
Females - Group A vs C leg wt

	Variable 1	*Variable 2*
Mean	244.8190476	237.952381
Variance	458.018619	142.903619
Std Dev	21.4	11.95
Observations	21	21
df	20	20
F	3.205087611	
P(F<=f) one-tail	0.006116768	
F Critical one-tail	2.124155213	

Two-sample F-test for Evariance of Group A and C Female Processed Body Parts Weight (g), Continued

F-Test Two-Sample for Variances
Female - group A vs C thigh wt

	Group A	*Group C*
Mean	290.1	286.5238095
Variance	718.266	985.0719048
Std Dev	26.8	31.39
Observations	21	21
df	20	20
F	0.729150833	
P(F<=f) one-tail	0.243175783	
F Critical one-tail	0.470775391	

F-Test Two-Sample for Variances
Females - group A vs C wing wt

	Group A	*Group C*
Mean	198.4714286	200.7619048
Variance	278.2391429	231.6444762
Std Dev	16.68	15.22
Observations	21	21
df	20	20
F	1.201147325	
P(F<=f) one-tail	0.342940023	
F Critical one-tail	2.124155213	

F-Test Two-Sample for Variances
Females - group A vs C breast wt

	Group A	*Group C*
Mean	518.6761905	509.8619048
Variance	2955.017905	1197.703476
Std Dev	54.36	34.61
Observations	21	21
df	20	20
F	2.467236644	
P(F<=f) one-tail	0.024862985	
F Critical one-tail	2.124155213	

Two-sample F-test for Evariance of Group A and C Female Processed Body Parts Weight (g), Continued

F-Test Two-Sample for Variances
Females - group A vs C remaining carcass wt

	Group A	*Group C*
Mean	631.6190476	635.3333333
Variance	2741.305619	1664.378333
Std Dev	52.36	40.8
Observations	21	21
df	20	20
F	1.647044764	
P(F<=f) one-tail	0.136465093	
F Critical one-tail	2.124155213	

Two-sample T-tests for Mean Differences Between Group A and C Female Processed Body Parts Weight (g)

t-Test: Two-Sample Assuming Equal Variances
Females - group A vs C fat pad wt

	Group A	*Group C*
Mean	54.91428571	57.6
Variance	161.2282857	172.209
Observations	21	21
Pooled Variance	166.7186429	
Hypothesized Mean Difference	0	
Df	40	
t Stat	0.674003847	
P(T<=t) one-tail	0.252092734	
t Critical one-tail	1.683851014	
P(T<=t) two-tail	0.504185468	
t Critical two-tail	2.02107537	

t-Test: Two-Sample Assuming Unequal Variances
Females - group A vs C chilled carcass weight

	Group A	*Group B*
Mean	1970.552381	1935.57619
Variance	17817.68362	6091.99905
Observations	21	21
Hypothesized Mean Difference	0	
Df	32	
t Stat	1.036574899	
P(T<=t) one-tail	0.153851996	
t Critical one-tail	1.693888703	
P(T<=t) two-tail	0.307703992	
t Critical two-tail	2.036933334	

Two-sample T-tests for Mean Differences Between Group A and C Female Processed Body Parts Weight (g), Continued

t-Test: Two-Sample Assuming Unequal Variances
Females - group A vs C leg weight

	Group A	*Group B*
Mean	244.8190476	237.952381
Variance	458.018619	142.903619
Observations	21	21
Hypothesized Mean Difference	0	
Df	31	
t Stat	1.283649556	
P(T<=t) one-tail	0.104388555	
t Critical one-tail	1.695518742	
P(T<=t) two-tail	0.20877711	
t Critical two-tail	2.039513438	

t-Test: Two-Sample Assuming Equal Variances
Females – group A vs C thigh wt

	Group A	*Group C*
Mean		286.5238095
Variance	718.266	985.0719048
Observations	21	21
Pooled Variance	851.6689524	
Hypothesized Mean Difference	0	
Df	40	
t Stat	0.397081711	
P(T<=t) one-tail	0.346709044	
t Critical one-tail	1.683851014	
P(T<=t) two-tail	0.693418089	
t Critical two-tail	2.02107537	

Two-sample T-tests for Mean Differences Between Group A and C Female Processed Body Parts Weight (g), Continued

t-Test: Two-Sample Assuming Equal Variances
Females - group A vs C wing wt

	Group A	*Group C*
Mean	198.4714286	200.7619048
Variance	278.2391429	231.6444762
Observations	21	21
Pooled Variance	254.9418095	
Hypothesized Mean Difference	0	
Df	40	
t Stat	-0.464836154	
P(T<=t) one-tail	0.322284667	
t Critical one-tail	1.683851014	
P(T<=t) two-tail	0.644569333	
t Critical two-tail	2.02107537	

t-Test: Two-Sample Assuming Unequal Variances
Females - group A vs C breast wt

	Group A	*Group C*
Mean	518.6761905	509.8619048
Variance	2955.017905	1197.703476
Observations	21	21
Hypothesized Mean Difference	0	
Df	34	
t Stat	0.626802001	
P(T<=t) one-tail	0.267487739	
t Critical one-tail	1.690924198	
P(T<=t) two-tail	0.534975478	
t Critical two-tail	2.032244498	

Part B: Comparison Between the Non-transgenic, Near Isoline Counterpart Toasted Soybean Seedmeal and the Non-transgenic Commercial Toasted Soybean Seedmeal.

