CQR FINAL REPORT

Study Title

Comparison of Broiler Performance and Carcass Parameters When Fed Diets Containing Soybean Meal Produced from MON 87705, Control, or Reference Soybean

Study Director

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Study Completed On

July 28, 2009

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Study Project ID

CQR Study Number: MN-08-4
Monsanto Study No. CQR-08-271

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 formulation
- 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
Sponsor Representative	7/15/09 Date
Study Director	28JUL09 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 87705, Control, or Reference Soybeans

Study Number: CQR-08-271

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 Quality Assurance Unit on the study reported herein.

Dates of Inspection/Audit	Phase	Date Reported to Study Director	Date Reported to Management
08/06/2008	Feed mixing	08/27/2008	08/27/2008
08/27/2008	Day 0	08/28/2008	08/28/2008
10/08/2008	Body weights and feed intake final weights	10/09/2008	10/09/2008
10/09/2008	Processing	10/09/2008	10/09/2008
03/13/2009	Raw data	02/24/2009	02/24/2009
04/28/2009	Statistical report and data	06/23/2009	06/23/2009
06/18/2009	Draft final report	06/22/2009	06/22/2009

Catherine M Burns 07/27/2009

Quality Assurance Unit **Date**

Signatures of Approval

Study Number: CQR Number MN-08-4
Monsanto Number CQR-08-271

Title: Comparison of Broiler Performance and Carcass Parameters When Fed Diets Containing Soybean Meal Produced from MON 87705, Control, or Reference Soybean

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: August 27, 2008
Completion Date: October 10, 2008

Date Protocol Signed: July 25, 2008
Date Final Report Signed: July 28, 2009

Records Retention: Originals of study specific raw data generated at Colorado Quality Research, Inc., and the Statistician's report are retained at Monsanto Company, St. Louis, MO. Original records from the University of Missouri Experiment Station Chemical Laboratories (ESCL) are retained at ESCL, Columbia, MO.

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 Lucas — 14 Jul 09
Study Monitor — Date

[signature] — 7/15/09
Sponsor Representative — Date

Gary F. Hartnell — 16 JUL 2009
Product Safety Center Representative — Date

Stephen W. Davis — 28 JUL 09
Study Director — Date

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CQR Final Report
Project No. MN-08-4
(Monsanto Study No. CQR-08-271)

I. TITLE

Comparison of Broiler Performance and Carcass Parameters When Fed Diets Containing Soybean Meal Produced from MON 87705, Control, or Reference Soybean

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STUDY DATES:

Study Initiation (Protocol signed):	July 25, 2008
Study Completion (Report signed):	July 28, 2009
In-life Start:	August 27, 2008
In-life Completion:	October 10, 2008

II. BACKGROUND INFORMATION AND OBJECTIVE

Monsanto Company has developed biotechnology-derived soybean, MON 87705, to generate nutritionally-improved soybean oil with decreased levels of saturated fats (16:0 palmitic acid and 18:0 stearic acid) and increased levels of oleic acid (18:1). Typical commercial soybean processing (oil extraction) of MON 87705 soybean is expected to yield nutritionally enhanced oil (decreased palmitic and stearic acids, and increased oleic acid) plus co-product meal from which most of the oil has been removed. The co-product meal is expected to be nutritionally equivalent to conventional soybean meal.

This study was conducted to evaluate the nutritional value of diets containing soybean meal produced from MON 87705 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, and 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

Robert Buresh, Ph.D. Consulting Nutritionist PO Box 6293 Springdale, AR 72766	Consulting nutritionist, diet formulation
Thomas P. Mawhinney, Ph.D. University of Missouri Experiment Station Chemical Laboratories Room 4, Agriculture Building University of Missouri Columbia, MO 65211-7170	Diet and meat analysis

B. Test, Control and Reference Soybean Meal

Test Article: MON 87705, Lot # GLP-0705-18715-S, Sample ID RPN08023-002

Control Article: A3525, Lot # GLP-0705-18716-S, Sample ID RPN08023-001

Reference Articles:

1. Anand, Lot # GLP-0705-18678-S, Sample ID RPN07327-00001
2. Ozark, Lot # GLP-0705-18680-S, Sample ID RPN07327-00003
3. NK S38-T8, Lot # GLP-0705-18687-S, Sample ID RPN07327-00006
4. UA4805, Lot # GLP-0705-18679-S, Sample ID RPN07327-00002
5. NC+ 2A86, Lot # GLP-0705-18683-S, Sample ID RPN07327-00010
6. NK 25-J5, Lot # GLP-0705-18685-S, Sample ID RPN07327-00012

The test, control, and reference soybean meal was produced from test, conventional control, and conventional reference soybean grown under Monsanto Production Plan 07-01-83-18 (Iowa – test and control production) and 07-01-83-38 (Arkansas, Illinois, and Nebraska locations – reference variety production). Processing of soybean into test, control and reference meal to be evaluated in this study was conducted under Monsanto Processing Plans RPN-08-023 and RPN-07-327. Information regarding production of the soybean 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 on Monsanto certificate of analysis (COA), COA-2008-164. Analyses included pesticide profile, mycotoxin and nutrient/anti-nutrient analyses. Verification of identity of the test and control soybean was conducted on soybean prior to processing by event-specific PCR. Results are archived at Monsanto. Reference soybean varieties were produced at different locations than test and control soybean so there was no reason to test reference soybean varieties for presence of the test event.
Accounting:	All quantities of test, control and reference articles (soybean meal) received, used and disposed of were documented. Excess soybean meal 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 Cobb × Cobb 500 chicks were obtained from Hoover's Hatchery for use in this study. 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.

Species:	Chicken (*Gallus domesticus*)
Strain:	Commercial production broiler
Breed:	Cobb × Cobb 500
Sex:	Male and Female (vent sexed at hatchery)
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 (started 960)
Number of treatments:	8
Total number of pens:	80
Number of pens/treatment:	10 (five males, five females)
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, or 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 five 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	NC+ 2A86	5	10	10	50	100
2	NK 25-J5	5	10	10	50	100
3	MON 87705	5	10	10	50	100
4	Anand	5	10	10	50	100
5	UA4805	5	10	10	50	100
6	NK S38-T8	5	10	10	50	100
7	Ozark	5	10	10	50	100
8	A3525	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 test and control soybean by PCR analysis prior to processing, and nutrient/anti-nutrient, mycotoxin, and pesticide analyses of the soybean meal is reported on Monsanto COA-2008-164.

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. None of the test, control or reference processed soybean meal or diet samples shipped by CQR during this study were regulated materials requiring compliance with USDA regulations for movement of regulated plant material.

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 study. 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 closely 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 stored and shipped 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, and therefore acceptable for use in this study.

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	37	15	45	53	21	5	26	80	49	19
2	36	13	78	56	24	8	11	46	66	57
3	4	9	73	70	61	35	32	79	50	20
4	38	12	76	51	22	2	30	75	72	62
5	7	25	77	54	59	6	28	44	52	63
6	3	29	47	71	64	34	27	43	67	23
7	39	16	42	65	60	33	14	74	68	18
8	1	31	41	69	58	40	10	48	55	17

Birds were housed within an environmentally controlled facility in concrete floor pens (~3' × 5') providing ~1.25 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 1091165A, expiration date 04Dec08). 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 nipple drinkers (four per 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

From study Day 0 to Day 42, any bird that was removed, found dead or euthanized was weighed and recorded on the pen mortality record. Birds that died after collection of Day 42 pen weights but before collection of individual bird weights on Day 43 or 44 were recorded on the individual live bird weight data form as Dead Prior to Individual Weights (DPIW) and were not weighed, necropsied or listed on the pen mortality record. Birds that died after collection of individual bird weights on Day 43 or 44 were recorded as Dead on Arrival (DOA) at processing on the processing trailer documentation form and on the chilled weight data form for clarity of bird accounting. These birds were not necropsied or listed on the pen mortality

record. Cull birds (birds unable to reach feed or water, or generally unthrifty birds) were removed by technicians blinded to treatment identification. When sex-slips (mis-sexed birds) were noted, they were removed, euthanized, weighed, and recorded on the pen mortality record. Mortalities were necropsied to the extent necessary to determine the probable cause of death. Probable cause of death and necropsy findings 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, one bird from each pen was selected for collection of meat samples. The bird was 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. One-half of the bird was used for analysis samples and the remaining half was used for retention samples.

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.

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 9.2, 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.

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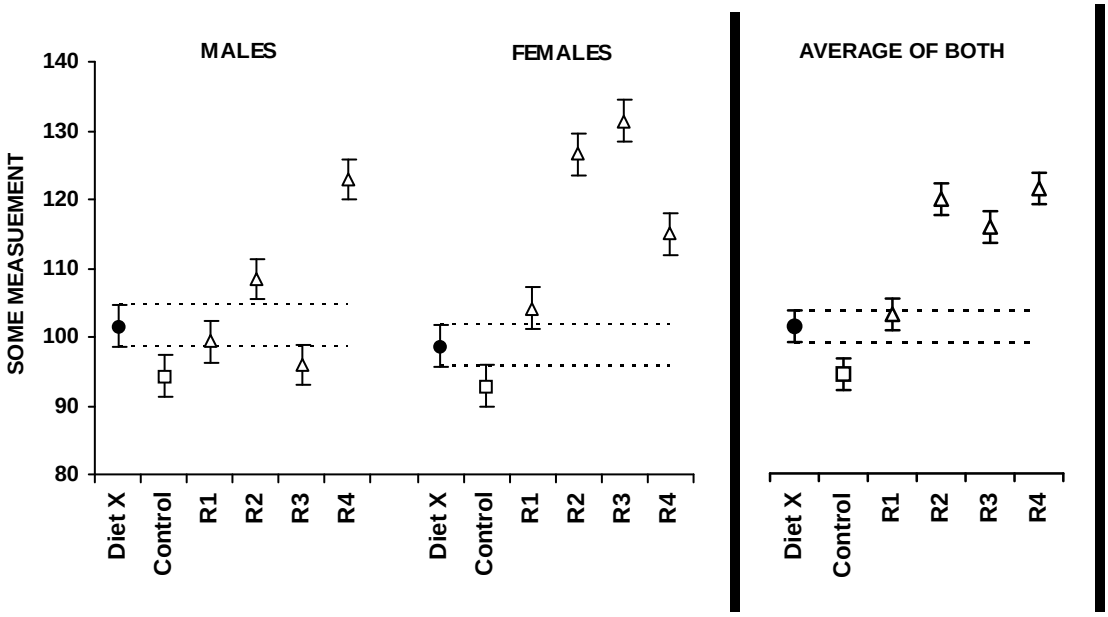

Figure 1. Simulated example of a statistical summary plot comparing diet X to its control and to each of four commercial reference diets, in the presence of a diet-by-sex interaction. Note that the 'error' bars on these plots are 5% statistical significance intervals. They are the mean ± ½ the Least 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.

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 test, control, and reference articles) are stored in the Monsanto Company Regulatory archives, St. Louis, Missouri. An exact copy of the final report and all study records 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	Daniel Jenkins, M.S., J.D.
Product Safety Center Representative	Gary Hartnell, Ph.D.
Sponsor Quality Assurance	Carrie L. Logan
Statistician	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	Chris Hansen
Research Manager	Lori Tovaas, B.S.
Research Data Manager	Tamara Killip, B.S.
Research Farm Supervisor	Chris Messier
Feed Mill Manager	Ken Johlke, B.S.
Research Technician	Jamie Wilson, B.S.
Processing Supervisor	Dennis Madden, B.S.
Consulting Nutritionist	Robert Buresh, 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 and control 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 composition 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.

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 0 to 2.5% (average of 1.1% across all dietary treatments) during the first 7 days of the study (Appendix III - Table 2). 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 1.3% and ranged from 0 to 2.0% across all treatment groups (Appendix III - Table 2). Mortality from Day 7 - 42 was 1.0% for birds receiving diets containing soybean meal produced from MON 87705. Apparent cause of death identified at necropsy for most birds that died after Day 7, sudden death syndrome, occurs 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
Carcass Yield	
Processing Live Wt. (kg/bird)	Day 43 or 44
Chilled Carcass Wt. (kg and % live wt.)	At processing[a]
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 87705 Performance Parameters

Performance data for birds fed diets containing soybean meal produced from MON 87705, conventional control, and reference soybean are presented in Appendix III – Tables 3 and 4, and Figures 1 and 2. Performance over the 42-day test period of broilers fed diets containing soybean meal produced from MON 87705 was not different ($P \geq 0.05$) than that of broilers fed diets formulated with control soybean meal produced from conventional soybean with similar background genetics to that of MON 87705 (Appendix III - Table 3 and Figures 1 and 2). Performance over the 42-day test period was also not different ($P \geq 0.05$) for birds fed diets containing soybean meal produced from MON 87705 compared to the population of birds fed conventional control or reference soybean meal (Appendix III - Table 4). A diet × sex interaction was detected ($P < 0.15$) for Day 42 bird weight (kg/bird) and bird weight gain (kg/bird) from Day 0 to 42; however, within sex analyses detected no treatment difference ($P \geq 0.05$) in either parameter for male or female birds, Appendix IV – Tables 2 and 4. 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 87705, 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 soybean meal produced from MON 87705 compared to diets formulated with control or reference soybean meal.

2. MON 87705 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 soybean meal produced from MON 87705 compared to those fed conventional control soybean meal, Appendix III - Table 3. Similarly, carcass yield measurements were not different ($P \geq 0.05$) for birds fed diets containing soybean meal produced from MON 87705 compared to the population of those fed diets containing conventional control or reference soybean meal, Appendix III - Table 4. A diet × sex interaction was detected ($P < 0.15$) for average pre-processing live weight (kg/bird), chilled carcass weight (kg/bird or % of live weight), fat pad weight (kg/bird), breast meat weight (kg/bird), thigh weight (kg/bird or % of chilled weight), and drum weight (kg/bird). Within sex analyses detected no difference ($P \geq 0.05$) for any of these parameters between birds fed diets containing soybean meal produced from MON 87705 and conventional control soybean for male or female birds, with exception of average breast weight for male birds (0.562 versus 0.592 kg/bird, respectively), Appendix IV – Tables 7, 8, 9, 10, 12, 13, 15, and 18. No differences were detected ($P \geq 0.05$) for any of the carcass yield measurements for which a diet × sex interaction was detected for either male or female birds fed diets containing soybean meal produced from MON 87705 versus the population of birds fed diets containing soybean meal produced from conventional control or reference soybean, Appendix IV – Tables 7, 8, 9, 10, 12, 13, 15, and 18. 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 soybean meal produced from MON 87705, conventional control, or six conventional reference soybean varieties (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 soybean meal produced from MON 87705 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). A diet × sex interaction was detected ($P < 0.15$) for breast meat moisture (%) and thigh meat moisture and protein (%); however, within sex comparison of these meat composition measurements detected no difference ($P \geq 0.05$) among dietary treatments for any of the measurements for male or female birds, Appendix IV – Tables 20, 23, and 24.

B. Conclusions

There were no biologically relevant differences in broiler performance, carcass yield or meat composition between broilers fed diets containing soybean meal produced from MON 87705 and those fed diets containing conventional control soybean meal. The diets containing soybean meal produced from MON 87705 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 soybean meal produced from MON 87705 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-08-4 (Monsanto No. CQR-08-271) was conducted according to the Protocol and that the data were collected and recorded in accordance with the applicable Food and Drug Administration, Center for Veterinary Medicine (CVM) Guidelines.

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

28JUL09
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	13	6-16-08
B-10	Randomization of Treatments to Pens and Test Animals to Pens	8	3-18-08
B-12	Emergency Power During Electrical Failure	16	3-18-08
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	6	6-23-08
B-29	Probable Mortality Causes	5	3-16-07
B-34	Culling and Sacrifice of Moribund Test Animals	3	3-16-07
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
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	3	3-11-08
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	6	5-12-08
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

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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APPENDIX I

Pre-study Data from Monsanto Study No. CQR-08-271

Pages 31 - 37

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

Seed Lot Number	**GLP-0705-18715-S**	**GLP-0705-18716-S**	**GLP-0705-18678-S**	**GLP-0705-18680-S**	**GLP-0705-18687-S**	**GLP-0705-18679-S**	**GLP-0705-18683-S**	**GLP-0705-18685-S**
Soybean Meal Sample No.	**RPN08023-002**	**RPN08023-001**	**RPN07327-00001**	**RPN07327-00003**	**RPN07327-00006**	**RPN07327-00002**	**RPN07327-00010**	**RPN07327-00012**
Soybean Meal ID	**MON 87705**	**A3525 (Control)**	**Anand**	**Ozark**	**NK S38-T8**	**UA4805**	**NC+ 2A86**	**NK 25-J5**
Proximate (%)								
Moisture	7.53	8.89	9.30	9.22	8.17	8.12	8.76	9.70
Protein	47.8	47.2	47.5	46.8	49.5	48.8	45.7	46.6
Total Fat	0.147	0.227	< 0.100	0.227	0.361	0.279	0.219	< 0.100
Ash	5.67	5.69	6.32	5.73	6.25	6.49	6.23	6.22
Carbohydrates	38.9	38.0	36.9	38.0	35.7	36.3	39.1	37.5
Acid Detergent Fiber (%)	6.67	6.93	5.96	7.30	6.04	6.01	5.70	5.81
Neutral Detergent Fiber (%)	8.52	7.55	7.08	8.19	7.19	7.86	7.18	6.87
Crude Fiber (%)	5.41	5.64	4.16	4.86	3.51	4.32	4.16	4.00
Minerals								
Calcium (%)	0.343	0.338	0.329	0.305	0.569	0.341	0.37	0.304
Phosphorus (%)	0.728	0.703	0.714	0.699	0.627	0.74	0.615	0.765
Potassium (%)	2.130	2.180	2.420	2.270	2.190	2.430	2.300	2.440
Sodium (%)	< 0.010	< 0.010	< 0.010	0.011	< 0.010	< 0.010	0.018	< 0.010
Chloride (%)	0.126	0.124	0.121	0.122	0.121	0.124	0.122	0.121
Magnesium (%)	0.250	0.260	0.294	0.289	0.309	0.307	0.313	0.300
Sulfur (%)	0.467	0.473	0.480	0.472	0.474	0.531	0.484	0.505
Copper (ppm)	12.2	13.1	14.8	12.3	16.8	14.0	14.1	17.1
Iron (ppm)	72.2	75.4	91.3	93.9	70.7	107.0	66.8	65.3
Manganese (ppm)	34.7	34.2	46.4	53.5	33.0	53.2	34.8	32.3
Molybdenum (ppm)	< 2.0	2.9	< 2.0	2.2	< 2.0	< 2.0	< 2.0	2.5
Selenium (ppm)	1.0	0.1	0.2	0.2	0.4	0.2	0.6	1.0
Zinc (ppm)	47.6	45.3	40.3	34.7	64.8	38.4	45.2	51.5

