CQR FINAL REPORT

Study Title

Comparison of Broiler Performance and Carcass Parameters When Fed Diets Containing Soybean Meal Produced from MON 87769, Control, or Reference Soybeans

Study Director

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Study Completed On

July 30, 2008

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Quality Assurance Unit
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St. Louis, MO 63167

Study Project ID

CQR Study Number: MN-07-4
Monsanto Study No. 07-01-83-40

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

Statement of No Data Confidentiality Claim

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

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

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

Company: _____

Company Agent: _____

Title: _____

Signature: _____ Date: _____

Statement of Compliance

The in-life portion of the study meets the Good Laboratory Practice (GLP) requirements for 21 CFR Part 58. Portions of the study conducted by Monsanto meet the GLP requirements for 40 CFR Part 160. Specific items that were not conducted under GLP include:

- Semi-annual water analysis (total coliforms) by Stewart Environmental Consultants
- Northern Colorado Water Association water testing
- Starter and grower/finisher diet formulations by Global Poultry Consulting, Inc.
- Feed and meat sample analysis at the University of Missouri Experiment Station Chemical Laboratories
- Yearly scale licensing by the State of Colorado
- Stability of the test, control, and reference substances and the stability, uniformity, and concentration of the test, control, and reference substances in the diets were not determined.

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

Submitter	Date
Cherian George	7-28-2008
Sponsor Representative	Date
Stephen W. D—	30JUL08
Study Director	Date

Copyright Information Page

Quality Assurance Statement

Study Title: Comparison of Broiler Performance and Carcass Parameters When Fed Diets Containing Soybean Meal Produced from MON 87769, Control, or Reference Soybeans

Study Number: 07-01-83-40

Reviews conducted by the Quality Assurance Unit confirm that the final report accurately describes the methods and standard operating procedures followed and accurately reflects the raw data of the study.

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

Dates of Inspection/Audit	Phase	Date Reported to Study Director	Date Reported to Management
10/25/2007	See Scope / Inspection	10/29/2007	10/29/2007
05/07/2008	Raw Data Audit	05/21/2008	05/21/2008
06/20/2008	Draft Stats Report and Data Audit	06/23/2008	06/23/2008
07/02/2008	Draft Report Review	07/16/2008	07/16/2008

Lisa A. Morrison
Quality Assurance Unit
Monsanto Regulatory, Monsanto Company

July 25, 2008
Date

Signatures of Approval

Study Number: CQR Number MN-07-4
Monsanto Number 07-01-83-40

Title: Comparison of Broiler Performance and Carcass Parameters When Fed Diets Containing Soybean Meal Produced from MON 87769, Control, or Reference Soybeans

Testing Facility: Colorado Quality Research, Inc.
400 East County Road 72
Wellington, CO 80549

Study Director: Stephen W. Davis, DVM, Dip. ACPV

In – Life Study Dates: Start Date: September 19, 2007
Completion Date: November 02, 2007

Date Protocol Signed: August 21, 2007
Date Final Report Signed: July 30, 2008

Records Retention: Originals of study specific raw data generated at Colorado Quality Research, Inc., and the Statistician's report are retained at Monsanto. Original records from the University of Missouri Experiment Station Chemical Laboratories are retained at the respective facilities.

Sample Storage: Retention samples of soybean meal, treatment diets and retention meat samples are located at Monsanto Company, St. Louis, MO. Any unused soybean meal was disposed of by landfill burial.

Signatures of Final Report Approval:

Donald M Fuess — Study Monitor — 28 Jul 08 — Date

Cheriaw George — Sponsor Representative — 28 July 2008 — Date

Gary F Hartnell — Product Safety Center Representative — 28 JUL 2008 — Date

Stephen W. Davis — Study Director — 30 JUL 08 — Date

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CQR Final Report
Project No. MN-07-4
(Monsanto Study No. 07-01-83-40)

I. TITLE

Comparison of Broiler Performance and Carcass Parameters When Fed Diets Containing Soybean Meal Produced from MON 87769, Control, or Reference Soybeans

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STUDY DATES:

Study Initiation (Protocol signed):	August 21, 2007
Study Completion (Report signed):	July 30, 2008
In-life Start:	September 19, 2007
In-life Completion:	November 02, 2007

II. BACKGROUND INFORMATION AND OBJECTIVE

Monsanto has developed soybean, MON 87769, which produces stearidonic acid (SDA), an omega-3 fatty acid. Production of SDA in soybean seed was achieved through the introduction of genes encoding the production of Delta-6 and Delta-15 desaturases from *Primula juliae* and *Neurospora crassa*, respectively.

This study was conducted to evaluate the nutritional value of diets containing soybean meal produced from MON 87769 as compared to diets containing conventional control or reference soybean meal.

III. MATERIALS AND METHODS

A. Testing/Support Facilities

Facility / Contact	***Purpose***
Colorado Quality Research, Inc. 400 E. County Road 72 Wellington, CO 80549	Test, control and reference article storage, feed preparation, archives (copies), test animal housing, In-life phase study conduct, including bird processing
Monsanto Company 800 N. Lindbergh Blvd. St. Louis, MO 63167	Supplier of soybean meal, characterization of test, control and reference articles and archives (originals)
Monsanto Statistics Technology Center Monsanto Company 800 N. Lindbergh Blvd. St. Louis, MO 63167	Statistical analyses
Monsanto Quality Assurance Monsanto Company 800 N. Lindbergh Blvd. St. Louis, MO 63167	Quality Assurance
Dr. Wayne McWard Global Poultry Consulting, Inc. 3308 Aberron Place Buford, GA 30519	Consulting nutritionist, diet formulations

Dr. Thomas P. Mawhinney — Diet and meat analysis
University of Missouri
Experiment Station Chemical Laboratories
Room 4, Agriculture Building
University of Missouri
Columbia, MO 65211-7170

B. Test, Control and Reference Soybean Meal

Test Article: MON 87769, Lot # GLP-0604-17267-S, Sample ID 07PP8328-00002

Control Article: A3525, Lot # GLP-0604-17278-S, Sample ID 07PP8328-00003

Reference Articles:
1. PN93B82, Lot # GLP-0604-17260-S, Sample ID 07PP8328-00001
2. NK32Z3, Lot # GLP-0605-17389-S, Sample ID 07PP8328-00004
3. Midwest 3444, Lot # GLP-0605-17391-S, Sample ID 07PP8328-00005
4. H3395, Lot # GLP-0605-17392-S, Sample ID 07PP8328-00006
5. P93B87, Lot # GLP-0605-17394-S, Sample ID 07PP8328-00007
6. 93B15, Lot # GLP-0605-17395-S, Sample ID 07PP8328-00008

The test, control, and reference soybean meal was produced from test, conventional control, and conventional reference soybeans grown under Monsanto Production Plan 06-01-83-14 in Warren and Clinton Counties, Illinois. Processing of soybeans into test, control and reference meal to be evaluated in this study was conducted under Monsanto Processing Plan 07-PP-83-28. Information regarding production of the soybeans and subsequent processing to yield oil and meal is available from and archived at Monsanto Company, St. Louis, MO.

Classification: Feed ingredient

Chain-of-Custody: Monsanto provided the chain-of-custody records for each soybean meal lot delivered.

Shipping: Monsanto was responsible for shipping the test, control and reference articles and assuring that the products were shipped in compliance with existing regulations.

Storage Requirements: Ambient temperature during shipment and upon storage at CQR, in a secure area

Method of Administration:	Orally via complete feed
Frequency of Administration:	*Ad libitum* for ~42 days starting at receipt of chicks (approximately 1 day of age)
Justification:	Feed was the route of administration
Preparation Before Use:	The soybean meal was added to the feed and was thoroughly mixed with the other ingredients to assure uniform dispersion.
Analyses:	Characterization of test, control, and reference soybean meal is reported under Monsanto Certificate of Analysis (COA), COA-2007-057. Analyses included pesticide, mycotoxin and nutrient / anti-nutrient analyses. Verification of identity of the test, control and reference soybeans was conducted and archived at Monsanto.
Accounting:	All quantities of test, control and reference articles (soybean meal) received, used and disposed of were documented. Excess was disposed of according to the Sponsor's directions.

C. Test System

1. Justification:

Commercial broiler chickens are one of the target animals and feed is the route of administration.

2. Specifications:

One-day-old male and female chicks were obtained from Hoover's Hatchery for use in this test. All birds were received from the same hatchery at the same time. Birds were transported from the hatchery location to the test facility via commercial airlines and ground transportation. Upon receipt and randomization to the test pens, the chicks were visually observed by a poultry veterinarian and only healthy chicks were placed in the study. Prior to placing chicks they were sexed according to SOP B-74. Any chicks for which the gender could not be determined were not placed in the study.

Species:	Chicken (*Gallus domesticus*)
Strain:	Commercial production broiler
Breed:	Ross × Ross 308
Sex:	Male and Female (sexed at hatchery and again upon receipt at CQR before placing into the pens)
Supplier:	Hoover's Hatchery, Inc. Rudd, IA
Age:	~1 day of age upon receipt (study Day 0) 42 days of age at final pen weights 43-44 days of age at processing
Identification:	Pen cards bearing treatment number and treatment color code. Birds were individually identified with numbered wing bands prior to obtaining individual weights for yield data.
Number of birds:	800 (start 960)
Number of treatments:	8
Total number of pens:	80
Number of pens/treatment:	10
Number of birds/pen:	10 (12 started - reduced to 10/pen at 7 days of age)
Number of birds/treatment:	100

3. Day 7 recount and adjustment:

On Day 7 all birds within a pen were counted. If greater than 10 birds were present, extra birds were removed. If extra birds were present, unthrifty birds (cull birds that were much smaller than other birds, showing signs of leg problems, crooked beak, swollen eyes, or other abnormal conditions) were removed first. If additional birds still needed to be removed, they were selected arbitrarily (i.e., the first bird within reach). After all pens had been adjusted to 10 birds, pens were rechecked (without knowledge of pen treatment) and any remaining unthrifty birds were replaced with healthy birds from the appropriate pool (within sex and treatment) to optimize health status of birds in all pens for best performance assessment. Removed birds were euthanized by cervical dislocation. Removed birds were weighed and recorded, and animal disposal was as described in Section IX.C.

IV. EXPERIMENTAL DESIGN

A. Treatment Description

Treatments were assigned to pens using a randomized complete block design. The test facility was divided into 5 blocks of 16 pens each. Birds were assigned to the pens randomly according to CQR SOP B-10. Specific treatments were designated as follows:

Treatment[1]	Soybean meal ID	No. of Pens of Each Sex	No. of Males /Pen[2]	No. of Females /Pen[2]	Total No. of Birds/Sex	Total No. Birds/ Treatment
1	P93B87	5	10	10	50	100
2	H3395	5	10	10	50	100
3	NK32Z3	5	10	10	50	100
4	A3525	5	10	10	50	100
5	MON 87769	5	10	10	50	100
6	Midwest 3444	5	10	10	50	100
7	93B15	5	10	10	50	100
8	PN93B82	5	10	10	50	100
	Total	40			400	800

[1] Treatment identity remained blinded until the in-life phase of the study was completed.

[2] Two extra birds were started in each pen to compensate for losses incurred due to mortality, starve-outs, and cull birds during the first 7 days. Any extra birds remaining were removed on Day 7 as described in Section III.C. This is a standard practice for research trials when feed conversion and body weights are the primary study data. Mortality due to starve-outs and cull chicks commonly occurs in broiler feeding trials.

B. Control of Bias

The test, control and reference soybean meal lots were assigned to a specific treatment group by the Study Director. The assignment was placed in the study file and is part of this final report (Appendix II – Table 1). Personnel conducting day-to-day management of birds were blinded to the treatment identification. Test, control and reference soybean meal lots were handled identically to minimize bias.

V. FEED AND WATER

A. Soybean meal - Preparation and Samples

Characterization of the soybean meal, including verification of identity of the soybeans prior to processing by PCR analysis, and nutrient/anti-nutrient, mycotoxin, and pesticide analyses of the soybean meal is reported under Monsanto COA-2007-057.

Soybean meal for this study was shipped by Monsanto from St. Louis, MO to Colorado Quality Research, Inc. (CQR) in containers suitable to maintain the identity of the different soybean meal lots. Upon receipt, the soybean meal was handled in a manner (SOP FM-2) to maintain the identity of the different soybean meal lots and to assure that there was no mixing among the different soybean meal lots. Each lot of soybean meal was sampled prior to use in diet mixing according to CQR feed sampling procedures (i.e., for each lot, two representative composite sub-samples were collected). The two ~300 g sub-samples were labeled with the study number and soybean meal lot number. One set of sub-samples was sent, under ambient temperature and humidity, to the Sponsor to be retained. The second set of sub-samples was retained at CQR, at ambient temperature and humidity, until the in-life phase of the study was completed. Upon completion, the second set of sub-

samples was sent, under ambient temperature and humidity, to the Sponsor for long term storage. Packaging and labeling complied with USDA regulations (SOP FM-8).

The test, control and reference soybean meal was labeled and packaged to preserve identity throughout the study. The label included the CQR Study Number and the soybean meal identification (the same identification of the soybean meal as provided by the Sponsor).

B. Treatment Diets – Formulation, Preparation, and Samples

Diets were formulated so the soybean meal component of the diets was supplied entirely from one of the eight respective soybean meal lots evaluated in the experiment. Each diet consisted predominantly of a mixture of either the test, control or reference soybean meal and corn grain. Corn grain and corn gluten meal included in the diets were analyzed for protein, moisture, and amino acids prior to diet formulation. For each diet type (starter and grower/finisher), the treatment diets were formulated to be isocaloric and contain approximately the same amount of soybean meal. Diets were formulated to maximize the amount of soybean meal included, while meeting the above diet specifications.

The sources of dietary protein used in this study were primarily from soybean meal and corn. Diets conformed as close as possible to industry standards and/or the nutritional recommendations set forth in the publication "Nutritional Requirements of Poultry, 9th revised edition" by the National Research Council (NRC, 1994). All starter and grower/finisher diets contained salinomycin (50 g/ton) as a coccidiostat. The diets were not expected to contain any known contaminants that would interfere with the study objectives. Ingredient composition of the diets is presented in Appendix II – Tables 2 and 3.

Treatment diets were mixed at the CQR feed mill. Vertical mixers (500-lb and 4000-lb capacity depending upon required batch size) and a California Pellet Mill system were used to prepare the diets. Feed was pelleted through a 5-mm die with live steam addition. Starter diets were fed as crumbles and the grower/finisher diets were fed as pellets.

After the starter diets were pelleted and crumbled and grower/finisher diets were pelleted, samples were collected as the feed flowed into bulk feed storage boxes. For each of the starter and grower/finisher diets, the collected sample was thoroughly mixed by hand prior to collecting two sub-samples of approximately 300 g each. One of the 300 g samples was sent to the University of Missouri for analyses listed in the table in Section V.C. The second set of 300 g samples was retained at CQR until the in-life phase of the study was completed and was then sent to Monsanto for long-term storage. Samples were shipped and stored under ambient temperature and humidity conditions.

C. Assays

Diets were assayed for analytes listed in the table below. Diets were not assayed for salinomycin (coccidiostat). There were no known contaminants in the feed that were expected to interfere with the conduct of this study.

Laboratory	**Sample type**	**Analytes**
Univ. of Missouri	Complete diets	Protein, amino acids, moisture, acid detergent fiber, neutral detergent fiber, crude fiber, crude fat, ash, calcium, phosphorus, magnesium, potassium, sodium, sulfur, chloride, iron, zinc, copper, manganese, and molybdenum

D. Water

A copy of Colorado Quality Research, Inc. facility semi-annual water analyses report for total coliforms, conducted by Stewart Environmental Associates, and a copy of the most recent water analysis report from the Northern Colorado Water Association are archived with the original CQR study records. The water results showed that the water was potable and suitable for human consumption.

VI. HOUSING AND MANAGEMENT

A. Housing

Assignment of treatments to pens was conducted using the computer program Excel to generate random numbers for treatment assignments as shown in the following table.

	Treatment Assignment to Pens in Block - **Females**					Treatment Assignment to Pens in Block - **Males**				
Trt	1	2	3	4	5	1	2	3	4	5
1	105	136	146	168	183	116	127	152	163	185
2	115	135	142	161	170	113	123	141	165	173
3	109	124	139	162	178	111	129	148	157	184
4	107	122	144	166	175	110	133	151	158	181
5	119	128	149	160	174	114	126	137	154	172
6	118	125	143	167	182	108	130	140	164	171
7	117	132	145	153	176	112	131	138	159	180
8	104	134	147	155	177	106	121	150	156	179

Birds were housed within an environmentally controlled facility in concrete floor pens (~4’ × 4’) providing ~1.45 ft^2 per bird (excluding feeder and waterer space). Birds were placed in clean pens containing an appropriate depth of wood shavings to

provide a comfortable environment. Lighting was provided via incandescent lights according to the following commercial lighting program.

Approximate Bird Age (days)	Approximate Hours of Continuous Light Per 24 Hr Period	~Light Intensity (foot candles)
0 – 4	24	1.0 – 1.3
5 – 10	10	1.0 – 1.3
11 – 18	12	0.2 – 0.3
19 – study end	16	0.2 – 0.3

Environmental conditions of floor space, temperature, lighting, bird density, feeder and waterer space were similar for all treatment groups.

In order to prevent bird migration, each pen was checked to assure no openings greater than 1 inch existed for approximately 12 inches in height between pens. To achieve this, a solid (wood or plastic) divider was in place for approximately the first 12 inches from the floor between each pen.

B. Management

1. Vaccinations

Birds were vaccinated for Marek's at the hatchery. Birds were vaccinated at CQR for Newcastle and Infectious Bronchitis by spray application on study Day 0. The vaccine was obtained from Fort Dodge Animal Health and identified as Newcastle Bronchitis Vaccine B1 type B1 strain, Massachusetts type, live virus (lot number 1091151A, expiration date 12Dec07). A record of the vaccination is included with the data package for this report. No other vaccinations were administered during the study.

2. Water

Water was provided *ad libitum* throughout the study via automatic bell drinker (1/pen). Drinkers were checked twice daily and cleaned as needed to assure a clean and constant water supply to the birds.

3. Feed

Feed was provided *ad libitum* throughout the study (except for the pre-processing feed withdrawal period described in Section VII) via one hanging tube feeder per pen. A feeder tray was placed in each pen for the first 4 days of the study. Birds were placed on their respective treatment diets upon receipt and diets were fed continuously during the study period. Feed added and removed from pens was weighed and recorded. Diet changes were conducted at the same time for all pens. The starter diet was fed from Day 0 – 21 and the grower/finisher diet was fed for the remainder of the study.

4. Daily Observations

The test facility, pens, and birds were observed at least twice daily for general flock condition, lighting, water, feed, ventilation, and unanticipated events. The minimum-maximum temperature of the test facility was recorded once daily.

5. Mortality, Culls and Sex-slips

Starting on study Day 0, any bird that was removed and sacrificed due to moribund condition or error in initial gender determination, or found dead, was weighed and recorded on the pen mortality record. Birds that died after final pen weights on study Day 42 were not weighed, necropsied or listed on the pen mortality records. They were recorded as Dead on Arrival (DOA) at processing for clarity of bird accounting. All mortalities occurring prior to collection of study Day 42 final pen weights were necropsied to the extent necessary to determine the probable cause of death, and results were recorded on the pen mortality record.

6. Body Weights and Feed Intake

Birds were weighed, by pen, on study Day 0 (receipt of chicks) and 42 (end of performance evaluation phase). Pens were weighed by block, and two blocks were weighed at the same time. Birds were wing banded and individually weighed immediately prior to slaughter for processing. The feed remaining in the feeder at Day 21 and Day 42 was weighed and the amount consumed per pen was calculated by subtracting the feed weighed out of the pen from the total amount of feed weighed into the pen.

7. Weight Gain and Feed:Gain

Performance data were calculated and summarized by average weight gain per bird on Day 42. The average feed:gain was calculated for the period from Day 0 - 42 by dividing the total feed consumption by the total weight gain of surviving birds for that pen. Adjusted feed:gain was calculated by dividing the total feed consumption by the weight gain of surviving birds plus the weight gain of birds that died or were removed from that pen. For example: Adjusted feed:gain Day 0 - 42 = Feed intake during Days 0 – 42 ÷ [(Day 42 pen weight – Day 0 pen weight) + (mortality/removal weights Day 0 - 42 – average bird weight Day 0 {this is conducted on an individual bird basis and then totaled}]. If the dead or removed bird(s) lost weight, then no adjustment was made for that bird.

8. Scales

Scales used in preparation of feed and weighing of feed and birds were licensed by the State of Colorado. At each use, the scales were checked using standard weights according to CQR Standard Operating Procedures. A copy of the State scale inspection and license is archived with the original study records.

VII. PROCESSING – YIELD DATA AND SAMPLES FOR ANALYSIS

Processing was conducted according to CQR SOP B-71. After the final weight data were collected on Day 42, the respective feed was returned to the pens. Feed was removed from the pens approximately 12 hours prior to the scheduled processing time. The processing took place over a two-day period. The males were processed on Day 43 and the females were processed on Day 44.

All surviving birds in each pen were processed. Birds were processed by: killing the bird by severing the jugular, scalding, plucking, eviscerating and then placing the eviscerated bird in an aerated chill tank (ice and water). The fat pad was removed and weighed during the eviscerating process. After the birds were chilled to ~7^{o} C (~45 - 55 minutes in chill tank), the birds were removed from the chill tank and placed upright into a plastic barrel container. A bag of ice was placed on the top and bottom of the container. After the birds had drained for a minimum of ~15 minutes the individual bird chilled weight was obtained and then the bird was deboned and the individual parts were weighed and recorded, and samples collected.

A. Yield Data

(Included the following data for individual birds)

- Live weight
- Fat pad weight
- Chilled weight
- Breast meat weight –skinless, boneless
- Wings (bone in, skin on)
- Thighs (bone in, skin on)
- Drums (bone in, skin on)

Unit of measure for the individual weights were either grams or kilograms as indicated on the respective data collection form. Calculations were conducted to express parts on a percentage basis. This was done by dividing the weight of the part by the weight of the part of which it was to be expressed as a percentage. For example, percent breast yield = breast weight ÷ chilled weight × 100.

B. Samples

After the birds were processed and parts weighed, two birds from each pen were selected for collection of meat samples. The birds were selected arbitrarily, i.e., for each pen the birds were sent through the processing line in no particular order and the meat was collected from birds in whatever order was convenient for the procedure. Samples from one-half of one bird per pen were used for chemical analysis and samples from the remaining half of that bird provide retention samples. The two breast halves and two thighs from the second bird from each pen were collected, packaged, and stored frozen for use in additional evaluations that are not a part of this study.

1. Analysis Samples

One-half breast (skinless, boneless) and one thigh (with skin removed) were placed in separate bags. The samples were labeled with the CQR study number, pen number, treatment number, bird number, sex, date of collection, and either breast or thigh meat. The samples were held refrigerated (~5° C) prior to shipping. The chilled samples were sent (non-frozen, with wet ice) to the University of Missouri for protein, fat, and moisture analysis.

2. Retention Samples

The remaining one-half breast (skinless, boneless) from the same bird from which chemical analysis samples were taken was placed in one bag and one thigh (with skin removed) was placed in another bag. The samples were labeled with the CQR study number, pen number, treatment number, bird number, sex, date of collection, and either breast or thigh meat. The retention samples were kept frozen (~-20° C) at CQR until the samples for analysis were received at the University of Missouri analytical lab, at which time the retention samples were sent to the Sponsor (with wet ice) for long term storage.

3. Samples from Second Bird from Each Pen

The two breast halves (with skin removed) and two thighs (skin on) from the second bird from each pen were packaged in double ziplock bags labeled with the CQR study number, pen number, treatment number, bird number, sex, date of collection, and either breast or thigh meat (two breast halves from each bird in one bag and two thighs in a second bag). The samples were stored frozen (~-20° C) at CQR prior to use for additional evaluations that are not a part of this study.

VIII. STATISTICAL ANALYSIS

Statistical analyses of the data were conducted by the Monsanto Statistics Technology Center and a sub-report was provided for inclusion in this final study report. Statistical analyses were conducted on performance, carcass yield, and meat

composition parameters. SAS®, version 9.1.3, was used to perform the analyses.

Each measurement to be statistically analyzed was processed by two different procedures (Models 1 and 2). The basic method (Model 1) was a two-factor analysis of variance under a randomized complete block structure. The two factors were diet and sex of birds. The main effects of diet and sex along with the diet-by-sex interaction were tested and noted. If the interaction was not significant ($P \geq 0.15$) then the comparisons among diets were done using the main effect for diets, i.e., diet means were averaged over sex. If the interaction was significant ($P < 0.15$) then the diet comparisons were done separately for each sex. Mean separation procedures were performed using protected Least Significant Difference (LSD) at a 0.05 level of significance. In addition to tables, the results of these analyses were graphically summarized in two sets of plots (mean ± ½ the LSD and mean ± one standard error of the mean) for bird weight Day 42, feed intake, adjusted feed conversion, percent chilled weight, and breast weight. An example of the mean ± ½ the LSD plot is presented below (Figure 1). The second analysis conducted (Model 2) was a comparison of the test diet with the population of control and reference diets of which the seven diets (control and the six commercial reference diets) were a sample. This required a mixed linear model analysis with an additional variance component for random between-diet effects. Analyses were averaged over sex unless there was a significant diet-by-sex interaction at which time analyses were broken out by sex.

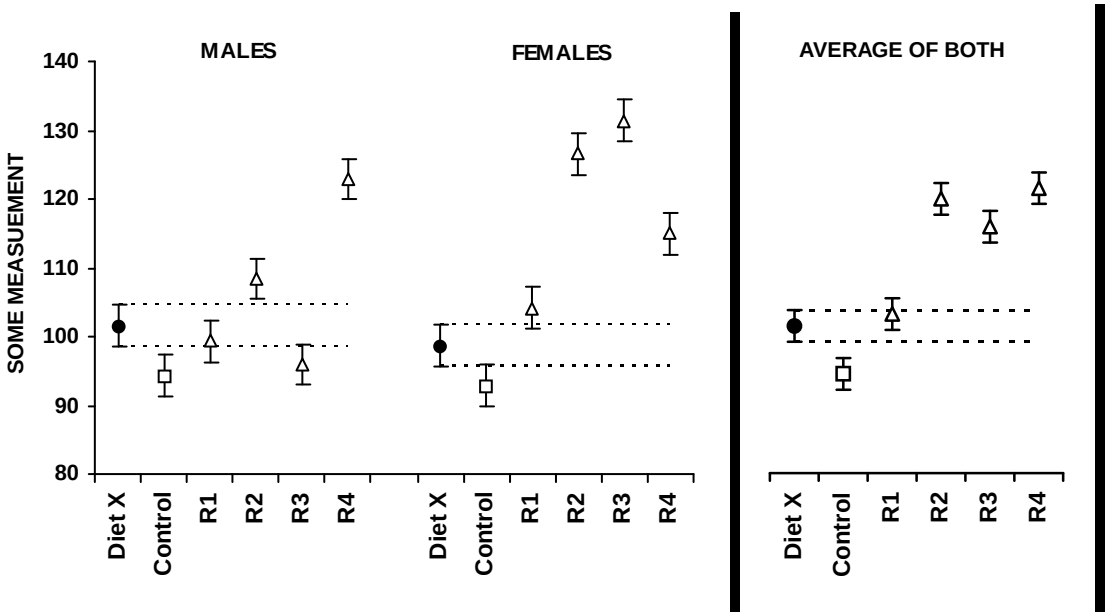

Figure 1. Simulated example of a statistical summary plot comparing diet X to its control and to each of four commercial reference diets, in the presence of a diet-by-sex interaction. Note that the 'error' bars on these plots are 5% statistical significance intervals. They are the mean ± ½ the Least Significant Difference (LSD). Therefore, if the overall F-test is significant at $P < 0.05$, any two diets having non-overlapping bars are significantly different at the 5% level.