Fisher's Exact Test for Difference in Mortality Between Males and Females in Group A vs. group D

eXactoid web based statistics software

Fisher's Exact Test

Males

# males dead	# males alive	Total males	Group
8	62	70	A
15	55	70	D
23	117	140	Total

1-tail p = 0.0851254
2-tail p = 0.170251

Females

# females dead	# females alive	Total females	Group
4	66	70	A
6	65	70	D
10	130	140	Total

1-tail p = 0.372
2-tail p = 0.745

Two-sample F-test for Homogeneity of Variance of Male Body Weight for Group A vs Group D at Time 0, 7 Days, 21 Days, 35 Days and 42 Day Plus Total Weight Gain

F-Test Two-Sample for Variances
Males group A vs D time 0 wt

	A time 0 wt	*D time 0 wt*
Mean	32.86376812	33.46571429
Variance	7.231167945	7.497937888
Std Dev	2.69	2.74
Observations*	69	70
df	68	69
F	0.964420892	
P(F<=f) one-tail	0.440868419	
F Critical one-tail	0.6699189	

* Cage 23 A, bird 411 was removed from analyses because
Its gender ID at time 0 was in error.

F-Test Two-Sample for Variances
Males Group A vs D 7 day wt

	A 7 day wt	*D 7 day wt*
Mean	157.5955882	162.3151515
Variance	396.0344579	365.20869
Std Dev	19.9	19.11
Observations	68	66
df	67	65
F	1.084405899	
P(F<=f) one-tail	0.372017493	
F Critical one-tail	1.504776528	

F-Test Two-Sample for Variances
Males Group A vs D 21 day wt

	A 21 day wt	*D 21 day wt*
Mean	895.9074627	948.1365079
Variance	12886.96161	9057.146226
Std Dev	113.52	95.17
Observations	67	63
df	66	62
F	1.422850122	
P(F<=f) one-tail	0.08140144	
F Critical one-tail	1.515955005	

Two-sample F-test for Homogeneity of Variance of Male Body Weight for Group A vs Group D at Time 0, 7 Days, 21 Days, 35 Days and 42 Day Plus Total Weight Gain Continued

F-Test Two-Sample for Variances
Males Group A vs D 35 day wt D 35 day wt

	A 35 day wt	*Variable 2*
Mean	2267.864615	2382.061017
Variance	98654.52576	45494.35518
Std Dev	314.09	213.3
Observations	65	59
df	64	58
F	2.168500364	
P(F<=f) one-tail	0.001597565	
F Critical one-tail	1.533578903	

F-Test Two-Sample for Variances
Males Group A vs D 42 day wt

	A 42 day wt	*D 42 day wt*
Mean	2851.1	2912.174545
Variance	213701.1247	420585.1067
Std Dev	462.28	648.53
Observations	61	55
df	60	54
F	0.508104356	
P(F<=f) one-tail	0.005591159	
F Critical one-tail	0.64592706	

F-Test Two-Sample for Variances
Males Group A vs D total wt gain

	A tot wt gain	*D tot wt gain*
Mean	2818.283607	2878.518182
Variance	213451.2274	420708.3604
Std Dev	462.01	648.62
Observations	61	55
df	60	54
F	0.507361506	
P(F<=f) one-tail	0.005505469	
F Critical one-tail	0.64592706	

Two-sample T-tests for Mean Differences in Body Weight at time 0, Day 7, Day 21, Day 35, Day 42, and Total Weight Gain for Males in Group A vs Group D

t-Test: Two-Sample Assuming Equal Variances
Males Group A vs D time 0 wt

	A time 0 wt	*D time 0 wt*
Mean	32.86376812	33.46571429
Variance	7.231167945	7.497937888
Observations	69	70
Pooled Variance	7.36552653	
Hypothesized Mean Difference	0	
df	137	
t Stat	1.307440463	
P(T<=t) one-tail	0.09662655	
t Critical one-tail	1.656052081	
P(T<=t) two-tail	0.1932531	
t Critical two-tail	1.977431183	

t-Test: Two-Sample Assuming Equal Variances
Males Group A vs D day 7 wt

	A 7 day wt	*D 7 day w*
Mean	157.5955882	162.3151515
Variance	396.0344579	365.20869
Observations	68	66
Pooled Variance	380.8551025	
Hypothesized Mean Difference	0	
df	132	
t Stat	1.399574268	
P(T<=t) one-tail	0.081993275	
t Critical one-tail	1.65647927	
P(T<=t) two-tail	0.16398655	
t Critical two-tail	1.978098814	

Two-sample T-tests for Mean Differences in Body Weight at time 0, Day 7, Day 21, Day 35, Day 42, and Total Weight Gain for Males in Group A vs Group D, Continued

t-Test: Two-Sample Assuming Equal Variances

Males Group A vs D 21 day wt

	A 21 day wt	*D 21 day wt*
Mean	895.9074627	948.1365079
Variance	12886.96161	9057.146226
Observations	67	63
Pooled Variance	11031.89478	
Hypothesized Mean Difference	0	
df	128	
t Stat	-2.833498789	
P(T<=t) one-tail	0.002675577	
t Critical one-tail	1.656845227	
P(T<=t) two-tail	0.005351154	
t Critical two-tail	1.978670823	

t-Test: Two-Sample Assuming Unequal Variances

Males Group A vs D 35 day wt

	A 35 day wt	*D 35 day wt*
Mean	2267.864615	2382.061017
Variance	98654.52576	45494.35518
Observations	65	59
Hypothesized Mean Difference	0	
df	113	
t Stat	2.386950962	
P(T<=t) one-tail	0.009324619	
t Critical one-tail	1.658450217	
P(T<=t) two-tail	0.018649238	
t Critical two-tail	1.981180296	

Two-sample T-tests for Mean Differences in Body Weight at time 0, Day 7, Day 21, Day 35, Day 42, and Total Weight Gain for Males in Group A vs Group D, Continued

t-Test: Two-Sample Assuming Unequal Variances
Males Group A vs D 42 day wt

	A 42 day wt	*D 42 day wt*
Mean	2851.1	2912.174545
Variance	213701.1247	420585.1067
Observations	61	55
Hypothesized Mean Difference	0	
df	97	
t Stat	0.578384952	
P(T<=t) one-tail	0.282172362	
t Critical one-tail	1.660714611	
P(T<=t) two-tail	0.564344725	
t Critical two-tail	1.984723136	

t-Test: Two-Sample Assuming Unequal Variances
Males – group A vs D Total weight gain