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

Seed Lot Number	**GLP-0705-18715-S**	**GLP-0705-18716-S**	**GLP-0705-18678-S**	**GLP-0705-18680-S**	**GLP-0705-18687-S**	**GLP-0705-18679-S**	**GLP-0705-18683-S**	**GLP-0705-18685-S**
Soybean Meal Sample No.	**RPN08023-002**	**RPN08023-001**	**RPN07327-00001**	**RPN07327-00003**	**RPN07327-00006**	**RPN07327-00002**	**RPN07327-00010**	**RPN07327-00012**
Soybean Meal ID	**MON 87705**	**A3525 (Control)**	**Anand**	**Ozark**	**NK S38-T8**	**UA4805**	**NC+ 2A86**	**NK 25-J5**
Amino Acids (g/100g of sample)								
Aspartic Acid	5.46	5.24	5.48	5.30	5.63	5.54	5.28	5.33
Threonine	1.90	1.75	1.75	1.72	1.79	1.81	1.71	1.75
Serine	2.46	2.22	2.26	2.23	2.29	2.34	2.18	2.23
Glutamic Acid	8.73	8.47	8.67	8.35	8.92	8.71	8.37	8.49
Proline	2.37	2.23	2.24	2.25	2.38	2.34	2.31	2.30
Glycine	2.08	2.03	2.09	2.06	2.15	2.12	2.02	2.04
Alanine	2.06	2.03	2.10	2.07	2.19	2.12	2.04	2.07
Cystine	0.67	0.62	0.73	0.71	0.66	0.72	0.62	0.65
Valine	2.30	2.37	2.49	2.44	2.53	2.46	2.44	2.43
Methionine	0.68	0.63	0.68	0.65	0.70	0.72	0.63	0.65
Isoleucine	2.18	2.24	2.33	2.30	2.40	2.35	2.29	2.29
Leucine	3.66	3.57	3.70	3.65	3.80	3.77	3.66	3.67
Tyrosine	1.62	1.37	1.57	1.52	1.65	1.62	1.55	1.48
Phenylalanine	2.46	2.41	2.52	2.51	2.57	2.50	2.44	2.44
Lysine	3.06	2.96	3.02	2.99	3.11	3.10	2.94	2.99
Histidine	1.26	1.23	1.28	1.26	1.45	1.31	1.24	1.25
Arginine	3.78	3.55	3.76	3.65	3.91	3.72	3.54	3.49
Tryptophan	0.56	0.56	0.55	0.52	0.57	0.57	0.55	0.55

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

Seed Lot Number	GLP-0705-18715-S	GLP-0705-18716-S	GLP-0705-18678-S	GLP-0705-18680-S	GLP-0705-18687-S	GLP-0705-18679-S	GLP-0705-18683-S	GLP-0705-18685-S
Soybean Meal Sample No.	**RPN08023-002**	**RPN08023-001**	**RPN07327-00001**	**RPN07327-00003**	**RPN07327-00006**	**RPN07327-00002**	**RPN07327-00010**	**RPN07327-00012**
Soybean Meal ID	**MON 87705**	**A3525 (Control)**	**Anand**	**Ozark**	**NK S38-T8**	**UA4805**	**NC+ 2A86**	**NK 25-J5**
Fatty Acids (g/100g of sample)								
8:0 Caprylic	< 0.00100	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100	< 0.00100	NA
10:0 Capric	< 0.00100	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100	< 0.00100	NA
12:0 Lauric	< 0.00100	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100	< 0.00100	NA
14:0 Myristic	< 0.00100	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100	< 0.00100	NA
14:1 Myristoleic	< 0.00100	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100	< 0.00100	NA
15:0 Pentadecanoic	< 0.00100	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100	< 0.00100	NA
15:1 Pentadecenoic	< 0.00100	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100	< 0.00100	NA
16:0 Palmitic	0.00470	0.0239	NA	0.0260	0.0394	0.0312	0.0239	NA
16:1 Palmitoleic	< 0.00100	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100	< 0.00100	NA
17:0 Heptadecanoic	< 0.00100	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100	< 0.00100	NA
17:1 Heptadecenoic	< 0.00100	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100	< 0.00100	NA
18:0 Stearic	0.00382	0.00796	NA	0.00876	0.0139	0.0108	0.00767	NA
18:1 Oleic	0.0805	0.0344	NA	0.0484	0.0713	0.0522	0.0428	NA
18:2 Linoleic	0.0175	0.0946	NA	0.109	0.150	0.128	0.106	NA
18:3 Gamma Linolenic	< 0.00100	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100	< 0.00100	NA
18:3 Linolenic	0.0108	0.0178	NA	0.0179	0.0196	0.0215	0.0181	NA
20:0 Arachidic	< 0.00100	< 0.00100	NA	< 0.00100	0.00114	< 0.00100	< 0.00100	NA
20:1 Eicosenoic	< 0.00100	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100	< 0.00100	NA
20:2 Eicosadienoic	< 0.00100	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100	< 0.00100	NA
20:4 Arachidonic	< 0.00100	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100	< 0.00100	NA
20:3 Eicosatrienoic	< 0.00100	< 0.00100	NA	< 0.00100	< 0.00100	< 0.00100	< 0.00100	NA
22:0 Behenic	< 0.00100	< 0.00100	NA	< 0.00100	0.00133	0.00122	< 0.00100	NA

NA - Not Applicable (insufficient lipid for analysis).

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

Seed Lot Number	**GLP-0705-18715-S**	**GLP-0705-18716-S**	**GLP-0705-18678-S**	**GLP-0705-18680-S**	**GLP-0705-18687-S**	**GLP-0705-18679-S**	**GLP-0705-18683-S**	**GLP-0705-18685-S**
Soybean Meal Sample No.	**RPN08023-002**	**RPN08023-001**	**RPN07327-00001**	**RPN07327-00003**	**RPN07327-00006**	**RPN07327-00002**	**RPN07327-00010**	**RPN07327-00012**
Soybean Meal ID	**MON 87705**	**A3525 (Control)**	**Anand**	**Ozark**	**NK S38-T8**	**UA4805**	**NC+ 2A86**	**NK 25-J5**
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]	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	0.499	< 0.100
Trypsin Inhibitor (TIU/mg)[b]	< 1.00	< 1.00	< 1.00	< 1.00	1.53	< 1.00	< 1.00	< 1.00
Phytic Acid (%)	1.41	1.35	1.34	1.39	1.19	1.49	1.26	1.51
Processing measures								
Protein Dispersibility Index (%)	12.6	7.8	7.8	7.7	9.3	7.6	8.1	10.7
Protein Solubility in 2% KOH (%)	86.4	89.8	83.8	84.0	91.7	83.6	87.5	88.3
Urease (pH difference)	0.01	0.00	0.00	0.02	0.04	0.02	0.00	0.02

[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-0705-18715-S**	**GLP-0705-18716-S**	**GLP-0705-18678-S**	**GLP-0705-18680-S**	**GLP-0705-18687-S**	**GLP-0705-18679-S**	**GLP-0705-18683-S**	**GLP-0705-18685-S**
Soybean Meal Sample No.		**RPN08023-002**	**RPN08023-001**	**RPN07327-00001**	**RPN07327-00003**	**RPN07327-00006**	**RPN07327-00002**	**RPN07327-00010**	**RPN07327-00012**
Soybean Meal ID		**MON 87705**	**A3525 (Control)**	**Anand**	**Ozark**	**NK S38-T8**	**UA4805**	**NC+ 2A86**	**NK 25-J5**
	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	2 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[2]	ND	ND	ND	ND	ND	ND	ND

[1] Mycotoxin analyses are reported on Monsanto COA-2008-164. Reports of these data from Romer Labs are archived under the respective COA number.
[2] Initial result = 444 ppb. Results of retest of new extract of the same sample = ND.
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 (%)	13.47	10.44
Crude Protein (%)	7.49	64.92
Amino Acids (g/100g of sample)		
Taurine	0.06	0.01
Hydroxyproline	0.00	0.00
Aspartic Acid	0.50	4.00
Threonine	0.25	2.10
Serine	0.31	2.79
Glutamic Acid	1.42	13.67
Proline	0.68	6.14
Lanthionine	0.00	0.05
Glycine	0.30	1.90
Alanine	0.54	5.85
Cysteine	0.16	1.13
Valine	0.36	3.20
Methionine	0.15	1.59
Isoleucine	0.26	2.85
Leucine	0.88	11.17
Tyrosine	0.23	3.35
Phenylalanine	0.36	4.28
Hydroxylysine	0.02	0.04
Ornithine	0.00	0.08
Lysine	0.26	1.22
Histidine	0.22	1.37
Arginine	0.35	2.21
Tryptophan	0.06	0.30

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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	77	NC+ 2A86	GLP-0705-18683-S
2	R	78	NK 25-J5	GLP-0705-18685-S
3	T	80	MON 87705	GLP-0705-18715-S
4	R	73	Anand	GLP-0705-18678-S
5	R	74	UA4805	GLP-0705-18679-S
6	R	76	NK S38-T8	GLP-0705-18687-S
7	R	75	Ozark	GLP-0705-18680-S
8	C	79	A3525	GLP-0705-18716-S
Grower/Finisher				
1	R	85	NC+ 2A86	GLP-0705-18683-S
2	R	86	NK 25-J5	GLP-0705-18685-S
3	T	88	MON 87705	GLP-0705-18715-S
4	R	81	Anand	GLP-0705-18678-S
5	R	82	UA4805	GLP-0705-18679-S
6	R	84	NK S38-T8	GLP-0705-18687-S
7	R	83	Ozark	GLP-0705-18680-S
8	C	87	A3525	GLP-0705-18716-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	**3**	**8**	**4**	**7**	**6**	**5**	**1**	**2**
Soybean Meal ID	**MON 87705**	**A3525 (Control)**	**Anand**	**Ozark**	**NK S38-T8**	**UA4805**	**NC+ 2A86**	**NK 25-J5**
Ingredient	**Percent of Each Ingredient**							
Corn	58.495	57.876	58.104	57.714	59.542	59.223	57.113	57.606
Soybean Meal	33.085	33.500	33.500	33.500	32.763	32.720	33.500	33.500
Soybean Oil	2.877	2.979	2.958	2.936	2.887	2.831	2.895	2.929
Corn Gluten Meal	2.091	2.143	1.988	2.390	1.333	1.778	3.025	2.503
Defluorinated Phosphate	1.846	1.844	1.843	1.843	1.848	1.848	1.844	1.843
Limestone	0.658	0.658	0.658	0.657	0.660	0.660	0.656	0.657
Salt	0.308	0.308	0.308	0.307	0.309	0.308	0.299	0.307
DL-Methionine	0.249	0.274	0.245	0.250	0.267	0.241	0.252	0.253
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
Salinomycin Premix (60g/lb)	0.041	0.041	0.041	0.041	0.041	0.041	0.041	0.041
L-Lysine-HCL	--	0.028	0.004	0.012	--	--	0.025	0.010

[1] Vitamin premix (DSM Nutritional Products, 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	**3**	**8**	**4**	**7**	**6**	**5**	**1**	**2**
Soybean Meal ID	**MON 87705**	**A3525 (Control)**	**Anand**	**Ozark**	**NK S38-T8**	**UA4805**	**NC+ 2A86**	**NK 25-J5**
Calculated Nutrient Composition								
Calculated ME, (Kcal/kg)[1]	3080	3080	3080	3080	3080	3080	3080	3080
Moisture, %	10.64	11.05	11.20	11.16	10.89	10.87	10.99	11.32
Crude Protein, %	21.70	21.70	21.70	21.70	21.70	21.70	21.70	21.70
Crude Fat, %	5.14	5.25	5.19	5.21	5.24	5.16	5.16	5.16
Crude Fiber, %	3.30	3.39	2.90	3.13	2.67	2.94	2.90	2.84
Ash, %	5.07	5.09	5.31	5.11	5.25	5.33	5.28	5.27
Arginine, %	1.50	1.44	1.51	1.48	1.52	1.46	1.45	1.43
Glycine, %	0.90	0.89	0.91	0.91	0.91	0.91	0.91	0.90
Isoleucine, %	0.93	0.96	0.99	0.99	0.98	0.97	1.00	0.99
Leucine, %	1.96	1.94	1.97	2.00	1.92	1.95	2.07	2.02
Lysine, %	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19
Methionine, %	0.59	0.60	0.59	0.59	0.60	0.59	0.60	0.59
Meth & Cystine, %	0.93	0.93	0.95	0.95	0.93	0.94	0.93	0.93
Threonine, %	0.82	0.78	0.77	0.77	0.76	0.78	0.78	0.78
Tryptophan, %	0.23	0.23	0.22	0.22	0.23	0.23	0.23	0.22
Valine, %	1.04	1.07	1.11	1.10	1.09	1.08	1.12	1.10
Calcium, %	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Phosphorus (total), %	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Phosphorus (avail.), %	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Sodium, %	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Chloride, %	0.26	0.26	0.26	0.26	0.26	0.26	0.25	0.26
Potassium, %	0.93	0.95	1.03	0.98	0.94	1.02	0.99	1.04
Magnesium, %	0.17	0.18	0.19	0.19	0.19	0.19	0.19	0.19
Copper, ppm	16.60	16.94	17.48	16.74	17.88	17.08	17.50	18.38
Iron, ppm	130.25	131.21	136.14	138.23	127.54	140.85	131.09	129.00
Manganese, ppm	133.97	133.92	138.01	140.40	133.29	139.90	134.15	133.30
Molybdenum, ppm	0.66	0.97	0.67	0.72	0.66	0.65	0.67	0.83
Selenium, ppm	0.65	0.37	0.40	0.39	0.46	0.41	0.53	0.67
Zinc, ppm	133.09	132.37	130.66	128.94	138.38	129.91	132.70	134.61

[1] [Kcal/lb × 2.2 = Kcal/kg]

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

Treatment Number	**3**	**8**	**4**	**7**	**6**	**5**	**1**	**2**
Soybean Meal ID	**MON 87705**	**A3525 (Control)**	**Anand**	**Ozark**	**NK S38-T8**	**UA4805**	**NC+ 2A86**	**NK 25-J5**
Ingredient	**Percent of Each Ingredient**							
Corn	61.979	61.198	61.551	61.049	62.888	62.569	60.492	60.979
Soybean Meal	30.200	31.000	30.712	30.988	30.000	30.000	31.000	30.937
Soybean Oil	3.328	3.509	3.432	3.470	3.357	3.319	3.431	3.451
Corn Gluten Meal	1.208	0.975	1.022	1.207	0.452	0.828	1.791	1.347
Defluorinated Phosphate	1.701	1.696	1.697	1.696	1.702	1.702	1.696	1.696
Limestone	0.673	0.673	0.673	0.673	0.675	0.674	0.671	0.672
Salt	0.326	0.327	0.327	0.326	0.327	0.326	0.319	0.326
DL-Methionine	0.234	0.257	0.234	0.240	0.248	0.231	0.237	0.240
Choline Chloride-60	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110
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
Salinomycin Premix (60g/lb)	0.041	0.041	0.041	0.041	0.041	0.041	0.041	0.041
L-Lysine-HCL	--	0.014	--	--	--	--	0.012	--

[1] Vitamin premix (DSM Nutritional Products, 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	**3**	**8**	**4**	**7**	**6**	**5**	**1**	**2**
Soybean Meal ID	**MON 87705**	**A3525 (Control)**	**Anand**	**Ozark**	**NK S38-T8**	**UA4805**	**NC+ 2A86**	**NK 25-J5**
Calculated Nutrient Composition								
Calculated ME, (Kcal/kg)[1]	3135	3135	3135	3135	3135	3135	3135	3135
Moisture, %	10.80	11.15	11.31	11.26	11.02	11.00	11.10	11.41
Crude Protein, %	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Crude Fat, %	5.69	5.86	5.76	5.82	5.80	5.73	5.77	5.76
Crude Fiber, %	3.21	3.30	2.84	3.06	2.64	2.88	2.85	2.80
Ash, %	4.81	4.84	5.02	4.85	4.97	5.04	5.01	5.00
Arginine, %	1.39	1.34	1.39	1.37	1.40	1.35	1.35	1.32
Glycine, %	0.84	0.83	0.85	0.84	0.84	0.84	0.84	0.84
Isoleucine, %	0.85	0.88	0.90	0.91	0.90	0.89	0.92	0.91
Leucine, %	1.79	1.75	1.79	1.80	1.74	1.77	1.87	1.82
Lysine, %	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Methionine, %	0.55	0.56	0.55	0.55	0.56	0.55	0.55	0.55
Meth & Cystine, %	0.86	0.86	0.88	0.88	0.86	0.88	0.86	0.86
Threonine, %	0.75	0.72	0.71	0.71	0.70	0.72	0.72	0.72
Tryptophan, %	0.21	0.21	0.21	0.20	0.21	0.21	0.21	0.21
Valine, %	0.96	0.99	1.02	1.01	1.00	0.99	1.03	1.01
Calcium, %	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Phosphorus (total), %	0.65	0.66	0.66	0.66	0.65	0.65	0.66	0.66
Phosphorus (avail.), %	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Sodium, %	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Chloride, %	0.27	0.27	0.27	0.27	0.26	0.26	0.26	0.26
Potassium, %	0.88	0.91	0.98	0.94	0.90	0.97	0.94	0.99
Magnesium, %	0.17	0.18	0.19	0.18	0.19	0.19	0.19	0.19
Copper, ppm	16.10	16.39	16.90	16.20	17.27	16.53	16.91	17.72
Iron, ppm	128.11	127.97	133.18	134.47	125.41	137.48	127.86	126.07
Manganese, ppm	133.04	133.12	136.78	139.11	132.45	138.52	133.33	132.53
Molybdenum, ppm	0.60	0.90	0.61	0.67	0.60	0.60	0.62	0.76
Selenium, ppm	0.62	0.37	0.39	0.39	0.45	0.40	0.51	0.64
Zinc, ppm	132.15	131.43	129.90	128.25	136.98	129.21	131.74	133.51