® SAS is a registered trademark of SAS Institute Inc., Cary, N.C.

IX. DISPOSITIONS

A. Excess Test, Control and Reference Articles, and Duplicate Meat Samples

An accounting of soybean meal received and used was documented. Any soybean meal not used to mix the complete feed was disposed of by burial at a local commercial landfill. Soybean meal retention samples were sent to the Sponsor for archiving at study end (sent under ambient temperature and humidity in compliance with SOP FM-8). The meat retention samples were sent (frozen, with wet ice) to the Sponsor at study end.

B. Feed

An accounting was maintained of all treatment diets. The amount mixed, used and discarded was documented. Unused feed was disposed of by placing into a dumpster for commercial transport to a local landfill for burial. Feed retention samples were sent to the Sponsor (under ambient temperature and humidity) for archiving at study end.

C. Test Animals

An accounting was maintained of birds received for the study. Birds were sacrificed on Day 43 or 44 for processing (the meat from these birds was not used for human consumption). Carcasses, meat, mortalities and removed birds were composted at CQR or transported to a commercial landfill for burial. Documentation of disposition is archived with this final study report.

D. Records and Report

Audited data (Excel workbook file) were sent to Monsanto for statistical analyses. After review of the draft reports and after the statistician's report was signed, a signed original final report including the signed QA statement, with all information required by the GLP regulations was prepared by the Study Director and sent to the Sponsor. Any revision to the signed report will be documented as a Report Amendment(s).

The Study Director's final study report, original data and study records, statistician's report and Sponsor's data and reports (analysis of the grain) are stored in the Monsanto Company Regulatory archives, St. Louis, Missouri. An exact copy of the final report and all records on the study are being kept for five years at the CQR archive. The CQR archive is located at 400 East County Road 72, Wellington, Colorado.

All original data and records generated at the University of Missouri are retained at the University of Missouri facility for a minimum of three years.

X. CONDUCT OF STUDY AND TEST MONITORING

This study was conducted in accordance with the study protocol, CQR Standard Operating Procedures, and the principles and guidelines for the care and use of agricultural animals in research (FASS, 1999). This study was conducted in compliance with the Food and Drug Administration's Good Laboratory Practice for Nonclinical Laboratory Studies regulation (21CFR, Part 58). The Monsanto Quality Assurance Unit (QAU) conducted in-life phase inspections, and the study data and report were audited to ensure the integrity of the data generated by CQR. The portion of the study conducted by Monsanto was conducted in compliance with the United States Environmental Protection Agency Good Laboratory Practice Standards (40CFR, Part 160). Monsanto QAU provided oversight for data generated at CQR and Monsanto, and statistical analysis of data by the Monsanto Statistics Technology Center.

If this study is reviewed by any government agency, the Study Director will immediately notify the Study Monitor.

XI. PERSONNEL

Key personnel involved in this study were as follows:

Study Monitor	Donald Lucas, Ph.D.
Sponsor Representative	Cherian George, Ph.D.
Product Safety Center Representative	Gary Hartnell, Ph.D.
Sponsor Quality Assurance	Amy E. Bernhard and Lisa A. Morrison
Statistician	Margaret Nemeth, Ph.D. and Hong Su, M.S.
University of MO – Feed and meat analysis	Thomas W. Mawhinney, Ph.D.
Testing Facility Management	Samuel Hendrix, DVM
Study Director	Stephen W. Davis, DVM, Dip. APCV
Operations Manager	Brian Hodnefield, B.S.
Research Manager	Lori Tovaas, B.S.
Research Data Manager	Tamara Killip, B.S.
Research Data Manager	Jamie Wilson, B.S.
Research Farm Supervisor	Chris Messier
Farm Data Manager	Linde Dauner, B.S.
Feed Mill Manager	Ken Johlke, B.S.
Research Technician	Denise Spraker, B.S.
Research Technician	Shelli Perry
Research Technician	Claudia Schoenberger, B.S.
Research Technician	Deborah Davis
Research Technician	Gabriel Yanez
Processing Supervisor	Dennis Madden, B.S.
Consulting Nutritionist	Wayne McWard, Ph.D.

XII. RESULTS AND CONCLUSIONS

A. Results

The results of compositional (including pesticides) and mycotoxin analyses of soybean meal lots prior to use in this study are presented in Appendix I - Tables 1 and 2. The identity of test, control and reference soybean seed lots processed to yield the soybean meal lots evaluated was confirmed by the Sponsor to be as expected. Identity confirmation and soybean meal analytical results support the suitability of the respective soybean meal lots for use in this nutritional evaluation. Analytical results for corn grain and corn gluten meal lots used in all study diets are presented in Appendix I - Table 3.

Dietary treatment assignments for the eight soybean meal lots are presented in Appendix II - Table 1. The starter and grower/finisher diet formulations and calculated nutrient compositions are shown in Appendix II - Tables 2 and 3. The nutrient assay results for the starter and grower/finisher diets (Appendix II – Tables 4 and 5, respectively) were acceptable based on a review conducted by the consulting nutritionist, Dr. W. McWard of Global Poultry Consulting, Inc.

Initial (Day 0) bird weights (12 birds placed per pen) are summarized by treatment and pen in Appendix III - Table 1. Chick mortality by dietary treatment ranged from 4.2 to 11.7% (average of 7.6% across all dietary treatments) during the first 7 days of the study (Appendix III - Table 2). The observed early chick mortality rate is slightly higher than routinely seen in the test facility. However, this mortality, attributed predominantly to bacterial infection and dehydration, occurs commonly in chicks in commercial production conditions and was random without apparent relationship to dietary treatment. Pen sizes were normalized to 10 birds/pen on Day 7. In an effort to increase the sensitivity of the growth-based experiment, the initial criterion for bird removal was slow growth, followed by random selection for the majority of birds removed. From Day 7 - 42 bird mortality averaged 3.3% and ranged from 2.0 to 8.0% across all treatment groups (Appendix III - Table 2). Mortality from Day 7 - 42 was 2.0% for birds receiving diets containing soybean meal produced from MON 87769. Apparent causes of death identified at necropsy for most birds that died after Day 7, sudden death syndrome and bacterial infection, occur commonly in chickens. The birds in all groups were in good health based on twice daily pen observations.

Pen data including live weight (kg/pen) determined on Day 0 and 42, and pen feed consumption (starter diet from Day 0 - 21 and grower/finisher diet from Day 21 - 42) were evaluated directly or used to calculate the set of performance parameters at the study days or for the intervals indicated in the following table. Also listed are bird processing data and meat analyses, as well as parameters calculated from those data.

Parameter	Times or Intervals
Performance	
Avg Bird Wt. (g/bird)	Day 0
Avg Bird Wt. (kg/bird)	Day 42
Feed Intake (kg/bird)	Day 0-42
Avg Bird Gain (kg)	Day 0-42
Feed:Gain (kg/kg)	Day 0-42
Adjusted Feed:Gain (kg/kg)	Day 0-42
Processing[a]	
Processing Live Wt., kg/bird	Day 43 or 44
Chilled Carcass Wt. (kg and % live wt.)	At processing
Fat Pad Wt. (kg and % live wt)	At processing
Breast Wt. (kg and % chilled wt.)	At processing
Drum Wt. (kg and % chilled wt.)	At processing
Thigh Wt. (kg and % chilled wt.)	At processing
Wing Wt. (kg and % chilled wt.)	At processing
Meat Analyses	
Breast -- fat, moisture and protein (g/100g)	Processing samples
Thigh -- fat, moisture and protein (g/100g)	Processing samples
[a] Day 43 or 44	

Summary statistics for bird performance, processing (yield) and meat analysis parameters, and results of statistical analyses are presented in tabular and graphical form in Appendix III - Tables 3 and 4, and Figures 1 and 2. The statistical analysis sub-report, including graphs of selected parameter data, is appended (Appendix IV).

1. MON 87769 Performance Parameters

Performance data for birds fed diets containing MON 87769, control, and reference soybean meal are presented in Appendix III – Table 3 and 4, and Figures 1 and 2.

Performance of broilers fed diets containing MON 87769 was not different ($P \geq 0.05$) than that of broilers fed diets formulated with control soybean meal produced from conventional soybeans of similar genetic background (Appendix III - Table 3 and Figures 1 and 2). Performance over the entire 42-day test period was also not different ($P \geq 0.05$) for birds fed diets containing MON 87769 compared to the population of birds fed conventional control and reference soybean meal (Appendix III - Table 4). A diet × sex interaction was detected ($P < 0.15$) for average Day 0 bird weight; however, within sex analyses detected no difference ($P \geq 0.5$) between MON 87769 and conventional control soybean meal for male or female birds (Appendix IV - Table 1). Measures of bird performance were of similar magnitude for birds fed diets formulated to the same nutrient specifications with the soybean meal component of the diet provided by MON 87769, conventional control, or six conventional reference soybean meal lots (Appendix III - Table 3). No unexpected effects on broiler performance were observed when broilers were fed

diets formulated with MON 87769 compared to diets formulated with control or reference soybean meal.

2. MON 87769 Carcass Measurements

Bird processing data and results of meat analyses are summarized in Appendix III - Tables 3 and 4. Carcass yield measurements were not different ($P \geq 0.05$) for broilers fed diets containing MON 87769 compared to those fed conventional control soybean meal, with exception of fat pad weight (0.039 versus 0.044 kg/bird, and 1.50 versus 1.64 % of live weight, respectively), Appendix III - Table 3. Similarly, carcass yield measures were not different ($P \geq 0.05$) for birds fed diets containing MON 87769 compared to the population of those fed diets containing conventional control and reference soybean meal, with exception of fat pad weight (0.039 versus 0.044 kg/bird, respectively) and wing weight (10.9 versus 10.6% of chilled carcass weight, respectively), Appendix III - Table 4. The magnitude of these differences is quite small and not considered biologically meaningful. Average carcass measurements were of similar magnitude for birds fed diets formulated to the same nutrient specifications with the soybean meal component of the diet provided by MON 87769, conventional control, or six conventional reference soybean meal lots (Appendix III - Table 3).

Measurement of fat, moisture and protein content of skinless breast and thigh meat samples collected during bird processing showed no differences ($P \geq 0.05$) among dietary treatments (Appendix III – Table 3). Meat analysis results were not different ($P \geq 0.05$) for birds fed diets containing MON 87769 versus those of birds fed diets containing control or reference soybean meal based on individual diet comparisons or comparison to the population of control and reference soybean meal diets (Appendix III - Tables 3 and 4).

B. Conclusions

There were no biologically relevant differences in broiler performance, carcass yield or meat composition between broilers fed diets containing MON 87769 and those fed diets containing conventional control soybean meal. The diets containing MON 87769 were as wholesome as the diets formulated with conventional control or reference soybean meal regarding their ability to support the rapid growth of broiler chickens. These data support the conclusion that MON 87769 is as nutritious as conventional soybean meal.

XIII. STUDY DIRECTOR'S COMMENTS/CERTIFICATION STATEMENT

No adverse effects were observed. There were no known circumstances that may have affected the data quality or integrity.

I, Dr. Stephen W. Davis, Study Director, attest that Study No. MN-07-4 (Monsanto No. 07-01-83-40) was conducted according to the Protocol, Protocol Amendments 1 - 3 and Protocol Deviation #1, and that the data were collected and recorded in accordance with the applicable Food and Drug Administration, Center for Veterinary Medicine (CVM) Guidelines.

Description of Protocol Amendments and Deviations

Item	Purpose	Impact on study
Amendment # 1	Housing: correction of pen assignment diagram prior to placement of chicks	None
Amendment # 2	Change of tissue sample packaging and shipping plan, and documentation of revision of SOP FM-8 (Handling of Regulated Materials)	None
Amendment # 3	Documentation of revision of SOP B-71 (Processing Poultry)	None
Deviation # 1	Weights of carcass parts for 1 bird (#3327) were not recorded.	None

Stephen W. Davis, DVM, Dip. ACPV
Study Director

30JUL08
Date

XIV. LISTING OF APPENDICES

XV. LISTING OF APPLICABLE SOPS

SOP No.	Title	Revision Number	Effective Date
B-1	House Preparation	6	2-16-05
B-2	Care and Management of Poultry	10	2-16-05
B-6	Vaccination of Poultry	8	4-24-07
B-7	Feeding Poultry	7	2-16-05
B-9	Scale & Thermometer Accuracy Checks and Certification of Standard Weights	12	5-29-07
B-10	Randomization of Treatments to Pens and Test Animals to Pens	7	2-16-05
B-12	Emergency Power During Electrical Failure	15	3-16-07
B-13	Sanitation and Restricted Access	5	2-04-04
B-16	Necropsy of Mortality	5	2-16-05
B-21	Weighing Poultry	6	2-16-05
B-22	Euthanasia and Disposal of Avian Species	5	3-16-07
B-29	Probable Mortality Causes	5	3-16-07
B-34	Culling and Sacrifice of Moribund Test Animals	3	3-16-05
B-64	Facility Logs and Daily Observations	3	10-01-02
B-66	Lighting Program	4	5-22-07
B-71	Processing Poultry	3	10-23-07
B-72	Bird Recount and Adjustment	1	7-02-02
B-73	Test Animal Receipt, Accounting & Disposition		7-02-02
B-74	Sexing Poultry		2-20-03
M-5	Quality Control of Data and Final Report	2	7-02-02
M-7	Final Report and Amendment	1	7-02-02
M-10	Preparation of Written Standard Operating Procedures	2	3-16-07
M-11	Data Recording & Correction of Errors	5	3-16-07
M-12	Study Protocol Development and Implementation	1	5-29-07
M-14	Definition of "Management"		3-16-07
M-16	Deviations from Protocol and/or Written Procedures and/or GLP Regulations	1	5-29-07
FM-2	Test Article Receipt, Handling During Use, Accounting and Final Disposition	5	2-25-05
FM-3	Feed Receipt, Mixing, Storage and Accounting	8	2-25-05
FM-4	Feed Sampling Procedures	3	2-04-04
FM-5	Test Article Weights and Premix Preparation	5	2-25-05
FM-6	Flushing Feed Mill	3	2-25-05
FM-8	Handling of Regulated Materials	3	9-25-07

XVI. REFERENCES

FASS. 1999. Guidelines for the Care and Use of Agricultural Animals in Research and Teaching, 1st rev. Federation of Animal Science Societies, Savoy, IL.

NRC. 1994. Nutritional Requirements of Poultry, 9th revised edition. National Research Council, Washington, D.C.

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(Monsanto Study No. 07-01-83-40)

APPENDIX I

Pre-study Data from Monsanto Study No. 07-01-83-40

Pages 31 - 37

Appendix I - Table 1. Soybean meal compositional analyses -- as is basis

Seed Lot Number	**GLP-0604-17267-S**	**GLP-0604-17278-S**	**GLP-0604-17260-S**	**GLP-0605-17389-S**	**GLP-0605-17391-S**	**GLP-0605-17392-S**	**GLP-0605-17394-S**	**GLP-0605-17395-S**
Soybean Meal Sample No.	**07PP8328-00002**	**07PP8328-00003**	**07PP8328-00001**	**07PP8328-00004**	**07PP8328-00005**	**07PP8328-00006**	**07PP8328-00007**	**07PP8328-00008**
Soybean Meal ID	**MON 87769**	**A3525 (Control)**	**PN93B82**	**NK32Z3**	**Midwest 3444**	**H3395**	**P93B87**	**93B15**
Proximate (%)								
Moisture	7.50	8.52	9.74	9.03	9.20	9.70	9.49	9.95
Protein	48.5	47.3	49.2	46.9	48.9	49.0	49.0	50.4
Total Fat	0.258	0.456	0.243	0.417	0.272	0.377	0.480	0.399
Ash	6.18	6.19	6.52	6.25	6.59	6.97	6.72	6.54
Carbohydrates	37.6	37.5	34.3	37.4	35.0	34.0	34.3	32.7
Acid Detergent Fiber (%)	5.95	5.44	5.18	5.57	4.18	5.21	5.21	5.55
Neutral Detergent Fiber (%)	7.63	7.10	6.08	6.77	5.53	6.29	6.47	6.40
Crude Fiber (%)	4.41	4.14	3.76	4.09	3.48	3.91	4.02	3.88
Minerals (ppm)								
Calcium	3030	2760	2830	2630	3130	3690	3930	4120
Copper	13.9	11.3	13.9	11.3	12.0	17.4	11.8	12.6
Iron	73.5	74.1	71.0	74.5	64.1	85.0	83.2	76.7
Magnesium	2680	2810	2810	2760	2700	3000	2810	2600
Manganese	29.2	29.9	27.0	25.5	29.2	38.4	42.4	40.3
Molybdenum	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	4.50	< 2.00	2.13
Phosphorus	6650	6860	6660	6190	6870	6480	6310	6660
Potassium	21700	22000	23400	21900	22900	24200	23300	23900
Selenium	0.696	1.040	0.939	0.769	0.745	1.020	0.134	0.246
Sodium	< 100	< 100	<100	< 100	< 100	< 100	123	< 100
Zinc	52.3	52.6	49.5	46.2	46.3	61.3	51.6	52.3
Chloride (%)	0.0401	0.0393	0.044	0.0393	0.0386	0.0432	0.0677	0.0684
Sulfur (%)	0.496	0.493	0.506	0.471	0.534	0.483	0.513	0.464

Appendix I - Table 1 (Cont'd). Soybean meal compositional analyses -- as is basis

Seed Lot Number	GLP-0604-17267-S	GLP-0604-17278-S	GLP-0604-17260-S	GLP-0605-17389-S	GLP-0605-17391-S	GLP-0605-17392-S	GLP-0605-17394-S	GLP-0605-17395-S
Soybean Meal Sample No.	**07PP8328-00002**	**07PP8328-00003**	**07PP8328-00001**	**07PP8328-00004**	**07PP8328-00005**	**07PP8328-00006**	**07PP8328-00007**	**07PP8328-00008**
Soybean Meal ID	**MON 87769**	**A3525 (Control)**	**PN93B82**	**NK32Z3**	**Midwest 3444**	**H3395**	**P93B87**	**93B15**
Amino Acids (%)								
Aspartic Acid	5.528	5.298	5.504	5.345	5.438	5.574	5.545	5.450
Threonine	1.842	1.800	1.836	1.831	1.872	1.876	1.911	1.820
Serine	2.546	2.471	2.490	2.501	2.556	2.648	2.635	2.540
Glutamic Acid	9.010	8.616	8.994	8.675	8.894	8.999	8.991	8.830
Proline	2.540	2.400	2.540	2.390	2.480	2.503	2.490	2.430
Glycine	2.098	2.005	2.101	2.019	2.070	2.084	2.122	2.040
Alanine	2.102	2.041	2.114	2.081	2.125	2.146	2.170	2.100
Cystine	0.702	0.663	0.707	0.629	0.705	0.719	0.699	0.681
Valine	2.352	2.241	2.425	2.277	2.312	2.297	2.343	2.300
Methionine	0.690	0.680	0.695	0.673	0.718	0.676	0.693	0.679
Isoleucine	2.208	2.108	2.244	2.127	2.149	2.215	2.216	2.210
Leucine	3.731	3.592	3.766	3.665	3.721	3.783	3.799	3.710
Tyrosine	1.492	1.458	1.370	1.348	1.399	1.618	1.464	1.520
Phenylalanine	2.493	2.380	2.493	2.422	2.470	2.541	2.523	2.470
Lysine	3.035	2.944	3.060	2.997	3.037	3.060	3.097	3.050
Histidine	1.288	1.228	1.315	1.265	1.287	1.277	1.310	1.270
Arginine	3.857	3.487	3.564	3.312	3.457	3.495	3.410	3.400
Tryptophan	0.605	0.613	0.620	0.623	0.604	0.649	0.620	0.630

Appendix I - Table 1 (Cont'd). Soybean meal compositional analyses -- as is basis

Seed Lot Number	GLP-0604-17267-S	GLP-0604-17278-S	GLP-0604-17260-S	GLP-0605-17389-S	GLP-0605-17391-S	GLP-0605-17392-S	GLP-0605-17394-S	GLP-0605-17395-S
Soybean Meal Sample No.	**07PP8328-00002**	**07PP8328-00003**	**07PP8328-00001**	**07PP8328-00004**	**07PP8328-00005**	**07PP8328-00006**	**07PP8328-00007**	**07PP8328-00008**
Soybean Meal ID	**MON 87769**	**A3525 (Control)**	**PN93B82**	**NK32Z3**	**Midwest 3444**	**H3395**	**P93B87**	**93B15**
Fatty Acids (g/100g)								
8:0 Caprylic	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
10:0 Capric	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
12:0 Lauric	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
14:0 Myristic	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
14:1 Myristoleic	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
15:0 Pentadecanoic	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
15:1 Pentadecenoic	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
16:0 Palmitic	0.0386	0.0549	0.0269	0.0485	0.0343	0.0437	0.0553	0.0416
16:1 Palmitoleic	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
17:0 Heptadecanoic	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
17:1 Heptadecenoic	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
18:0 Stearic	0.0124	0.0175	0.0100	0.0177	0.0133	0.0147	0.0191	0.0148
18:1 Oleic	0.0406	0.0727	0.0451	0.0812	0.0565	0.0606	0.0907	0.0648
18:2 Linoleic	0.0579	0.217	0.114	0.218	0.145	0.187	0.237	0.186
18:3 Gamma Linolenic	0.0188	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
18:3 Linolenic	0.0314	0.0438	0.0219	0.0423	0.0272	0.0295	0.0388	0.0314
18:4 Octadecatetraenoic	0.0709	NA	NA	NA	NA	NA	NA	NA
20:0 Arachidic	0.00100	0.00128	<0.00100	0.00149	0.00106	0.00107	0.00162	0.00140
20:1 Eicosenoic	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00111	<0.00100
20:2 Eicosadienoic	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
20:4 Arachidonic	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
20:3 Eicosatrienoic	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
20:5 Eicosapentaenoic	<0.00100	NA	NA	NA	NA	NA	NA	NA
22:0 Behenic	<0.00100	0.00141	<0.00100	0.00172	0.00126	0.00140	0.00192	0.00157
22:1 Erucic	<0.00100	NA	NA	NA	NA	NA	NA	NA
22:5 Docosapentaenoic	<0.00100	NA	NA	NA	NA	NA	NA	NA
24:0 Lignoceric	<0.00100	NA	NA	NA	NA	NA	NA	NA
22:6 Docosahexaenoic	<0.00100	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable [18:4, 20:5, 22:1, 22:5, 24:0, and 22:6 were quantified only in the test (MON 87769) soybean meal].