	Variable 1	*Variable 2*
Mean	2818.283607	2878.518182
Variance	213451.2274	420708.3604
Observations	61	55
Hypothesized Mean Difference	0	
df	97	
t Stat	0.570477784	
P(T<=t) one-tail	0.284836415	
t Critical one-tail	1.660714611	
P(T<=t) two-tail	0.56967283	
t Critical two-tail	1.984723136	

Two-sample F-test for Homogeneity of Variance of Female Body Weight for Group A vs D at Time 0, 7 Days, 21 Days, 35 Days and 42 Day Plus Total Weight Gain

F-Test Two-Sample for Variances
Female Group A vs D time 0 wt

	A time 0 wt	*D time 0 wt*
Mean	33.51428571	34.1385
Variance	9.049358178	6.061534
Std Dev	3.01	2.46
Observations	70	70
Df	69	69
F	1.492915479	
P(F<=f) one-tail	0.049179388	
F Critical one- tail	1.490000334	

F-Test Two-Sample for Variances
Female Group A vs D day 7 wt

	A day 7 wt	*D day 7wt*
Mean	163.7956522	161.6058824
Variance	235.4133632	233.9330992
Std Dev	15.34	15.29
Observations	69	68
Df	68	67
F	1.006327723	
P(F<=f) one-tail	0.489942636	
F Critical one-tail	1.497211957	

F-Test Two-Sample for Variances
Female Group A vs D day 21 wt

	A day 21 wt	*D day 21 wt*
Mean	859.6521739	863.9298507
Variance	7457.172826	6578.675459
Std Dev	86.35	81.11
Observations	69	67
Df	68	66
F	1.133537119	
P(F<=f) one-tail	0.305209043	
F Critical one-tail	1.500085314	

Two-sample F-test for Homogeneity of Variance of Female Body Weight for Group A vs D at Time 0, 7 Days, 21 Days, 35 Days and 42 Day Plus Total Weight Gain, Continued

Female Group A vs D day 35 wt

	A day 35 wt	*D day 35 wt*
Mean	2055.076471	2046.553846
Variance	33741.83765	17333.66346
Std Dev	183.69	131.66
Observations	68	65
Df	67	64
F	1.946607405	
P(F<=f) one-tail	0.004002557	
F Critical one-tail	1.50782005	

F-Test Two-Sample for Variances

Female Group A vs D day 42 wt

	A day 42 wt	*D day 42 wt*
Mean	2613.643939	2566.957813
Variance	30982.35019	51064.06597
Std Dev	176.02	225.97
Observations	66	64
df	65	63
F	0.606734885	
P(F<=f) one-tail	0.023611532	
F Critical one-tail	0.661291863	

F-Test Two-Sample for Variances

Female Group A vs D total wt gain

	A tot wt gain	*D tot wt gain*
Mean	2580.243939	2532.851563
Variance	30592.80681	50949.33905
Std Dev	174.91	225.79
Observations	66	64
df	65	63
F	0.600455421	
P(F<=f) one-tail	0.021423237	
F Critical one-tail	0.661291863	

Two-sample T-tests for Mean Differences in Body Weight at Time 0, Day 7, Day 21, Day 35, Day 42, and Total Weight Gain for Females in Group A vs Group D

t-Test: Two-Sample Assuming Unequal Variances
Female Group A vs D time 0 wt

	A time 0 wt	*D time 0 wt*
Mean	33.51428571	34.13857143
Variance	9.049358178	6.061534161
Observations	70	70
Hypothesized Mean Difference	0	
df	133	
t Stat	1.343653728	
P(T<=t) one-tail	0.090674143	
t Critical one-tail	1.656391245	
P(T<=t) two-tail	0.181348285	
t Critical two-tail	1.977961236	

t-Test: Two-Sample Assuming Equal Variances
Female Group A vs D day 7 wt

	A day 7 wt	*D day 7wt*
Mean	163.7956522	161.6058824
Variance	235.4133632	233.9330992
Observations	69	68
Pooled Variance	234.6787136	
Hypothesized Mean Difference	0	
df	135	
t Stat	0.836527716	
P(T<=t) one-tail	0.202168191	
t Critical one-tail	1.656219133	
P(T<=t) two-tail	0.404336382	
t Critical two-tail	1.977692248	

Two-sample T-tests for Mean Differences in Body Weight at Time 0, Day 7, Day 21, Day 35, Day 42, and Total Weight Gain for Females in Group A vs Group D, Continued

t-Test: Two-Sample Assuming Equal Variances

Female Group A vs D day 21 wt

	A day 21 wt	*D day 21 wt*
Mean	859.6521739	863.9298507
Variance	7457.172826	6578.675459
Observations	69	67
Pooled Variance	7024.480093	
Hypothesized Mean Difference	0	
df	134	
t Stat	0.297572896	
P(T<=t) one-tail	0.383245003	
t Critical one-tail	1.656304542	
P(T<=t) two-tail	0.766490005	
t Critical two-tail	1.97782573	

Female Group A vs D day 35 wt

	A day 35 wt	*D day 35 wt*
Mean	2055.076471	2046.553846
Variance	33741.83765	17333.66346
Observations	68	65
Hypothesized Mean Difference	0	
df	122	
t Stat	0.308564949	
P(T<=t) one-tail	0.379089377	
t Critical one-tail	1.6574395	
P(T<=t) two-tail	0.758178755	
t Critical two-tail	1.979599854	