[1] [Kcal/lb × 2.2 = Kcal/kg]

Appendix II – Table 4. Analyzed nutrient composition of starter diets (as-is basis)

Treatment Number	3	8	4	7	6	5	1	2
Soybean Meal ID	MON 87705	A3525 (Control)	Anand	Ozark	NK S38-T8	UA4805	NC+ 2A86	NK 25-J5
Assay Component								
Proximates								
Crude Protein, %	22.45	22.51	23.58	22.22	22.98	22.58	22.52	22.68
Moisture, %	10.68	11.23	11.33	10.96	11.36	10.57	11.13	11.01
Crude Fat, %	5.16	4.97	4.70	4.12	4.62	4.44	3.94	4.63
Crude Fiber, %	2.30	2.18	2.22	2.23	1.81	1.90	1.92	1.98
Ash, %	5.43	5.31	5.57	5.24	5.38	5.49	5.43	5.49
Acid detergent fiber, %	3.50	3.39	3.30	3.70	2.46	3.19	3.26	3.38
Neutral detergent fiber, %	17.51	27.25	17.48	31.81	13.45	14.18	7.77	9.75
Minerals								
Calcium, %	0.98	0.89	0.87	0.88	1.01	0.90	0.96	0.93
Phosphorus,%	0.77	0.75	0.75	0.71	0.72	0.73	0.72	0.76
Sodium, %	0.22	0.20	0.19	0.22	0.19	0.18	0.20	0.20
Chloride, %	0.40	0.37	0.33	0.39	0.28	0.32	0.37	0.38
Potassium, %	0.93	0.92	1.06	0.93	0.90	0.99	0.89	1.05
Magnesium, %	0.16	0.16	0.18	0.16	0.18	0.17	0.18	0.18
Sulfur, %	0.30	0.30	0.31	0.30	0.30	0.31	0.31	0.32
Copper, ppm	7.7	13.6	15.0	12.9	14.2	13.3	7.9	9.5
Iron, ppm	216	214	215	198	209	213	207	196
Manganese, ppm	132	132	130	136	128	133	130	125
Molybdenum, ppm	0.9	1.1	0.9	0.8	0.9	0.8	0.7	1.0
Zinc, ppm	120	121	119	111	127	114	121	120

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

Treatment Number	**3**	**8**	**4**	**7**	**6**	**5**	**1**	**2**
Soybean Meal ID	**MON 87705**	**A3525 (Control)**	**Anand**	**Ozark**	**NK S38-T8**	**UA4805**	**NC+ 2A86**	**NK 25-J5**
Assay Component								
Amino Acids (g/100g of sample)								
Taurine	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.05
Hydroxyproline	0.04	0.04	0.04	0.05	0.04	0.03	0.04	0.03
Aspartic Acid	2.27	2.24	2.47	2.26	2.31	2.36	2.32	2.40
Threonine	0.83	0.83	0.86	0.83	0.82	0.84	0.81	0.89
Serine	1.03	1.05	1.03	1.05	1.05	1.03	0.96	1.11
Glutamic Acid	4.19	4.13	4.39	4.12	4.16	4.22	4.33	4.38
Proline	1.27	1.23	1.32	1.28	1.22	1.28	1.31	1.31
Lanthionine	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00
Glycine	0.93	0.92	1.00	0.92	0.93	0.95	0.95	0.97
Alanine	1.15	1.14	1.21	1.16	1.13	1.16	1.22	1.23
Cysteine	0.38	0.39	0.43	0.40	0.35	0.41	0.40	0.42
Valine	1.08	1.04	1.20	1.08	1.05	1.12	1.17	0.99
Methionine	0.58	0.59	0.57	0.56	0.54	0.58	0.59	0.58
Isoleucine	0.96	0.93	1.06	0.96	0.95	1.00	1.05	1.01
Leucine	2.02	1.98	2.12	2.03	1.97	2.05	2.17	2.16
Tyrosine	0.78	0.78	0.81	0.78	0.77	0.78	0.79	0.83
Phenylalanine	1.12	1.10	1.20	1.14	1.10	1.14	1.18	1.18
Hydroxylysine	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Ornithine	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Lysine	1.26	1.26	1.35	1.25	1.25	1.29	1.28	1.32
Histidine	0.59	0.57	0.63	0.59	0.63	0.61	0.60	0.62
Arginine	1.50	1.47	1.59	1.45	1.49	1.48	1.45	1.50
Tryptophan	0.28	0.28	0.29	0.26	0.31	0.29	0.27	0.29

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

Treatment Number	**3**	**8**	**4**	**7**	**6**	**5**	**1**	**2**
Soybean Meal ID	**MON 87705**	**A3525 (Control)**	**Anand**	**Ozark**	**NK S38-T8**	**UA4805**	**NC+ 2A86**	**NK 25-J5**
Assay Component								
Proximates								
Crude Protein, %	20.71	20.71	21.02	20.53	21.06	20.80	20.74	21.08
Moisture, %	10.96	11.38	11.14	11.00	11.11	10.75	11.12	11.34
Crude Fat, %	4.82	5.12	5.35	5.83	5.37	5.42	5.45	5.26
Crude Fiber, %	2.31	2.21	1.93	2.12	1.70	1.96	1.93	2.03
Ash, %	5.25	5.33	5.46	5.54	5.17	5.75	5.39	5.51
Acid detergent fiber, %	3.64	3.50	3.09	3.37	2.98	3.15	3.27	3.23
Neutral detergent fiber, %	16.20	37.91	23.26	16.18	11.74	15.17	20.55	17.60
Minerals								
Calcium, %	0.94	0.95	0.90	1.01	0.97	0.96	0.96	0.94
Phosphorus,%	0.74	0.73	0.71	0.76	0.69	0.75	0.71	0.76
Sodium, %	0.22	0.24	0.21	0.22	0.18	0.26	0.20	0.21
Chloride, %	0.39	0.43	0.35	0.37	0.33	0.50	0.33	0.37
Potassium, %	0.86	0.87	0.94	0.89	0.88	0.92	0.91	0.96
Magnesium, %	0.15	0.15	0.17	0.17	0.17	0.17	0.17	0.17
Sulfur, %	0.28	0.29	0.29	0.29	0.29	0.30	0.30	0.30
Copper, ppm	12.0	12.1	12.6	11.4	12.3	12.3	13.5	13.4
Iron, ppm	211	210	207	239	197	228	215	210
Manganese, ppm	141	136	137	150	123	142	139	136
Molybdenum, ppm	0.8	0.8	0.6	0.8	0.8	0.7	0.6	1.0
Zinc, ppm	120	126	119	125	119	122	122	124

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

Treatment Number	**3**	**8**	**4**	**7**	**6**	**5**	**1**	**2**
Soybean Meal ID	**MON 87705**	**A3525 (Control)**	**Anand**	**Ozark**	**NK S38-T8**	**UA4805**	**NC+ 2A86**	**NK 25-J5**
Assay Component								
Amino Acids (g/100g of sample)								
Taurine	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Hydroxyproline	0.04	0.05	0.03	0.02	0.00	0.04	0.04	0.04
Aspartic Acid	2.04	2.09	2.21	2.15	2.20	2.13	2.12	2.18
Threonine	0.76	0.76	0.79	0.77	0.77	0.76	0.78	0.79
Serine	0.94	0.92	0.99	0.96	0.95	0.92	0.97	0.96
Glutamic Acid	3.74	3.82	4.02	3.86	3.95	3.87	3.88	3.93
Proline	1.14	1.17	1.21	1.20	1.17	1.17	1.20	1.20
Lanthionine	0.02	0.00	0.00	0.00	0.00	0.02	0.00	0.00
Glycine	0.85	0.87	0.91	0.90	0.88	0.87	0.87	0.89
Alanine	1.04	1.06	1.11	1.09	1.07	1.06	1.10	1.10
Cysteine	0.36	0.35	0.40	0.39	0.35	0.38	0.36	0.39
Valine	0.97	1.01	1.07	1.06	1.02	1.02	1.02	1.06
Methionine	0.51	0.54	0.55	0.57	0.52	0.53	0.54	0.55
Isoleucine	0.86	0.90	0.94	0.94	0.92	0.92	0.91	0.94
Leucine	1.80	1.84	1.93	1.90	1.84	1.85	1.94	1.93
Tyrosine	0.70	0.74	0.75	0.73	0.73	0.72	0.76	0.74
Phenylalanine	1.00	1.05	1.08	1.08	1.04	1.03	1.08	1.06
Hydroxylysine	0.02	0.03	0.02	0.02	0.02	0.02	0.03	0.02
Ornithine	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01
Lysine	1.13	1.17	1.21	1.19	1.21	1.18	1.16	1.21
Histidine	0.53	0.54	0.58	0.57	0.60	0.56	0.55	0.57
Arginine	1.36	1.37	1.43	1.39	1.42	1.34	1.34	1.37
Tryptophan	0.26	0.25	0.24	0.23	0.28	0.25	0.26	0.26

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APPENDIX III

Bird Performance and Processing Data

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Appendix III – Table 1. Day 0 body weights (08/27/08)

Treatment Number	Soybean Meal ID	Sex	Pen	Number Of Birds Weighed	Day 0 Pen Wt. (kg)	Day 0 Avg Bird Wt (kg)
1		F	15	12	0.496	0.041
1		F	21	12	0.498	0.042
1	**NC+2A86**	F	37	12	0.508	0.042
1		F	45	12	0.506	0.042
1		F	53	12	0.496	0.041
Total & Average				60	0.501	0.042
Standard Deviation					0.0058	0.0005
CV					1.2%	1.2%
2		F	13	12	0.484	0.040
2		F	24	12	0.494	0.041
2	**NK 25-J5**	F	36	12	0.504	0.042
2		F	56	12	0.504	0.042
2		F	78	12	0.512	0.043
Total & Average				60	0.500	0.042
Standard Deviation					0.0108	0.0009
CV					2.2%	2.2%
3		F	4	12	0.490	0.041
3		F	9	12	0.482	0.040
3	**MON 87705**	F	61	12	0.466	0.039
3		F	70	12	0.498	0.042
3		F	73	12	0.510	0.043
Total & Average				60	0.489	0.041
Standard Deviation					0.0166	0.0014
CV					3.4%	3.4%

Treatment Number	Soybean Meal ID	Sex	Pen	Number Of Birds Weighed	Day 0 Pen Wt. (kg)	Day 0 Avg Bird Wt (kg)
1		M	5	12	0.518	0.043
1		M	19	12	0.498	0.042
1	**NC+2A86**	M	26	12	0.502	0.042
1		M	49	12	0.484	0.040
1		M	80	12	0.514	0.043
Total & Average				60	0.503	0.042
Standard Deviation					0.0135	0.0011
CV					2.7%	2.7%
2		M	8	12	0.506	0.042
2		M	11	12	0.504	0.042
2	**NK 25-J5**	M	46	12	0.498	0.042
2		M	57	12	0.504	0.042
2		M	66	12	0.494	0.041
Total & Average				60	0.501	0.042
Standard Deviation					0.0050	0.0004
CV					1.0%	1.0%
3		M	20	12	0.488	0.041
3		M	32	12	0.484	0.040
3	**MON 87705**	M	35	12	0.498	0.042
3		M	50	12	0.498	0.042
3		M	79	12	0.492	0.041
Total & Average				60	0.492	0.041
Standard Deviation					0.0062	0.0005
CV					1.3%	1.3%

Appendix III – Table 1 (Cont'd). Day 0 body weights (08/27/08)

Treatment Number	Soybean Meal ID	Sex	Pen	Number Of Birds Weighed	Day 0 Pen Wt. (kg)	Day 0 Avg Bird Wt (kg)
4		F	12	12	0.494	0.041
4		F	22	12	0.506	0.042
4	**Anand**	F	38	12	0.496	0.041
4		F	51	12	0.516	0.043
4		F	76	12	0.494	0.041
Total & Average				60	0.501	0.042
Standard Deviation					0.0097	0.0008
CV					1.9%	1.9%
5		F	7	12	0.506	0.042
5		F	25	12	0.502	0.042
5	**UA4805**	F	54	12	0.504	0.042
5		F	59	12	0.482	0.040
5		F	77	12	0.502	0.042
Total & Average				60	0.499	0.042
Standard Deviation					0.0098	0.0008
CV					2.0%	2.0%
6		F	3	12	0.492	0.041
6		F	29	12	0.480	0.040
6	**NK S38-T8**	F	47	12	0.502	0.042
6		F	64	12	0.502	0.042
6		F	71	12	0.490	0.041
Total & Average				60	0.493	0.041
Standard Deviation					0.0092	0.0008
CV					1.9%	1.9%

Treatment Number	Soybean Meal ID	Sex	Pen	Number Of Birds Weighed	Day 0 Pen Wt. (kg)	Day 0 Avg Bird Wt (kg)
4		M	2	12	0.502	0.042
4		M	30	12	0.502	0.042
4	**Anand**	M	62	12	0.496	0.041
4		M	72	12	0.510	0.043
4		M	75	12	0.486	0.041
Total & Average				60	0.499	0.042
Standard Deviation					0.0089	0.0007
CV					1.8%	1.8%
5		M	6	12	0.510	0.043
5		M	28	12	0.502	0.042
5	**UA4805**	M	44	12	0.520	0.043
5		M	52	12	0.508	0.042
5		M	63	12	0.482	0.040
Total & Average				60	0.504	0.042
Standard Deviation					0.0141	0.0012
CV					2.8%	2.8%
6		M	23	12	0.512	0.043
6		M	27	12	0.478	0.040
6	**NK S38-T8**	M	34	12	0.508	0.042
6		M	43	12	0.512	0.043
6		M	67	12	0.522	0.044
Total & Average				60	0.506	0.042
Standard Deviation					0.0167	0.0014
CV					3.3%	3.3%

Appendix III – Table 1 (Cont'd). Day 0 body weights (08/27/08)

Treatment Number	Soybean Meal ID	Sex	Pen	Number Of Birds Weighed	Day 0 Pen Wt. (kg)	Day 0 Avg Bird Wt (kg)
7		F	16	12	0.490	0.041
7		F	39	12	0.496	0.041
7	**Ozark**	F	42	12	0.492	0.041
7		F	60	12	0.490	0.041
7		F	65	12	0.514	0.043
Total & Average				60	0.496	0.041
Standard Deviation					0.0101	0.0008
CV					2.0%	2.0%
8		F	1	12	0.510	0.043
8		F	31	12	0.488	0.041
8	**A3525**	F	41	12	0.490	0.041
8		F	58	12	0.470	0.039
8		F	69	12	0.510	0.043
Total & Average				60	0.494	0.041
Standard Deviation					0.0169	0.0014
CV					3.4%	3.4%

Treatment Number	Soybean Meal ID	Sex	Pen	Number Of Birds Weighed	Day 0 Pen Wt. (kg)	Day 0 Avg Bird Wt (kg)
7		M	14	12	0.514	0.043
7		M	18	12	0.500	0.042
7	**Ozark**	M	33	12	0.516	0.043
7		M	68	12	0.488	0.041
7		M	74	12	0.494	0.041
Total & Average				60	0.502	0.042
Standard Deviation					0.0123	0.0010
CV					2.4%	2.4%
8		M	10	12	0.500	0.042
8		M	17	12	0.482	0.040
8	**A3525**	M	40	12	0.498	0.042
8		M	48	12	0.504	0.042
8		M	55	12	0.518	0.043
Total & Average				60	0.500	0.042
Standard Deviation					0.0129	0.0011
CV					2.6%	2.6%

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	15	12	2		0.0%	2cd		1	1cd/ss		0.0%	
1		F	21	12	2		0.0%	2cd					0.0%	
1		F	37	12	2		0.0%	2cd					0.0%	
1		F	45	12	1	1	8.3%	1bac 1cd					0.0%	
1	NC+ 2A86	F	53	12	2		0.0%	2cd				1	10.0%	1sds
1		M	5	12	1	1	8.3%	1bac 1cd					0.0%	
1		M	19	12	2		0.0%	2cd					0.0%	
1		M	26	12	1	1	8.3%	1bac 1cd				1	10.0%	1sds
1		M	49	12	2		0.0%	2cd					0.0%	
1		M	80	12	2		0.0%	2cd		1	1cd/ss		0.0%	
Total & Average				**120**	17	3	2.50%			1		2	2.00%	
2		F	13	12	2		0.0%	2cd					0.0%	
2		F	24	12	2		0.0%	2cd					0.0%	
2		F	36	12	2		0.0%	2cd		1	1cd/ss		0.0%	
2		F	56	12	2		0.0%	2cd				1	10.0%	1sds/act
2	NK 25-J5	F	78	12	2		0.0%	2cd					0.0%	
2		M	8	12	2		0.0%	2cd					0.0%	
2		M	11	12	2		0.0%	2cd					0.0%	
2		M	46	12	2		0.0%	2cd					0.0%	
2		M	57	12	2		0.0%	2cd					0.0%	
2		M	66	12	2		0.0%	2cd					0.0%	
Total & Average				**120**	20	0	0.00%			1		1	1.00%	
3		F	4	12	2		0.0%	2cd					0.0%	
3		F	9	12	2		0.0%	2cd					0.0%	
3		F	61	12	2		0.0%	2cd					0.0%	
3		F	70	12	2		0.0%	2cd					0.0%	
3	MON 87705	F	73	12	2		0.0%	2cd					0.0%	
3		M	20	12	2		0.0%	2cd					0.0%	
3		M	32	12	2		0.0%	2cd					0.0%	
3		M	35	12	2		0.0%	2cd					0.0%	
3		M	50	12	2		0.0%	2cd				1	10.0%	1sds
3		M	79	12	1	1	8.3%	1bac 1cd					0.0%	
Total & Average				**120**	19	1	0.83%			0		1	1.00%	