Appendix I - Table 1 (Cont'd). Soybean meal compositional analyses (including pesticides) -- as is basis

Seed Lot Number	**GLP-0604-17267-S**	**GLP-0604-17278-S**	**GLP-0604-17260-S**	**GLP-0605-17389-S**	**GLP-0605-17391-S**	**GLP-0605-17392-S**	**GLP-0605-17394-S**	**GLP-0605-17395-S**
Soybean Meal Sample No.	**07PP8328-00002**	**07PP8328-00003**	**07PP8328-00001**	**07PP8328-00004**	**07PP8328-00005**	**07PP8328-00006**	**07PP8328-00007**	**07PP8328-00008**
Soybean Meal ID	**MON 87769**	**A3525 (Control)**	**PN93B82**	**NK32Z3**	**Midwest 3444**	**H3395**	**P93B87**	**93B15**
Pesticides (ppm)								
Organophosphates	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500	< 0.0500
Organonitrogens	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500
Organochlorinated	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200	< 0.200
N-Methylcarbamates	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100
Antinutrients								
Lectin (H.U./mg)[a]	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Trypsin Inhibitor (TIU/mg)[b]	3.09	2.78	2.57	3.01	2.05	2.46	3.02	7.32
Phytic Acid (%)	1.12	1.17	1.08	1.06	1.09	1.08	1.03	1.08
Processing measures								
Protein Dispersibility Index (%)	10.9	10.6	12.1	11.7	12.1	16.7	14.9	14.9
Protein Solubility in 2% KOH (%)	84.5	88.2	84.6	87.8	88.8	91.2	91.8	87.9
Urease (pH difference)	0.01	0.03	0.02	0.05	0.01	0.02	0.05	0.05

[a] H.U. - Hemagglutinating Unit

[b] TIU - Trypsin Inhibitor Unit

Appendix I – Table 2. Soybean meal mycotoxin analyses[1](as-is basis)

Seed Lot Number		**GLP-0604-17267-S**	**GLP-0604-17278-S**	**GLP-0604-17260-S**	**GLP-0605-17389-S**	**GLP-0605-17391-S**	**GLP-0605-17392-S**	**GLP-0605-17394-S**	**GLP-0605-17395-S**
Soybean Meal Sample No.		**07PP8328-00002**	**07PP8328-00003**	**07PP8328-00001**	**07PP8328-00004**	**07PP8328-00005**	**07PP8328-00006**	**07PP8328-00007**	**07PP8328-00008**
Soybean Meal ID		**MON 87769**	**A3525 (Control)**	**PN93B82**	**NK32Z3**	**Midwest 3444**	**H3395**	**P93B87**	**93B15**
	Detection								
Test	**Limit**								
Aflatoxin B1	1.0 ppb	ND	ND	ND	ND	ND	ND	ND	ND
Aflatoxin B2	1.0 ppb	ND	ND	ND	ND	ND	ND	ND	ND
Aflatoxin G1	1.0 ppb	ND	ND	ND	ND	ND	ND	ND	ND
Aflatoxin G2	1.0 ppb	ND	ND	ND	ND	ND	ND	ND	ND
Ochratoxin A	4 ppb	ND	ND	ND	ND	ND	ND	ND	ND
T-2 Toxin	0.1 ppm	ND	ND	ND	ND	ND	ND	ND	ND
HT-2 Toxin	0.1 ppm	ND	ND	ND	ND	ND	ND	ND	ND
Diacetoxyscirpenol	0.3 ppm	ND	ND	ND	ND	ND	ND	ND	ND
Neosolaniol	0.1 ppm	ND	ND	ND	ND	ND	ND	ND	ND
Fusarenon X	0.5 ppm	ND	ND	ND	ND	ND	ND	ND	ND
Deoxynivalenol	0.1 ppm	ND	ND	ND	ND	ND	ND	ND	ND
15 Acetyl-DON	0.1 ppm	ND	ND	ND	ND	ND	ND	ND	ND
3 Acetyl-DON	0.1 ppm	ND	ND	ND	ND	ND	ND	ND	ND
Nivalenol	0.5 ppm	ND	ND	ND	ND	ND	ND	ND	ND
Zearalenone	100 ppb	ND	ND	ND	ND	ND	ND	ND	ND
Fumonisin B1	0.2 ppm	ND	ND	ND	ND	ND	ND	ND	ND
Fumonisin B2	0.2 ppm	ND	ND	ND	ND	ND	ND	ND	ND
Citrinin	267 ppb	ND	ND	ND	ND	ND	ND	ND	ND

[1] Mycotoxin analyses are reported on Monsanto COA-2007-057. Reports of these data from Romer Labs are archived under the respective COA number.
ND = none detected = < Limit of Detection

Appendix 1 - Table 3. Corn grain and corn gluten meal analyses (as-is basis)

	Corn Grain	Corn Gluten Meal
Moisture (%)	13.77	7.99
Crude Protein (%)	8.28	65.22
Amino Acids (g / 100g of sample)		
Taurine	0.04	0.04
Hydroxyproline	0.01	0.01
Aspartic Acid	0.55	3.87
Threonine	0.27	2.09
Serine	0.31	2.83
Glutamic Acid	1.44	13.18
Proline	0.66	5.73
Lanthionine	0.00	0.00
Glycine	0.30	1.78
Alanine	0.58	5.58
Cysteine	0.17	1.14
Valine	0.40	3.01
Methionine	0.17	1.40
Isoleucine	0.30	2.70
Leucine	0.97	10.73
Tyrosine	0.22	3.35
Phenylalanine	0.38	4.09
Hydroxylysine	0.01	0.09
Ornithine	0.00	0.08
Lysine	0.26	1.13
Histidine	0.22	1.34
Arginine	0.35	2.09
Tryptophan	0.06	0.33

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APPENDIX II

Diet Composition and Analyses

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Appendix II – Table 1. Treatment assignment of soybean meal lots

Treatment Number	Treatment Type[1]	Formulation Number	Soybean meal ID	Lot Number
Starter				
1	R	693	P93B87	GLP-0605-17394-S
2	R	691	H3395	GLP-0605-17392-S
3	R	687	NK32Z3	GLP-0605-17389-S
4	C	685	A3525	GLP-0604-17278-S
5	T	683	MON 87769	GLP-0604-17267-S
6	R	689	Midwest 3444	GLP-0605-17391-S
7	R	695	93B15	GLP-0605-17395-S
8	R	681	PN93B82	GLP-0604-17260-S
Grower/Finisher				
1	R	694	P93B87	GLP-0605-17394-S
2	R	692	H3395	GLP-0605-17392-S
3	R	688	NK32Z3	GLP-0605-17389-S
4	C	686	A3525	GLP-0604-17278-S
5	T	684	MON 87769	GLP-0604-17267-S
6	R	690	Midwest 3444	GLP-0605-17391-S
7	R	696	93B15	GLP-0605-17395-S
8	R	682	PN93B82	GLP-0604-17260-S

[1] T = test, C = control, and R = reference

Appendix II - Table 2. Starter diet formulation and calculated nutrient composition (as-is basis)

Treatment Number	**5**	**4**	**8**	**3**	**6**	**2**	**1**	**7**
Soybean Meal ID	**MON 87769**	**A3525 (Control)**	**PN93B82**	**NK32Z3**	**Midwest 3444**	**H3395**	**P93B87**	**93B15**
Ingredient	**Percent of Each Ingredient**							
Corn	57.482	57.161	58.511	56.935	57.914	58.407	58.809	59.367
Soybean Meal	34.900	34.700	34.850	34.900	35.350	35.000	34.700	34.250
Soybean Oil	3.100	3.050	3.150	3.100	3.250	3.150	3.050	2.950
Defluorinated Phosphate	1.850	1.850	1.850	1.900	1.850	1.850	1.900	1.850
Limestone	0.700	0.750	0.700	0.700	0.700	0.650	0.600	0.600
Salt	0.292	0.293	0.292	0.289	0.295	0.292	0.290	0.292
DL Methionine	0.250	0.250	0.255	0.260	0.250	0.260	0.260	0.275
Choline Chloride-60	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.150
Broiler Vitamin[1]	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
Broiler Mineral[2]	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
Biocox 60g/lb	0.041	0.041	0.041	0.041	0.041	0.041	0.041	0.041
Corn Gluten Meal	1.000	1.500	--	1.500	--	--	--	--
L-Lysine-HCL	0.035	0.055	--	0.025	--	--	--	0.025

[1] Vitamin premix (Roche Vitamins, Inc., Parsippany, NJ) provided the following per kilogram of diet: vitamin A, 9350 IU from all trans-retinyl acetate; cholecalciferol D3, 3025 IU; vitamin E, 27.5 IU from dl-α-tocopherol; vitamin B12, 13.75 µg; riboflavin, 7.7 mg; niacin, 49.5 mg; pantothenic acid, 12.1 mg; menadione, 1.925 mg; folic acid, 0.99 mg; ethoxyquin, 77 mg; biotin, 0.088 mg; thiamine, 1.925 mg, and pyridoxine, 3.08 mg.

[2] Trace mineral premix (SEM Minerals, Quincy, IL) contained 5-6% calcium and provided the following in milligrams per kilogram of diet: Mn, 120; Zn, 100; Fe, 40; Cu, 10; I, 1.4; Se, 0.3, and Mg, 26.

Appendix II - Table 2 (Cont'd). Starter diet formulation and calculated nutrient composition (as-is basis)

Treatment Number	**5**	**4**	**8**	**3**	**6**	**2**	**1**	**7**
Soybean Meal ID	**MON 87769**	**A3525 (Control)**	**PN93B82**	**NK32Z3**	**Midwest 3444**	**H3395**	**P93B87**	**93B15**
Calculated Nutrient Composition								
Calculated ME, (Kcal/kg)[1]	3081	3081	3081	3081	3081	3081	3079	3081
Digest Arginine, %	1.4266	1.3244	1.3441	1.2801	1.3169	1.3256	1.2874	1.2778
Digest Lysine, %	1.1328	1.1289	1.1281	1.1324	1.1277	1.1317	1.1336	1.1321
Digest Methionine, %	0.5730	0.5772	0.5732	0.5870	0.5765	0.5727	0.5763	0.5861
Digest Met + Cystine, %	0.8615	0.8601	0.8593	0.8619	0.8626	0.8627	0.8592	0.8627
Digest Tryptophan, %	0.2248	0.2296	0.2319	0.2345	0.2277	0.2417	0.2302	0.2325
Digest Threonine, %	0.7444	0.7429	0.7393	0.7585	0.7548	0.7546	0.7601	0.7278
Crude Protein, %	21.6929	21.6969	21.7104	21.7013	21.6929	21.6997	21.5515	21.9670
Moisture, %	12.2142	12.1854	12.2705	12.1787	12.2493	12.2741	12.2924	12.3143
Arginine, %	1.5029	1.3952	1.4158	1.3485	1.3873	1.3962	1.3561	1.3459
Lysine, %	1.1959	1.1916	1.1917	1.1964	1.1913	1.1956	1.1977	1.1950
Methionine, %	0.5894	0.5939	0.5895	0.6037	0.5932	0.5886	0.5926	0.6020
Meth & Cystine, %	0.9317	0.9295	0.9291	0.9298	0.9331	0.9329	0.9285	0.9307
Tryptophan, %	0.2388	0.2440	0.2459	0.2492	0.2415	0.2562	0.2442	0.2466
Glycine, %	0.8869	0.8675	0.8893	0.8791	0.8829	0.8861	0.2480	0.8610
Threonine, %	0.7879	0.7867	0.7818	0.8032	0.7980	0.7975	0.8035	0.7696
Valine, %	1.0411	1.0216	1.0582	1.0417	1.0238	1.0169	1.0257	1.0074
Proline, %	1.2799	1.2644	1.2491	1.2686	1.2320	1.2391	1.2282	1.2053
Crude Fat, %	5.0357	5.0520	5.0982	5.0812	5.1859	5.1406	5.0906	4.9839
Crude Fiber, %	2.6642	2.5829	2.4785	2.5792	2.3785	2.5308	2.5623	2.5151
Ash, %	3.9189	3.9874	4.0781	3.9783	4.1145	4.1869	4.0313	3.9635
Calcium, %	0.9428	0.9537	0.9377	0.9463	0.9485	0.9483	0.9512	0.9417
Phosphorus (total), %	0.7017	0.7111	0.7058	0.6995	0.7134	0.7002	0.7021	0.7045
Phosphorus (avail.), %	0.4466	0.4495	0.4479	0.4524	0.4502	0.4462	0.4531	0.4475
Salt, %	0.3683	0.3702	0.3691	0.3658	0.3703	0.3679	0.3669	0.3697
Sodium, %	0.2191	0.2198	0.2194	0.2207	0.2201	0.2190	0.2209	0.2193
Potassium, %	0.8977	0.9124	0.9718	0.9167	0.9595	1.0019	0.9637	0.9792
Manganese, PPM	132.6193	132.9128	132.0981	131.5316	132.8997	136.0173	137.2438	136.456
Zinc, PPM	123.5334	123.9027	122.6697	121.9188	121.6529	126.7497	123.2898	123.4418
Copper, PPM	16.6732	15.9310	16.5945	15.9665	15.9645	17.8050	15.8620	16.1159
Selenium, PPM	0.6329	0.7556	0.7078	0.6680	0.6432	0.7367	0.4345	0.4724

[1] [Kcal/lb × 2.2 = Kcal/kg]

Appendix II - Table 3. Grower/Finisher diet formulation and calculated nutrient composition (as-is basis)

Treatment Number	**5**	**4**	**8**	**3**	**6**	**2**	**1**	**7**
Soybean Meal ID	**MON 87769**	**A3525 (Control)**	**PN93B82**	**NK32Z3**	**Midwest 3444**	**H3395**	**P93B87**	**93B15**
Ingredient	**Percent of Each Ingredient**							
Corn	61.527	61.161	61.903	61.035	61.892	62.004	62.061	62.572
Soybean Meal	31.250	31.250	31.250	31.350	31.250	31.250	31.250	30.800
Soybean Oil	3.300	3.300	3.450	3.350	3.450	3.400	3.400	3.300
Defluorinated Phosphate	1.750	1.750	1.750	1.750	1.750	1.750	1.750	1.750
Limestone	0.600	0.650	0.750	0.600	0.750	0.700	0.650	0.650
Salt	0.304	0.306	0.305	0.302	0.306	0.304	0.303	0.305
DL Methionine	0.230	0.230	0.230	0.240	0.225	0.230	0.235	0.245
Choline Chloride-60	0.107	0.106	0.110	0.106	0.110	0.110	0.110	0.112
Broiler Vitamin[1]	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
Broiler Mineral[2]	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
Biocox 60g/lb	0.041	0.041	0.041	0.041	0.041	0.041	0.041	0.041
Corn Gluten Meal	0.650	0.950	--	1.000	--	--	--	--
L-Lysine-HCL	0.040	0.055	0.010	0.025	0.025	0.010	--	0.025

[1] Vitamin premix (Roche Vitamins, Inc., Parsippany, NJ) provided the following per kilogram of diet: vitamin A, 9350 IU from all trans-retinyl acetate; cholecalciferol D3, 3025 IU; vitamin E, 27.5 IU from dl-α-tocopherol; vitamin B12, 13.75 µg; riboflavin, 7.7 mg; niacin, 49.5 mg; pantothenic acid, 12.1 mg; menadione, 1.925 mg; folic acid, 0.99 mg; ethoxyquin, 77 mg; biotin, 0.088 mg; thiamine, 1.925 mg, and pyridoxine, 3.08 mg.

[2] Trace mineral premix (SEM Minerals, Quincy, IL) contained 5-6% calcium and provided the following in milligrams per kilogram of diet: Mn, 120; Zn, 100; Fe, 40; Cu, 10; I, 1.4; Se, 0.3, and Mg, 26.

Appendix II - Table 3 (Cont'd). Grower/Finisher diet formulation and calculated nutrient composition (as-is basis)

Treatment Number	**5**	**4**	**8**	**3**	**6**	**2**	**1**	**7**
Soybean Meal ID	**MON 87769**	**A3525 (Control)**	**PN93B82**	**NK32Z3**	**Midwest 3444**	**H3395**	**P93B87**	**93B15**
Calculated Nutrient Composition								
Calculated ME, (Kcal/kg)[1]	3135	3134	3135	3138	3135	3134	3136	3136
Digest Arginine, %	1.3059	1.2168	1.2365	1.1758	1.1996	1.2162	1.1895	1.1795
Digest Lysine, %	1.0428	1.0402	1.0421	1.0395	1.0423	1.0420	1.0427	1.0421
Digest Methionine, %	0.5319	0.5348	0.5304	0.5449	0.5307	0.5249	0.5344	0.5395
Digest Met + Cystine, %	0.8020	0.7991	0.8002	0.8023	0.7986	0.7977	0.8019	0.8011
Digest Tryptophan, %	0.2060	0.2108	0.2131	0.2150	0.2071	0.2211	0.2122	0.2140
Digest Threonine, %	0.6871	0.6857	0.6866	0.6996	0.6941	0.6984	0.7073	0.6776
Crude Protein, %	20.1085	20.0880	20.2593	20.0925	20.0884	20.1989	20.1626	20.5159
Moisture, %	12.3071	12.2807	12.3085	12.2800	12.3070	12.3220	12.3297	12.3451
Arginine, %	1.3758	1.2820	1.3026	1.2387	1.2638	1.2811	1.2531	1.2425
Lysine, %	1.1010	1.0981	1.1010	1.0985	1.1006	1.1010	1.1023	1.1005
Methionine, %	0.5475	0.5505	0.5460	0.5606	0.5466	0.5402	0.5500	0.5547
Meth & Cystine, %	0.8683	0.8647	0.8665	0.8664	0.8652	0.8644	0.8680	0.8659
Tryptophan, %	0.2191	0.2242	0.2262	0.2286	0.2199	0.2347	0.2254	0.2273
Glycine, %	0.8199	0.8032	0.8257	0.8132	0.8126	0.8207	0.2507	0.8019
Threonine, %	0.7275	0.7262	0.7265	0.7409	0.7343	0.7387	0.7482	0.7169
Valine, %	0.9650	0.9467	0.9867	0.9649	0.9479	0.9474	0.9601	0.9427
Proline, %	1.1983	1.1797	1.1823	1.1849	1.1597	1.1714	1.1662	1.1445
Crude Fat, %	5.3501	5.4037	5.4943	5.4380	5.5024	5.4898	5.5230	5.4173
Crude Fiber, %	2.5868	2.5165	2.4159	2.5127	2.3219	2.4617	2.4941	2.4500
Ash, %	3.6671	3.7409	3.9568	3.7247	3.9670	4.0427	3.9118	3.8482
Calcium, %	0.8651	0.8772	0.9177	0.8550	0.9263	0.9249	0.9130	0.9177
Phosphorus (total), %	0.6693	0.6781	0.6729	0.6595	0.6780	0.6676	0.6621	0.6721
Phosphorus (avail.), %	0.4245	0.4271	0.4256	0.4216	0.4272	0.4240	0.4223	0.4254
Salt, %	0.3859	0.3880	0.3866	0.3838	0.3876	0.3857	0.3842	0.3869
Sodium, %	0.2199	0.2207	0.2202	0.2191	0.2206	0.2198	0.2192	0.2201
Potassium, %	0.8331	0.8493	0.8999	0.8519	0.8805	0.9242	0.8953	0.9082
Manganese, PPM	131.7901	132.0930	131.3201	130.8358	131.9383	134.7940	135.9843	135.2576
Zinc, PPM	121.9750	122.3266	121.2715	120.5329	120.2111	124.8691	121.8842	121.9990
Copper, PPM	16.2431	15.5630	16.2153	15.5997	15.6149	17.2841	15.5703	15.7938
Selenium, PPM	0.6098	0.7192	0.6800	0.6405	0.6197	0.7049	0.4349	0.4690

[1] [Kcal/lb × 2.2 = Kcal/kg]

Appendix II – Table 4. Nutrient composition of starter diets (as is basis)

Treatment Number	5	4	8	3	6	2	1	7
Soybean Meal ID	MON 87769	A3525 (Control)	PN93B82	NK32Z3	Midwest 3444	H3395	P93B87	93B15
Assay Component								
Proximates								
Crude Protein, %	23.66	23.62	23.48	22.85	23.00	22.38	22.98	22.58
Moisture, %	11.60	11.58	11.77	11.62	11.25	12.34	12.14	12.25
Crude Fat, %	5.11	5.45	4.40	4.85	5.57	4.90	5.40	4.79
Crude Fiber, %	2.16	1.59	1.85	2.02	1.45	1.99	1.96	2.02
Ash, %	5.09	5.29	5.10	5.18	5.18	5.41	5.44	5.18
Acid detergent fiber, %	3.34	3.41	3.23	3.32	2.98	3.21	3.31	3.06
Neutral detergent fiber, %	9.86	9.55	9.29	10.88	11.19	8.13	8.21	10.46
Minerals								
Calcium, %	0.83	0.83	0.81	0.83	0.83	0.90	0.89	0.84
Phosphorus,%	0.70	0.69	0.69	0.68	0.69	0.70	0.70	0.69
Magnesium, %	0.17	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Potassium, %	0.93	0.96	1.02	0.97	1.00	1.03	1.03	1.04
Sodium, %	0.17	0.18	0.16	0.17	0.16	0.19	0.18	0.18
Sulfur, %	0.30	0.31	0.32	0.31	0.30	0.30	0.31	0.28
Chloride, %	0.21	0.24	0.20	0.20	0.17	0.22	0.20	0.18
Iron, ppm	136	163	152	159	155	159	153	132
Zinc, ppm	113	118	125	117	128	121	123	116
Copper, ppm	14	16	45	14	46	15	15	13
Manganese, ppm	125	129	117	125	122	137	138	118
Molybdenum, ppm	1.3	1.0	0.9	1.2	0.9	3.0	1.6	1.6

Appendix II – Table 4 (Cont'd). Nutrient composition of starter diets (as is basis)

Treatment Number	5	4	8	3	6	2	1	7
Soybean Meal ID	MON 87769	A3525 (Control)	PN93B82	NK32Z3	Midwest 3444	H3395	P93B87	93B15
Assay Component								
Amino Acids (w/w of sample %)								
Taurine	0.06	0.02	0.03	0.06	0.03	0.05	0.03	0.03
Hydroxyproline	0.02	0.00	0.03	0.03	0.02	0.02	0.02	0.00
Aspartic Acid	2.36	2.50	2.59	2.51	2.56	2.42	2.43	2.36
Threonine	0.83	0.89	0.87	0.90	0.88	0.86	0.88	0.81
Serine	0.97	1.03	0.94	1.02	0.99	1.01	1.03	0.92
Glutamic Acid	4.08	4.26	4.37	4.30	4.32	4.03	4.10	4.00
Proline	1.40	1.40	1.46	1.44	1.45	1.37	1.38	1.35
Lanthionine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Glycine	0.96	1.00	1.03	1.00	1.01	0.94	0.97	0.93
Alanine	1.14	1.21	1.20	1.25	1.20	1.12	1.15	1.11
Cysteine	0.43	0.37	0.39	0.38	0.48	0.37	0.46	0.35
Valine	1.14	1.20	1.27	1.22	1.24	1.11	1.13	1.14
Methionine	0.53	0.59	0.58	0.60	0.63	0.56	0.60	0.51
Isoleucine	1.01	1.08	1.12	1.09	1.10	1.01	1.02	1.02
Leucine	1.99	2.14	2.13	2.20	2.10	1.97	2.00	1.95
Tyrosine	0.73	0.77	0.75	0.78	0.72	0.71	0.74	0.70
Phenylalanine	1.14	1.21	1.23	1.23	1.22	1.15	1.16	1.13
Hydroxylysine	0.01	0.01	0.03	0.02	0.02	0.02	0.01	0.02
Ornithine	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01
Lysine	1.32	1.41	1.42	1.40	1.41	1.32	1.35	1.34
Histidine	0.61	0.64	0.66	0.65	0.66	0.60	0.62	0.61
Arginine	1.62	1.63	1.68	1.58	1.62	1.51	1.51	1.47
Tryptophan	0.27	0.26	0.28	0.25	0.28	0.28	0.28	0.29

Appendix II – Table 5. Nutrient composition of grower/finisher diets (as is basis)

Treatment Number	5	4	8	3	6	2	1	7
Soybean Meal ID	MON 87769	A3525 (Control)	PN93B82	NK32Z3	Midwest 3444	H3395	P93B87	93B15
Assay Component								
Proximates								
Crude Protein, %	21.94	21.32	21.70	21.06	21.34	20.99	21.64	20.61
Moisture, %	11.05	11.19	11.22	10.49	11.03	11.48	11.74	11.63
Crude Fat, %	5.69	5.75	5.27	5.62	6.04	6.42	5.83	5.69
Crude Fiber, %	1.94	1.98	2.05	1.97	1.42	1.47	1.94	1.73
Ash, %	5.33	5.33	5.38	5.16	5.34	5.68	5.26	5.35
Acid detergent fiber, %	3.34	3.17	3.12	2.92	2.90	2.91	2.96	4.36
Neutral detergent fiber, %	8.97	8.63	8.62	9.50	9.16	9.92	8.78	8.01
Minerals								
Calcium, %	0.89	0.91	0.90	0.86	0.93	1.02	0.94	0.90
Phosphorus,%	0.72	0.72	0.69	0.69	0.71	0.74	0.70	0.69
Magnesium, %	0.17	0.17	0.17	0.17	0.17	0.18	0.18	0.16
Potassium, %	0.85	0.87	0.90	0.88	0.88	0.94	0.97	0.91
Sodium, %	0.20	0.20	0.21	0.20	0.19	0.22	0.20	0.19
Sulfur, %	0.29	0.29	0.29	0.28	0.28	0.28	0.29	0.27
Chloride, %	0.22	0.21	0.24	0.22	0.25	0.25	0.22	0.24
Iron, ppm	177	191	131	147	172	184	144	172
Zinc, ppm	134	132	105	114	129	136	118	121
Copper, ppm	43	39	13	13	44	38	13	35
Manganese, ppm	120	120	119	122	127	140	127	121
Molybdenum, ppm	0.9	0.9	1.1	1.1	0.6	1.9	1.2	1.2

Appendix II – Table 5 (Cont'd). Nutrient composition of grower/finisher diets (as is basis)

Treatment Number	5	4	8	3	6	2	1	7
Soybean Meal ID	MON 87769	A3525 (Control)	PN93B82	NK32Z3	Midwest 3444	H3395	P93B87	93B15
Assay Component								
Amino Acids (w/w of sample %)								
Taurine	0.03	0.04	0.05	0.03	0.05	0.03	0.03	0.02
Hydroxyproline	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
Aspartic Acid	2.20	2.22	2.20	2.21	2.25	2.20	2.27	2.10
Threonine	0.77	0.79	0.79	0.75	0.78	0.75	0.80	0.73
Serine	0.89	0.90	0.92	0.85	0.87	0.84	0.91	0.86
Glutamic Acid	3.85	3.92	3.83	3.75	3.89	3.73	3.86	3.60
Proline	1.29	1.34	1.30	1.31	1.28	1.30	1.25	1.18
Lanthionine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Glycine	0.88	0.89	0.87	0.88	0.90	0.87	0.91	0.84
Alanine	1.07	1.11	1.07	1.05	1.08	1.04	1.10	1.02
Cysteine	0.34	0.36	0.34	0.34	0.35	0.34	0.35	0.32
Valine	1.06	1.08	1.04	1.07	1.10	1.07	1.10	1.01
Methionine	0.55	0.56	0.50	0.55	0.56	0.57	0.55	0.56
Isoleucine	0.94	0.96	0.92	0.96	0.97	0.96	0.99	0.91
Leucine	1.87	1.94	1.87	1.83	1.89	1.82	1.91	1.78
Tyrosine	0.66	0.67	0.65	0.64	0.68	0.64	0.69	0.66
Phenylalanine	1.06	1.09	1.06	1.06	1.08	1.06	1.09	1.02
Hydroxylysine	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01
Ornithine	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.01
Lysine	1.23	1.26	1.20	1.22	1.26	1.21	1.26	1.18
Histidine	0.57	0.58	0.57	0.56	0.58	0.56	0.59	0.55
Arginine	1.51	1.44	1.42	1.37	1.43	1.37	1.42	1.31
Tryptophan	0.27	0.25	0.25	0.25	0.25	0.25	0.28	0.27

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APPENDIX III

Bird Performance and Processing Data

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Appendix III – Table 1. Day 0 body weights (9/19/07)

Treatment Number	Soybean Meal ID	Sex	Pen	Number Of Birds Weighed	Day 0 Pen Wt. (kg)	Day 0 Avg Bird Wt (kg)
1		f	105	12	0.458	0.038
1		f	136	12	0.472	0.039
1	P93B87	f	146	12	0.468	0.039
1		f	168	12	0.472	0.039
1		f	183	12	0.456	0.038
Total & Average				60	0.465	0.039
Standard Deviation					0.008	0.001
CV					1.654%	1.654%
2		f	115	12	0.476	0.040
2		f	135	12	0.468	0.039
2	H3395	f	142	12	0.472	0.039
2		f	161	12	0.476	0.040
2		f	170	12	0.480	0.040
Total & Average				60	0.474	0.040
Standard Deviation					0.005	0.000
CV					0.961%	0.961%
3		f	109	12	0.480	0.040
3		f	124	12	0.460	0.038
3	NK32Z3	f	139	12	0.478	0.040
3		f	162	12	0.486	0.041
3		f	178	12	0.466	0.039
Total & Average				60	0.474	0.040
Standard Deviation					0.011	0.001
CV					2.253%	2.253%

Treatment Number	Soybean Meal ID	Sex	Pen	Number Of Birds Weighed	Day 0 Pen Wt. (kg)	Day 0 Avg Bird Wt (kg)
1		m	116	12	0.490	0.041
1		m	127	12	0.478	0.040
1	P93B87	m	152	12	0.482	0.040
1		m	163	12	0.478	0.040
1		m	185	12	0.466	0.039
Total & Average				60	0.479	0.040
Standard Deviation					0.009	0.001
CV					1.811%	1.811%
2		m	113	12	0.474	0.040
2		m	123	12	0.464	0.039
2	H3395	m	141	12	0.456	0.038
2		m	165	12	0.464	0.039
2		m	173	12	0.470	0.039
Total & Average				60	0.466	0.039
Standard Deviation					0.007	0.001
CV					1.469%	1.469%
3		m	111	12	0.474	0.040
3		m	129	12	0.464	0.039
3	NK32Z3	m	148	12	0.464	0.039
3		m	157	12	0.464	0.039
3		m	184	12	0.470	0.039
Total & Average				60	0.467	0.039
Standard Deviation					0.005	0.000
CV					0.986%	0.986%