Two-sample T-tests for Mean Differences in Body Weight at Time 0, Day 7, Day 21, Day 35, Day 42, and Total Weight Gain for Females in Group A vs Group D, Continued

t-Test: Two-Sample Assuming Unequal Variances
Female Group A vs D day 42 wt

	A day 42 wt	*D day 42 wt*
Mean	2613.643939	2566.957813
Variance	30982.35019	51064.06597
Observations	66	64
Hypothesized Mean Difference	0	
df	119	
t Stat	1.311436216	
P(T<=t) one-tail	0.096117561	
t Critical one-tail	1.657759285	
P(T<=t) two-tail	0.192235122	
t Critical two-tail	1.980099853	

t-Test: Two-Sample Assuming Unequal Variances
Female Group A vs D total wt gain

	A tot wt gain	*D tot wt gain*
Mean	2580.243939	2532.851563
Variance	30592.80681	50949.33905
Observations	66	64
Hypothesized Mean Difference	0	
df	119	
t Stat	1.335335218	
P(T<=t) one-tail	0.092157668	
t Critical one-tail	1.657759285	
P(T<=t) two-tail	0.184315336	
t Critical two-tail	1.980099853	

Two-sample F-test for Equal Variance for Male Groups A vs D Feed Consumption During Weeks 1 – 6 and Total Feed Consumption

F-Test Two-Sample for
Males - Group A vs D wk 1 feed consumption

	Group A	*Group D*
Mean	19.04285714	18.85714286
Variance	1.026190476	1.896190476
Std Dev	1.01	1.38
Observations	7	7
Df	6	6
F	0.541185334	
P(F<=f) one-tail	0.236955752	
F Critical one-	0.233434021	

F-Test Two-Sample for
Males - Group A vs D week 2 feed consumption

	Group A	*Group D*
Mean	56.42857143	57.11428571
Variance	11.29238095	4.721428571
Std Dev	3.36	2.17
Observations	7	7
Df	6	6
F	2.391729702	
P(F<=f) one-tail	0.156314046	
F Critical one-	4.283865714	

F-Test Two-Sample for
males-Group A vs D week 3 feed consumption

	Group A	*Group D*
Mean	100.1285714	101.9571429
Variance	34.30571429	16.53952381
Std Dev	5.86	4.07
Observations	7	7
Df	6	6
F	2.074165779	
P(F<=f) one-tail	0.198108143	
F Critical one-	4.283865714	

Two-sample F-test for Equal Variance for Male Groups A vs D Feed Consumption During Weeks 1 – 6 and Total Feed Consumption, Continued

F-Test Two-Sample for
Males - Group A vs D week 4 feed consumption

	Group A	*Group D*
Mean	165.1142857	167.0142857
Variance	128.1614286	35.8347619
Std Dev	11.3	5.99
Observations	7	7
Df	6	6
F	3.576455424	
P(F<=f) one-tail	0.073123676	
F Critical one-	4.283865714	

F-Test Two-Sample for Variances
Males - Group A vs D wk 5 feed consumption

	Group A	*Group D*
Mean	185.3142857	195.1428571
Variance	162.2480952	77.18952381
Std Dev	12.74	8.79
Observations	7	7
Df	6	6
F	2.101944503	
P(F<=f) one-tail	0.193918055	
F Critical one-tail	4.283865714	

F-Test Two-Sample for Variances
Males - Group A vs D wk 6 feed consumption

	Group A	*Group D*
Mean	195.2428571	206.185714
Variance	732.0895238	1016.98142
Std Dev	27.06	31.89
Observations	7	7
df	6	6
F	0.719865185	
P(F<=f) one-	0.349977609	
F Critical one-	0.233434021	

Two-sample F-test for Equal Variance for Male Groups A vs D Feed Consumption During Weeks 1 – 6 and Total Feed Consumption, Continued

F-Test Two-Sample for Variances
Males - group A vs D Total feed consumed (g/bird)

	Group A	*Group D*
Mean	4220.7	4275.9
Variance	77849.87	50973.37
Std Dev	279.02	225.77
Observations	7	7
df	6	6
F	1.527265511	
P(F<=f) one-tail	0.310010129	
F Critical one-tail	4.283865714	

Two-sample T-test for Mean Differences Between Group A vs D Male Feed Consumption during Weeks 1 through 6 and Total Feed Consumption

t-Test: Two-Sample Assuming Equal
Males - Group A vs D wk 1 feed

	Group A	*Group D*
Mean	19.04285714	18.85714286
Variance	1.026190476	1.896190476
Observations	7	7
Pooled Variance	1.461190476	
Hypothesized Mean	0	
df	12	
t Stat	0.287425912	
P(T<=t) one-tail	0.389344723	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.778689446	
t Critical two-tail	2.178812827	

Two-sample T-test for Mean Differences Between Group A vs D Male Feed Consumption during Weeks 1 through 6 and Total Feed Consumption, Continued

t-Test: Two-Sample Assuming Equal Variances
Males - Group A vs D week 2 feed consumption

	Group A	*Group D*
Mean	56.42857143	57.11428571
Variance	11.29238095	4.721428571
Observations	7	7
Pooled Variance	8.006904762	
Hypothesized Mean	0	
df	12	
t Stat	-0.453361763	
P(T<=t) one-tail	0.329188628	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.658377256	
t Critical two-tail	2.178812827	

t-Test: Two-Sample Assuming Equal Variances
males-Group A vs D week 3 feed consumption

	Group A	*Group D*
Mean	100.1285714	101.9571429
Variance	34.30571429	16.53952381
Observations	7	7
Pooled Variance	25.42261905	
Hypothesized Mean	0	
df	12	
t Stat	-0.678478058	
P(T<=t) one-tail	0.255170691	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.510341381	
t Critical two-tail	2.178812827	

Two-sample T-test for Mean Differences Between Group A vs D Male Feed Consumption during Weeks 1 through 6 and Total Feed Consumption, Continued

t-Test: Two-Sample Assuming Equal Variances
Males – Group A vs D wk 4 feed consumption