[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		F	12	12	2		0.0%	2cd					0.0%	
4		F	22	12	2		0.0%	2cd		1	1cd/ss		0.0%	
4		F	38	12	2		0.0%	2cd					0.0%	
4		F	51	12	2		0.0%	2cd					0.0%	
4		F	76	12	2		0.0%	2cd					0.0%	
4	**Anand**	M	2	12	2		0.0%	2cd					0.0%	
4		M	30	12	2		0.0%	2cd					0.0%	
4		M	62	12	2		0.0%	2cd		1	1cd bl,fhn		0.0%	
4		M	72	12	2		0.0%	2cd					0.0%	
4		M	75	12		2	16.7%	1dh/bac 1bac					0.0%	
Total & Average				**120**	18	2	1.67%			2		0	0.00%	
5		F	7	12	1	1	8.3%	1dh 1cd				1	10.0%	1sds
5		F	25	12	2		0.0%	2cd					0.0%	
5		F	54	12	2		0.0%	2cd					0.0%	
5		F	59	12	2		0.0%	2cd					0.0%	
5		F	77	12	2		0.0%	2cd					0.0%	
5	**UA4805**	M	6	12	2		0.0%	2cd					0.0%	
5		M	28	12	2		0.0%	2cd					0.0%	
5		M	44	12	2		0.0%	2cd					0.0%	
5		M	52	12	2		0.0%	2cd					0.0%	
5		M	63	12	2		0.0%	2cd					0.0%	
Total & Average				**120**	19	1	0.83%			0		1	1.00%	
6		F	3	12	2		0.0%	2cd					0.0%	
6		F	29	12		2	16.7%	1dh 1bac					0.0%	
6		F	47	12	2		0.0%	2cd					0.0%	
6		F	64	12	2		0.0%	2cd					0.0%	
6		F	71	12	2		0.0%	2cd		1	1cd/ss	1	10.0%	1sds
6	**NK S38-T8**	M	23	12	2		0.0%	2cd					0.0%	
6		M	27	12	1	1	8.3%	1bac 1cd					0.0%	
6		M	34	12	2		0.0%	2cd					0.0%	
6		M	43	12	2		0.0%	2cd					0.0%	
6		M	67	12	2		0.0%	2cd				1	10.0%	1sds
Total & Average				**120**	17	3	2.50%			1		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	16	12	2		0.0%	2cd					0.0%	
7		F	39	12	2		0.0%	2cd					0.0%	
7		F	42	12	2		0.0%	2cd					0.0%	
7		F	60	12	2		0.0%	2cd					0.0%	
7	**Ozark**	F	65	12	2		0.0%	2cd		1	1cd bl,fhn	1	10.0%	1sds
7		M	14	12	2		0.0%	2cd					0.0%	
7		M	18	12	2		0.0%	2cd					0.0%	
7		M	33	12	2		0.0%	2cd					0.0%	
7		M	68	12	2		0.0%	2cd					0.0%	
7		M	74	12	2		0.0%	2cd					0.0%	
Total & Average				**120**	20	0	0.00%			1		1	1.00%	
8		F	1	12	2		0.0%	2cd					0.0%	
8		F	31	12	2		0.0%	2cd					0.0%	
8		F	41	12	2		0.0%	2cd					0.0%	
8		F	58	12	1	1	8.3%	1dh 1cd					0.0%	
8	**A3525**	F	69	12	2		0.0%	2cd					0.0%	
8		M	10	12	2		0.0%	2cd				1	10.0%	1sds
8		M	17	12	2		0.0%	2cd				1	10.0%	1sds
8		M	40	12	2		0.0%	2cd					0.0%	
8		M	48	12	2		0.0%	2cd					0.0%	
8		M	55	12	2		0.0%	2cd					0.0%	
Total & Average				**120**	19	1	0.83%			0		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 3. Performance, carcass yield, and meat quality of broilers fed diets formulated with MON 87705, conventional control, and reference soybean meal (means[1] combined across males and females)

Treatment Number	3	8	4	7	6	5	1	2			
Soybean Meal ID	MON 87705	A3525 (Control)	Anand	Ozark	NK S38-T8	UA4805	NC+ 2A86	NK 25-J5	SEM[2]	Treatment p-value[3]	LSD[4] 5.0%
Performance											
Average bird weight (g/bird), d 0	40.883	41.417	41.683	41.617	41.650	41.817	41.833	41.700	0.2811	0.3173	0.795
Average bird weight (kg/bird), d 42	2.607	2.622	2.640	2.560	2.591	2.625	2.614	2.678	0.0234	0.0506[8]	0.066
Average bird gain (kg/bird), d 0 to 42	2.566	2.580	2.598	2.519	2.549	2.583	2.572	2.636	0.0234	0.0507[8]	0.066
Feed intake (kg/bird), d 0 to 42	4.112^{bdc}	4.124^{bdc}	4.203^{ba}	4.091^{dc}	4.037^{d}	4.118^{bdc}	4.154^{bac}	4.234^{a}	0.0391	0.0225	0.111
Feed:gain (kg/kg), d 0 to 42	1.614	1.615	1.647	1.650	1.635	1.601	1.644	1.642	0.0199	0.5372	0.056
Adjusted feed:gain[5] (kg/kg), d 0 to 42	1.597^{dc}	1.592^{edc}	1.613^{ba}	1.622^{a}	1.577^{e}	1.589^{ed}	1.608^{bac}	1.599^{bdc}	0.0055	<0.0001	0.016
Carcass Yield											
Processing live weight[6] (kg)	2.630	2.657	2.666	2.587	2.620	2.650	2.643	2.699	0.0244	0.0938[8]	0.069
Chilled carcass weight (kg)	1.909^{bac}	1.933^{ba}	1.931^{ba}	1.866^{c}	1.902^{bc}	1.924^{ba}	1.912^{bac}	1.960^{a}	0.0181	0.0387[8]	0.051
Chilled carcass weight (% of live wt.)	72.573^{a}	72.701^{a}	72.413^{ba}	72.091^{b}	72.593^{a}	72.582^{a}	72.349^{ba}	72.590^{a}	0.1288	0.0395[8]	0.364
Fat pad weight (kg)	0.040^{c}	0.040^{bc}	0.043^{a}	0.041^{bac}	0.041^{bac}	0.043^{a}	0.040^{bc}	0.042^{ba}	0.0009	0.0401[8]	0.003
Fat pad weight (% of live wt.)	1.519	1.522	1.620	1.577	1.564	1.631	1.530	1.573	0.0303	0.0718	0.086
Breast meat weight (kg)	0.549	0.562	0.558	0.541	0.539	0.551	0.546	0.565	0.0065	0.0520[8]	0.018
Breast meat weight (% of chilled wt.)	28.768	29.076	28.947	29.051	28.401	28.640	28.544	28.863	0.1687	0.0596	0.477
Thigh weight (kg)	0.331^{a}	0.334^{a}	0.333^{a}	0.320^{b}	0.332^{a}	0.335^{a}	0.331^{a}	0.339^{a}	0.0034	0.0307[8]	0.010
Thigh weight (% of chilled wt.)	17.295	17.280	17.233	17.147	17.453	17.408	17.309	17.273	0.0850	0.2818[8]	0.240
Drum weight (kg)	0.256^{a}	0.255^{a}	0.257^{a}	0.246^{b}	0.255^{a}	0.257^{a}	0.256^{a}	0.261^{a}	0.0026	0.0161[8]	0.007
Drum weight (% of chilled wt.)	13.390	13.181	13.310	13.179	13.393	13.348	13.375	13.320	0.0802	0.3286	0.227
Wing weight (kg)	0.200^{b}	0.200^{b}	0.201^{ba}	0.194^{c}	0.200^{ba}	0.201^{ba}	0.201^{ba}	0.206^{a}	0.0019	0.0228	0.006
Wing weight (% of chilled wt.)	10.465	10.341	10.426	10.418	10.536	10.456	10.498	10.501	0.0499	0.1917	0.141
Breast Meat Analysis[7]											
Moisture (%)	75.151	75.006	75.112	74.815	75.370	75.185	74.960	75.025	0.1567	0.3565[8]	0.443
Protein (%, as-is basis)	22.878	22.906	22.592	22.982	22.422	22.717	22.789	22.648	0.1519	0.1902	0.430
Fat (%, as-is basis)	1.130	1.031	1.159	1.178	1.094	0.993	1.125	1.131	0.0887	0.8241	0.251
Thigh Meat Analysis[7]											
Moisture (%)	77.179	76.990	77.294	77.036	77.268	77.193	77.276	77.338	0.1254	0.4428[8]	0.355
Protein (%, as-is basis)	20.248	20.340	20.338	20.261	20.141	20.295	19.851	19.744	0.2171	0.3636[8]	0.614
Fat (%, as-is basis)	1.528	1.726	1.880	1.954	1.796	1.681	1.608	1.733	0.1693	0.6961	0.479

[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-d]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 - 25) 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 87705 soybean meal versus that of the population of broilers fed diets formulated with conventional control or reference soybean meal (means[1] ± SEM[2] combined across males and females)

Parameter	Soybean Meal Diets		Treatment p-value[3]	LSD[4] 5%
	MON 87705	Conventional Control and References		
Performance				
Average bird weight (g/bird), d 0	40.883 ± 0.2661	41.674 ± 0.1006	0.0070	0.567
Average bird weight (kg/bird), d 42	2.607 ± 0.0369	2.618 ± 0.0139	0.7771[8]	0.097
Average bird gain (kg/bird), d 0 to 42	2.566 ± 0.0369	2.577 ± 0.0139	0.7916[8]	0.096
Feed intake (kg/bird), d 0 to 42	4.112 ± 0.0669	4.137 ± 0.0253	0.7389	0.175
Feed:gain (kg/kg), d 0 to 42	1.614 ± 0.0196	1.633 ± 0.0074	0.3560	0.042
Adjusted feed:gain[5] (kg/kg), d 0 to 42	1.597 ± 0.0154	1.600 ± 0.0058	0.8625	0.040
Carcass Yield				
Processing live wt[6] (kg/bird)	2.630 ± 0.0353	2.646 ± 0.0133	0.6848[8]	0.092
Chilled wt (kg/bird)	1.909 ± 0.0294	1.918 ± 0.0111	0.7804[8]	0.077
Chilled wt (% of live wt.)	72.573 ± 0.2115	72.474 ± 0.0800	0.6692[8]	0.493
Fat pad wt (kg/bird)	0.040 ± 0.0013	0.041 ± 0.0005	0.2216[8]	0.003
Fat pad wt (% of live wt.)	1.519 ± 0.0409	1.574 ± 0.0155	0.2531	0.107
Breast wt (kg/bird)	0.549 ± 0.0102	0.552 ± 0.0039	0.7775[8]	0.027
Breast wt (% of chilled wt)	28.768 ± 0.2627	28.789 ± 0.0993	0.9445	0.687
Thigh wt (kg/bird)	0.331 ± 0.0057	0.332 ± 0.0022	0.8058[8]	0.015
Thigh wt (% of chilled wt)	17.295 ± 0.1352	17.300 ± 0.0511	0.9707[8]	0.315
Drum wt (kg/bird)	0.256 ± 0.0046	0.255 ± 0.0017	0.9196[8]	0.012
Drum wt (% of chilled wt)	13.390 ± 0.0876	13.301 ± 0.0331	0.3756	0.229
Wing wt (kg/bird)	0.200 ± 0.0033	0.200 ± 0.0013	0.8562	0.009
Wing wt (% of chilled wt)	10.465 ± 0.0654	10.454 ± 0.0247	0.8778	0.171
Breast Meat Analysis[7]				
Moisture (%)	75.151 ± 0.1990	75.067 ± 0.0752	0.7020[8]	0.464
Protein (%, as-is basis)	22.878 ± 0.1909	22.722 ± 0.0721	0.4734	0.499
Fat (%, as-is basis)	1.130 ± 0.0880	1.102 ± 0.0332	0.7605	0.187
Thigh Meat Analysis[7]				
Moisture (%)	77.179 ± 0.1838	77.199 ± 0.0695	0.9194[8]	0.428
Protein (%, as-is basis)	20.248 ± 0.2769	20.139 ± 0.1047	0.7176[8]	0.645
Fat (%, as-is basis)	1.528 ± 0.1636	1.768 ± 0.0618	0.1734	0.349

[1] Each mean for MON 87705 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 87705 diet versus the population of the control and six reference diets.

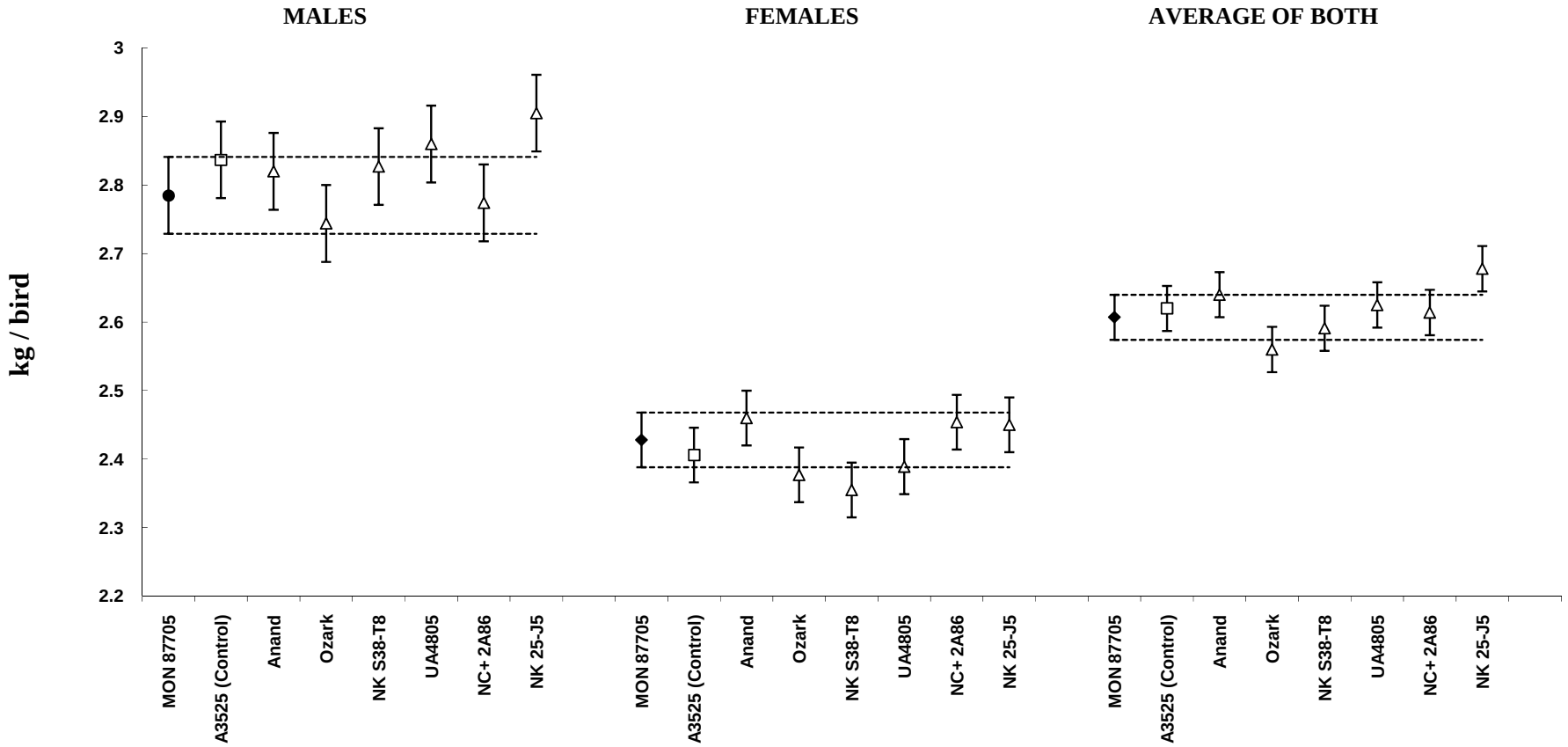
[4] LSD = least significant difference between two means ($P < 0.05$).

[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).

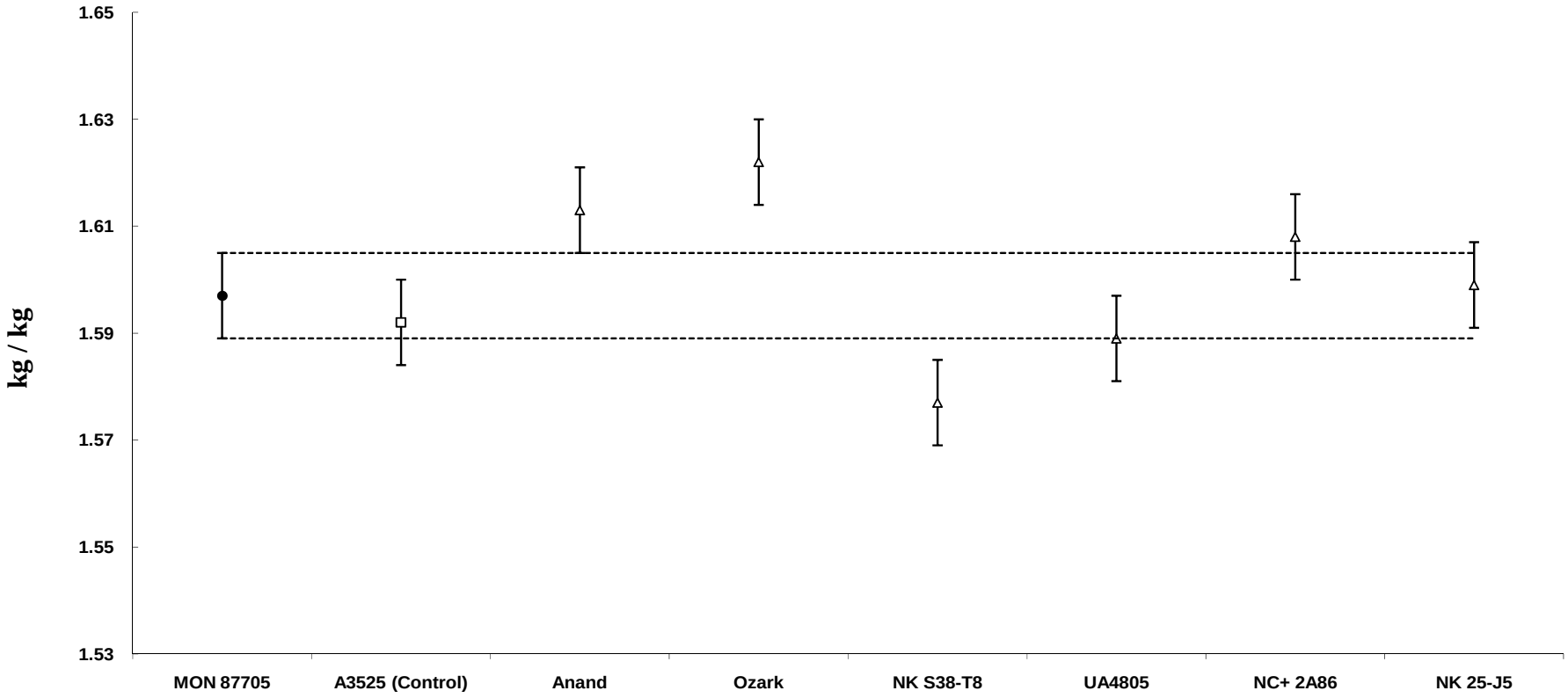
[7] Mean values for skinless breast and thigh meat analyses based on one bird per pen.