Appendix III – Table 1 (Cont'd). Day 0 body weights (9/19/07)

Treatment Number	Soybean Meal ID	Sex	Pen	Number Of Birds Weighed	Day 0 Pen Wt. (kg)	Day 0 Avg Bird Wt (kg)
4	A3525 (Control)	f	107	12	0.450	0.038
4		f	122	12	0.472	0.039
4		f	144	12	0.468	0.039
4		f	166	12	0.474	0.040
4		f	175	12	0.466	0.039
Total & Average				60	0.466	0.039
Standard Deviation					0.009	0.001
CV					2.036%	2.036%
5	MON 87769	f	119	12	0.468	0.039
5		f	128	12	0.464	0.039
5		f	149	12	0.458	0.038
5		f	160	12	0.454	0.038
5		f	174	12	0.456	0.038
Total & Average				60	0.460	0.038
Standard Deviation					0.006	0.000
CV					1.268%	1.268%
6	Midwest 3444	f	118	12	0.450	0.038
6		f	125	12	0.472	0.039
6		f	143	12	0.470	0.039
6		f	167	12	0.466	0.039
6		f	182	12	0.466	0.039
Total & Average				60	0.465	0.039
Standard Deviation					0.009	0.001
CV					1.866%	1.866%

Treatment Number	Soybean Meal ID	Sex	Pen	Number Of Birds Weighed	Day 0 Pen Wt. (kg)	Day 0 Avg Bird Wt (kg)
4	A3525 (Control)	m	110	12	0.484	0.040
4		m	133	12	0.470	0.039
4		m	151	12	0.464	0.039
4		m	158	12	0.458	0.038
4		m	181	12	0.486	0.041
Total & Average				60	0.472	0.039
Standard Deviation					0.012	0.001
CV					2.600%	2.600%
5	MON 87769	m	114	12	0.466	0.039
5		m	126	12	0.462	0.039
5		m	137	12	0.486	0.041
5		m	154	12	0.462	0.039
5		m	172	12	0.472	0.039
Total & Average				60	0.470	0.039
Standard Deviation					0.010	0.001
CV					2.138%	2.138%
6	Midwest 3444	m	108	12	0.482	0.040
6		m	130	12	0.458	0.038
6		m	140	12	0.474	0.040
6		m	164	12	0.462	0.039
6		m	171	12	0.474	0.040
Total & Average				60	0.470	0.039
Standard Deviation					0.010	0.001
CV					2.085%	2.085%

Appendix III – Table 1 (Cont'd). Day 0 body weights (9/19/07)

Treatment Number	Soybean Meal ID	Sex	Pen	Number Of Birds Weighed	Day 0 Pen Wt. (kg)	Day 0 Avg Bird Wt (kg)
7	93B15	f	117	12	0.474	0.040
7		f	132	12	0.468	0.039
7		f	145	12	0.472	0.039
7		f	153	12	0.460	0.038
7		f	176	12	0.452	0.038
Total & Average				60	0.465	0.039
Standard Deviation					0.009	0.001
CV					1.961%	1.961%
8	PN93B82	f	104	12	0.464	0.039
8		f	134	12	0.476	0.040
8		f	147	12	0.462	0.039
8		f	155	12	0.474	0.040
8		f	177	12	0.474	0.040
Total & Average				60	0.470	0.039
Standard Deviation					0.006	0.001
CV					1.379%	1.379%

Treatment Number	Soybean Meal ID	Sex	Pen	Number Of Birds Weighed	Day 0 Pen Wt. (kg)	Day 0 Avg Bird Wt (kg)
7	93B15	m	112	12	0.470	0.039
7		m	131	12	0.480	0.040
7		m	138	12	0.480	0.040
7		m	159	12	0.464	0.039
7		m	180	12	0.480	0.040
Total & Average				60	0.475	0.040
Standard Deviation					0.007	0.001
CV					1.565%	1.565%
8	PN93B82	m	106	12	0.472	0.039
8		m	121	12	0.476	0.040
8		m	150	12	0.488	0.041
8		m	156	12	0.466	0.039
8		m	179	12	0.470	0.039
Total & Average				60	0.474	0.040
Standard Deviation					0.008	0.001
CV					1.774%	1.774%

Appendix III - Table 2. Summary of mortality , removal and probable cause of death (Day 0 - 7 and Day 7 – 42)

Treatment	Sex	Pen No.	No. Birds Started	Day 0 - 7					Number of Birds (day 7 - 42)				
				Removed[1]	Mortality	Percent	Cause of Death[2]	Added[3]	Removed	Reason	Mortality	Percent	Cause of Death[2]
1	f	105	12	2		0.0%	2cd				1	10.0%	1sds
1	f	136	12	2		0.0%	2cd				1	10.0%	1bac
1	f	146	12	2		0.0%	2cd					0.0%	
1	f	168	12	1	1	8.3%	1dh 1cd					0.0%	
1	f	183	12	2		0.0%	2cd					0.0%	
1	m	116	12	1	1	8.3%	1dh 1cd					0.0%	
1	m	127	12	2		0.0%	2cd				1	10.0%	1sds bl/fhn
1	m	152	12		3	25.0%	3dh	1				0.0%	
1	m	163	12	2		0.0%	2cd					0.0%	
1	m	185	12	2		0.0%	2cd					0.0%	
P93B87													
Total & Average			**120**	**16**	**5**	**4.17%**		**1**	**0**		**3**	**3.00%**	
2	f	115	12	2		0.0%	2cd		1	1cd/bl		0.0%	
2	f	135	12	1	1	8.3%	1dh 1cd		2	1cd bl,fhn 1cd ss		0.0%	
2	f	142	12	1	1	8.3%	1dh 1cd					0.0%	
2	f	161	12	2		0.0%	2cd					0.0%	
2	f	170	12	1	1	8.3%	1bac 1cd		1	1cd/dh	1	10.0%	1sds
2	m	113	12	2		0.0%	2cd					0.0%	
2	m	123	12	1	1	8.3%	1dh 1cd				1	10.0%	1sds
2	m	141	12	1	1	8.3%	1bac 1cd					0.0%	
2	m	165	12		3	25.0%	3dh	1				0.0%	
2	m	173	12	2		0.0%	2cd					0.0%	
H3395													
Total & Average			**120**	**13**	**8**	**6.67%**		**1**	**4**		**2**	**2.00%**	
3	f	109	12	2		0.0%	2cd					0.0%	
3	f	124	12	1	1	8.3%	1dh 1cd					0.0%	
3	f	139	12	1	1	8.3%	1bac 1cd					0.0%	
3	f	162	12	2	2	16.7%	1dh 1bac 2cd	2	1	1cd/bl,fhn		0.0%	
3	f	178	12	3		0.0%	3cd	1				0.0%	
3	m	111	12	1	1	8.3%	1dh 1cd					0.0%	
3	m	129	12	1	1	8.3%	1bac 1cd					0.0%	
3	m	148	12	2		0.0%	2cd		2	2cd/ bl fhn		0.0%	
3	m	157	12	2		0.0%	2cd		3	1cd/bac 1cd/bac fhn 1cd/bac act	1	10.0%	1sds/bl fhn
3	m	184	12	2		0.0%	2cd		1	1cd/act,bl, fhn	1	10.0%	1sds
NK32Z3													
Total & Average			**120**	**17**	**6**	**5.00%**		**3**	**7**		**2**	**2.00%**	

[1] Removed = birds removed on day 7 to adjust the count to 10 birds/pen, removed birds were euthanized by cervical dislocation

[2] Codes: DH = dehydrated, SDS = Sudden Death Syndrome, BAC = bacterial, ACT = ascites, C = cull, SS = sex slip, BL = bad leg, ACT-S = Ascites + SDS, CD = cervical dislocation, FHN = femoral head necrosis

[3] Number of birds added to pen from pool of birds removed from other pens of birds on the same treatment at the day 7 recount to adjust count to 10 birds/pen.

Appendix III - Table 2 (Cont'd). Summary of mortality, removal and probable death (Day 0 - 7 and Day 7 – 42)

Treatment		Sex	Pen No.	No. Birds Started	Day 0 - 7					Number of Birds (day 7 - 42)				
					Removed[1]	Mortality	Percent	Cause of Death[2]	Added[3]	Removed	Reason	Mortality	Percent	Cause of Death[2]
4	A3525 (Control)	f	107	12		2	16.7%	2dh		1	1cd/bl,fhn,bac		0.0%	
4		f	122	12		2	16.7%	1bac 1dh					0.0%	
4		f	144	12		3	25.0%	3dh	1	1	1cd/bac small		0.0%	
4		f	166	12	1	2	16.7%	2dh 1cd	1			1	10.0%	1bac/dh
4		f	175	12	2		0.0%	2cd					0.0%	
4		m	110	12	2		0.0%	2cd				2	20.0%	1sds/act 1act
4		m	133	12	2		0.0%	2cd					0.0%	
4		m	151	12	2		0.0%	2cd					0.0%	
4		m	158	12		2	16.7%	1dh 1bac					0.0%	
4		m	181	12	2		0.0%	2cd		1	1cd/bl		0.0%	
Total & Average				**120**	**11**	**11**	**9.17%**		**2**	**3**		**3**	**3.00%**	
5	MON 87769	f	119	12	1	1	8.3%	1dh 1cd					0.0%	
5		f	128	12	2		0.0%	2cd					0.0%	
5		f	149	12	2	2	16.7%	2dh 2cd	2	1	1cd/bl,fhn, bac		0.0%	
5		f	160	12	1	1	8.3%	1dh 1cd					0.0%	
5		f	174	12	2		0.0%	2cd					0.0%	
5		m	114	12		2	16.7%	2dh		1	1cd/bl synovitis	1	10.0%	1act
5		m	126	12	2		0.0%	2cd		2	2cd/bl fhn		0.0%	
5		m	137	12		3	25.0%	3dh	1	1	1cd/bac,bl,fhn		0.0%	
5		m	154	12	1	1	8.3%	1bac 1cd				1	10.0%	1bac
5		m	172	12	2		0.0%	2cd		1	1cd/bl fhn		0.0%	
Total & Average				**120**	**13**	**10**	**8.33%**		**3**	**6**		**2**	**2.00%**	
6	Midwest 3444	f	118	12	1	1	8.3%	1bac 1cd					0.0%	
6		f	125	12	1	1	8.3%	1dh 1cd		1	1cd/bl small		0.0%	
6		f	143	12	2		0.0%	2cd					0.0%	
6		f	167	12	1	3	25.0%	3dh 1cd	2				0.0%	
6		f	182	12	1	3	25.0%	3dh 1cd	2	1	1cd/ bl fhn		0.0%	
6		m	108	12	2		0.0%	2cd		1	1cd/bac		0.0%	
6		m	130	12	1	1	8.3%	1bac 1cd		1	1cd/bl synovitis		0.0%	
6		m	140	12	2		0.0%	2cd				1	10.0%	1bac
6		m	164	12	2		0.0%	2cd					0.0%	
6		m	171	12	2		0.0%	2cd		1	1cd/bac	1	10.0%	1act
Total & Average				**120**	**15**	**9**	**7.50%**		**4**	**5**		**2**	**2.00%**	

[1] Removed = birds removed on day 7 to adjust the count to 10 birds/pen, removed birds were euthanized by cervical dislocation

[2] Codes: DH = dehydrated, SDS = Sudden Death Syndrome, BAC = bacterial, ACT = ascites, C = cull, SS = sex slip, BL = bad leg, ACT-S = Ascites + SDS, CD = cervical dislocation, FHN = femoral head necrosis

[3] Number of birds added to pen from pool of birds removed from other pens of birds on the same treatment at the day 7 recount to adjust count to 10 birds/pen.

Appendix III - Table 2 (Cont'd). Summary of mortality , removal and probable cause of death (Day 0 - 7 and Day 7 – 42)

Treatment	Sex	Pen No.	No. Birds Started	Day 0 - 7					Number of Birds (day 7 - 42)				
				Removed[1]	Mortality	Percent	Cause of Death[2]	Added[3]	Removed	Reason	Mortality	Percent	Cause of Death[2]
7	f	117	12	1	1	8.3%	1dh 1cd					0.0%	
7	f	132	12	2	2	16.7%	2dh 2cd	2				0.0%	
7	f	145	12	1	3	25.0%	3dh 1cd	2			1	10.0%	1bac
7	f	153	12	1	1	8.3%	1dh 1cd					0.0%	
7	f	176	12	2		0.0%	2cd					0.0%	
7	m	112	12	2		0.0%	2cd				1	10.0%	1bac
7	m	131	12	1	1	8.3%	1bac 1cd		1	1cd/bl fhn		0.0%	
7	m	138	12	1	1	8.3%	1dh 1cd				1	10.0%	1bac
7	m	159	12	1	1	8.3%	1dh 1cd				2	20.0%	1bac/bl fhn 1sds/bac
7	m	180	12	2		0.0%	2cd		3	2cd/bl 1cd/bl synovitis	3	30.0%	1sds 1sds/bl 1sds/act
Total & Average			**120**	**14**	**10**	**8.33%**		**4**	**4**		**8**	**8.00%**	
8	f	104	12		2	16.7%	2dh					0.0%	
8	f	134	12		2	16.7%	1dh 1bac					0.0%	
8	f	147	12	1	2	16.7%	1bac 1dh 1cd	1				0.0%	
8	f	155	12		2	16.7%	1dh 1bac					0.0%	
8	f	177	12	2		0.0%	2cd					0.0%	
8	m	106	12	2		0.0%	2cd		1	1cd/bac	3	30.0%	2sds 1bac/bl/fhn
8	m	121	12	2		0.0%	2cd					0.0%	
8	m	150	12		3	25.0%	2dh 1bac	1				0.0%	
8	m	156	12	2	1	8.3%	1dh 2cd	1	2	2cd/bl fhn		0.0%	
8	m	179	12		2	16.7%	2dh				1	10.0%	1sds
Total & Average			**120**	**9**	**14**	**11.67%**		**3**	**3**		**4**	**4.00%**	

PN93B82 (Treatment 8) / 93B15 (Treatment 7)

[1] Removed = birds removed on day 7 to adjust the count to 10 birds/pen, removed birds were euthanized by cervical dislocation

[2] Codes: DH = dehydrated, SDS = Sudden Death Syndrome, BAC = bacterial, ACT = ascites, C = cull, SS = sex slip, BL = bad leg, ACT-S = Ascites + SDS, CD = cervical dislocation, FHN = femoral head necrosis

[3] Number of birds added to pen from pool of birds removed from other pens of birds on the same treatment at the day 7 recount to adjust count to 10 birds/pen.

Appendix III - Table 3. Performance, carcass yield, and meat quality of broilers fed diets formulated with MON 87769, conventional control, and reference soybean meal (means[1] combined across males and females)

Treatment Number	5	4	8	3	6	2	1	7			
Soybean Meal ID	MON 87769	A3525 (Control)	PN93B82	NK32Z3	Midwest 3444	H3395	P93B87	93B15	SEM[2]	Treatment p-value[3]	LSD[4] 5.0%
Performance											
Average bird weight (g/bird), d 0	38.733	39.100	39.350	39.217	38.950	39.167	39.333	39.167	0.2253	0.5767[8]	0.638
Average bird weight (kg/bird), d 42	2.699	2.770	2.752	2.760	2.761	2.710	2.806	2.722	0.0244	0.0595	0.069
Average bird gain (kg/bird), d 42	2.661	2.731	2.713	2.721	2.722	2.671	2.767	2.683	0.0245	0.0620	0.069
Feed intake (kg/bird), d 0 to 42	4.104	4.237	4.224	4.131	4.192	4.165	4.371	4.155	0.0743	0.2907	0.210
Feed:gain (kg/kg), d 0 to 42	1.673	1.638	1.674	1.667	1.634	1.657	1.607	1.747	0.0485	0.6527	0.137
Adjusted feed:gain[5] (kg/kg), d 0 to 42	1.592	1.594	1.593	1.596	1.590	1.598	1.585	1.612	0.0061	0.1469	0.017
Carcass Yield											
Processing live weight[6] (kg)	2.643	2.711	2.693	2.696	2.702	2.650	2.738	2.659	0.0240	0.0900	0.068
Chilled carcass weight (kg)	1.919	1.964	1.951	1.953	1.958	1.914	1.992	1.924	0.0183	0.0611	0.052
Chilled carcass weight (% of live wt.)	72.577	72.476	72.449	72.414	72.460	72.207	72.763	72.338	0.1327	0.1789	0.375
Fat pad weight (kg)	0.039^{c}	$0.044^{b,a}$	$0.043^{b,a}$	0.046^{a}	0.045^{a}	$0.042^{b,c}$	$0.042^{b,a,c}$	$0.044^{b,a}$	0.0013	0.0252	0.004
Fat pad weight (% of live wt.)	1.496^{c}	$1.636^{b,a}$	$1.626^{b,a,c}$	1.708^{a}	1.691^{a}	$1.583^{b,a,c}$	$1.549^{b,c}$	$1.659^{b,a}$	0.0471	0.0348	0.133
Breast meat weight (kg)	0.547	0.559	0.553	0.554	0.551	0.543	0.566	0.540	0.0060	0.0762	0.017
Breast meat weight (% of chilled wt.)	28.597	28.472	28.373	28.394	28.159	28.404	28.440	28.052	0.2223	0.7391	0.629
Thigh weight (kg)	0.314	0.324	0.322	0.319	0.323	0.315	0.327	0.314	0.0038	0.1593	0.011
Thigh weight (% of chilled wt.)	16.416	16.457	16.482	16.307	16.525	16.456	16.378	16.313	0.1122	0.8352	0.317
Drum weight (kg)	0.263^{b}	0.266^{b}	0.265^{b}	0.265^{b}	0.266^{b}	0.260^{b}	0.274^{a}	0.262^{b}	0.0027	0.0369	0.008
Drum weight (% of chilled wt.)	13.762	13.526	13.592	13.559	13.580	13.574	13.724	13.628	0.1083	0.7640	0.306
Wing weight (kg)	0.207	0.207	0.205	0.205	0.207	0.203	0.211	0.205	0.0020	0.2520	0.006
Wing weight (% of chilled wt.)	10.855	10.556	10.541	10.490	10.555	10.637	10.594	10.665	0.0881	0.1413	0.249
Breast Meat Analysis[7]											
Moisture (%)	75.199	75.507	75.215	75.094	75.148	75.143	75.350	75.019	0.1528	0.4287	0.432
Protein (%, as is basis)	23.184	22.883	23.052	23.302	23.279	23.327	23.004	23.378	0.1450	0.1836	0.410
Fat (%, as is basis)	1.087	0.946	0.991	1.002	0.904	0.933	1.116	0.968	0.0752	0.4636	0.213
Thigh Meat Analysis[7]											
Moisture (%)	76.982	77.040	76.883	77.276	76.881	76.941	77.127	76.777	0.1223	0.1348	0.346
Protein (%, as is basis)	20.675	20.595	21.082	20.560	20.723	20.465	20.792	20.769	0.1986	0.5207	0.562
Fat (%, as is basis)	1.362	1.283	1.570	1.346	1.501	1.570	1.445	1.421	0.1171	0.5851	0.331

[1] Each mean represents 10 observations (1/pen).

[2] SEM = standard error of the mean for respective parameter.

[3] p-value for test of dietary treatment effect, [a-c]Individual treatment means in the same row with the same superscript are not statistically different ($P > 0.05$).

[4] LSD = least significant difference between two means ($P < 0.05$).

[5] Adjusted feed:gain is adjusted by adding the weight at removal of mortalities and culls to the weight of the live birds in a pen.

[6] Processing live weight = pre-processing weight on d 43 (males) or d 44 (females).

[7] Mean values for skinless breast and thigh meat analyses based on one bird per pen.

[8] A diet × sex interaction ($P < 0.15$) was detected, see appended statistical report (Appendix IV, Tables 1 - 26) for within sex analysis for the respective variable

Appendix III - Table 4. Performance, carcass yield, and meat quality of broilers fed diets formulated with MON 87769 soybean meal versus that of the population of broilers fed diets formulated with conventional control and reference soybean meal (means[1] ± SEM[2] combined across males and females)

Parameter	Soybean Meal Diets		Treatment p-value[3]	LSD[4] 5%
	MON 87769	Conventional Control and References		
Performance				
Average bird weight (g/bird), d 0	38.733 ± 0.2618	39.183 ± 0.0990	0.1339[8]	0.610
Average bird weight (kg/bird), d 42	2.699 ± 0.0317	2.754 ± 0.0120	0.1550	0.083
Average bird gain (kg/bird), d 42	2.661 ± 0.0317	2.715 ± 0.0120	0.1575	0.083
Feed intake (kg/bird), d 0 to 42	4.104 ± 0.0877	4.211 ± 0.0332	0.2784	0.204
Feed:gain (kg/kg), d 0 to 42	1.673 ± 0.0494	1.661 ± 0.0187	0.8263	0.115
Adjusted feed:gain[5] (kg/kg), d 0 to 42	1.592 ± 0.0083	1.595 ± 0.0031	0.6961	0.022
Carcass Yield				
Processing live wt[6] (kg/bird)	2.643 ± 0.0300	2.693 ± 0.0114	0.1759	0.079
Chilled wt (kg/bird)	1.919 ± 0.0257	1.951 ± 0.0097	0.2934	0.067
Chilled wt (% of live wt.)	72.577 ± 0.1691	72.444 ± 0.0639	0.4900	0.442
Fat pad wt (kg/bird)	0.039 ± 0.0015	0.044 ± 0.0006	0.0357	0.004
Fat pad wt (% of live wt.)	1.496 ± 0.0567	1.636 ± 0.0214	0.0602	0.148
Breast wt (kg/bird)	0.547 ± 0.0088	0.552 ± 0.0033	0.5919	0.023
Breast wt (% of chilled wt)	28.597 ± 0.2127	28.328 ± 0.0804	0.2409	0.453
Thigh wt (kg/bird)	0.314 ± 0.0046	0.321 ± 0.0017	0.2474	0.012
Thigh wt (% of chilled wt)	16.416 ± 0.1076	16.417 ± 0.0407	0.9977	0.229
Drum wt (kg/bird)	0.263 ± 0.0042	0.266 ± 0.0016	0.5302	0.011
Drum wt (% of chilled wt)	13.762 ± 0.1018	13.597 ± 0.0385	0.1347	0.217
Wing wt (kg/bird)	0.207 ± 0.0024	0.206 ± 0.0009	0.9061	0.006
Wing wt (% of chilled wt)	10.855 ± 0.0843	10.577 ± 0.0319	0.0029	0.180
Breast Meat Analysis[7]				
Moisture (%)	75.199 ± 0.1664	75.211 ± 0.0629	0.9517	0.435
Protein (%, as is basis)	23.184 ± 0.1920	23.175 ± 0.0726	0.9640	0.502
Fat (%, as is basis)	1.087 ± 0.0731	0.980 ± 0.0276	0.1741	0.156
Thigh Meat Analysis[7]				
Moisture (%)	76.982 ± 0.1704	76.989 ± 0.0644	0.9718	0.446
Protein (%, as is basis)	20.675 ± 0.2115	20.712 ± 0.0800	0.8716	0.493
Fat (%, as is basis)	1.362 ± 0.1170	1.448 ± 0.0442	0.4929	0.249

[1] Each mean for MON 87769 represents 10 observations (1/pen) and the that for the population of control and references represents 70 observations (1/pen).

[2] SEM = standard error of the mean for respective parameter.

[3] MON 87769diet versus the population of the control and six reference diets

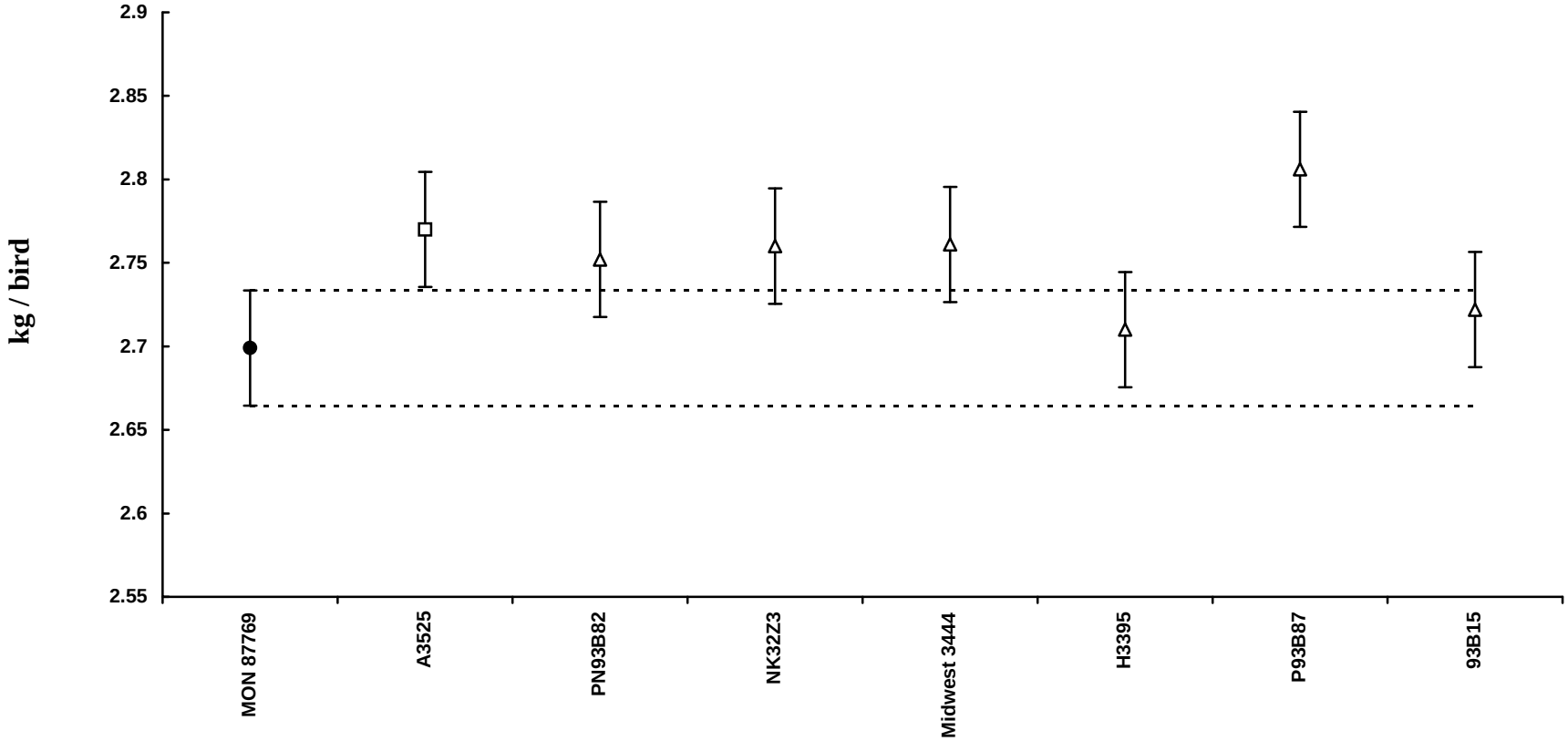
[4] LSD = least significant difference between two means ($P < 0.05$).