	Variable 1	*Variable 2*
Mean	165.1142857	167.0142857
Variance	128.1614286	35.8347619
Observations	7	7
Pooled Variance	81.99809524	
Hypothesized Mean Difference	0	
Df	12	
t Stat	-0.392541648	
P(T<=t) one-tail	0.350770674	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.701541347	
t Critical two-tail	2.178812827	

t-Test: Two-Sample Assuming Equal
Males - Group A vs D wk 5 feed consumption

	Group A	*Group D*
Mean	185.3142857	195.1428571
Variance	162.2480952	77.18952381
Observations	7	7
Pooled Variance	119.7188095	
Hypothesized Mean Difference	0	
df	12	
t Stat	-	
P(T<=t) one-tail	0.059339447	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.118678893	
t Critical two-tail	2.178812827	

Two-sample T-test for Mean Differences Between Group A vs D Male Feed Consumption during Weeks 1 through 6 and Total Feed Consumption, Continued

t-Test: Two-Sample Assuming Equal Variances
Males - Group A vs D wk 6 feed consumption

	Group A	*Group D*
Mean	195.2428571	206.1857143
Variance	732.0895238	1016.981429
Observations	7	7
Pooled Variance	874.5354762	
Hypothesized Mean	0	
Df	12	
t Stat	-0.692270836	
P(T<=t) one-tail	0.250971861	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.501943721	
t Critical two-tail	2.178812827	

t-Test: Two-Sample Assuming Equal Variances
Males - group A vs D Total feed consumed (g/bird)

	Group A	*Group D*
Mean	4220.7	4275.9
Variance	77849.87	50973.37
Observations	7	7
Pooled Variance	64411.62	
Hypothesized Mean Difference	0	
df	12	
t Stat	-0.406903091	
P(T<=t) one-tail	0.345621602	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.691243204	
t Critical two-tail	2.178812827	

Two-sample F-tests for Equal Variance for Group A vs D Female Feed Consumption (g/bird/day) During Week 1 Through Week 6 and Total Feed Consumption

F-Test Two-Sample for
Females - group A vs D wk 1 feed consumption

	Group A	*Group D*
Mean	21.47142857	19.91428571
Variance	0.159047619	2.228095238
Std Dev	0.4	1.49
Observations	7	7
df	6	6
F	0.071382774	
P(F<=f) one-tail	0.002669937	
F Critical one-	0.233434021	

F-Test Two-Sample for
Females - group A vs D wk 2 feed consumption

	Group A	*Group D*
Mean	58.28571429	55.54285714
Variance	19.57809524	6.24952381
Std Dev	4.42	2.5
Observations	7	7
df	6	6
F	3.132733923	
P(F<=f) one-tail	0.095229032	
F Critical one-	4.283865714	

F-Test Two-Sample for
Females - group A vs D wk 3 feed consumption

	Group A	*Group D*
Mean	97.34285714	92.34285714
Variance	52.94285714	33.13619048
Std Dev	7.28	5.76
Observations	7	7
df	6	6
F	1.597735177	
P(F<=f) one-tail	0.291775798	
F Critical one-	4.283865714	

Two-sample F-tests for Equal Variance for Group A vs D Female Feed Consumption (g/bird/day) During Week 1 Through Week 6 and Total Feed Consumption, Continued

F-Test Two-Sample for Variances
Females - group A vs D wk 4 feed consumption

	Group A	*Group D*
Mean	150.6714286	143.7857143
Variance	19.88904762	26.2447619
Std Dev	4.46	5.12
Observations	7	7
df	6	6
F	0.757829227	
P(F<=f) one-tail	0.372468416	
F Critical one-tail	0.233434021	

F-Test Two-Sample for Variances
Females - group A vs D wk 5 feed consumption

	Group A	*Group D*
Mean	175.9142857	173
Variance	113.1447619	69.29666667
Std Dev	10.64	8.32
Observations	7	7
df	6	6
F	1.632759083	
P(F<=f) one-tail	0.283207104	
F Critical one-tail	4.283865714	

F-Test Two-Sample for Variances
Females - group A vs D wk 6 feed consumption

	Group A	*Group D*
Mean	194.3	184.6714286
Variance	264.0866667	201.252381
Std Dev	16.25	14.19
Observations	7	7
df	6	6
F	1.312216359	
P(F<=f) one-tail	0.374940584	
F Critical one-	4.283865714	

Two-sample F-tests for Equal Variance for Group A vs D Female Feed Consumption (g/bird/day) During Week 1 Through Week 6 and Total Feed Consumption, Continued

F-Test Two-Sample for Variances
Females group A vs D Total feed consumed (g/bird)

	Group A	*Group D*
Mean	4137.5	3928.8
Variance	19770.14667	13974.12333
Std Dev	140.61	118.21
Observations	7	7
df	6	6
F	1.414768297	
P(F<=f) one-tail	0.342111143	
F Critical one-tail	4.283865714	

Two Two-sample F-tests for Equal Variance for Group A vs D Female Feed Consumption (g/bird/day) During Week 1 Through Week 6 and Total Feed Consumption

t-Test: Two-Sample Assuming Unequal Variances
Females - group A vs D wk 1 feed

	Group A	*Group D*
Mean	21.47142857	19.91428571
Variance	0.159047619	2.228095238
Observations	7	7
Hypothesized Mean	0	
df	7	
t Stat	2.666479646	
P(T<=t) one-tail	0.01608172	
t Critical one-tail	1.894578604	
P(T<=t) two-tail	0.032163439	
t Critical two-tail	2.364624251	