[8] A diet × sex interaction ($P < 0.15$) was detected, see Appendix IV, Tables 1 - 25 for within sex analysis.



Appendix III - Figure 1. Average Bird Weight Day 42[1] (kg/bird) for broilers fed diets containing MON 87705, 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, males and females combined) for broilers fed diets containing MON 87705, 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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APPENDIX IV

Statistical Report (including Data Listing)

Pages 59 - 126

Statistical Report
Monsanto Study No. CQR-08-271
CQR Study No. MN-08-4
Comparison of Broiler Performance and Carcass Parameters When Fed Diets Containing Soybean Meal Produced From MON 87705, Control, or Reference Soybeans

The purpose of this study was to evaluate the nutritional value of diets containing soybean meal produced from MON 87705, 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 25 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 9.2 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 9.2 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 1-25. 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 87705, control and reference soybean diets are summarized in Tables 1-25 for each of the 25 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 25 analysis variables. Because the interaction term was significant ($p<0.15$) for 13 out of 25 variables, the results were summarized overall and by sex in Tables 2, 4, 7, 8, 9, 10, 12, 13, 15, 18, 20, 23 and 24.

The p-values for the diet effect are found in Tables 1-25. 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 Tables 1-25, diet means followed by the same letter are not significantly different from each other.

Bird Weight Day 42, kg/bird (Table 2): There was significant Diet*Sex interaction (p-value=0.1459), so the data were analyzed separately for each sex. There were no significant differences among diets for males or females (p-value=0.1372 and 0.0934, respectively). MON 87705 was not significantly different than any of the control (A3525) or references. Note that the p-values from the mixed model [model (2)] comparing difference between MON 87705 and the control and reference diets was not significant for males or females (p-value=0.5258 and 0.7488, respectively).

Average Feed Intake, kg/bird (Table 3): There was no significant Diet*Sex interaction (p-value=0.3303), so the data were analyzed overall combining males and females. There were significant differences among diets (p-value=0.0225). MON 87705 was not significantly different than the control (A3525) or any of the references except for NK 25-J5. Note that the p-value from the mixed model [model (2)] comparing difference between MON 87705 and the control and reference diets was not significant (p-value=0.7389).

Average Bird Gain Day 42, kg/bird (Table 4): There was significant Diet*Sex interaction (p-value=0.1480), so the data were analyzed separately for each sex. There were no significant differences among diets for males or females (p-value=0.1379 and 0.0943, respectively). MON 87705 was not significantly different than any of the control (A3525) or references. Note that the p-values from the mixed model [model (2)] comparing difference between MON 87705 and the control and reference diets was not significant for males or females (p-value=0.5351 and 0.7361, respectively).

Adjusted Feed Conversion (adjusted for R/M birds) (**Table 6):** There was no significant Diet*Sex interaction (p-value=0.8360), so the data were analyzed overall combining males and females. There were significant differences among diets (p-value<.0001). MON 87705 was not significantly different than the control (A3525) and the references UA4805, NC+ 2A86 and NK 25-J5. Note that the p-value from the mixed model [model (2)] comparing differences between MON 87705 and the control and reference diets was not significant (p-value=0.8625).

Average Pre-Processing Live Body Weight, kg/bird (Table 7): There was significant Diet*Sex interaction (p-value=0.1296), so the data were analyzed separately for each sex. There were no significant differences among diets for males or females (p-value=0.1541 and 0.1479, respectively). MON 87705 was not significantly different than any of the control (A3525) or references. Note that the p-values from the mixed model [model (2)] comparing difference between MON 87705 and the control and reference diets was not significant for males or females (p-value=0.4308 and 0.7514, respectively).

Chilled Weight, kg/bird (Table 8): There was significant Diet*Sex interaction (p-value=0.0582), so the data were analyzed separately for each sex. There were no significant differences among diets for males or females (p-value=0.0624 and 0.1155,

respectively). MON 87705 was not significantly different than any of the control (A3525) or references. Note that the p-values from the mixed model [model (2)] comparing difference between MON 87705 and the control and reference diets was not significant for males or females (p-value=0.5810 and 0.7768, respectively).

Fat Pad Weight, kg/bird (**Table 9):** There was significant Diet*Sex interaction (p-value=0.0514), so the data were analyzed separately for each sex. There were significant differences among diets for males but not for females (p-value=0.0157 and 0.2027, respectively). Comparisons for males indicated that MON 87705 was not significantly different than any of the control (A3525) or references except for UA4805 and NK 25-J5. Note that the p-values from the mixed model [model (2)] comparing difference between MON 87705 and the control and reference diets was not significant for males or females (p-value=0.2139 and 0.6954, respectively).

Average Breast Weight, kg/bird (Table 10): There was significant Diet*Sex interaction (p-value=0.0531 so the data were analyzed separately for each sex. There were significant differences among diets for males but not for females (p-value=0.0311 and 0.3541, respectively). Comparisons for males indicated that MON 87705 was significantly different than the control (A3525), but not significantly different than any of the references except for NK 25-J5. Note that the p-values from the mixed model [model (2)] comparing difference between MON 87705 and the control and reference diets was not significant for males or females (p-value=0.6052 and 0.7289, respectively).

Average Wing Weight, kg/bird (Table 11): There was no significant Diet*Sex interaction (p-value=0.2385), so the data were analyzed overall combining males and females. There were significant differences among diets (p-value=0.0228). MON 87705 was not significantly different than the control (A3525) or any of the references except for Ozark and NK 25-J5. Note that the p-value from the mixed model [model (2)] comparing difference between MON 87705 and the control and reference diets was not significant (p-value=0.8562).

Average Thigh Weight, kg/bird (Table 12): There was significant Diet*Sex interaction (p-value=0.0925), so the data were analyzed separately for each sex. There were significant differences among diets for females but not for males (p-value=0.0126 and 0.1667, respectively). Comparisons for females indicated that MON 87705 was not significantly different than the control (A3525) or any of the references except for Ozark. Note that the p-values from the mixed model [model (2)] comparing difference between MON 87705 and the control and reference diets was not significant for males or females (p-value=0.5084 and 0.7669, respectively).

Average Drum Weight, kg/bird (Table 13): There was significant Diet*Sex interaction (p-value=0.1145), so the data were analyzed separately for each sex. There were significant differences among diets for females but not for males (p-value=0.0189 and 0.0810, respectively). Comparisons for females indicated that MON 87705 was not significantly different than the control (A3525) or any of the references except for Ozark. Note that the p-values from the mixed model [model (2)] comparing difference between

MON 87705 and the control and reference diets was not significant for males or females (p-value=0.7728 and 0.5988, respectively).

Percent Chilled Weight (Chilled Wt/Live Wt x 100) (Table 15): There was significant Diet*Sex interaction (p-value=0.0240), so the data were analyzed separately for each sex. There were significant differences among diets for males but not for females (p-value=0.0436 and 0.0889, respectively). Comparisons for males indicated that MON 87705 was not significantly different than the control (A3525) or any of the references except for NC+ 2A86. Note that the p-values from the mixed model [model (2)] comparing difference between MON 87705 and the control and reference diets was not significant for males or females (p-value=0.5790 and 0.9334, respectively).

Percent Thigh Weight (Thigh Wt/ Chilled Wt x 100) (Table 18): There was significant Diet*Sex interaction (p-value=0.0076), so the data were analyzed separately for each sex. There were significant differences among diets for males but not for females (p-value=0.0095 and 0.1075, respectively). Comparisons for males indicated that MON 87705 was not significantly different than the control (A3525) or any of the references except for NK S38-T8. Note that the p-values from the mixed model [model (2)] comparing difference between MON 87705 and the control and reference diets was not significant for males or females (p-value=0.8842 and 0.9110, respectively).

Breast Moisture (g/100 g) (Table 20): There was significant Diet*Sex interaction (p-value=0.1340), so the data were analyzed separately for each sex. There were no significant differences among diets for males or females (p-value=0.3159 and 0.1081, respectively). MON 87705 was not significantly different than any of the control (A3525) or references. Note that the p-values from the mixed model [model (2)] comparing difference between MON 87705 and the control and reference diets was not significant for males or females (p-value=0.8300 and 0.7433, respectively).

Thigh Moisture (g/100 g) (Table 23): There was significant Diet*Sex interaction (p-value=0.0172), so the data were analyzed separately for each sex. There were no significant differences among diets for males or females (p-value=0.2258 and 0.0569, respectively). MON 87705 was not significantly different than any of the control (A3525) or references. Note that the p-values from the mixed model [model (2)] comparing difference between MON 87705 and the control and reference diets was not significant for males or females (p-value=0.9090 and 0.9742, respectively).

Thigh Protein (g/100 g) (Table 24): There was significant Diet*Sex interaction (p-value=0.1105), so the data were analyzed separately for each sex. There were significant differences among diets for males but not for females (p-value=0.0486 and 0.9208, respectively). Comparisons for males indicated that MON 87705 was not significantly different than the control (A3525) or any of the references except for NK 25-J5. Note that the p-values from the mixed model [model (2)] comparing difference between MON 87705 and the control and reference diets was not significant for males or females (p-value=0.6503 and 0.8532, respectively).

References

SAS Software Release 9.2 (TS1M0). Copyright© 2002-2008 by SAS Institute Inc., Cary NC.

Table A.1: Diets

Test Article	1. MON 87705
Control Article	1. A3525
Reference Articles	1. Anand 2. Ozark 3. NK S38-T8 4. UA4805 5. NC+ 2A86 6. NK 25-J5

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. Adjusted Feed Conversion (adjusted for R/M birds)
7. Average Pre-Processing Live Body Weight, kg/bird
8. Chilled Weight, kg/bird
9. Fat Pad Weight, kg/bird
10. Average Breast Weight, kg/bird
11. Average Wing Weight, kg/bird
12. Average Thigh Weight, kg/bird
13. Average Drum Weight, kg/bird
14. Percent Fat Pad Weight (Fat Pad Wt / Live Wt x 100)
15. Percent Chilled Weight (Chilled Wt/Live Wt x 100)
16. Percent Breast Weight (Breast Wt/ Chilled Wt x 100)
17. Percent Wing Weight (Wing Wt/ Chilled Wt x 100)
18. Percent Thigh Weight (Thigh Wt/ Chilled Wt x 100)
19. Percent Drum Weight (Drum Wt/ Chilled Wt x 100)
20. Breast Moisture (g/100 g)
21. Breast Protein (g/100 g)
22. Breast Fat (g/100 g)
23. Thigh Moisture (g/100 g)
24. Thigh Protein (g/100 g)
25. Thigh Fat (g/ 100g)

Table A.3. List of Figures

Table 1. Bird Weight Day 0, g/bird

	Summary	Overall
ANOVA	p-value, Block	0.0035
	p-value, Diet	0.3173
	p-value, Sex	0.0641
	p-value, Diet*Sex	0.8699
	LSD 5%	0.795
Diet Means	MON 87705	40.883
	A3525	41.417
	Anand	41.683
	Ozark	41.617
	NK S38-T8	41.650
	UA4805	41.817
	NC+ 2A86	41.833
	NK 25-J5	41.700
Mixed Model	Control and References*	41.674
	MON 87705*	40.883
	Mixed Model p-value*	0.0070
	Mixed Model 5% LSD*	0.567

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	Males	Females
ANOVA	p-value, Block	0.2369	0.7117	0.1688
	p-value, Diet	0.0506	0.1372	0.0934
	p-value, Sex	<.0001	.	.
	p-value, Diet*Sex	0.1459	.	.
	LSD 5%	0.066	0.112	0.080
Diet Means	MON 87705	2.607	2.785	2.428
	A3525	2.622	2.837	2.406
	Anand	2.640	2.820	2.460
	Ozark	2.560	2.744	2.377
	NK S38-T8	2.591	2.827	2.355
	UA4805	2.625	2.860	2.389
	NC+ 2A86	2.614	2.774	2.454
	NK 25-J5	2.678	2.905	2.450
Mixed Model	Control and References*	2.618	2.824	2.413
	MON 87705*	2.607	2.785	2.428
	Mixed Model p-value*	0.7771	0.5258	0.7488
	Mixed Model 5% LSD*	0.097	0.139	0.109

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	0.0492	
	p-value, Diet	0.0225	
	p-value, Sex	<.0001	
	p-value, Diet*Sex	0.3303	
	LSD 5%	0.111	
Diet Means	MON 87705	4.112	BDC
	A3525	4.124	BDC
	Anand	4.203	BA
	Ozark	4.091	DC
	NK S38-T8	4.037	D
	UA4805	4.118	BDC
	NC+ 2A86	4.154	BAC
	NK 25-J5	4.234	A
Mixed Model	Control and References*	4.137	
	MON 87705*	4.112	
	Mixed Model p-value*	0.7389	
	Mixed Model 5% LSD*	0.175	

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 4. Average Bird Gain Day 42, kg/bird

	Summary	Overall	Males	Females
ANOVA	p-value, Block	0.2547	0.7226	0.1771
	p-value, Diet	0.0507	0.1379	0.0943
	p-value, Sex	<.0001	.	.
	p-value, Diet*Sex	0.1480	.	.
	LSD 5%	0.066	0.112	0.080
Diet Means	MON 87705	2.566	2.744	2.387
	A3525	2.580	2.796	2.365
	Anand	2.598	2.778	2.418
	Ozark	2.519	2.702	2.335
	NK S38-T8	2.549	2.785	2.314
	UA4805	2.583	2.818	2.347
	NC+ 2A86	2.572	2.732	2.412
	NK 25-J5	2.636	2.863	2.408
Mixed Model	Control and References*	2.577	2.782	2.372
	MON 87705*	2.566	2.744	2.387
	Mixed Model p-value*	0.7916	0.5351	0.7361
	Mixed Model 5% LSD*	0.096	0.139	0.109

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	0.1150
	p-value, Diet	0.5372
	p-value, Sex	<.0001
	p-value, Diet*Sex	0.4821
	LSD 5%	0.056
Diet Means	MON 87705	1.614
	A3525	1.615
	Anand	1.647
	Ozark	1.650
	NK S38-T8	1.635
	UA4805	1.601
	NC+ 2A86	1.644
	NK 25-J5	1.642
Mixed Model	Control and References*	1.633
	MON 87705*	1.614
	Mixed Model p-value*	0.3560
	Mixed Model 5% LSD*	0.042

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

	Summary	Overall	
ANOVA	p-value, Block	0.1499	
	p-value, Diet	<.0001	
	p-value, Sex	<.0001	
	p-value, Diet*Sex	0.8360	
	LSD 5%	0.016	
Diet Means	MON 87705	1.597	DC
	A3525	1.592	EDC
	Anand	1.613	BA
	Ozark	1.622	A
	NK S38-T8	1.577	E
	UA4805	1.589	ED
	NC+ 2A86	1.608	BAC
	NK 25-J5	1.599	BDC
Mixed Model	Control and References*	1.600	
	MON 87705*	1.597	
	Mixed Model p-value*	0.8625	
	Mixed Model 5% LSD*	0.040	

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

	Summary	Overall	Males	Females
ANOVA	p-value, Block	0.4136	0.8529	0.3388
	p-value, Diet	0.0938	0.1541	0.1479
	p-value, Sex	<.0001	.	.
	p-value, Diet*Sex	0.1296	.	.
	LSD 5%	0.069	0.115	0.088
Diet Means	MON 87705	2.630	2.758	2.502
	A3525	2.657	2.830	2.483
	Anand	2.666	2.796	2.536
	Ozark	2.587	2.727	2.448
	NK S38-T8	2.620	2.811	2.430
	UA4805	2.650	2.840	2.460
	NC+ 2A86	2.643	2.755	2.532
	NK 25-J5	2.699	2.881	2.517
Mixed Model	Control and References*	2.646	2.806	2.486
	MON 87705*	2.630	2.758	2.502
	Mixed Model p-value*	0.6848	0.4308	0.7514
	Mixed Model 5% LSD*	0.092	0.137	0.111

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. Chilled Weight, kg/bird

	Summary	Overall		Males	Females
ANOVA	p-value, Block	0.3432		0.8146	0.3264
	p-value, Diet	0.0387		0.0624	0.1155
	p-value, Sex	<.0001		.	.
	p-value, Diet*Sex	0.0582		.	.
	LSD 5%	0.051		0.085	0.065
Diet Means	MON 87705	1.909	BAC	2.003	1.815
	A3525	1.933	BA	2.065	1.800
	Anand	1.931	BA	2.020	1.842
	Ozark	1.866	C	1.966	1.765
	NK S38-T8	1.902	B C	2.035	1.769
	UA4805	1.924	BA	2.060	1.787
	NC+ 2A86	1.912	BAC	1.980	1.843
	NK 25-J5	1.960	A	2.093	1.827
Mixed Model	Control and References*	1.918		2.031	1.805
	MON 87705*	1.909		2.003	1.815
	Mixed Model p-value*	0.7804		0.5810	0.7768
	Mixed Model 5% LSD*	0.077		0.121	0.086