[5] Adjusted feed:gain is adjusted by adding the weight at removal of mortalities and culls to the weight of the live birds in a pen.

[6] Processing live weight = pre-processing weight on d 43 (males) or d 44 (females).

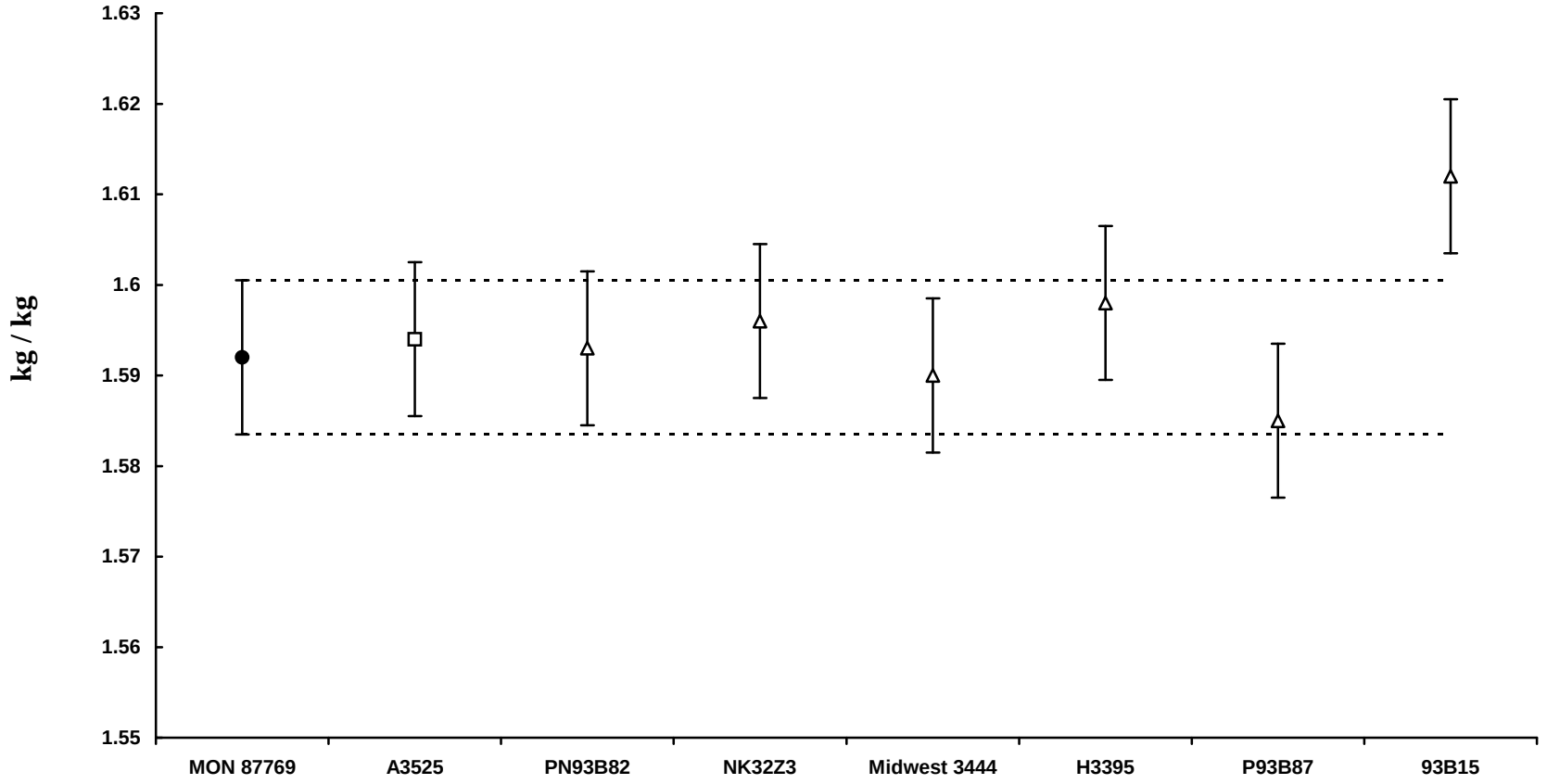
[7] Mean values for skinless breast and thigh meat analyses based on one bird per pen.

[8] A diet × sex interaction ($P < 0.15$) was detected, see Appendix IV, Tables 1 - 26 for within sex analysis



Appendix III - Figure 1. Average Bird Weight Day 42[1] (kg/bird) for broilers fed diets containing MON 87769, control or reference soybean meal

[1] Error bars are ± one half the 5% Least Significant Difference (LSD). Therefore, if the overall F-test is significant at $P < 0.05$, any two non-overlapping hybrids are statistically different at the 5% level of significance.



Appendix III - Figure 2. Adjusted Feed:Gain Day 0 - 42[1] (kg/kg) for broilers fed diets containing MON 87769, control or reference soybean meal

[1] Adjusted for mortality and culled birds. Error bars are ± one half the 5% Least Significant Difference (LSD). Therefore, if the overall F-test is significant at $P < 0.05$, any two non-overlapping hybrids are statistically different at the 5% level of significance.

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(Monsanto Study No. 07-01-83-40)

APPENDIX IV

Statistical Report (including Data Listing)

Pages 59 - 124

Statistical Report

Monsanto Study # 07-01-83-40
CQR Study # MN-07-4
Comparison of Broiler Performance and Carcass Parameters When Fed Diets Containing Soybean Meal Produced From MON 87769, Control, or Reference Soybeans

The purpose of this study was to evaluate the nutritional value of diets containing soybean meal produced from MON 87769, Control, or Reference soybeans.

1. DATA

Equal numbers of male and female chicks were fed one of 8 diets/treatments, listed in Table A.1. These diets were statistically compared with respect to the 26 response variables listed in Table A.2. The raw data from this study were supplied by Colorado Quality Research (CQR) in the form of Excel files (see details in data package). The data were imported and organized using SAS 9.1.3 for statistical analysis. A data listing is provided in Appendix 1.

2. STATISTICAL ANALYSES

Pens were set up as a randomized complete block experimental design with 8 diets (treatments) in each of 5 replicated blocks of pens. Each block contained 16 pens (one for each diet and sex combination), with 10 birds per pen for a total of 800 birds (400 males and 400 females). The GLM and Mixed procedures in Release 9.1.3 of SAS® were used in analyzing the data.

Each measurement was statistically analyzed by two different procedures. The first method was a two-factor analysis of variance under a randomized complete block structure. The two factors were diet and sex. The main effects of diet and sex along with the diet-by-sex interaction were tested and noted. If the interaction was not significant ($p \geq 0.15$) then the comparisons of the diets were done using the main effect for diets, i.e., diet means were averaged over sex. If the interaction was significant then the diet comparisons were done separately for each sex. Mean separation procedures were performed using the protected LSD method at a 0.05 level of significance. The statistical model is as follows:

$$y_{ijk} = \mu + \tau_i + \beta_j + (\tau\beta)_{ij} + \gamma_k + \varepsilon_{ijk} \qquad \text{model (1)}$$

where μ is the overall mean
τ_i is the effect for the i^{th} diet, i= 1, …8
β_j is the effect of j^{th} sex, j=1,2
$(\tau\beta)_{ij}$ is the interaction between the i^{th} diet and the j^{th} sex
γ_k is the effect of the k^{th} block, k=1, …5

y_{ijk} is the measured response for the i^{th} diet and j^{th} sex in the k^{th} block
ε_{ijk} is the random error associated with the measurement for the i^{th} diet and j^{th}sex in the k^{th} block

Treatment means and results of statistical comparisons are presented in Tables 1-26. In addition to the tables, the results of these analyses (mean and least significant difference) for Bird Weight Day 42, Average Feed Intake, Adjusted Feed Conversion, Percent Chilled Weight and Average Breast Weight are graphically summarized in Figures 1-5. Figures 6-10 also show summary statistics (mean and standard error) for these variables. All figures are listed in Table A.3.

The additional analysis compared test article with the population, of which the control and six reference soybean diets (seven diets in total) were considered as a sample. Analyses were averaged over sex unless there was a significant diet-by-sex interaction, in which case analyses were broken out by sex and included in the respective analysis summary table. The statistical model is as follows:

$$y_{ijkl} = \mu + \delta_i + \tau_j(\delta_i) + \beta_k + (\delta\beta)_{i\,k} + \tau_j(\delta_i)*\beta_k + \gamma_l + \varepsilon_{ijkl} \qquad \text{model (2)}$$

where

μ is the overall mean
δ_i is the effect of i^{th} diet type (test or control/reference), i =1, 2
$\tau_j(\delta_i)$ is the effect of j^{th} diet within the i^{th} diet type
β_k is the effect of the k^{th} sex
$(\delta\beta)_{i\,k}$ is the interaction between the i^{th} diet type and the k^{th} sex
$\tau_j(\delta_i)*\beta_k$ is the interaction between j^{th} diet within the i^{th} diet type and k^{th} sex
γ_l is the effect of the l^{th} block
y_{ijkl} is the measured response for the j^{th} diet, within the i^{th} diet type, and k^{th} sex in the l^{th} block
ε_{ijkl} is the random error associated with the measurement for the j^{th} diet, within the i^{th} diet type, and k^{th} sex in the l^{th} block

Standard error of means from model (1) and (2) are provided in Appendix 2.

3. RESULTS/CONCLUSIONS

Treatment means and results of statistical comparisons of MON 87769, control and reference soybean diets are summarized in Tables 1-26 for each of the 26 analysis variables listed in Table A.2. Following the analysis plan for model (1), the p-value for the diet*sex interaction term was checked for each of the 26 analysis variables. Because the interaction term was significant ($p<0.15$) for one out of 26 variables, the results were summarized overall and by sex in Table 1.

The p-values for the diet effect are found in Tables 1-26. The following summarizes the analyses of those variables for which there were significant differences among diets ($p<0.05$), or a significant diet*sex interaction. In Table 1-26, diet means followed by the same letter are not significantly different from each other.

Bird Weight Day 0, g/bird (**Table 1):** There was significant Diet*Sex interaction (p-value=0.0505), so the data were analyzed separately for each sex. There were no significant differences among diets for males or females (p-values=0.2063 and 0.1168, respectively). MON 87769 was not significantly different than any of the control (A3525) or references. Note that the p-values from the mixed model [model (2)] comparing differences between MON 87769 and the control and reference diets were not significant for either males (p-value=0.6596) or females (p-value=0.1109).

Fat Pad Weight, kg/bird (**Table 10):** There was no significant Diet*Sex interaction (p-value=0.7931), so the data were analyzed overall combining males and females. There were significant differences among diets (p-value=0.0252). MON 87769 was not significantly different than H3395 and P93B87, but was significantly different than the control (A3525) and other four references. Note that the p-value from the mixed model [model (2)] comparing difference between MON 87769 and the control and reference diets was significant (p-value=0.0357).

Average Drum Weight, kg/bird (**Table 14):** There was no significant Diet*Sex interaction (p-value=0.7222), so the data were analyzed overall combining males and females. There were significant differences among diets (p-value=0.0369). MON 87769 was not significantly different than any of the control (A3525) or references except P93B87. Note that the p-value from the mixed model [model (2)] comparing difference between MON 87769 and the control and reference diets was not significant (p-value=0.5302).

Percent Fat Pad Weight (Fat Pad Wt / Live Wt x 100) (**Table 15):** There was no significant Diet*Sex interaction (p-value=0.7241), so the data were analyzed overall combining males and females. There were significant differences among diets (p-value=0.0348). MON 87769 was not significantly different than PN93B82, H3395 and P93B87, but was significantly different than the control (A3525) and references NK32Z3, Midwest 3444 and 93B15. Note that the p-value from the mixed model [model (2)] comparing difference between MON 87769 and the control and reference diets was not significant (p-value=0.0602).

Percent Wing Weight (Wing Wt/ Chilled Wt x 100) (**Table 18):** There was no significant Diet*Sex interaction (p-value=0.5011), so the data were analyzed overall combining males and females. There were no significant differences among diets (p-value=0.1413). MON 87769 was not significantly different than any of the control (A3525) or references. Note that the p-value from the mixed model [model (2)] comparing difference between MON 87769 and the control and reference diets was significant (p-value=0.0029).

References

SAS Software Release 9.1 (TS1M3). Copyright© 2002-2003 by SAS Institute Inc., Cary NC.

Table A.1: Diets

Test Articles	MON 87769
Control Article	A3525
Reference Articles	1. PN93B82 2. NK32Z3 3. Midwest 3444 4. H3395 5. P93B87 6. 93B15

Table A.2: Listing of Variables Statistically Analyzed

1. Bird Weight Day 0, g/bird
2. Bird Weight Day 42, kg/bird
3. Average Feed Intake, kg/bird
4. Average Bird Gain Day 42, kg/bird
5. Feed Conversion (Feed Consumed/ Wt Gain)
6. R/M Weight (Wt of removed and dead birds), kg
7. Adjusted Feed Conversion (adjusted for R/M birds)
8. Average Pre-Processing Live Body Weight, kg/bird
9. Chilled Weight, kg/bird
10. Fat Pad Weight, kg/bird
11. Average Breast Weight, kg/bird
12. Average Wing Weight, kg/bird
13. Average Thigh Weight, kg/bird
14. Average Drum Weight, kg/bird
15. Percent Fat Pad Weight (Fat Pad Wt / Live Wt x 100)
16. Percent Chilled Weight (Chilled Wt/Live Wt x 100)
17. Percent Breast Weight (Breast Wt/ Chilled Wt x 100)
18. Percent Wing Weight (Wing Wt/ Chilled Wt x 100)
19. Percent Thigh Weight (Thigh Wt/ Chilled Wt x 100)
20. Percent Drum Weight (Drum Wt/ Chilled Wt x 100)
21. Breast Moisture (g/100 g)
22. Breast Protein (g/100 g)
23. Breast Fat (g/100 g)
24. Thigh Moisture (g/100 g)
25. Thigh Protein (g/100 g)
26. Thigh Fat (g/ 100g)

Table A.3. List of Figures

Table 1. Bird Weight Day 0, g/bird

	Summary	Overall	Males	Females
ANOVA	p-value, Block	0.7186	0.0445	0.5464
	p-value, Diet	0.5767	0.2063	0.1168
	p-value, Sex	0.0340	.	.
	p-value, Diet*Sex	0.0505	.	.
	LSD 5%	0.638	0.856	0.881
Diet Means	MON 87769	38.733	39.133	38.333
	A3525	39.100	39.367	38.833
	PN93B82	39.350	39.533	39.167
	NK32Z3	39.217	38.933	39.500
	Midwest 3444	38.950	39.167	38.733
	H3395	39.167	38.800	39.533
	P93B87	39.333	39.900	38.767
	93B15	39.167	39.567	38.767
Mixed Model	Control and References*	39.183	39.324	39.043
	MON 87769*	38.733	39.133	38.333
	Mixed Model p-value*	0.1339	0.6596	0.1109
	Mixed Model 5% LSD*	0.610	1.006	0.929

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 2. Bird Weight Day 42, kg/bird

	Summary	Overall
ANOVA	p-value, Block	0.4891
	p-value, Diet	0.0595
	p-value, Sex	<.0001
	p-value, Diet*Sex	0.5286
	LSD 5%	0.069
Diet Means	MON 87769	2.699
	A3525	2.770
	PN93B82	2.752
	NK32Z3	2.760
	Midwest 3444	2.761
	H3395	2.710
	P93B87	2.806
	93B15	2.722
Mixed Model	Control and References*	2.754
	MON 87769*	2.699
	Mixed Model p-value*	0.1550
	Mixed Model 5% LSD*	0.083

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.
* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 3. Average Feed Intake, kg/bird

	Summary	Overall
ANOVA	p-value, Block	0.6996
	p-value, Diet	0.2907
	p-value, Sex	<.0001
	p-value, Diet*Sex	0.1724
	LSD 5%	0.210
Diet Means	MON 87769	4.104
	A3525	4.237
	PN93B82	4.224
	NK32Z3	4.131
	Midwest 3444	4.192
	H3395	4.165
	P93B87	4.371
	93B15	4.155
Mixed Model	Control and References*	4.211
	MON 87769*	4.104
	Mixed Model p-value*	0.2784
	Mixed Model 5% LSD*	0.204

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 4. Average Bird Gain Day 42, kg/bird

	Summary	Overall
ANOVA	p-value, Block	0.4868
	p-value, Diet	0.0620
	p-value, Sex	<.0001
	p-value, Diet*Sex	0.5323
	LSD 5%	0.069
Diet Means	MON 87769	2.661
	A3525	2.731
	PN93B82	2.713
	NK32Z3	2.721
	Midwest 3444	2.722
	H3395	2.671
	P93B87	2.767
	93B15	2.683
Mixed Model	Control and References*	2.715
	MON 87769*	2.661
	Mixed Model p-value*	0.1575
	Mixed Model 5% LSD*	0.083

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 5. Feed Conversion (Feed Consumed/ Wt Gain)

	Summary	Overall
ANOVA	p-value, Block	0.2432
	p-value, Diet	0.6527
	p-value, Sex	0.6801
	p-value, Diet*Sex	0.3807
	LSD 5%	0.137
Diet Means	MON 87769	1.673
	A3525	1.638
	PN93B82	1.674
	NK32Z3	1.667
	Midwest 3444	1.634
	H3395	1.657
	P93B87	1.607
	93B15	1.747
Mixed Model	Control and References*	1.661
	MON 87769*	1.673
	Mixed Model p-value*	0.8263
	Mixed Model 5% LSD*	0.115

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 6. R/M Weight (Wt of removed and dead birds), kg

	Summary	Overall
ANOVA	p-value, Block	0.1737
	p-value, Diet	0.8626
	p-value, Sex	0.0013
	p-value, Diet*Sex	0.2170
	LSD 5%	1.272
Diet Means	MON 87769	1.339
	A3525	0.789
	PN93B82	1.172
	NK32Z3	1.089
	Midwest 3444	0.791
	H3395	0.912
	P93B87	0.446
	93B15	1.304
Mixed Model	Control and References*	0.929
	MON 87769*	1.339
	Mixed Model p-value*	0.3959
	Mixed Model 5% LSD*	0.956

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 7. Adjusted Feed Conversion (adjusted for R/M birds)

	Summary	Overall
ANOVA	p-value, Block	0.0104
	p-value, Diet	0.1469
	p-value, Sex	<.0001
	p-value, Diet*Sex	0.1860
	LSD 5%	0.017
Diet Means	MON 87769	1.592
	A3525	1.594
	PN93B82	1.593
	NK32Z3	1.596
	Midwest 3444	1.590
	H3395	1.598
	P93B87	1.585
	93B15	1.612
Mixed Model	Control and References*	1.595
	MON 87769*	1.592
	Mixed Model p-value*	0.6961
	Mixed Model 5% LSD*	0.022

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 8. Average Pre-Processing Live Body Weight, kg/bird

	Summary	Overall
ANOVA	p-value, Block	0.3543
	p-value, Diet	0.0900
	p-value, Sex	<.0001
	p-value, Diet*Sex	0.6216
	LSD 5%	0.068
Diet Means	MON 87769	2.643
	A3525	2.711
	PN93B82	2.693
	NK32Z3	2.696
	Midwest 3444	2.702
	H3395	2.650
	P93B87	2.738
	93B15	2.659
Mixed Model	Control and References*	2.693
	MON 87769*	2.643
	Mixed Model p-value*	0.1759
	Mixed Model 5% LSD*	0.079

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 9. Chilled Weight, kg/bird

	Summary	Overall
ANOVA	p-value, Block	0.2235
	p-value, Diet	0.0611
	p-value, Sex	<.0001
	p-value, Diet*Sex	0.6203
	LSD 5%	0.052
Diet Means	MON 87769	1.919
	A3525	1.964
	PN93B82	1.951
	NK32Z3	1.953
	Midwest 3444	1.958
	H3395	1.914
	P93B87	1.992
	93B15	1.924
Mixed Model	Control and References*	1.951
	MON 87769*	1.919
	Mixed Model p-value*	0.2934
	Mixed Model 5% LSD*	0.067

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 10. Fat Pad Weight, kg/bird

	Summary	Overall	
ANOVA	p-value, Block	0.9865	
	p-value, Diet	0.0252	
	p-value, Sex	<.0001	
	p-value, Diet*Sex	0.7931	
	LSD 5%	0.004	
Diet Means	MON 87769	0.039	C
	A3525	0.044	BA
	PN93B82	0.043	BA
	NK32Z3	0.046	A
	Midwest 3444	0.045	A
	H3395	0.042	B C
	P93B87	0.042	BAC
	93B15	0.044	BA
Mixed Model	Control and References*	0.044	
	MON 87769*	0.039	
	Mixed Model p-value*	0.0357	
	Mixed Model 5% LSD*	0.004	

Mean separation procedures were performed when the p-value for Diet effect was significant at 0.05 level for Overall, Males or Females. The letters accompany the means to the left. Individual diet means with the same letter(s), i.e., A, AB, ABC, etc., are not statistically different at the 5% level. The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 11. Average Breast Weight, kg/bird

	Summary	Overall
ANOVA	p-value, Block	0.5888
	p-value, Diet	0.0762
	p-value, Sex	<.0001
	p-value, Diet*Sex	0.3189
	LSD 5%	0.017
Diet Means	MON 87769	0.547
	A3525	0.559
	PN93B82	0.553
	NK32Z3	0.554
	Midwest 3444	0.551
	H3395	0.543
	P93B87	0.566
	93B15	0.540
Mixed Model	Control and References*	0.552
	MON 87769*	0.547
	Mixed Model p-value*	0.5919
	Mixed Model 5% LSD*	0.023

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 12. Average Wing Weight, kg/bird

	Summary	Overall
ANOVA	p-value, Block	0.4177
	p-value, Diet	0.2520
	p-value, Sex	<.0001
	p-value, Diet*Sex	0.8443
	LSD 5%	0.006
Diet Means	MON 87769	0.207
	A3525	0.207
	PN93B82	0.205
	NK32Z3	0.205
	Midwest 3444	0.207
	H3395	0.203
	P93B87	0.211
	93B15	0.205
Mixed Model	Control and References*	0.206
	MON 87769*	0.207
	Mixed Model p-value*	0.9061
	Mixed Model 5% LSD*	0.006

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 13. Average Thigh Weight, kg/bird

	Summary	Overall
ANOVA	p-value, Block	0.0304
	p-value, Diet	0.1593
	p-value, Sex	<.0001
	p-value, Diet*Sex	0.6963
	LSD 5%	0.011
Diet Means	MON 87769	0.314
	A3525	0.324
	PN93B82	0.322
	NK32Z3	0.319
	Midwest 3444	0.323
	H3395	0.315
	P93B87	0.327
	93B15	0.314
Mixed Model	Control and References*	0.321
	MON 87769*	0.314
	Mixed Model p-value*	0.2474
	Mixed Model 5% LSD*	0.012

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 14. Average Drum Weight, kg/bird

	Summary	Overall	
ANOVA	p-value, Block	0.4489	
	p-value, Diet	0.0369	
	p-value, Sex	<.0001	
	p-value, Diet*Sex	0.7222	
	LSD 5%	0.008	
Diet Means	MON 87769	0.263	B
	A3525	0.266	B
	PN93B82	0.265	B
	NK32Z3	0.265	B
	Midwest 3444	0.266	B
	H3395	0.260	B
	P93B87	0.274	A
	93B15	0.262	B
Mixed Model	Control and References*	0.266	
	MON 87769*	0.263	
	Mixed Model p-value*	0.5302	
	Mixed Model 5% LSD*	0.011	

Mean separation procedures were performed when the p-value for Diet effect was significant at 0.05 level for Overall, Males or Females. The letters accompany the means to the left. Individual diet means with the same letter(s), i.e., A, AB, ABC, etc., are not statistically different at the 5% level. The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 15. Percent Fat Pad Weight (Fat Pad Wt / Live Wt x 100)

	Summary	Overall	
ANOVA	p-value, Block	0.9211	
	p-value, Diet	0.0348	
	p-value, Sex	<.0001	
	p-value, Diet*Sex	0.7241	
	LSD 5%	0.133	
Diet Means	MON 87769	1.496	C
	A3525	1.636	BA
	PN93B82	1.626	BAC
	NK32Z3	1.708	A
	Midwest 3444	1.691	A
	H3395	1.583	BAC
	P93B87	1.549	B C
	93B15	1.659	BA
Mixed Model	Control and References*	1.636	
	MON 87769*	1.496	
	Mixed Model p-value*	0.0602	
	Mixed Model 5% LSD*	0.148	

Mean separation procedures were performed when the p-value for Diet effect was significant at 0.05 level for Overall, Males or Females. The letters accompany the means to the left. Individual diet means with the same letter(s), i.e., A, AB, ABC, etc., are not statistically different at the 5% level. The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 16. Percent Chilled Weight (Chilled Wt/Live Wt x 100)

	Summary	Overall
ANOVA	p-value, Block	0.0005
	p-value, Diet	0.1789
	p-value, Sex	0.0005
	p-value, Diet*Sex	0.7602
	LSD 5%	0.375
Diet Means	MON 87769	72.577
	A3525	72.476
	PN93B82	72.449
	NK32Z3	72.414
	Midwest 3444	72.460
	H3395	72.207
	P93B87	72.763
	93B15	72.338
Mixed Model	Control and References*	72.444
	MON 87769*	72.577
	Mixed Model p-value*	0.4900
	Mixed Model 5% LSD*	0.442

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.
* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 17. Percent Breast Weight (Breast Wt/ Chilled Wt x 100)

	Summary	Overall
ANOVA	p-value, Block	0.6910
	p-value, Diet	0.7391
	p-value, Sex	<.0001
	p-value, Diet*Sex	0.2904
	LSD 5%	0.629
Diet Means	MON 87769	28.597
	A3525	28.472
	PN93B82	28.373
	NK32Z3	28.394
	Midwest 3444	28.159
	H3395	28.404
	P93B87	28.440
	93B15	28.052
Mixed Model	Control and References*	28.328
	MON 87769*	28.597
	Mixed Model p-value*	0.2409
	Mixed Model 5% LSD*	0.453

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.
* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 18. Percent Wing Weight (Wing Wt/ Chilled Wt x 100)

	Summary	Overall
ANOVA	p-value, Block	0.1366
	p-value, Diet	0.1413
	p-value, Sex	0.0002
	p-value, Diet*Sex	0.5011
	LSD 5%	0.249
Diet Means	MON 87769	10.855
	A3525	10.556
	PN93B82	10.541
	NK32Z3	10.490
	Midwest 3444	10.555
	H3395	10.637
	P93B87	10.594
	93B15	10.665
Mixed Model	Control and References*	10.577
	MON 87769*	10.855
	Mixed Model p-value*	0.0029
	Mixed Model 5% LSD*	0.180

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 19. Percent Thigh Weight (Thigh Wt/ Chilled Wt x 100)