Two-sample F-tests for Equal Variance for Group A vs D Female Feed Consumption (g/bird/day) During Week 1 Through Week 6 and Total Feed Consumption, Continued

t-Test: Two-Sample Assuming Equal
Females - group A vs D wk 2 feed

	Group A	*Group D*
Mean	58.28571429	55.54285714
Variance	19.57809524	6.24952381
Observations	7	7
Pooled Variance	12.91380952	
Hypothesized Mean	0	
df	12	
t Stat	1.427940208	
P(T<=t) one-tail	0.089406895	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.178813789	
t Critical two-tail	2.178812827	

t-Test: Two-Sample Assuming Equal
Females - group A vs D wk 3 feed

	Group A	*Group D*
Mean	97.34285714	92.34285714
Variance	52.94285714	33.13619048
Observations	7	7
Pooled Variance	43.03952381	
Hypothesized Mean	0	
df	12	
t Stat	1.42583837	
P(T<=t) one-tail	0.089703423	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.179406845	
t Critical two-tail	2.178812827	

Two-sample F-tests for Equal Variance for Group A vs D Female Feed Consumption (g/bird/day) During Week 1 Through Week 6 and Total Feed Consumption, Continued

t-Test: Two-Sample Assuming Equal
Females - group A vs D wk 4 feed

	Group A	*Group D*
Mean	150.6714286	143.7857143
Variance	19.88904762	26.2447619
Observations	7	7
Pooled Variance	23.06690476	
Hypothesized Mean	0	
df	12	
t Stat	2.682182713	
P(T<=t) one-tail	0.00997812	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.01995624	
t Critical two-tail	2.178812827	

t-Test: Two-Sample Assuming Equal Variances
Females - group A vs D wk 5 feed consumption

	Group A	*Group D*
Mean	175.9142857	173
Variance	113.1447619	69.29666667
Observations	7	7
Pooled Variance	91.22071429	
Hypothesized Mean Difference	0	
df	12	
t Stat	0.570846596	
P(T<=t) one-tail	0.289318605	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.57863721	
t Critical two-tail	2.178812827	

Two-sample F-tests for Equal Variance for Group A vs D Female Feed Consumption (g/bird/day) During Week 1 Through Week 6 and Total Feed Consumption, Continued

t-Test: Two-Sample Assuming Equal Variances
Females - group A vs D wk 6 feed consumption

	Group A	*Group D*
Mean	194.3	184.6714286
Variance	264.0866667	201.252381
Observations	7	7
Pooled Variance	232.6695238	
Hypothesized Mean Difference	0	
df	12	
t Stat	1.180935364	
P(T<=t) one-tail	0.130252968	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.260505936	
t Critical two-tail	2.178812827	

t-Test: Two-Sample Assuming Equal Variances
Females group A vs D Total feed consumed (g/bird)

	Group A	*Group D*
Mean	4137.5	3928.8
Variance	19770.14667	13974.12333
Observations	7	7
Pooled Variance	16872.135	
Hypothesized Mean Difference	0	
Df	12	
t Stat	3.005878696	
P(T<=t) one-tail	0.005473225	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.01094645	
t Critical two-tail	2.178812827	

Two-sample F-tests for Equal Variance Between Male Group A vs Group D Feed Conversion Ratios

F-Test Two-Sample for Variances
Males - Group A vs D Feed Conversion Ratio

	Group A	*Group D*
Mean	1.505272719	1.47919575
Variance	0.004237546	0.014874073
Std Dev	0.065	0.122
Observations	7	7
df	6	6
F	0.284894783	
P(F<=f) one-tail	0.07596725	
F Critical one-tail	0.233434021	

Two-sample T-tests for Mean Differences Between Male Group A vs Group D Feed Conversion Ratios

t-Test: Two-Sample Assuming Equal Variances
Males - Group A vs D Feed Conversion Ratio

	Group A	*Group D*
Mean	1.50527272	1.47919575
Variance	0.00423755	0.014874073
Observations	7	7
Pooled Variance	0.00955581	
Hypothesized Mean Difference	0	
df	12	
t Stat	0.49906533	
P(T<=t) one-tail	0.31337821	
t Critical one-tail	1.78228755	
P(T<=t) two-tail	0.62675642	
t Critical two-tail	2.17881283	

Two-sample F-tests for Equal Variance Between Female Group A vs Group D Feed Conversion Ratios

F-Test Two-Sample for Variances
Females - group A vs D Feed Conversion Ratio

	Group A	*Group D*
Mean	1.602811618	1.55084412
Variance	0.003457928	0.003561503
Std Dev	0.059	0.06
Observations	7	7
Df	6	6
F	0.970918337	
P(F<=f) one-tail	0.486168832	
F Critical one-tail	0.233434021	
F Critical one-tail	0.233434021	

Two-sample T-tests for Mean Differences Between Female Group A vs Group D Feed Conversion Ratios

t-Test: Two-Sample Assuming Equal Variances
Females - group A vs D Feed Conversion Ratio

	Group A	*Group D*
Mean	1.60281162	1.55084412
Variance	0.00345793	0.003561503
Observations	7	7
Pooled Variance	0.00350972	
Hypothesized Mean Difference	0	
df	12	
t Stat	1.64108041	
P(T<=t) one-tail	0.06335533	
t Critical one-tail	1.78228755	
P(T<=t) two-tail	0.12671065	
t Critical two-tail	2.17881283	

Two-sample F-tests for Equal Variance for Group A and D Male Processed Body Parts Weight (g).