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 9. Fat Pad Weight, kg/bird

	Summary	Overall		Males		Females
ANOVA	p-value, Block	0.2047		0.3123		0.4806
	p-value, Diet	0.0401		0.0157		0.2027
	p-value, Sex	<.0001		.		.
	p-value, Diet*Sex	0.0514		.		.
	LSD 5%	0.003		0.003		0.004
Diet Means	MON 87705	0.040	C	0.036	B	0.043
	A3525	0.040	B C	0.039	BA	0.042
	Anand	0.043	A	0.039	BA	0.047
	Ozark	0.041	BAC	0.037	B	0.044
	NK S38-T8	0.041	BAC	0.039	BA	0.042
	UA4805	0.043	A	0.042	A	0.044
	NC+ 2A86	0.040	B C	0.038	B	0.043
	NK 25-J5	0.042	BA	0.042	A	0.043
Mixed Model	Control and References*	0.041		0.039		0.044
	MON 87705*	0.040		0.036		0.043
	Mixed Model p-value*	0.2216		0.2139		0.6954
	Mixed Model 5% LSD*	0.003		0.005		0.005

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 10. Average Breast Weight, kg/bird

	Summary	Overall	Males		Females
ANOVA	p-value, Block	0.2056	0.5394		0.4081
	p-value, Diet	0.0520	0.0311		0.3541
	p-value, Sex	<.0001	.		.
	p-value, Diet*Sex	0.0531	.		.
	LSD 5%	0.018	0.030		0.025
Diet Means	MON 87705	0.549	0.562	B	0.536
	A3525	0.562	0.592	A	0.533
	Anand	0.558	0.572	BA	0.545
	Ozark	0.541	0.556	B	0.527
	NK S38-T8	0.539	0.560	B	0.519
	UA4805	0.551	0.580	BA	0.522
	NC+ 2A86	0.546	0.550	B	0.542
	NK 25-J5	0.565	0.595	A	0.536
Mixed Model	Control and References*	0.552	0.572		0.532
	MON 87705*	0.549	0.562		0.536
	Mixed Model p-value*	0.7775	0.6052		0.7289
	Mixed Model 5% LSD*	0.027	0.046		0.026

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 Wing Weight, kg/bird

	Summary	Overall	
ANOVA	p-value, Block	0.2011	
	p-value, Diet	0.0228	
	p-value, Sex	<.0001	
	p-value, Diet*Sex	0.2385	
	LSD 5%	0.006	
Diet Means	MON 87705	0.200	B
	A3525	0.200	B
	Anand	0.201	BA
	Ozark	0.194	C
	NK S38-T8	0.200	BA
	UA4805	0.201	BA
	NC+ 2A86	0.201	BA
	NK 25-J5	0.206	A
Mixed Model	Control and References*	0.200	
	MON 87705*	0.200	
	Mixed Model p-value*	0.8562	
	Mixed Model 5% LSD*	0.009	

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 12. Average Thigh Weight, kg/bird

	Summary	Overall		Males	Females	
ANOVA	p-value, Block	0.9319		0.8468	0.3003	
	p-value, Diet	0.0307		0.1667	0.0126	
	p-value, Sex	<.0001		.	.	
	p-value, Diet*Sex	0.0925		.	.	
	LSD 5%	0.010		0.016	0.011	
Diet Means	MON 87705	0.331	A	0.351	0.311	BA
	A3525	0.334	A	0.358	0.310	BA
	Anand	0.333	A	0.352	0.314	A
	Ozark	0.320	B	0.345	0.295	C
	NK S38-T8	0.332	A	0.363	0.302	B C
	UA4805	0.335	A	0.364	0.306	BAC
	NC+ 2A86	0.331	A	0.349	0.313	A
	NK 25-J5	0.339	A	0.362	0.316	A
Mixed Model	Control and References*	0.332		0.356	0.308	
	MON 87705*	0.331		0.351	0.311	
	Mixed Model p-value*	0.8058		0.5084	0.7669	
	Mixed Model 5% LSD*	0.015		0.020	0.020	

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 13. Average Drum Weight, kg/bird

	Summary	Overall		Males	Females	
ANOVA	p-value, Block	0.7325		0.7913	0.0484	
	p-value, Diet	0.0161		0.0810	0.0189	
	p-value, Sex	<.0001		.	.	
	p-value, Diet*Sex	0.1145		.	.	
	LSD 5%	0.007		0.012	0.008	
Diet Means	MON 87705	0.256	A	0.276	0.236	BA
	A3525	0.255	A	0.279	0.231	BAC
	Anand	0.257	A	0.276	0.239	A
	Ozark	0.246	B	0.268	0.224	C
	NK S38-T8	0.255	A	0.281	0.230	B C
	UA4805	0.257	A	0.283	0.231	BAC
	NC+ 2A86	0.256	A	0.273	0.238	A
	NK 25-J5	0.261	A	0.288	0.235	BA
Mixed Model	Control and References*	0.255		0.278	0.233	
	MON 87705*	0.256		0.276	0.236	
	Mixed Model p-value*	0.9196		0.7728	0.5988	
	Mixed Model 5% LSD*	0.012		0.017	0.014	

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

	Summary	Overall
ANOVA	p-value, Block	0.4569
	p-value, Diet	0.0718
	p-value, Sex	<.0001
	p-value, Diet*Sex	0.2359
	LSD 5%	0.086
Diet Means	MON 87705	1.519
	A3525	1.522
	Anand	1.620
	Ozark	1.577
	NK S38-T8	1.564
	UA4805	1.631
	NC+ 2A86	1.530
	NK 25-J5	1.573
Mixed Model	Control and References*	1.574
	MON 87705*	1.519
	Mixed Model p-value*	0.2531
	Mixed Model 5% LSD*	0.107

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 Chilled Weight (Chilled Wt/Live Wt x 100)

	Summary	Overall		Males		Females
ANOVA	p-value, Block	0.2645		0.9077		0.1440
	p-value, Diet	0.0395		0.0436		0.0889
	p-value, Sex	0.0923		.		.
	p-value, Diet*Sex	0.0240		.		.
	LSD 5%	0.364		0.619		0.447
Diet Means	MON 87705	72.573	A	72.601	BA	72.545
	A3525	72.701	A	72.934	A	72.468
	Anand	72.413	BA	72.201	B C	72.625
	Ozark	72.091	B	72.080	B C	72.102
	NK S38-T8	72.593	A	72.397	BAC	72.788
	UA4805	72.582	A	72.542	BA	72.622
	NC+ 2A86	72.349	BA	71.901	C	72.798
	NK 25-J5	72.590	A	72.612	BA	72.567
Mixed Model	Control and References*	72.474		72.381		72.567
	MON 87705*	72.573		72.601		72.545
	Mixed Model p-value*	0.6692		0.5790		0.9334
	Mixed Model 5% LSD*	0.493		0.918		0.618

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 Breast Weight (Breast Wt/ Chilled Wt x 100)

	Summary	Overall
ANOVA	p-value, Block	0.2528
	p-value, Diet	0.0596
	p-value, Sex	<.0001
	p-value, Diet*Sex	0.4001
	LSD 5%	0.477
Diet Means	MON 87705	28.768
	A3525	29.076
	Anand	28.947
	Ozark	29.051
	NK S38-T8	28.401
	UA4805	28.640
	NC+ 2A86	28.544
	NK 25-J5	28.863
Mixed Model	Control and References*	28.789
	MON 87705*	28.768
	Mixed Model p-value*	0.9445
	Mixed Model 5% LSD*	0.687

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 Wing Weight (Wing Wt/ Chilled Wt x 100)

	Summary	Overall
ANOVA	p-value, Block	0.1626
	p-value, Diet	0.1917
	p-value, Sex	<.0001
	p-value, Diet*Sex	0.3689
	LSD 5%	0.141
Diet Means	MON 87705	10.465
	A3525	10.341
	Anand	10.426
	Ozark	10.418
	NK S38-T8	10.536
	UA4805	10.456
	NC+ 2A86	10.498
	NK 25-J5	10.501
Mixed Model	Control and References*	10.454
	MON 87705*	10.465
	Mixed Model p-value*	0.8778
	Mixed Model 5% LSD*	0.171

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 Thigh Weight (Thigh Wt/ Chilled Wt x 100)

	Summary	Overall	Males		Females
ANOVA	p-value, Block	0.1103	0.1814		0.0153
	p-value, Diet	0.2818	0.0095		0.1075
	p-value, Sex	<.0001	.		.
	p-value, Diet*Sex	0.0076	.		.
	LSD 5%	0.240	0.297		0.347
Diet Means	MON 87705	17.295	17.498	BDC	17.092
	A3525	17.280	17.345	DC	17.215
	Anand	17.233	17.407	BDC	17.060
	Ozark	17.147	17.566	BAC	16.729
	NK S38-T8	17.453	17.838	A	17.068
	UA4805	17.408	17.685	BA	17.130
	NC+ 2A86	17.309	17.615	BAC	17.004
	NK 25-J5	17.273	17.263	D	17.283
Mixed Model	Control and References*	17.300	17.531		17.070
	MON 87705*	17.295	17.498		17.092
	Mixed Model p-value*	0.9707	0.8842		0.9110
	Mixed Model 5% LSD*	0.315	0.532		0.466

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 19. Percent Drum Weight (Drum Wt/ Chilled Wt x 100)

	Summary	Overall
ANOVA	p-value, Block	0.8725
	p-value, Diet	0.3286
	p-value, Sex	<.0001
	p-value, Diet*Sex	0.9612
	LSD 5%	0.227
Diet Means	MON 87705	13.390
	A3525	13.181
	Anand	13.310
	Ozark	13.179
	NK S38-T8	13.393
	UA4805	13.348
	NC+ 2A86	13.375
	NK 25-J5	13.320
Mixed Model	Control and References*	13.301
	MON 87705*	13.390
	Mixed Model p-value*	0.3756
	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. Breast Moisture (g/100 g)

	Summary	Overall	Males	Females
ANOVA	p-value, Block	0.7551	0.5752	0.2187
	p-value, Diet	0.3565	0.3159	0.1081
	p-value, Sex	0.6459	.	.
	p-value, Diet*Sex	0.1340	.	.
	LSD 5%	0.443	0.740	0.502
Diet Means	MON 87705	75.151	75.116	75.185
	A3525	75.006	75.082	74.930
	Anand	75.112	74.909	75.315
	Ozark	74.815	74.806	74.824
	NK S38-T8	75.370	75.526	75.214
	UA4805	75.185	75.040	75.330
	NC+ 2A86	74.960	74.622	75.297
	NK 25-J5	75.025	75.316	74.733
Mixed Model	Control and References*	75.067	75.043	75.092
	MON 87705*	75.151	75.116	75.185
	Mixed Model p-value*	0.7020	0.8300	0.7433
	Mixed Model 5% LSD*	0.464	0.799	0.667

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 Protein (g/100 g)

	Summary	Overall
ANOVA	p-value, Block	0.1626
	p-value, Diet	0.1902
	p-value, Sex	0.0012
	p-value, Diet*Sex	0.4602
	LSD 5%	0.430
Diet Means	MON 87705	22.878
	A3525	22.906
	Anand	22.592
	Ozark	22.982
	NK S38-T8	22.422
	UA4805	22.717
	NC+ 2A86	22.789
	NK 25-J5	22.648
Mixed Model	Control and References*	22.722
	MON 87705*	22.878
	Mixed Model p-value*	0.4734
	Mixed Model 5% LSD*	0.499

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 Fat (g/100 g)

	Summary	Overall
ANOVA	p-value, Block	0.4272
	p-value, Diet	0.8241
	p-value, Sex	0.0001
	p-value, Diet*Sex	0.4082
	LSD 5%	0.251
Diet Means	MON 87705	1.130
	A3525	1.031
	Anand	1.159
	Ozark	1.178
	NK S38-T8	1.094
	UA4805	0.993
	NC+ 2A86	1.125
	NK 25-J5	1.131
Mixed Model	Control and References*	1.102
	MON 87705*	1.130
	Mixed Model p-value*	0.7605
	Mixed Model 5% LSD*	0.187

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. Thigh Moisture (g/100 g)

	Summary	Overall	Males	Females
ANOVA	p-value, Block	0.3448	0.6188	0.2455
	p-value, Diet	0.4428	0.2258	0.0569
	p-value, Sex	0.9487	.	.
	p-value, Diet*Sex	0.0172	.	.
	LSD 5%	0.355	0.535	0.495
Diet Means	MON 87705	77.179	77.173	77.185
	A3525	76.990	77.185	76.795
	Anand	77.294	77.042	77.545
	Ozark	77.036	77.073	76.999
	NK S38-T8	77.268	77.286	77.251
	UA4805	77.193	77.024	77.361
	NC+ 2A86	77.276	77.106	77.446
	NK 25-J5	77.338	77.707	76.969
Mixed Model	Control and References*	77.199	77.203	77.195
	MON 87705*	77.179	77.173	77.185
	Mixed Model p-value*	0.9194	0.9090	0.9742
	Mixed Model 5% LSD*	0.428	0.627	0.728

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 Protein (g/100 g)

	Summary	Overall	Males		Females
ANOVA	p-value, Block	0.6834	0.1135		0.6994
	p-value, Diet	0.3636	0.0486		0.9208
	p-value, Sex	0.0003	.		.
	p-value, Diet*Sex	0.1105	.		.
	LSD 5%	0.614	0.935		0.764
Diet Means	MON 87705	20.248	20.094	A	20.402
	A3525	20.340	20.336	A	20.344
	Anand	20.338	20.272	A	20.405
	Ozark	20.261	20.140	A	20.382
	NK S38-T8	20.141	19.569	BA	20.713
	UA4805	20.295	20.074	A	20.516
	NC+ 2A86	19.851	19.492	BA	20.210
	NK 25-J5	19.744	18.892	B	20.596
Mixed Model	Control and References*	20.139	19.825		20.452
	MON 87705*	20.248	20.094		20.402
	Mixed Model p-value*	0.7176	0.6503		0.8532
	Mixed Model 5% LSD*	0.645	1.380		0.542

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 25. Thigh Fat (g/ 100g)

	Summary	Overall
ANOVA	p-value, Block	0.8286
	p-value, Diet	0.6961
	p-value, Sex	0.0383
	p-value, Diet*Sex	0.6923
	LSD 5%	0.479
Diet Means	MON 87705	1.528
	A3525	1.726
	Anand	1.880
	Ozark	1.954
	NK S38-T8	1.796
	UA4805	1.681
	NC+ 2A86	1.608
	NK 25-J5	1.733
Mixed Model	Control and References*	1.768
	MON 87705*	1.528
	Mixed Model p-value*	0.1734
	Mixed Model 5% LSD*	0.349

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

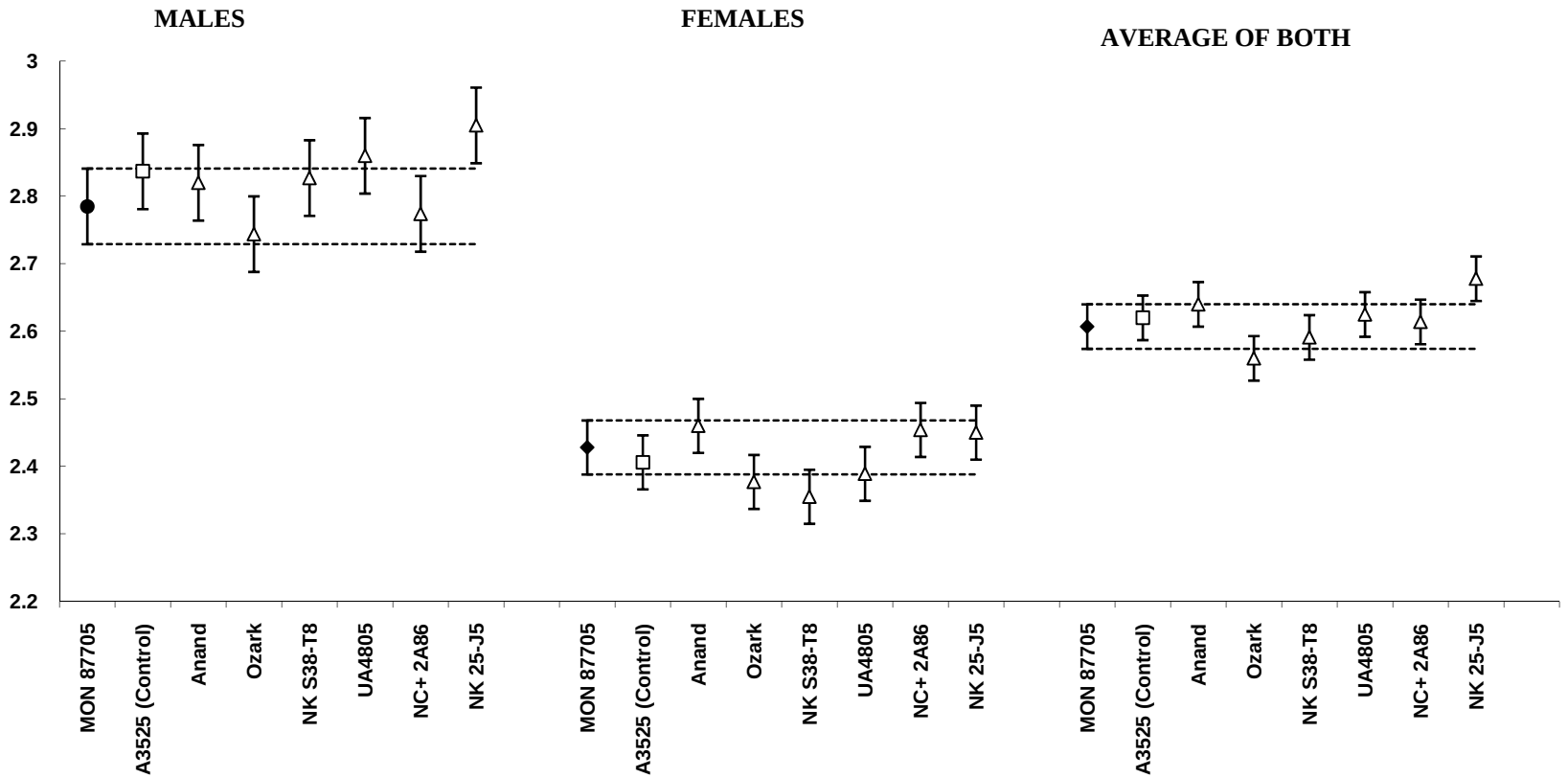

Figure 1. Comparison of Bird Weight Day 42 for broilers fed diets containing MON 87705, Control or Reference soybean meal

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.