	Summary	Overall
ANOVA	p-value, Block	0.1958
	p-value, Diet	0.8352
	p-value, Sex	<.0001
	p-value, Diet*Sex	0.5220
	LSD 5%	0.317
Diet Means	MON 87769	16.416
	A3525	16.457
	PN93B82	16.482
	NK32Z3	16.307
	Midwest 3444	16.525
	H3395	16.456
	P93B87	16.378
	93B15	16.313
Mixed Model	Control and References*	16.417
	MON 87769*	16.416
	Mixed Model p-value*	0.9977
	Mixed Model 5% LSD*	0.229

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 20. Percent Drum Weight (Drum Wt/ Chilled Wt x 100)

	Summary	Overall
ANOVA	p-value, Block	0.2398
	p-value, Diet	0.7640
	p-value, Sex	<.0001
	p-value, Diet*Sex	0.8943
	LSD 5%	0.306
Diet Means	MON 87769	13.762
	A3525	13.526
	PN93B82	13.592
	NK32Z3	13.559
	Midwest 3444	13.580
	H3395	13.574
	P93B87	13.724
	93B15	13.628
Mixed Model	Control and References*	13.597
	MON 87769*	13.762
	Mixed Model p-value*	0.1347
	Mixed Model 5% LSD*	0.217

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 21. Breast Moisture (g/100 g)

	Summary	Overall
ANOVA	p-value, Block	0.1232
	p-value, Diet	0.4287
	p-value, Sex	0.6416
	p-value, Diet*Sex	0.8329
	LSD 5%	0.432
Diet Means	MON 87769	75.199
	A3525	75.507
	PN93B82	75.215
	NK32Z3	75.094
	Midwest 3444	75.148
	H3395	75.143
	P93B87	75.350
	93B15	75.019
Mixed Model	Control and References*	75.211
	MON 87769*	75.199
	Mixed Model p-value*	0.9517
	Mixed Model 5% LSD*	0.435

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 22. Breast Protein (g/100 g)

	Summary	Overall
ANOVA	p-value, Block	0.4143
	p-value, Diet	0.1836
	p-value, Sex	0.3693
	p-value, Diet*Sex	0.8052
	LSD 5%	0.410
Diet Means	MON 87769	23.184
	A3525	22.883
	PN93B82	23.052
	NK32Z3	23.302
	Midwest 3444	23.279
	H3395	23.327
	P93B87	23.004
	93B15	23.378
Mixed Model	Control and References*	23.175
	MON 87769*	23.184
	Mixed Model p-value*	0.9640
	Mixed Model 5% LSD*	0.502

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.
* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 23. Breast Fat (g/100 g)

	Summary	Overall
ANOVA	p-value, Block	0.3201
	p-value, Diet	0.4636
	p-value, Sex	0.0001
	p-value, Diet*Sex	0.8582
	LSD 5%	0.213
Diet Means	MON 87769	1.087
	A3525	0.946
	PN93B82	0.991
	NK32Z3	1.002
	Midwest 3444	0.904
	H3395	0.933
	P93B87	1.116
	93B15	0.968
Mixed Model	Control and References*	0.980
	MON 87769*	1.087
	Mixed Model p-value*	0.1741
	Mixed Model 5% LSD*	0.156

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 24. Thigh Moisture (g/100 g)

	Summary	Overall
ANOVA	p-value, Block	0.0564
	p-value, Diet	0.1348
	p-value, Sex	0.0258
	p-value, Diet*Sex	0.3861
	LSD 5%	0.346
Diet Means	MON 87769	76.982
	A3525	77.040
	PN93B82	76.883
	NK32Z3	77.276
	Midwest 3444	76.881
	H3395	76.941
	P93B87	77.127
	93B15	76.777
Mixed Model	Control and References*	76.989
	MON 87769*	76.982
	Mixed Model p-value*	0.9718
	Mixed Model 5% LSD*	0.446

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.
* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 25. Thigh Protein (g/100 g)

	Summary	Overall
ANOVA	p-value, Block	0.0663
	p-value, Diet	0.5207
	p-value, Sex	0.3335
	p-value, Diet*Sex	0.3798
	LSD 5%	0.562
Diet Means	MON 87769	20.675
	A3525	20.595
	PN93B82	21.082
	NK32Z3	20.560
	Midwest 3444	20.723
	H3395	20.465
	P93B87	20.792
	93B15	20.769
Mixed Model	Control and References*	20.712
	MON 87769*	20.675
	Mixed Model p-value*	0.8716
	Mixed Model 5% LSD*	0.493

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.
* Derived from a mixed linear model for comparing test to the population of control and reference diets

Table 26. Thigh Fat (g/ 100g)

	Summary	Overall
ANOVA	p-value, Block	0.7183
	p-value, Diet	0.5851
	p-value, Sex	0.0256
	p-value, Diet*Sex	0.4418
	LSD 5%	0.331
Diet Means	MON 87769	1.362
	A3525	1.283
	PN93B82	1.570
	NK32Z3	1.346
	Midwest 3444	1.501
	H3395	1.570
	P93B87	1.445
	93B15	1.421
Mixed Model	Control and References*	1.448
	MON 87769*	1.362
	Mixed Model p-value*	0.4929
	Mixed Model 5% LSD*	0.249

The individual means were computed from the ANOVA model (1) accounting for only variation within diets.

* Derived from a mixed linear model for comparing test to the population of control and reference diets

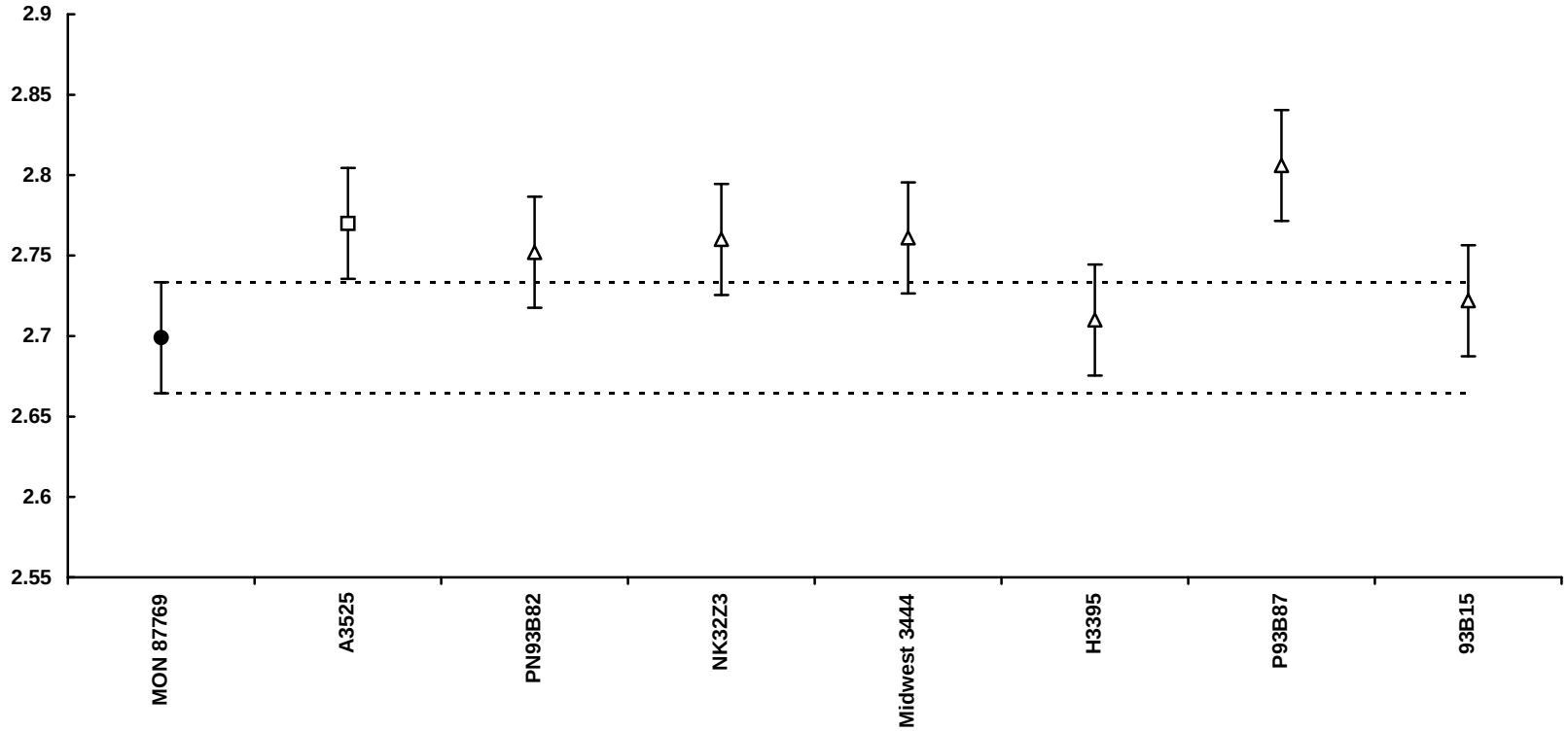


Figure 1. Comparison of Bird Weight Day 42 (males and females combined) for broilers fed diets containing MON 87769, Control or Reference soybean

Average Bird Weight day 42 (kg/bird), for broilers fed diets containing soybean meal produced from each variety. Error bars are ± one half the 5% Least Significant Difference (LSD). Therefore, if the overall F-test is significant at $P < 0.05$, any two non-overlapping treatments are statistically different at the 5% level of significance.

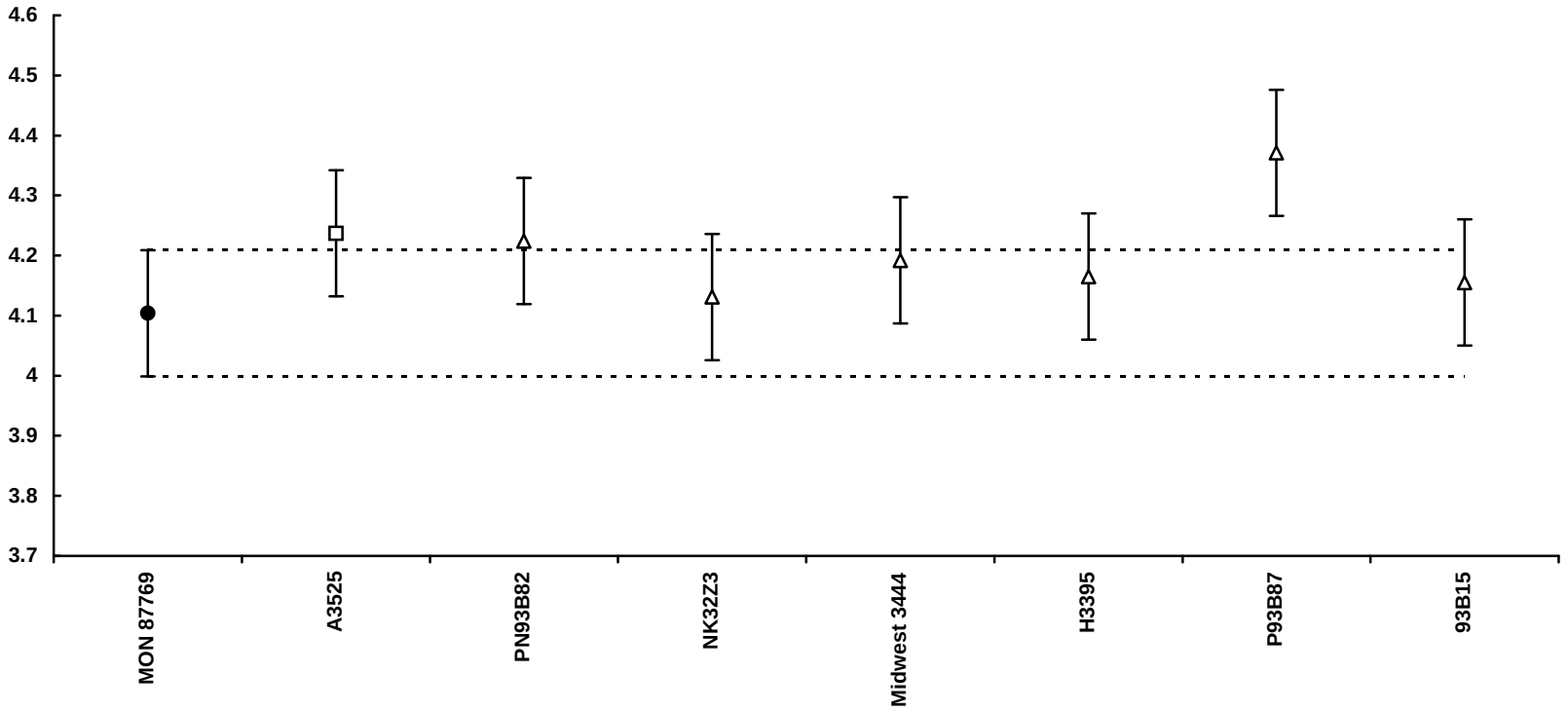


Figure 2. Comparison of Average Feed Intake (males and females combined) for broilers fed diets containing MON 87769, Control or Reference soybean

Average Feed Intake (kg/bird), for broilers fed diets containing soybean meal produced from each variety. Error bars are ± one half the 5% Least Significant Difference (LSD). Therefore, if the overall F-test is significant at $P < 0.05$, any two non-overlapping treatments are statistically different at the 5% level of significance.

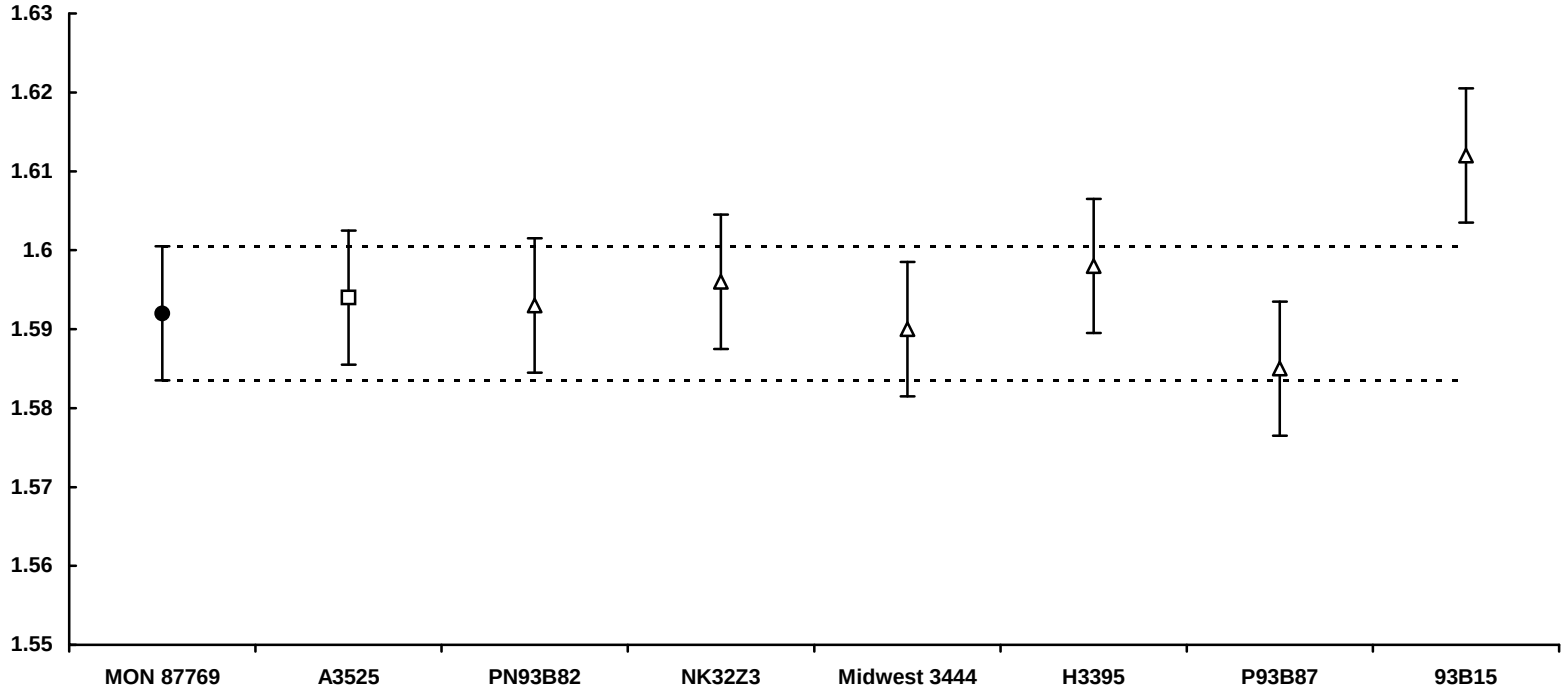


Figure 3. Comparison of Adjusted Feed Conversion (males and females combined) for broilers fed diets containing MON 87769, Control or Reference soybean

Adjusted feed conversion (adjusted for R/M birds), for broilers fed diets containing soybean meal produced from each variety. Error bars are ± one half the 5% Least Significant Difference (LSD). Therefore, if the overall F-test is significant at $P < 0.05$, any two non-overlapping treatments are statistically different at the 5% level of significance.

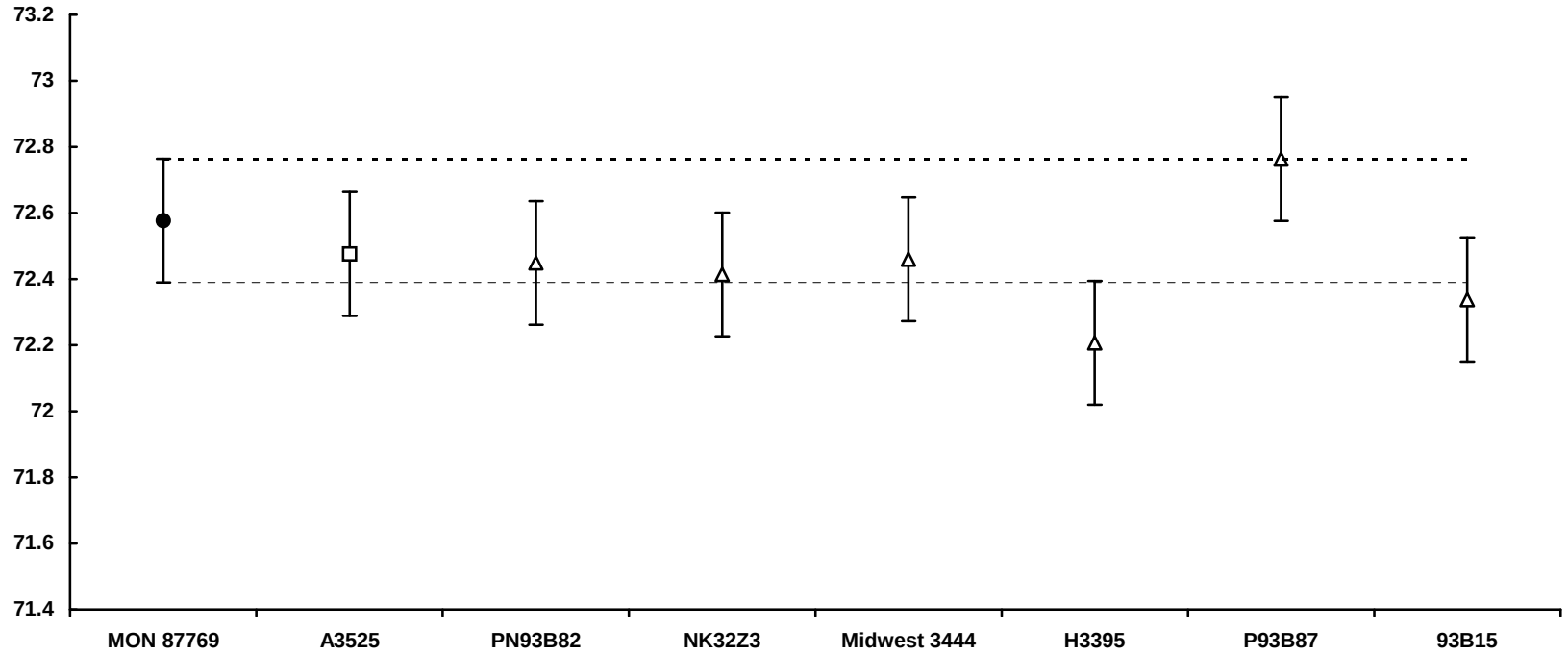


Figure 4. Comparison of Percent Chilled Weight (males and females combined) for broilers fed diets containing MON 87769, Control or Reference soybean

Percent Chilled Weight (Chilled Wt/Live Wt x 100), for broilers fed diets containing soybean meal produced from each variety. Error bars are ± one half the 5% Least Significant Difference (LSD). Therefore, if the overall F-test is significant at $P < 0.05$, any two non-overlapping treatments are statistically different at the 5% level of significance.

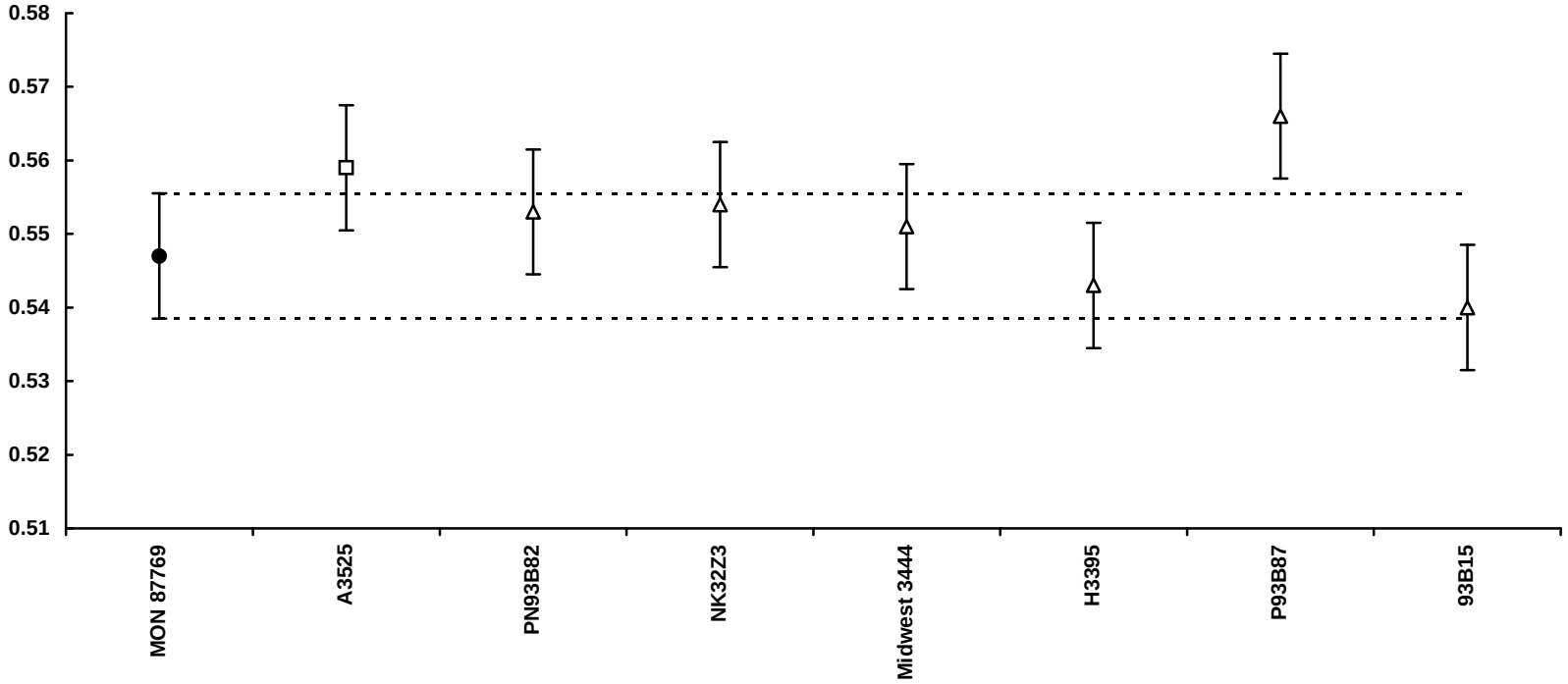


Figure 5. Comparison of Average Breast Weight (males and females combined) for broilers fed diets containing MON 87769, Control or Reference soybean

Average Breast Weight (kg/bird), for broilers fed diets containing soybean meal produced from each variety. Error bars are ± one half the 5% Least Significant Difference (LSD). Therefore, if the overall F-test is significant at $P < 0.05$, any two non-overlapping treatments are statistically different at the 5% level of significance.

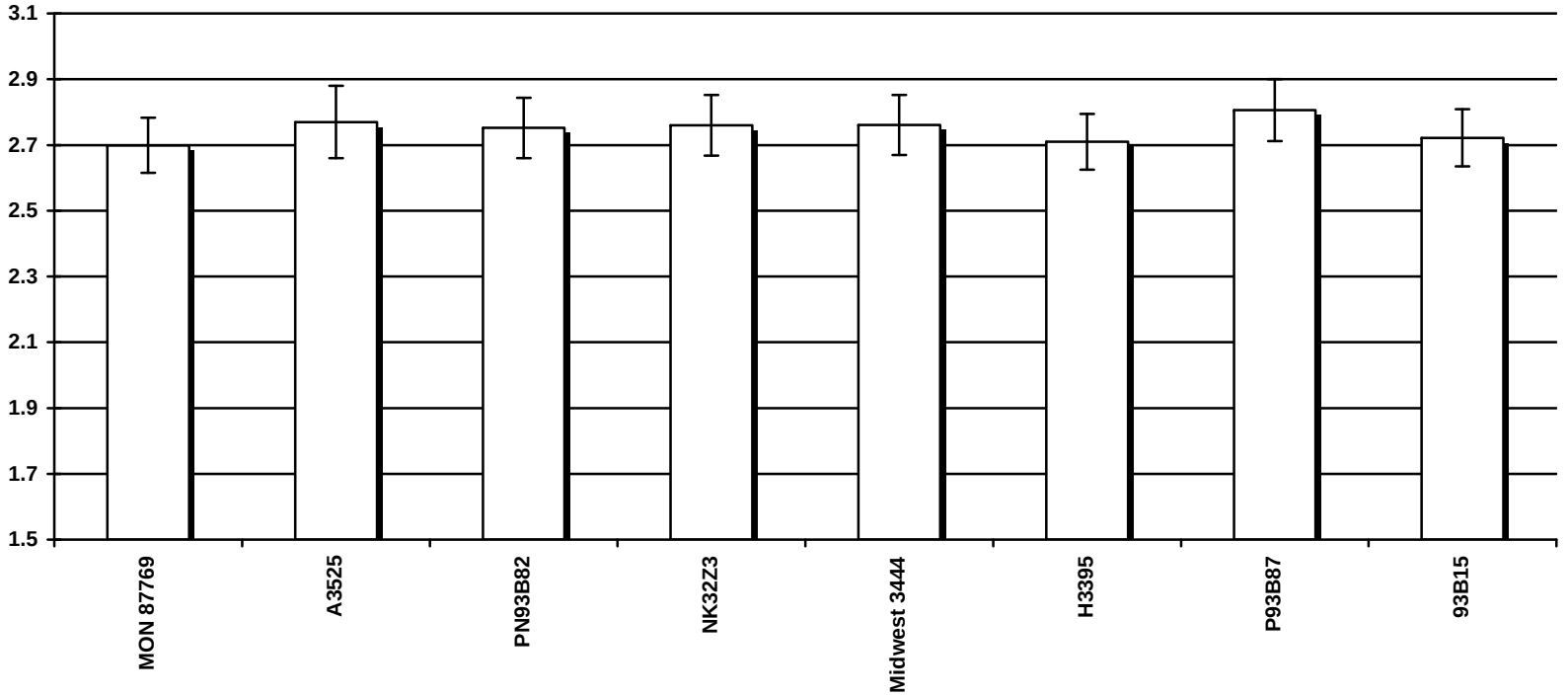


Figure 6. Summary of Bird Weight Day 42 (males and females combined) for broilers fed diets containing MON 87769, Control or Reference soybean

Average Bird Weight day 42 (kg/bird), for broilers fed diets containing soybean meal produced from each variety. Error bars are ± one standard error of the mean (SEM).