F-Test Two-Sample for Variances
Males - group A vs D fat pad wt

	Group A	*Group D*
Mean	51.985	51.2
Variance	368.3908158	190.654
Std Dev	19.19	13.81
Observations	20	21
df	19	20
F	1.932248029	
P(F<=f) one-tail	0.076266222	
F Critical one-tail	2.137008959	

F-Test Two-Sample for Variances
Males - group A vs D chilled carcass wt

	Group A	*Group D*
Mean	2198.005	2286.57619
Variance	75895.25945	26331.3329
Observations	20	21
df	19	20
F	2.882317417	
P(F<=f) one-tail	0.011595901	
F Critical one-tail	2.137008959	

F-Test Two-Sample for Variances
Males - group A vs D leg wt

	Group A	*Group D*
Mean	291.69	298.4333333
Variance	1703.206211	630.1093333
Std Dev	41.27	25.10
Observations	20	21
df	19	20
F	2.703032824	
P(F<=f) one-tail	0.016276839	
F Critical one-tail	2.137008959	

Two-sample F-tests for Equal Variance for Group A and D Male Processed Body Parts Weight (g), Continued

F-Test Two-Sample for Variances
Males - group A vs D thigh wt

	Group A	*Group D*
Mean	331.515	342.3380952
Variance	3086.713974	1345.697476
Std Dev	55.56	36.68
Observations	20	21
df	19	20
F	2.29376515	
P(F<=f) one-tail	0.036376019	
F Critical one-tail	2.137008959	

F-Test Two-Sample for Variances
Males - group A vs D wing wt

	Group A	*Group D*
Mean	231.3	235.0761905
Variance	599.8094737	240.4709048
Std Dev	24.49	15.51
Observations	20	21
df	19	20
F	2.494312043	
P(F<=f) one-tail	0.024405131	
F Critical one-tail	2.137008959	

F-Test Two-Sample for Variances
Males - group A vs D breast wt

	Group A	*Group D*
Mean	544.1	604.9047619
Variance	5768.48	3488.638476
Std Dev	75.95	50.06
Observations	20	21
df	19	20
F	1.653504666	
P(F<=f) one-tail	0.136440897	
F Critical one-tail	2.137008959	

Two-sample t-tests for Mean Differences Between Group A and D Male Processed Body Parts Weight (g)

t-Test: Two-Sample Assuming Equal Variances

Males - group A vs D fat pad wt

	Group A	*Group D*
Mean	51.985	51.2
Variance	368.3908158	190.654
Std Dev	19.19	13.81
Observations	20	21
Pooled Variance	277.2437308	
Hypothesized Mean Difference	0	
df	39	
t Stat	0.150893838	
P(T<=t) one-tail	0.440418623	
t Critical one-tail	1.684875122	
P(T<=t) two-tail	0.880837247	
t Critical two-tail	2.022690901	

Males - group A vs D chilled carcass wt

	Group A	*Group D*
Mean	2198.005	2286.57619
Variance	75895.25945	26331.3329
Observations	20	21
Hypothesized Mean Difference	0	
df	30	
t Stat	-1.246537803	
P(T<=t) one-tail	0.111106381	
t Critical one-tail	1.697260851	
P(T<=t) two-tail	0.222212762	
t Critical two-tail	2.042272449	

Two-sample t-tests for Mean Differences Between Group A and D Male Processed Body Parts Weight (g), Continued

t-Test: Two-Sample Assuming Unequal Variances
Males - group A vs D leg wt

	Group A	*Group D*
Mean	291.69	298.4333333
Variance	1703.2062	630.1093333
Std Dev	41.27	25.10
Observations	20	21
Hypothesized Mean Difference	0	
Df	31	
t Stat	-0.628367041	
P(T<=t) one-tail	0.26718305	
t Critical one-tail	1.695518742	
P(T<=t) two-tail	0.5343661	
t Critical two-tail	2.039513438	

t-Test: Two-Sample Assuming Unequal Variances
Males - group A vs D thigh wt

	Group A	*Group D*
Mean	331.515	342.3380952
Variance	3086.713974	1345.697476
Std Dev	55.56	36.68
Observations	20	21
Hypothesized Mean Difference	0	
Df	33	
t Stat	-0.732333208	
P(T<=t) one-tail	0.234567486	
t Critical one-tail	1.692360258	
P(T<=t) two-tail	0.469134971	
t Critical two-tail	2.034515287	

Two-sample t-tests for Mean Differences Between Group A and D Male Processed Body Parts Weight (g), Continued

t-Test: Two-Sample Assuming Unequal Variances
Males - group A vs D wing wt

	Group A	*Group D*
Mean	231.3	235.0761905
Variance	599.8094737	240.4709048
Std Dev	24.49	15.51
Observations	20	21
Hypothesized Mean Difference	0	
Df	32	
t Stat	-0.58659225	
P(T<=t) one-tail	0.28079662	
t Critical one-tail	1.693888703	
P(T<=t) two-tail	0.561593241	
t Critical two-tail	2.036933334	

t-Test: Two-Sample Assuming Equal Variances
Males - group A vs D breast wt

	Group A	*Group D*
Mean	544.1	604.9047619
Variance	5768.48	3488.638476
Std Dev	75.79	59.06
Observations	20	21
Pooled Variance	4599.330501	
Hypothesized Mean Difference	0	
Df	39	
t Stat	-2.869610811	
P(T<=t) one-tail	0.003302325	
t Critical one-tail	1.684875122	
P(T<=t) two-tail	0.006604649	
t Critical two-tail	2.022690901	

Two-sample F-test for equal variance of group A and D female processed body parts weight (g)

F-Test Two-Sample for Variances
Females - group A vs D fat pad wt

	Group A	*Group D*
Mean	54.91428571	57.20952381
Variance	161.2282857	114.0429048
Std Dev	12.7	10.68
Observations	21	21
df	20	20
F	1.413751132	
P(F<=f) one-tail	0.222807911	
F Critical one-tail	2.124155213	

F-Test Two-Sample for Variances
Females - group A vs D chilled carcass wt

	Group A	*Group D*
Mean	1970.542857	2000.933333
Variance	17818.44057	9957.069333
Std Dev	133.48	99.79
Observations	21	21
df	20	20
F	1.789526614	
P(F<=f) one-tail	0.100917799	
F Critical one-tail	2.124155213	

F-Test Two Sample for Variances
Females - group A vs D Leg wt

	Group A	*Group D*
Mean	244.8190476	250.0095238
Variance	458.018619	262.8609048
Std Dev	21.4	16.21
Observations	21	21
df	20	20
F	1.742437201	
P(F<=f) one-tail	0.111499446	
F Critical one-tail	2.124155213	