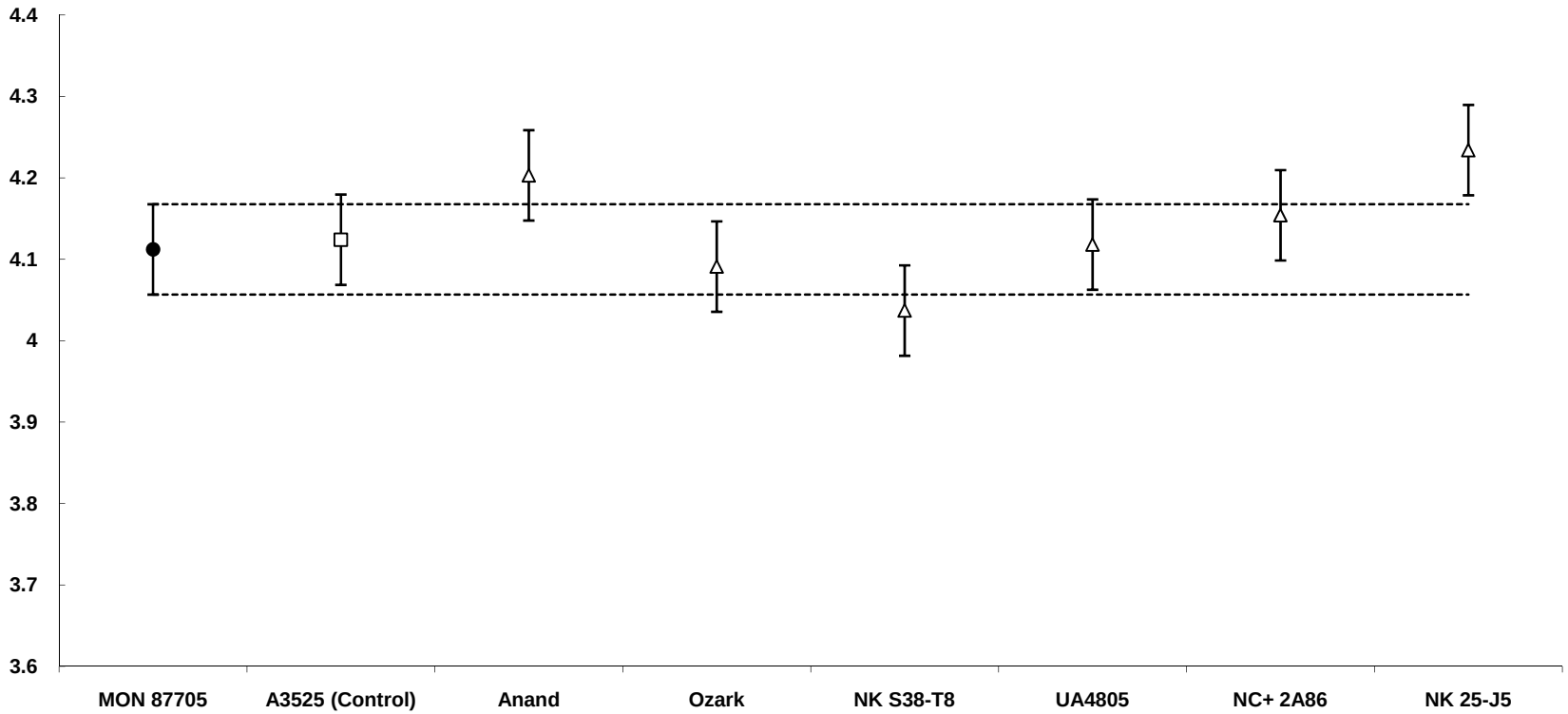

Figure 2. Comparison of Average Feed Intake (males and females combined) for broilers fed diets containing MON 87705, Control or Reference soybean meal

Average Feed Intake (kg/bird), day 0-42, 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.

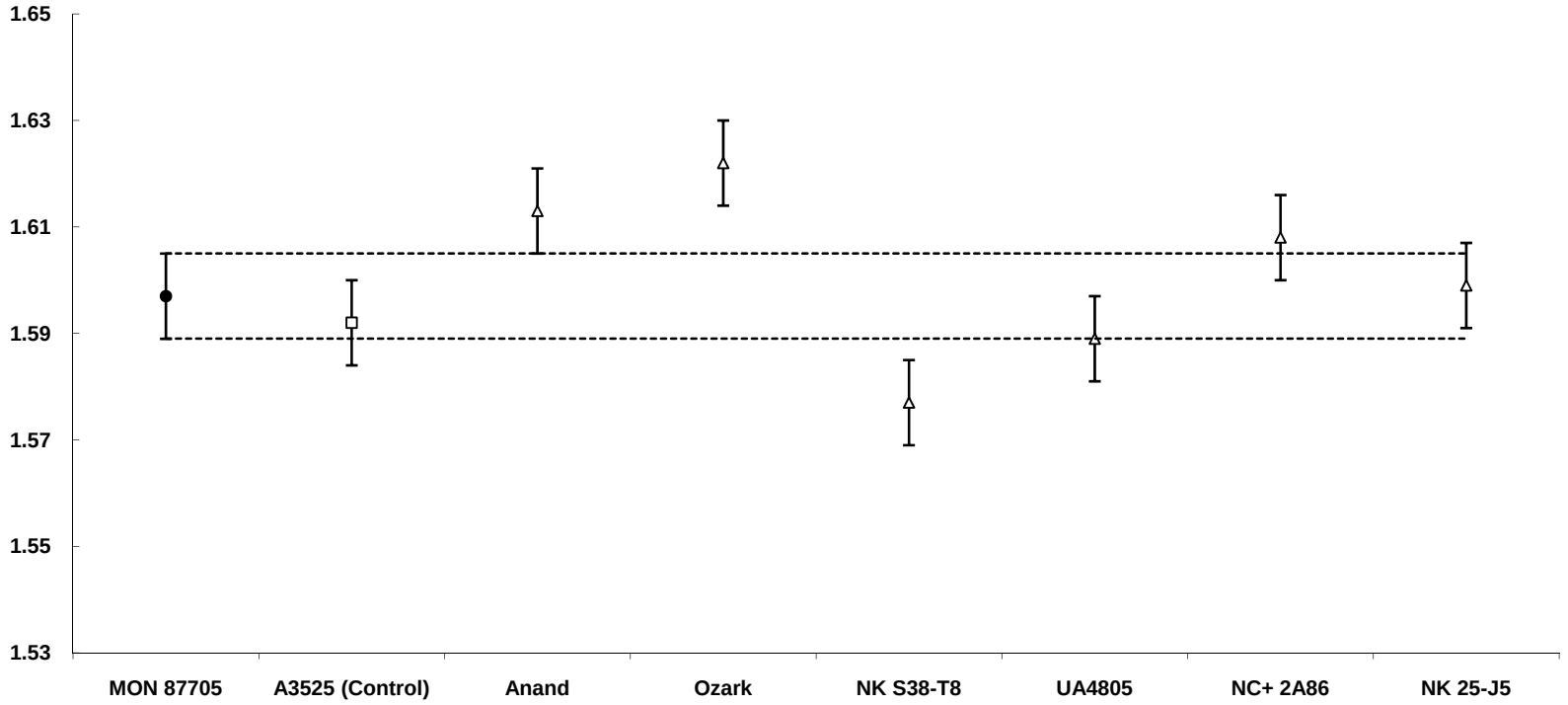

Figure 3. Comparison of Adjusted Feed Conversion (males and females combined) for broilers fed diets containing MON 87705, Control or Reference soybean meal

Adjusted feed conversion (adjusted for R/M birds), day 0-42, 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.

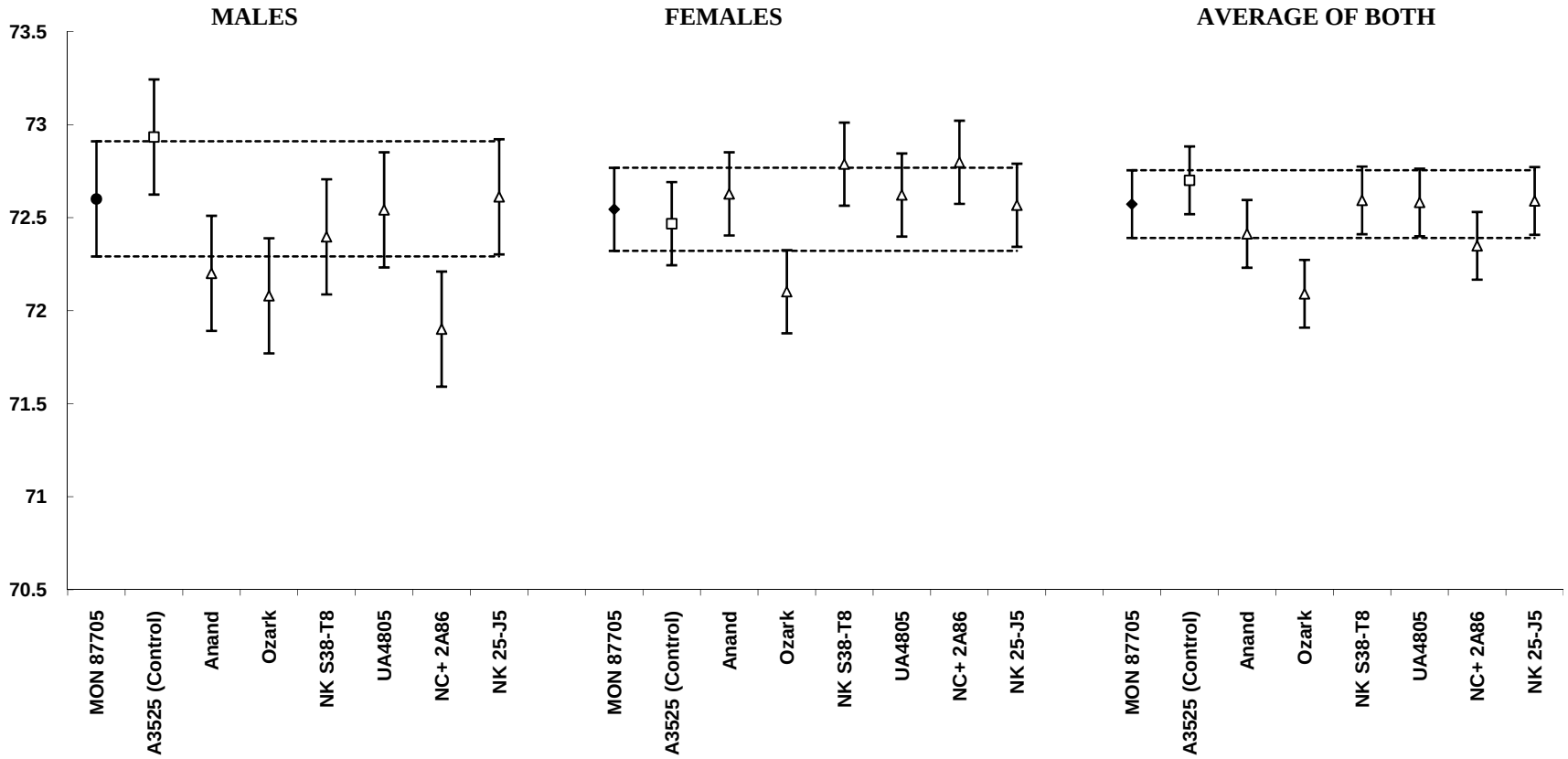

Figure 4. Comparison of Percent Chilled Weight for broilers fed diets containing MON 87705, Control or Reference soybean meal

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.

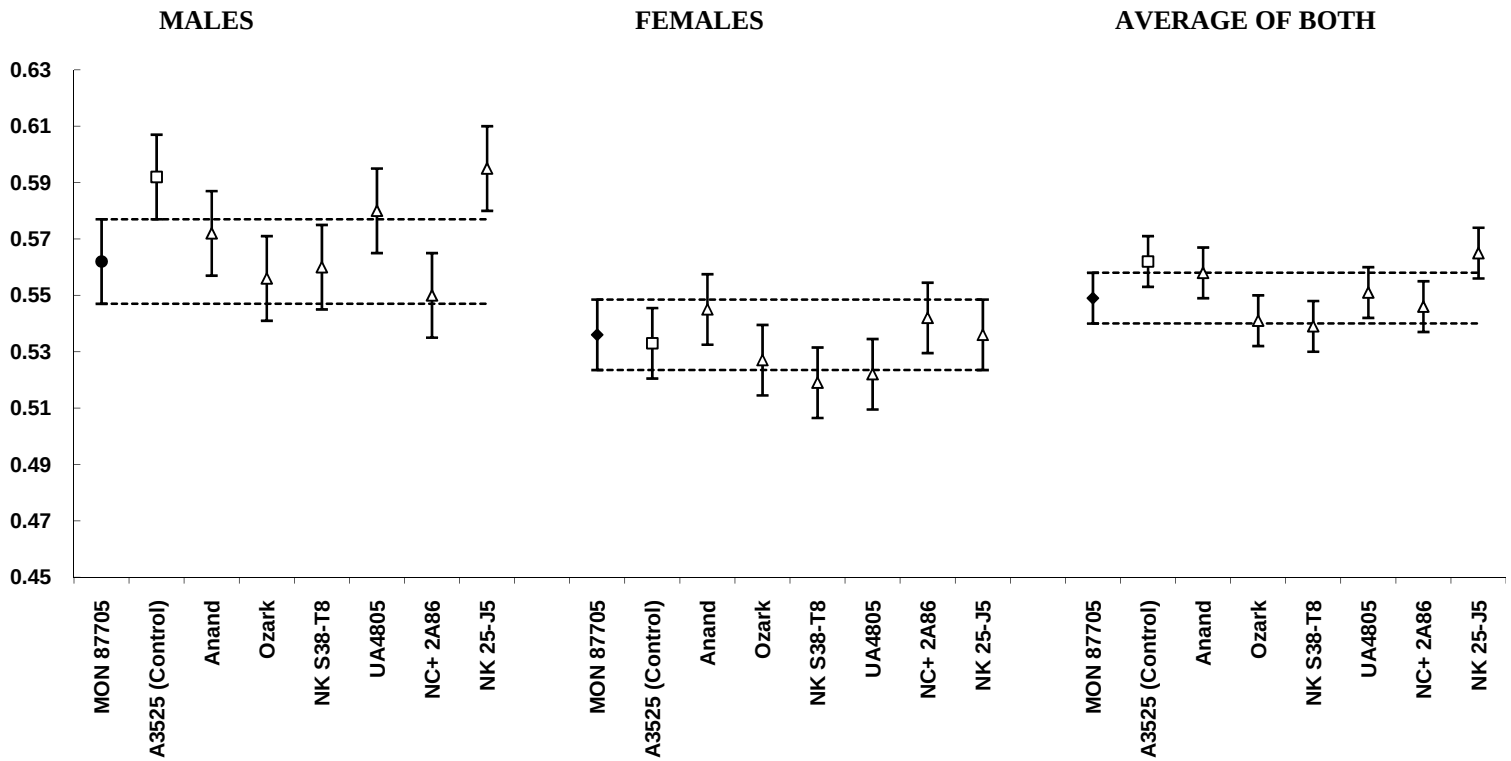

Figure 5. Comparison of Average Breast Weight for broilers fed diets containing MON 87705, Control or Reference soybean meal

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.

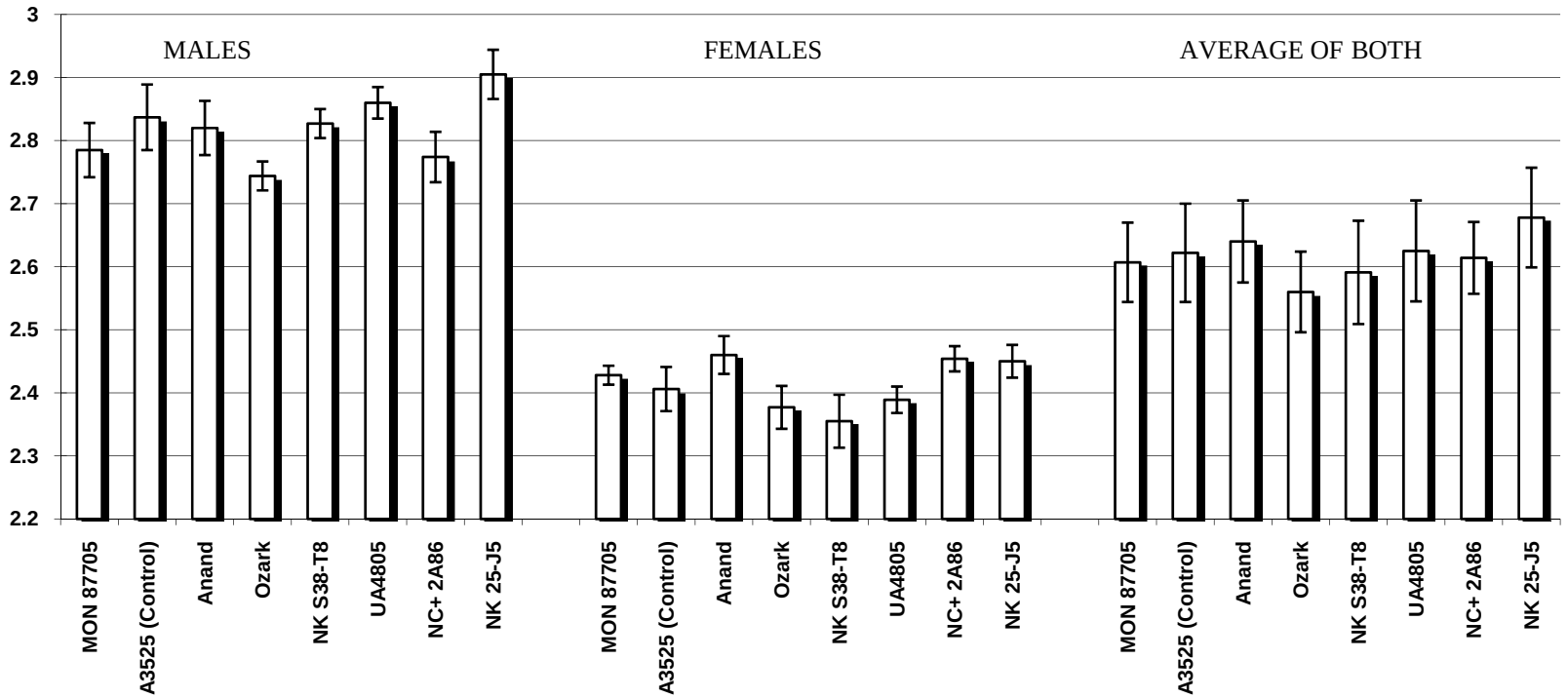

Figure 6. Summary of Bird Weight Day 42 for broilers fed diets containing MON 87705, Control or Reference soybean meal

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).