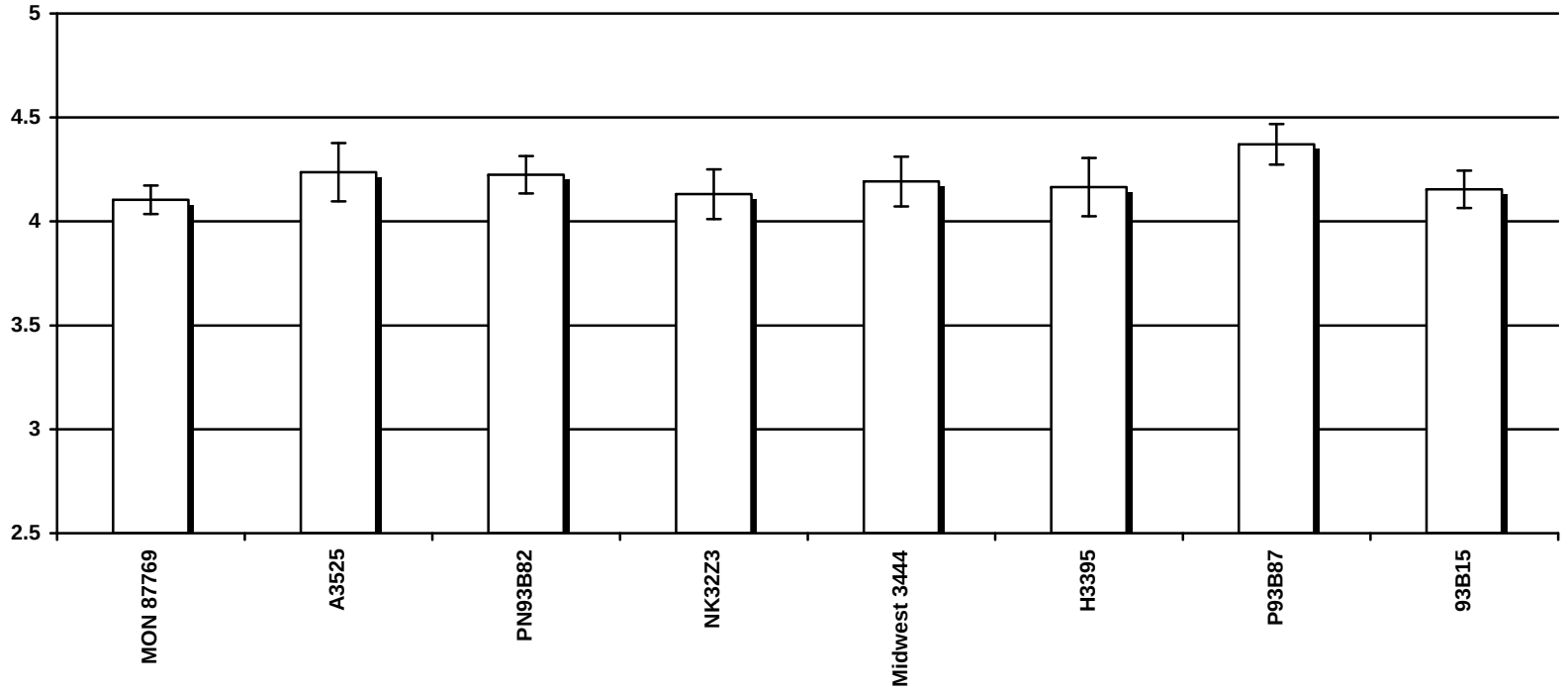


Figure 7. Summary of Average Feed Intake (males and females combined) for broilers fed diets containing MON 87769, or Reference soybean

Average feed intake (kg/bird), for broilers fed diets containing soybean meal produced from each variety. Error bars are ± one standard error of the mean (SEM).

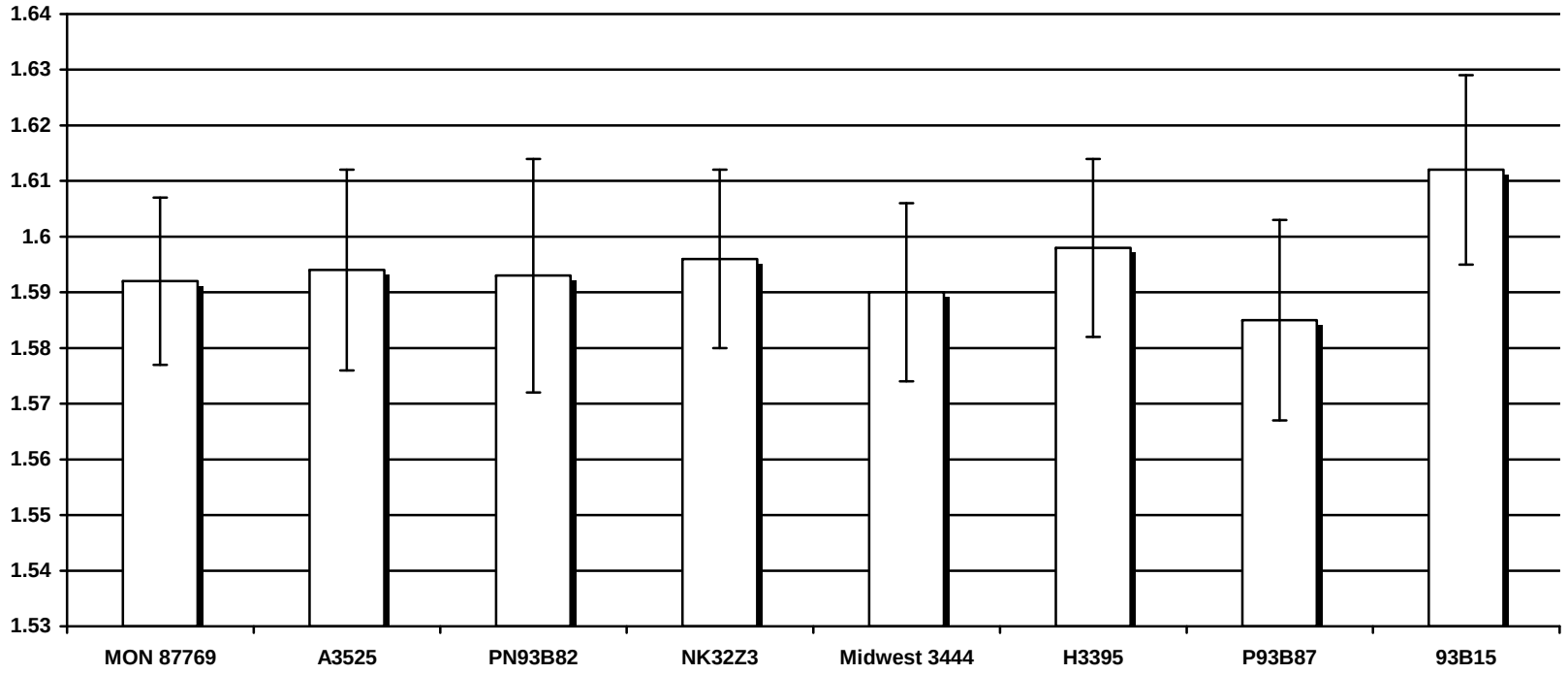


Figure 8. Summary of Adjusted Feed Conversion (males and females combined) for broilers fed diets containing MON 87769, Control or Reference soybean

Adjusted feed conversion (adjusted for R/M birds), for broilers fed diets containing soybean meal produced from each variety. Error bars are ± one standard error of the mean (SEM).

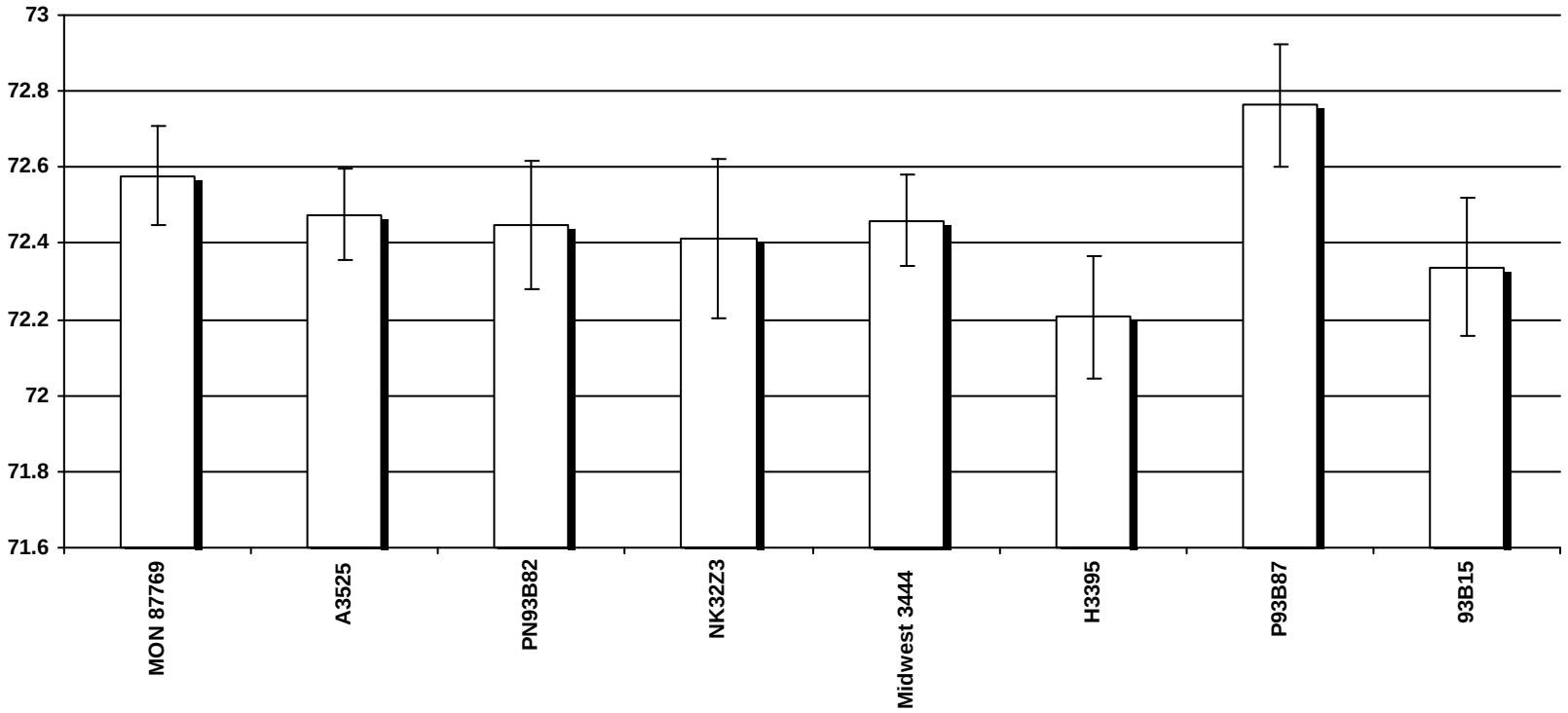


Figure 9. Summary of Percent Chilled Weight (males and females combined) for broilers fed diets containing MON 87769, Control or Reference soybean

Percent Chilled Weight (Chilled Wt/Live Wt x 100), for broilers fed diets containing soybean meal produced from each variety. Error bars are ± one standard error of the mean (SEM).

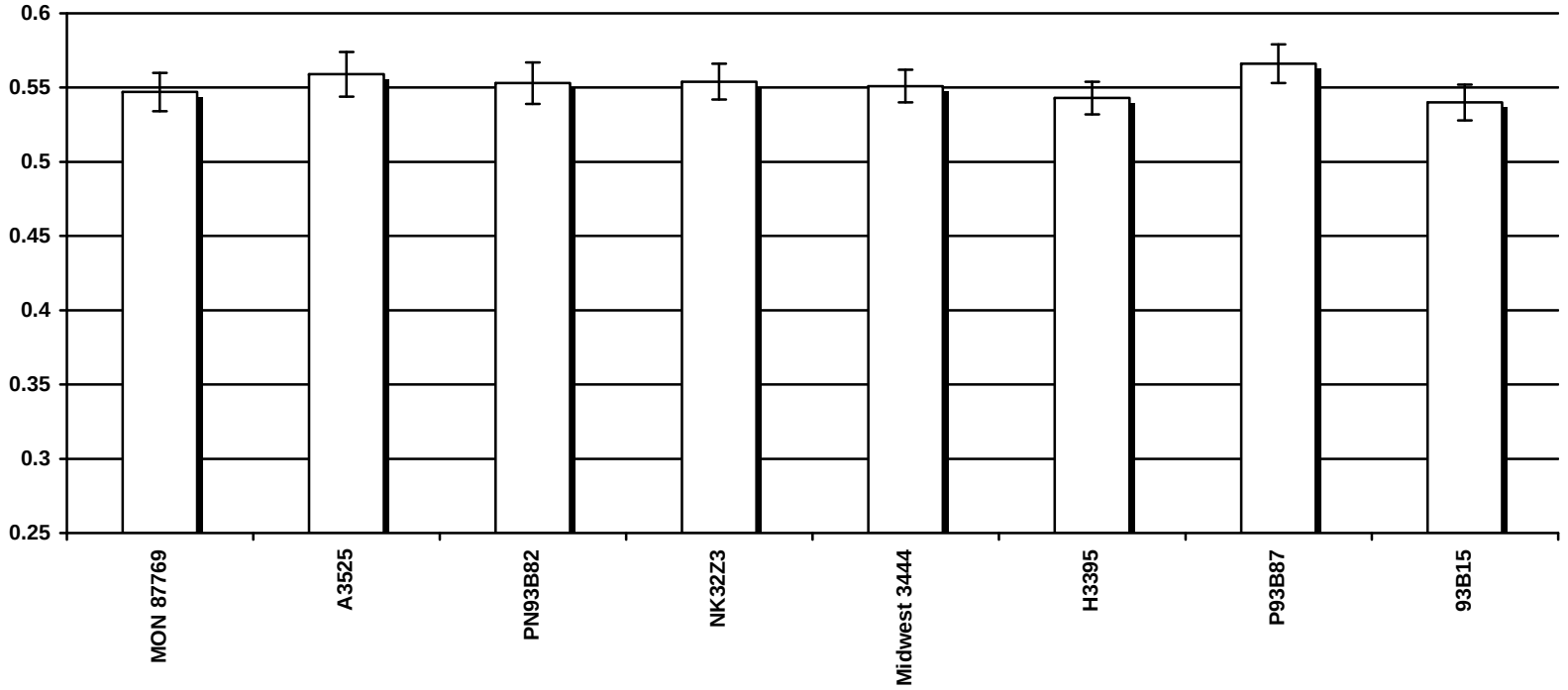


Figure 10. Summary of Average Breast Weight (males and females combined) for broilers fed diets containing MON 87769, Control or Reference soybean

Average Breast Weight (kg/bird), for broilers fed diets containing soybean meal produced from each variety. Error bars are ± one standard error of the mean (SEM).

Appendix 1 - Data Listing
Table 1. Broiler Performance Data

Trt	Block	Treatment	Gender	Pen #	Bird Weight Day 0, g/bird	Bird Weight Day 42, kg/bird	Aver. Feed Intake, kg/bird	Feed:Gain (Feed Consumed/ Wt Gain)	R/M Weight (Wt of removed & dead birds), kg	Adjusted Feed:Gain (adjust for R/M birds)
1	1	P93B87	M	116	40.83	2.79	4.31	1.57	0.12	1.56
			F	105	38.17	2.52	4.12	1.74	1.34	1.64
1	2	P93B87	M	127	39.83	3.18	4.63	1.59	1.54	1.51
			F	136	39.33	2.55	4.04	1.64	0.40	1.62
1	3	P93B87	M	152	40.17	3.15	4.74	1.52	-0.016	1.53
			F	146	39.00	2.67	4.31	1.64	0.24	1.63
1	4	P93B87	M	163	39.83	3.08	4.67	1.54	0.25	1.53
			F	168	39.33	2.46	3.98	1.64	0.15	1.64
1	5	P93B87	M	185	38.83	3.13	4.79	1.55	0.26	1.54
			F	183	38.00	2.52	4.12	1.66	0.17	1.65
2	1	H3395	M	113	39.50	2.80	4.40	1.60	0.28	1.58
			F	115	39.67	2.43	3.81	1.78	1.61	1.66
2	2	H3395	M	123	38.67	3.03	4.53	1.64	2.25	1.52
			F	135	39.00	2.46	3.48	1.79	2.51	1.60
2	3	H3395	M	141	38.00	3.00	4.68	1.58	0.15	1.57
			F	142	39.33	2.45	4.00	1.66	0.16	1.65
2	4	H3395	M	165	38.67	2.88	4.42	1.56	-0.042	1.57
			F	161	39.67	2.48	4.03	1.65	0.21	1.64

Table 1. Broiler Performance Data (continued)

Trt	Block	Treatment	Gender	Pen #	Bird Weight Day 0, g/bird	Bird Weight Day 42, kg/bird	Aver. Feed Intake, kg/bird	Feed:Gain (Feed Consumed/ Wt Gain)	R/M Weight (Wt of removed & dead birds), kg	Adjusted Feed:Gain (adjust for R/M birds)
2	5	H3395	M	173	39.17	3.05	4.64	1.54	0.25	1.53
			F	170	40.00	2.51	3.66	1.78	1.72	1.65
3	1	NK32Z3	M	111	39.50	2.95	4.48	1.54	0.15	1.53
			F	109	40.00	2.56	4.20	1.67	0.26	1.65
3	2	NK32Z3	M	129	38.67	3.06	4.66	1.54	0.13	1.54
			F	124	38.33	2.51	4.11	1.66	0.16	1.66
3	3	NK32Z3	M	148	38.67	3.05	4.20	1.75	2.80	1.57
			F	139	39.83	2.48	4.04	1.66	0.16	1.65
3	4	NK32Z3	M	157	38.67	3.02	3.57	1.86	3.57	1.57
			F	162	40.50	2.46	3.60	1.65	1.00	1.59
3	5	NK32Z3	M	184	39.17	3.08	4.51	1.70	2.51	1.55
			F	178	38.83	2.43	3.94	1.65	0.16	1.64
4	1	A3525	M	110	40.33	3.16	4.56	1.79	4.34	1.53
			F	107	37.50	2.45	3.93	1.76	1.60	1.65
4	2	A3525	M	133	39.17	3.07	4.67	1.54	0.24	1.53
			F	122	39.33	2.51	4.09	1.66	0.062	1.66
4	3	A3525	M	151	38.67	3.04	4.74	1.58	0.27	1.57
			F	144	39.00	2.33	3.37	1.64	0.072	1.64

Table 1. Broiler Performance Data (continued)

Trt	Block	Treatment	Gender	Pen #	Bird Weight Day 0, g/bird	Bird Weight Day 42, kg/bird	Aver. Feed Intake, kg/bird	Feed:Gain (Feed Consumed/ Wt Gain)	R/M Weight (Wt of removed & dead birds), kg	Adjusted Feed:Gain (adjust for R/M birds)
4	4	A3525	M	158	38.17	3.13	4.76	1.54	0.15	1.54
			F	166	39.50	2.51	3.98	1.65	0.45	1.63
4	5	A3525	M	181	40.50	3.02	4.18	1.56	0.44	1.54
			F	175	38.83	2.48	4.07	1.67	0.26	1.66
5	1	MON 87769	M	114	38.83	2.90	4.28	1.83	4.09	1.56
			F	119	39.00	2.50	4.00	1.62	0.15	1.62
5	2	MON 87769	M	126	38.50	3.07	4.22	1.74	2.81	1.57
			F	128	38.67	2.49	4.01	1.64	0.23	1.63
5	3	MON 87769	M	137	40.50	2.79	4.12	1.66	1.55	1.57
			F	149	38.17	2.40	3.72	1.75	1.48	1.64
5	4	MON 87769	M	154	38.50	2.97	4.51	1.57	0.80	1.53
			F	160	37.83	2.50	4.00	1.63	0.17	1.62
5	5	MON 87769	M	172	39.33	2.96	4.24	1.61	1.84	1.51
			F	174	38.00	2.40	3.94	1.67	0.26	1.65
6	1	Midwest 3444	M	108	40.17	3.11	4.64	1.58	0.89	1.54
			F	118	37.50	2.50	4.07	1.65	0.15	1.65
6	2	Midwest 3444	M	130	38.17	2.99	4.34	1.64	1.50	1.55
			F	125	39.33	2.50	3.64	1.65	0.40	1.63

Table 1. Broiler Performance Data (continued)

Trt	Block	Treatment	Gender	Pen #	Bird Weight Day 0, g/bird	Bird Weight Day 42, kg/bird	Aver. Feed Intake, kg/bird	Feed:Gain (Feed Consumed/ Wt Gain)	R/M Weight (Wt of removed & dead birds), kg	Adjusted Feed:Gain (adjust for R/M birds)
6	3	Midwest 3444	M	140	39.50	2.95	4.53	1.57	0.38	1.56
			F	143	39.17	2.54	4.15	1.66	0.26	1.65
6	4	Midwest 3444	M	164	38.50	3.10	4.62	1.51	0.23	1.50
			F	167	38.83	2.53	3.95	1.59	-0.060	1.60
6	5	Midwest 3444	M	171	39.50	3.00	4.33	1.78	3.21	1.58
			F	182	38.83	2.41	3.65	1.71	0.95	1.65
7	1	93B15	M	112	39.17	2.96	4.61	1.61	0.44	1.59
			F	117	39.50	2.42	3.94	1.66	0.16	1.65
7	2	93B15	M	131	40.00	2.94	4.12	1.58	0.53	1.55
			F	132	39.00	2.45	3.99	1.66	-0.020	1.66
7	3	93B15	M	138	40.00	2.92	4.42	1.55	0.22	1.55
			F	145	39.33	2.55	4.18	1.69	0	1.70
7	4	93B15	M	159	38.67	3.02	4.54	1.68	1.99	1.56
			F	153	38.33	2.39	3.89	1.66	0.16	1.65
7	5	93B15	M	180	40.00	3.06	3.77	2.76	9.29	1.58
			F	176	37.67	2.53	4.10	1.64	0.27	1.63
8	1	PN93B82	M	106	39.33	2.93	4.28	2.07	6.12	1.54
			F	104	38.67	2.57	4.15	1.64	0.068	1.64

Table 1. Broiler Performance Data (continued)

Trt	Block	Treatment	Gender	Pen #	Bird Weight Day 0, g/bird	Bird Weight Day 42, kg/bird	Aver. Feed Intake, kg/bird	Feed:Gain (Feed Consumed/ Wt Gain)	R/M Weight (Wt of removed & dead birds), kg	Adjusted Feed:Gain (adjust for R/M birds)
8	2	PN93B82	M	121	39.67	3.12	4.70	1.53	0.26	1.52
			F	134	39.67	2.42	3.90	1.64	0.090	1.64
8	3	PN93B82	M	150	40.67	3.04	4.57	1.52	-0.038	1.53
			F	147	38.50	2.52	4.15	1.67	0.016	1.68
8	4	PN93B82	M	156	38.83	3.02	3.92	1.64	1.88	1.53
			F	155	39.50	2.45	4.01	1.66	0.082	1.66
8	5	PN93B82	M	179	39.17	3.01	4.53	1.69	3.03	1.53
			F	177	39.50	2.44	4.03	1.68	0.22	1.67

Appendix 1 - Data Listing
Table 2A. Broiler Process Data (weights, by pen)

Trt #	Block	Treatment	Gender	Pen #	Avg Processing Live Body Wt, kg/bird	Mean Fat Pad Wt, kg	Mean Chilled Wt, kg	Mean Wings Wt, kg	Mean Drum Wt, kg	Mean Thigh Wt, kg	Mean Breast Wt, kg
1	1	P93B87	M	116	2.68	0.036	1.93	0.21	0.28	0.32	0.52
			F	105	2.53	0.045	1.86	0.19	0.24	0.30	0.56
1	2	P93B87	M	127	3.07	0.041	2.22	0.24	0.31	0.37	0.62
			F	136	2.58	0.047	1.88	0.19	0.25	0.31	0.56
1	3	P93B87	M	152	2.99	0.037	2.16	0.24	0.31	0.35	0.60
			F	146	2.64	0.044	1.92	0.20	0.26	0.31	0.56
1	4	P93B87	M	163	2.94	0.037	2.13	0.23	0.30	0.35	0.59
			F	168	2.45	0.043	1.78	0.19	0.24	0.29	0.50
1	5	P93B87	M	185	3.00	0.043	2.18	0.23	0.31	0.36	0.61
			F	183	2.50	0.047	1.85	0.19	0.25	0.30	0.54
2	1	H3395	M	113	2.69	0.037	1.95	0.21	0.27	0.32	0.55
			F	115	2.42	0.050	1.75	0.18	0.23	0.28	0.49
2	2	H3395	M	123	2.97	0.034	2.15	0.23	0.30	0.37	0.61
			F	135	2.46	0.034	1.80	0.19	0.24	0.29	0.55
2	3	H3395	M	141	2.87	0.042	2.05	0.22	0.29	0.34	0.56
			F	142	2.45	0.049	1.76	0.19	0.23	0.28	0.51

Table 2A. Broiler Process Data (weights, by pen) (continued)