Two-sample F-test for Equal Variance of Group A and D Female Processed Body Parts Weight (g), Continued

F-Test Two-Sample for Variances
Females - group A vs D thigh wt

	Group A	*Group D*
Mean	290.1	287.6952381
Variance	718.266	956.1584762
Std Dev	26.8	30.92
Observations	21	21
df	20	20
F	0.751199741	
P(F<=f) one-tail	0.264118086	
F Critical one-tail	0.470775391	

F-Test Two-Sample for Variances
Females - group A vs D wing wt

	Group A	*Group D*
Mean	198.4714286	205.547619
Variance	278.2391429	328.427619
Std Dev	16.68	18.12
Observations	21	21
df	20	20
F	0.84718558	
P(F<=f) one-tail	0.357179495	
F Critical one-tail	0.470775391	

F-Test Two-Sample for Variances
Females - group A vs D breast wt

	Group A	*Group D*
Mean	518.6761905	549.1857143
Variance	2955.017905	1331.605286
Std Dev	54.36	36.49
Observations	21	21
df	20	20
F	2.219139513	
P(F<=f) one-tail	0.04109976	
F Critical one-tail	2.124155213	

Two-sample F-test for equal variance of group A and D female processed body parts weight (g), Continued

F-Test Two-Sample for Variances
Females – group A vs D remaining carcass wt

	Group A	*Group D*
Mean	631.6190476	648.9047619
Variance	2741.305619	1897.751476
Std Dev	52.36	43.53
Observations	21	21
df	20	20
F	1.444501903	
P(F<=f) one-tail	0.209000741	
F Critical one-tail	2.124155213	

Two sample F-test for Equal Variance and Two-sample T-test for Mean Differences Between Group C and Group D Male Breast Weight (g)

F-Test Two-Sample for Variances
Males - group C vs D breast wt

	Group C	*Group D*
Mean	579.16	604.9047619
Variance	4097.398316	3488.638476
Observations	20	21
df	19	20
F	1.174497829	
P(F<=f) one-tail	0.361503999	
F Critical one-tail	2.137008959	

t-Test: Two-Sample Assuming Unequal Variances
Males - group C vs D breast wt

	Group C	*Group D*
Mean	575.9571429	604.9047619
Variance	4107.952571	3488.638476
Observations	21	21
Pooled Variance	3798.295524	
Hypothesized Mean Difference	0	
Df	40	
t Stat	-1.521994638	
P(T<=t) one-tail	0.067938713	
t Critical one-tail	1.683851014	
P(T<=t) two-tail	0.135877427	
t Critical two-tail	2.02107537	

Two-sample F-test for Equal Variance and Two-sample T-test for Mean Differences in Female Breast Weight Between Group C and Group D

F-Test Two-Sample for Variances
Female - group C vs D breast wt

	Group C	*Group D*
Mean	509.8619048	549.1857143
Variance	1197.703476	1331.605286
Observations	21	21
df	20	20
F	0.899443318	
P(F<=f) one-tail	0.407500175	
F Critical one-tail	0.470775391	

t-Test: Two-Sample Assuming Equal Variances
Female - group C vs D breast wt

	Group C	*Group D*
Mean	509.8619048	549.1857143
Variance	1197.703476	1331.605286
Observations	21	21
Pooled Variance	1264.654381	
Hypothesized Mean Difference	0	
df	40	
t Stat	-3.583144371	
P(T<=t) one-tail	0.000455641	
t Critical one-tail	1.683851014	
P(T<=t) two-tail	0.000911283	
t Critical two-tail	2.02107537	

Analysis of Covariance for Mean Difference in Female Breast Weight Among Groups A, C and D With Final Live Body Weight as the Covariate

SYSTAT Rectangular file C:\Program Files\SYSTAT 9\Data\13798.4124 Female processed parts weight.syd, created Fri Sep 18, 2009 at 16:20:04, contains variables:

GROUP$ CAGE$ ID$ GENDER$ FATPAD CHILLCARCAS

LEG THIGH WING BREAST FINALCARCAS FINALLIVEWT

Effects coding used for categorical variables in model.

Categorical values encountered during processing are:

GROUP$ (3 levels)

A, C, D

Dep Var: BREAST N: 63 Multiple R: 0.676 Squared multiple R: 0.457

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
GROUP$	4842.497	2	2421.248	2.061	0.136
FINALLIVEWT	40385.477	1	40385.477	34.382	0.000
Error	69301.056	59	1174.594		

Least Square Means

Adj. LS		Mean	SE	N
GROUP$	=A	523.041	7.516	21
GROUP$	=C	516.407	7.562	21
GROUP$	=D	538.277	7.707	21

Durbin-Watson D Statistic 2.281

First Order Autocorrelation -0.142

F-test for Equal Variance and T-test for Mean Differences Between Group D Female Final Weight of Entire Population and Group 'd' Final Weight of 21-bird Subset Selected for Processing and Tissue Weighing

F-Test Two-Sample for Variances

Group D female final body weight of full population vs that of subset

	D females	*d females*
Mean	2532.851563	2663.4619
Variance	50949.33905	13773.1755
Observations	64	21
Df	63	20
F	3.699171562	
P(F<=f) one-tail	0.000979029	
F Critical one-tail	1.94171027	

t-Test: Two-Sample Assuming Unequal Variances

Group D female final body weight of full population vs that of subset

	D females	*d females*
Mean	2532.851563	2663.4619
Variance	50949.33905	13773.1755
Observations	64	21
Hypothesized Mean Difference	0	
df	67	
t Stat	-3.42769285	
P(T<=t) one-tail	0.000522508	
t Critical one-tail	1.667916115	
P(T<=t) two-tail	0.001045016	
t Critical two-tail	1.996008331	