Trt #	Block	Treatment	Gender	Pen #	Avg Processing Live Body Wt, kg/bird	Mean Fat Pad Wt, kg	Mean Chilled Wt, kg	Mean Wings Wt, kg	Mean Drum Wt, kg	Mean Thigh Wt, kg	Mean Breast Wt, kg
2	4	H3395	M	165	2.76	0.035	1.98	0.21	0.27	0.32	0.56
			F	161	2.48	0.051	1.79	0.19	0.23	0.29	0.52
2	5	H3395	M	173	2.91	0.040	2.09	0.22	0.29	0.34	0.57
			F	170	2.50	0.045	1.82	0.19	0.25	0.30	0.52
3	1	NK32Z3	M	111	2.84	0.037	2.02	0.22	0.28	0.33	0.58
			F	109	2.55	0.053	1.85	0.19	0.24	0.30	0.53
3	2	NK32Z3	M	129	2.93	0.042	2.13	0.22	0.30	0.37	0.59
			F	124	2.52	0.050	1.84	0.19	0.24	0.29	0.53
3	3	NK32Z3	M	148	2.91	0.041	2.11	0.22	0.29	0.35	0.58
			F	139	2.49	0.046	1.79	0.19	0.24	0.29	0.52
3	4	NK32Z3	M	157	2.89	0.047	2.08	0.22	0.29	0.34	0.58
			F	162	2.45	0.044	1.78	0.19	0.23	0.29	0.51
3	5	NK32Z3	M	184	2.94	0.044	2.15	0.23	0.30	0.36	0.61
			F	178	2.44	0.052	1.78	0.19	0.24	0.28	0.51
4	1	A3525	M	110	3.04	0.043	2.18	0.24	0.31	0.37	0.61
			F	107	2.48	0.052	1.80	0.19	0.24	0.29	0.52
4	2	A3525	M	133	2.97	0.039	2.15	0.23	0.30	0.36	0.60
			F	122	2.49	0.049	1.82	0.19	0.23	0.30	0.51

Table 2A. Broiler Process Data (weights, by pen) (continued)

Trt #	Block	Treatment	Gender	Pen #	Avg Processing Live Body Wt, kg/bird	Mean Fat Pad Wt, kg	Mean Chilled Wt, kg	Mean Wings Wt, kg	Mean Drum Wt, kg	Mean Thigh Wt, kg	Mean Breast Wt, kg
4	3	A3525	M	151	2.92	0.042	2.12	0.23	0.29	0.35	0.60
			F	144	2.35	0.037	1.70	0.18	0.23	0.27	0.49
4	4	A3525	M	158	3.01	0.044	2.19	0.23	0.30	0.38	0.61
			F	166	2.51	0.049	1.83	0.19	0.24	0.30	0.53
4	5	A3525	M	181	2.89	0.036	2.08	0.22	0.29	0.33	0.59
			F	175	2.45	0.047	1.78	0.19	0.23	0.29	0.52
5	1	MON 87769	M	114	2.80	0.035	2.04	0.22	0.28	0.34	0.57
			F	119	2.52	0.037	1.83	0.19	0.24	0.28	0.53
5	2	MON 87769	M	126	2.97	0.042	2.15	0.23	0.30	0.37	0.58
			F	128	2.50	0.041	1.82	0.19	0.24	0.29	0.50
5	3	MON 87769	M	137	2.70	0.036	1.93	0.23	0.29	0.33	0.59
			F	149	2.37	0.043	1.72	0.19	0.23	0.28	0.49
5	4	MON 87769	M	154	2.85	0.039	2.06	0.22	0.28	0.33	0.59
			F	160	2.52	0.045	1.83	0.20	0.24	0.30	0.52
5	5	MON 87769	M	172	2.86	0.033	2.08	0.22	0.28	0.34	0.60
			F	174	2.36	0.042	1.74	0.19	0.23	0.28	0.50
6	1	Midwest 3444	M	108	2.98	0.049	2.15	0.23	0.30	0.36	0.60
			F	118	2.50	0.040	1.81	0.19	0.24	0.29	0.52

Table 2A. Broiler Process Data (weights, by pen) (continued)

Trt #	Block	Treatment	Gender	Pen #	Avg Processing Live Body Wt, kg/bird	Mean Fat Pad Wt, kg	Mean Chilled Wt, kg	Mean Wings Wt, kg	Mean Drum Wt, kg	Mean Thigh Wt, kg	Mean Breast Wt, kg
6	2	Midwest 3444	M	130	2.87	0.041	2.08	0.22	0.28	0.35	0.59
			F	125	2.50	0.050	1.82	0.19	0.25	0.30	0.51
6	3	Midwest 3444	M	140	2.84	0.045	2.06	0.22	0.28	0.34	0.57
			F	143	2.56	0.046	1.85	0.20	0.25	0.31	0.52
6	4	Midwest 3444	M	164	2.97	0.038	2.13	0.24	0.29	0.36	0.58
			F	167	2.52	0.049	1.83	0.19	0.24	0.29	0.52
6	5	Midwest 3444	M	171	2.87	0.048	2.09	0.22	0.30	0.34	0.57
			F	182	2.41	0.046	1.76	0.18	0.23	0.29	0.52
7	1	93B15	M	112	2.85	0.043	2.06	0.22	0.29	0.35	0.56
			F	117	2.41	0.040	1.74	0.19	0.23	0.28	0.49
7	2	93B15	M	131	2.84	0.046	2.03	0.22	0.28	0.35	0.56
			F	132	2.45	0.045	1.80	0.19	0.24	0.29	0.52
7	3	93B15	M	138	2.78	0.038	2.00	0.22	0.28	0.32	0.56
			F	145	2.54	0.049	1.83	0.19	0.24	0.29	0.53
7	4	93B15	M	159	2.90	0.042	2.10	0.23	0.29	0.34	0.59
			F	153	2.39	0.046	1.72	0.19	0.23	0.27	0.48
7	5	93B15	M	180	2.94	0.043	2.16	0.23	0.30	0.36	0.59
			F	176	2.49	0.047	1.80	0.19	0.24	0.29	0.53

Table 2A. Broiler Process Data (weights, by pen) (continued)

Trt #	Block	Treatment	Gender	Pen #	Avg Processing Live Body Wt, kg/bird	Mean Fat Pad Wt, kg	Mean Chilled Wt, kg	Mean Wings Wt, kg	Mean Drum Wt, kg	Mean Thigh Wt, kg	Mean Breast Wt, kg
8	1	PN93B82	M	106	2.84	0.045	2.06	0.21	0.28	0.34	0.59
			F	104	2.58	0.054	1.88	0.20	0.25	0.31	0.53
8	2	PN93B82	M	121	3.00	0.043	2.17	0.23	0.30	0.36	0.61
			F	134	2.42	0.043	1.73	0.18	0.24	0.28	0.49
8	3	PN93B82	M	150	2.92	0.039	2.11	0.23	0.29	0.36	0.60
			F	147	2.54	0.049	1.82	0.19	0.24	0.29	0.53
8	4	PN93B82	M	156	2.92	0.038	2.12	0.23	0.29	0.35	0.59
			F	155	2.45	0.044	1.77	0.18	0.23	0.29	0.53
8	5	PN93B82	M	179	2.87	0.038	2.08	0.21	0.29	0.35	0.57
			F	177	2.41	0.042	1.77	0.18	0.24	0.29	0.50

Appendix 1 - Data Listing
Table 2B. Broiler Process Data (percentages, by pen)

Trt #	Block	Treatment	Gender	Pen #	Percent Chilled Weight (Chilled Wt / Live Wt x 100)	Percent Fat Pad Weight (Fat Pad Wt / Live Wt x 100)	Percent Breast Weight (Breast Wt / Chilled Wt x 100)	Percent Wing Weight (Wing Wt / Chilled Wt x 100)	Percent Thigh Weight (Thigh Wt / Chilled Wt x 100)	Percent Drum Weight (Drum Wt / Chilled Wt x 100)
1	1	P93B87	M	116	72.02	1.31	26.99	11.13	16.74	14.34
			F	105	73.35	1.77	30.15	10.35	15.92	13.02
1	2	P93B87	M	127	72.54	1.34	27.93	10.73	16.68	14.04
			F	136	72.95	1.81	29.53	10.23	16.37	13.07
1	3	P93B87	M	152	72.32	1.25	27.86	10.93	16.14	14.15
			F	146	72.70	1.67	29.01	10.39	16.14	13.40
1	4	P93B87	M	163	72.56	1.26	27.71	10.71	16.60	14.05
			F	168	72.62	1.75	28.11	10.65	16.55	13.62
1	5	P93B87	M	185	72.80	1.45	27.89	10.62	16.62	14.11
			F	183	73.76	1.86	29.22	10.20	16.02	13.44
2	1	H3395	M	113	72.28	1.34	28.12	10.73	16.48	14.08
			F	115	72.44	2.07	28.06	10.58	16.23	13.23
2	2	H3395	M	123	72.63	1.13	28.22	10.84	17.38	13.92
			F	135	73.02	1.38	30.34	10.66	16.27	13.18
2	3	H3395	M	141	71.43	1.46	27.41	10.59	16.48	14.21
			F	142	71.88	1.97	29.14	10.72	16.15	13.13

Table 2B. Broiler Process Data (percentages, by pen) (continued)

Trt #	Block	Treatment	Gender	Pen #	Percent Chilled Weight (Chilled Wt / Live Wt x 100)	Percent Fat Pad Weight (Fat Pad Wt / Live Wt x 100)	Percent Breast Weight (Breast Wt / Chilled Wt x 100)	Percent Wing Weight (Wing Wt / Chilled Wt x 100)	Percent Thigh Weight (Thigh Wt / Chilled Wt x 100)	Percent Drum Weight (Drum Wt / Chilled Wt x 100)
2	4	H3395	M	165	71.53	1.28	28.30	10.62	16.37	13.41
			F	161	72.36	2.05	28.86	10.58	16.30	12.97
2	5	H3395	M	173	72.00	1.36	27.16	10.72	16.25	14.03
			F	170	72.50	1.80	28.40	10.33	16.63	13.58
3	1	NK32Z3	M	111	71.02	1.31	28.59	10.69	16.30	13.67
			F	109	72.59	2.09	28.69	10.39	16.12	13.21
3	2	NK32Z3	M	129	72.75	1.44	27.63	10.57	17.19	14.11
			F	124	73.18	1.98	28.71	10.10	15.47	12.78
3	3	NK32Z3	M	148	72.30	1.40	27.72	10.42	16.64	14.00
			F	139	71.80	1.87	28.79	10.35	16.20	13.45
3	4	NK32Z3	M	157	71.98	1.63	27.76	10.60	16.26	13.88
			F	162	72.77	1.78	28.87	10.53	16.40	13.09
3	5	NK32Z3	M	184	73.09	1.47	28.37	10.66	16.49	13.88
			F	178	72.65	2.11	28.81	10.60	16.00	13.52
4	1	A3525	M	110	71.97	1.41	27.84	10.79	16.98	14.10
			F	107	72.65	2.09	28.90	10.42	16.02	13.48

Table 2B. Broiler Process Data (percentages, by pen) (continued)

Trt #	Block	Treatment	Gender	Pen #	Percent Chilled Weight (Chilled Wt / Live Wt x 100)	Percent Fat Pad Weight (Fat Pad Wt / Live Wt x 100)	Percent Breast Weight (Breast Wt / Chilled Wt x 100)	Percent Wing Weight (Wing Wt / Chilled Wt x 100)	Percent Thigh Weight (Thigh Wt / Chilled Wt x 100)	Percent Drum Weight (Drum Wt / Chilled Wt x 100)
4	2	A3525	M	133	72.34	1.32	27.98	10.60	16.87	14.10
			F	122	72.91	1.99	28.04	10.22	16.39	12.77
4	3	A3525	M	151	72.57	1.42	28.14	10.62	16.44	13.61
			F	144	72.07	1.58	28.86	10.93	15.86	13.59
4	4	A3525	M	158	72.68	1.44	28.02	10.32	17.22	13.72
			F	166	72.88	1.93	29.22	10.35	16.36	13.23
4	5	A3525	M	181	71.94	1.24	28.40	10.66	15.90	13.89
			F	175	72.75	1.94	29.31	10.63	16.54	12.76
5	1	MON 87769	M	114	72.61	1.22	27.79	11.00	16.56	13.88
			F	119	72.64	1.45	28.82	10.21	15.52	13.02
5	2	MON 87769	M	126	72.46	1.42	26.75	10.64	17.41	14.03
			F	128	72.75	1.66	27.71	10.45	16.15	13.20
5	3	MON 87769	M	137	71.84	1.31	31.73	12.69	17.75	15.94
			F	149	72.70	1.80	28.61	10.89	16.20	13.59
5	4	MON 87769	M	154	72.19	1.36	28.51	10.60	15.98	13.84
			F	160	72.58	1.77	28.62	10.69	16.16	13.18

Table 2B. Broiler Process Data (percentages, by pen) (continued)

Trt #	Block	Treatment	Gender	Pen #	Percent Chilled Weight (Chilled Wt / Live Wt x 100)	Percent Fat Pad Weight (Fat Pad Wt / Live Wt x 100)	Percent Breast Weight (Breast Wt / Chilled Wt x 100)	Percent Wing Weight (Wing Wt / Chilled Wt x 100)	Percent Thigh Weight (Thigh Wt / Chilled Wt x 100)	Percent Drum Weight (Drum Wt / Chilled Wt x 100)
5	5	MON 87769	M	172	72.54	1.15	28.73	10.70	16.43	13.46
			F	174	73.46	1.81	28.70	10.67	15.99	13.47
6	1	Midwest 3444	M	108	72.20	1.64	27.98	10.55	16.74	14.07
			F	118	72.35	1.61	29.02	10.47	16.25	13.14
6	2	Midwest 3444	M	130	72.50	1.44	28.14	10.54	16.86	13.27
			F	125	72.76	2.01	28.01	10.45	16.56	13.62
6	3	Midwest 3444	M	140	72.27	1.56	27.84	10.68	16.35	13.75
			F	143	72.21	1.82	28.28	10.62	16.80	13.34
6	4	Midwest 3444	M	164	71.78	1.29	27.36	11.01	16.68	13.67
			F	167	72.76	1.95	28.52	10.48	16.08	13.36
6	5	Midwest 3444	M	171	72.71	1.67	27.27	10.63	16.24	14.38
			F	182	73.05	1.91	29.16	10.12	16.69	13.21
7	1	93B15	M	112	72.23	1.48	27.24	10.74	16.75	14.20
			F	117	72.38	1.66	27.91	10.70	15.99	13.21
7	2	93B15	M	131	71.64	1.61	27.61	10.78	16.96	14.02
			F	132	73.21	1.84	28.93	10.53	16.02	13.12

Table 2B. Broiler Process Data (percentages, by pen) (continued)

Trt #	Block	Treatment	Gender	Pen #	Percent Chilled Weight (Chilled Wt / Live Wt x 100)	Percent Fat Pad Weight (Fat Pad Wt / Live Wt x 100)	Percent Breast Weight (Breast Wt / Chilled Wt x 100)	Percent Wing Weight (Wing Wt / Chilled Wt x 100)	Percent Thigh Weight (Thigh Wt / Chilled Wt x 100)	Percent Drum Weight (Drum Wt / Chilled Wt x 100)
7	3	93B15	M	138	71.76	1.35	27.90	10.79	16.21	13.88
			F	145	72.03	1.93	28.77	10.43	16.12	13.30
7	4	93B15	M	159	72.64	1.42	27.93	10.78	16.24	13.96
			F	153	71.96	1.94	27.77	10.87	15.83	13.57
7	5	93B15	M	180	73.25	1.48	27.24	10.71	16.71	13.79
			F	176	72.28	1.87	29.21	10.30	16.30	13.23
8	1	PN93B82	M	106	72.54	1.61	28.73	10.30	16.28	13.78
			F	104	73.06	2.11	27.94	10.56	16.62	13.10
8	2	PN93B82	M	121	72.20	1.43	28.31	10.79	16.77	13.76
			F	134	71.74	1.78	27.98	10.58	16.46	13.69
8	3	PN93B82	M	150	72.13	1.29	28.23	10.74	16.78	13.87
			F	147	71.82	1.94	29.05	10.41	15.67	13.23
8	4	PN93B82	M	156	72.81	1.28	27.86	10.77	16.61	13.81
			F	155	72.25	1.80	29.76	10.42	16.34	13.02
8	5	PN93B82	M	179	72.47	1.31	27.29	10.35	16.93	14.14
			F	177	73.47	1.71	28.58	10.49	16.35	13.50

Appendix 1 - Data Listing
Table 3. Moisture, protein & fat analysis of breast and thigh meat

Trt #	Block	Treatment	Gender	Pen #	Breast Moisture (g/100g)	Breast Protein (g/100g)	Breast Fat (g/100g)	Thigh Moisture (g/100g)	Thigh Protein (g/100g)	Thigh Fat (g/100g)
1	1	P93B87	M	116	75.07	23.43	1.28	77.00	20.73	1.25
			F	105	75.35	23.01	1.08	77.59	20.14	1.15
1	2	P93B87	M	127	76.29	21.98	1.24	77.04	20.67	1.36
			F	136	75.09	23.24	1.15	76.58	21.73	1.28
1	3	P93B87	M	152	74.99	23.19	1.44	76.65	20.55	1.13
			F	146	75.05	22.88	1.06	76.62	21.08	1.37
1	4	P93B87	M	163	75.43	22.65	1.28	77.69	20.73	1.98
			F	168	75.18	23.26	1.09	76.70	21.24	2.17
1	5	P93B87	M	185	75.76	23.32	0.60	77.78	20.86	0.93
			F	183	75.28	23.09	0.93	77.63	20.21	1.84
2	1	H3395	M	113	74.92	23.68	1.08	77.17	20.32	1.38
			F	115	75.67	22.83	0.75	77.34	19.65	1.80
2	2	H3395	M	123	74.65	23.73	1.00	76.57	19.50	2.79
			F	135	75.20	23.39	0.68	77.09	20.18	1.14
2	3	H3395	M	141	75.04	23.42	1.14	77.10	20.44	1.36
			F	142	75.01	23.76	0.66	76.23	21.71	1.16
2	4	H3395	M	165	75.33	23.09	0.88	77.03	20.92	1.41
			F	161	75.10	23.27	0.90	76.67	20.89	1.34

Table 3. Moisture, protein & fat analysis of breast and thigh meat (continued)

Trt #	Block	Treatment	Gender	Pen #	Breast Moisture (g/100g)	Breast Protein (g/100g)	Breast Fat (g/100g)	Thigh Moisture (g/100g)	Thigh Protein (g/100g)	Thigh Fat (g/100g)
2	5	H3395	M	173	74.95	23.37	1.28	77.40	20.70	1.72
			F	170	75.56	22.73	0.97	76.80	20.35	1.60
3	1	NK32Z3	M	111	75.03	23.10	1.39	77.78	19.64	1.49
			F	109	75.12	23.58	0.54	76.88	21.16	0.98
3	2	NK32Z3	M	129	75.62	22.62	1.09	77.98	19.24	1.22
			F	124	74.41	24.06	1.37	77.09	19.84	0.94
3	3	NK32Z3	M	148	75.23	23.23	1.21	77.27	21.14	1.34
			F	139	75.08	22.96	0.85	76.27	21.59	1.37
3	4	NK32Z3	M	157	74.47	23.89	1.14	77.21	21.29	1.63
			F	162	75.18	23.47	0.72	77.52	21.18	1.21
3	5	NK32Z3	M	184	75.36	22.78	1.07	77.27	19.67	2.40
			F	178	75.42	23.32	0.65	77.48	20.85	0.90
4	1	A3525	M	110	76.56	22.00	1.18	77.18	20.54	1.04
			F	107	74.49	23.82	0.86	76.89	20.54	1.04
4	2	A3525	M	133	74.62	23.07	1.49	76.86	21.10	1.87
			F	122	75.24	23.14	0.84	76.67	21.08	1.26
4	3	A3525	M	151	75.59	22.91	0.77	77.41	19.18	1.53
			F	144	75.61	23.19	0.67	76.99	20.67	1.36

Table 3. Moisture, protein & fat analysis of breast and thigh meat (continued)

Trt #	Block	Treatment	Gender	Pen #	Breast Moisture (g/100g)	Breast Protein (g/100g)	Breast Fat (g/100g)	Thigh Moisture (g/100g)	Thigh Protein (g/100g)	Thigh Fat (g/100g)
4	4	A3525	M	158	74.95	23.07	1.00	76.99	21.31	1.34
			F	166	75.75	22.50	0.89	76.95	21.39	1.11
4	5	A3525	M	181	75.25	23.43	0.96	77.49	18.99	1.23
			F	175	77.03	21.69	0.82	76.97	21.14	1.05
5	1	MON 87769	M	114	76.10	22.79	0.86	77.32	20.92	1.39
			F	119	74.90	23.71	0.67	76.74	20.26	0.89
5	2	MON 87769	M	126	74.39	23.26	1.93	76.69	20.63	1.08
			F	128	75.51	22.87	0.88	76.80	20.47	1.81
5	3	MON 87769	M	137	75.92	22.50	1.10	77.11	20.88	1.24
			F	149	74.70	23.75	0.58	76.87	21.43	0.91
5	4	MON 87769	M	154	74.45	23.94	1.37	77.55	20.61	1.94
			F	160	74.98	23.11	1.48	76.85	20.89	1.12
5	5	MON 87769	M	172	75.34	23.15	0.86	77.73	20.43	1.33
			F	174	75.71	22.76	1.15	76.17	20.24	1.89
6	1	Midwest 3444	M	108	75.25	23.44	0.89	77.00	20.27	1.71
			F	118	74.99	22.94	0.87	76.36	20.96	1.09
6	2	Midwest 3444	M	130	74.98	22.84	0.77	76.77	20.76	2.20
			F	125	75.56	22.92	0.89	77.37	20.57	2.02

Table 3. Moisture, protein & fat analysis of breast and thigh meat (continued)

Trt #	Block	Treatment	Gender	Pen #	Breast Moisture (g/100g)	Breast Protein (g/100g)	Breast Fat (g/100g)	Thigh Moisture (g/100g)	Thigh Protein (g/100g)	Thigh Fat (g/100g)
6	3	Midwest 3444	M	140	75.02	23.39	1.16	76.89	21.25	1.45
			F	143	75.21	23.40	0.82	76.58	21.66	1.31
6	4	Midwest 3444	M	164	74.99	23.73	0.92	76.69	21.34	1.47
			F	167	75.04	23.45	1.04	77.64	19.35	1.19
6	5	Midwest 3444	M	171	75.53	23.21	0.92	76.78	20.12	1.14
			F	182	74.91	23.46	0.77	76.71	20.96	1.44
7	1	93B15	M	112	74.55	23.42	1.14	76.41	20.60	1.61
			F	117	74.66	24.03	1.05	77.01	20.52	1.04
7	2	93B15	M	131	75.94	22.57	0.81	77.51	20.62	1.42
			F	132	75.29	23.22	0.83	76.78	21.57	0.94
7	3	93B15	M	138	74.18	24.02	1.39	76.03	21.75	1.85
			F	145	75.23	23.59	0.66	77.04	20.34	1.47
7	4	93B15	M	159	74.71	23.24	0.97	76.38	21.17	1.32
			F	153	74.72	23.70	0.93	76.38	19.35	1.19
7	5	93B15	M	180	75.15	22.77	1.15	77.31	20.71	1.79
			F	176	75.74	23.23	0.75	76.91	21.06	1.58
8	1	PN93B82	M	106	75.30	23.38	0.91	76.90	20.89	1.86
			F	104	75.84	22.48	0.95	77.40	20.82	1.92

Table 3. Moisture, protein & fat analysis of breast and thigh meat (continued)

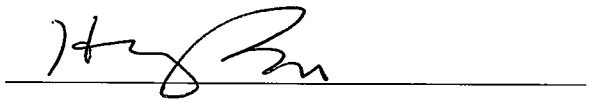
Trt #	Block	Treatment	Gender	Pen #	Breast Moisture (g/100g)	Breast Protein (g/100g)	Breast Fat (g/100g)	Thigh Moisture (g/100g)	Thigh Protein (g/100g)	Thigh Fat (g/100g)
8	2	PN93B82	M	121	74.93	22.82	1.19	76.73	21.39	1.27
			F	134	75.37	23.51	0.54	77.10	21.51	1.33
8	3	PN93B82	M	150	75.21	22.97	1.05	76.80	21.79	1.92
			F	147	75.05	23.43	0.73	76.48	21.14	1.33
8	4	PN93B82	M	156	74.94	22.95	1.31	76.61	21.63	1.21
			F	155	75.03	22.81	1.36	76.35	20.36	1.81
8	5	PN93B82	M	179	75.37	22.83	0.91	77.38	20.29	1.68
			F	177	75.11	23.34	0.97	77.09	20.99	1.37

Appendix 2. Standard error of means from model (1) and (2).

Model1_se*: pooled standard error of means for model (1)
Model2_test_se*: test standard error of means for model (2)
Model2_reference_se*: reference/control standard error of means for model (2)
*N=10 pen for each diet treatment. Model (2) reference_se is estimated from the population of the control and six reference diets.

table	Variable	Model1_se	Model2_ test_se	Model2_ reference_se
1	Bird Weight Day 0, g/bird	0.2253	0.2618	0.0990
2	Bird Weight Day 42, kg/bird	0.0244	0.0317	0.0120
3	Average Feed Intake, kg/bird	0.0743	0.0877	0.0332
4	Average Bird Gain Day 42, kg/bird	0.0245	0.0317	0.0120
5	Feed Conversion (Feed Consumed/ Wt Gain)	0.0485	0.0494	0.0187
6	R/M Weight (Wt of removed and dead birds), kg	0.4498	0.4488	0.1696
7	Adjusted Feed Conversion (adjusted for R/M birds)	0.0061	0.0083	0.0031
8	Average Pre-Processing Live Body Weight, kg/bird	0.0240	0.0300	0.0114
9	Chilled Weight, kg/bird	0.0183	0.0257	0.0097
10	Fat Pad Weight, kg/bird	0.0013	0.0015	0.0006
11	Average Breast Weight, kg/bird	0.0060	0.0088	0.0033
12	Average Wing Weight, kg/bird	0.0020	0.0024	0.0009
13	Average Thigh Weight, kg/bird	0.0038	0.0046	0.0017
14	Average Drum Weight, kg/bird	0.0027	0.0042	0.0016
15	Percent Fat Pad Weight (Fat Pad Wt / Live Wt x 100)	0.0471	0.0567	0.0214
16	Percent Chilled Weight (Chilled Wt/Live Wt x 100)	0.1327	0.1691	0.0639
17	Percent Breast Weight (Breast Wt/ Chilled Wt x 100)	0.2223	0.2127	0.0804
18	Percent Wing Weight (Wing Wt/ Chilled Wt x 100)	0.0881	0.0843	0.0319
19	Percent Thigh Weight (Thigh Wt/ Chilled Wt x 100)	0.1122	0.1076	0.0407
20	Percent Drum Weight (Drum Wt/ Chilled Wt x 100)	0.1083	0.1018	0.0385
21	Breast Moisture (g/100 g)	0.1528	0.1664	0.0629
22	Breast Protein (g/100 g)	0.1450	0.1920	0.0726
23	Breast Fat (g/100 g)	0.0752	0.0731	0.0276
24	Thigh Moisture (g/100 g)	0.1223	0.1704	0.0644
25	Thigh Protein (g/100 g)	0.1986	0.2115	0.0800
26	Thigh Fat (g/ 100g)	0.1171	0.1170	0.0442

Report Submitted by:



7/25/08

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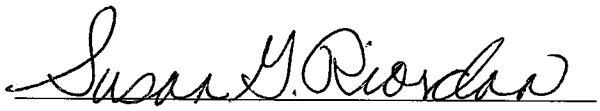
Monsanto Company

Date



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