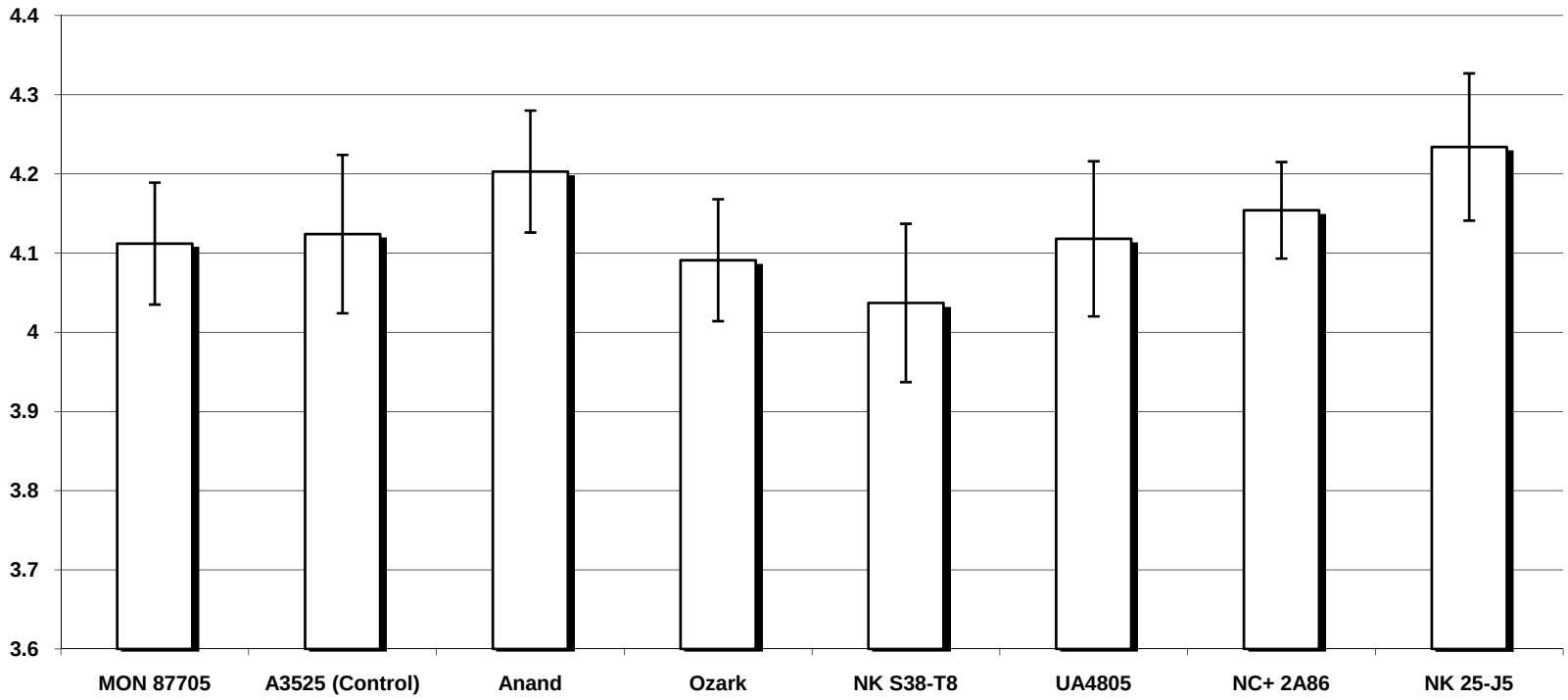

Figure 7. Summary of Average Feed Intake (males and females combined) for broilers fed diets containing MON 87705, Control or Reference soybean meal

Average feed intake (kg/bird), day 0-42, for broilers fed diets containing soybean meal produced from each variety. Error bars are ± one standard error of the mean (SEM).

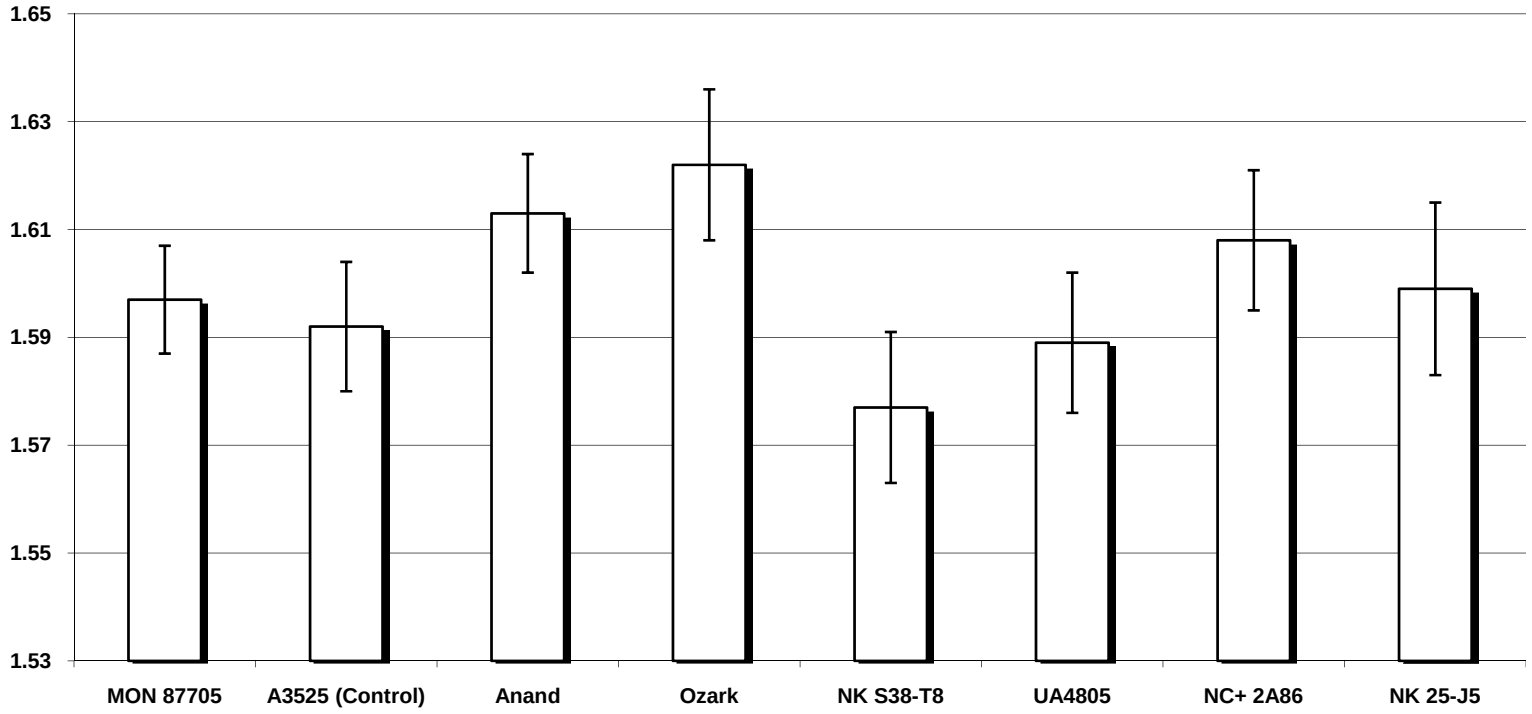

Figure 8. Summary of Adjusted Feed Conversion (males and females combined) for broilers fed diets containing MON 87705, Control or Reference soybean meal

Adjusted feed conversion (adjusted for R/M birds), day 0-42, for broilers fed diets containing soybean meal produced from each variety. Error bars are ± one standard error of the mean (SEM).

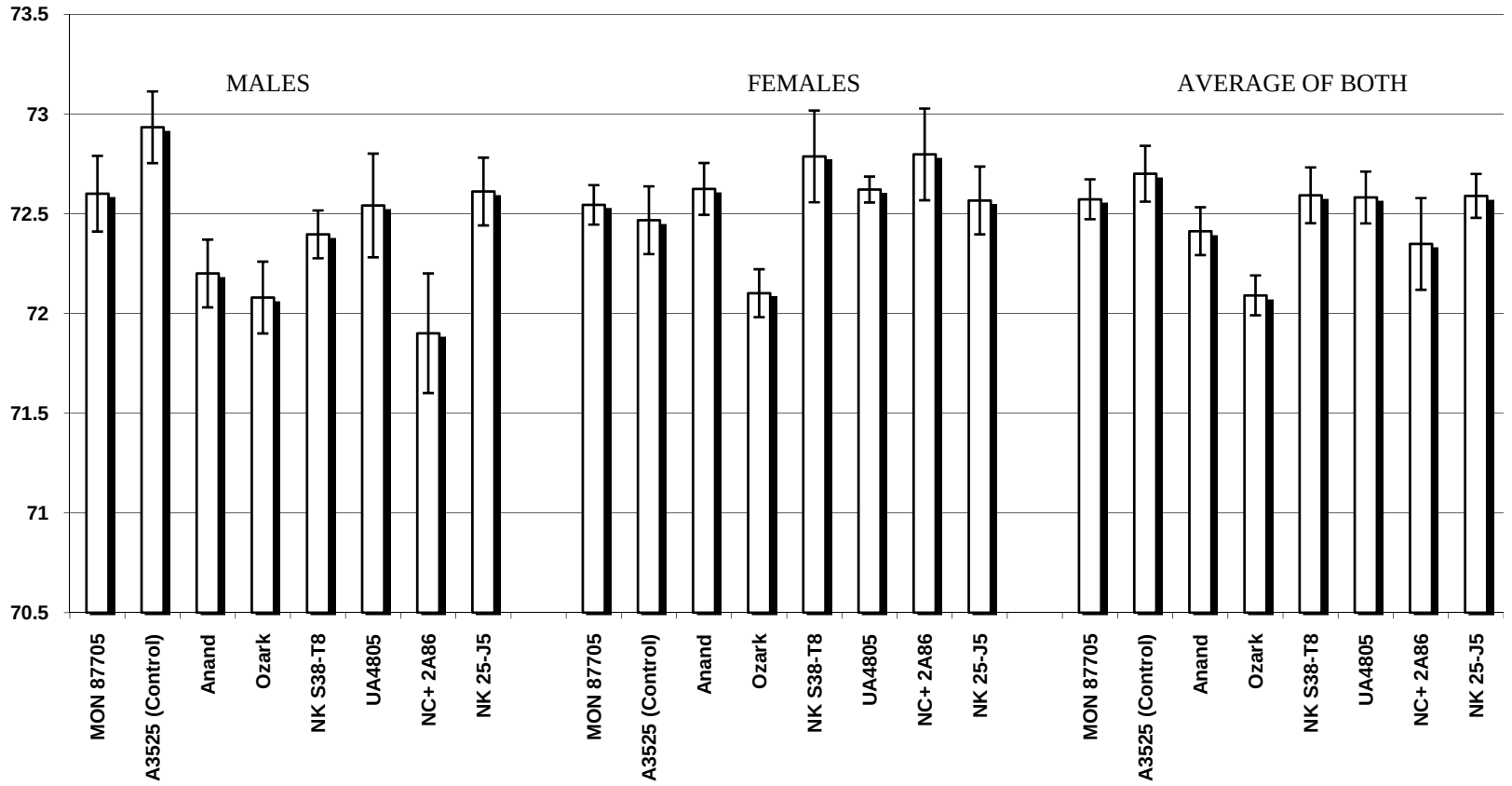

Figure 9. Summary of Percent Chilled Weight for broilers fed diets containing MON 87705, Control or Reference soybean meal

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).

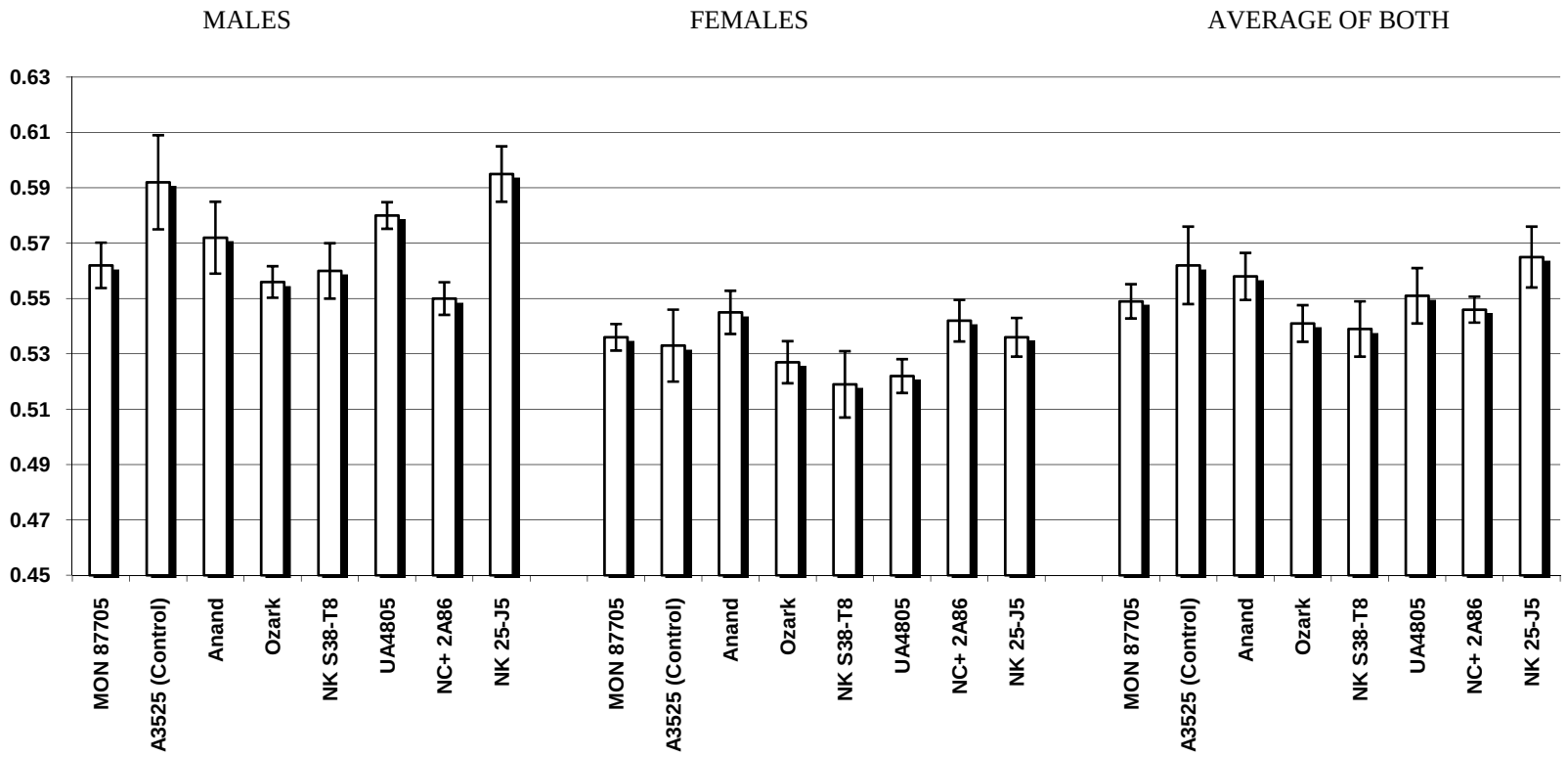

Figure 10. Summary of Average Breast Weight for broilers fed diets containing MON 87705, Control or Reference soybean meal

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	NC+ 2A86	M	5	43.17	2.77	4.25	1.65	1.51	1.56
			F	37	42.33	2.52	4.08	1.65	0.23	1.64
1	2	NC+ 2A86	M	26	41.83	2.84	4.32	1.55	0.19	1.54
			F	15	41.33	2.46	4.04	1.67	0.24	1.66
1	3	NC+ 2A86	M	80	42.83	2.62	4.14	1.61	0.27	1.60
			F	45	42.17	2.46	4.04	1.67	0.18	1.66
1	4	NC+ 2A86	M	49	40.33	2.84	4.46	1.62	0.60	1.59
			F	53	41.33	2.43	3.93	1.64	0.23	1.63
1	5	NC+ 2A86	M	19	41.50	2.81	4.38	1.58	0.25	1.57
			F	21	41.50	2.40	3.90	1.80	2.52	1.62
2	1	NK 25-J5	M	8	42.17	2.92	4.61	1.60	0.21	1.60
			F	36	42.00	2.41	3.99	1.84	2.74	1.64
2	2	NK 25-J5	M	11	42.00	3.02	4.63	1.55	0.25	1.54
			F	13	40.33	2.38	3.81	1.63	0.25	1.62
2	3	NK 25-J5	M	46	41.50	2.94	4.51	1.55	0.25	1.55
			F	78	42.67	2.52	4.11	1.66	0.26	1.65

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	4	NK 25-J5	M	66	41.17	2.82	4.31	1.55	0.23	1.54
			F	56	42.00	2.45	3.88	1.77	2.09	1.62
2	5	NK 25-J5	M	57	42.00	2.82	4.35	1.57	0.24	1.56
			F	24	41.17	2.50	4.15	1.69	0.27	1.68
3	1	MON 87705	M	35	41.50	2.67	4.18	1.59	0.17	1.58
			F	4	40.83	2.43	3.90	1.63	0.20	1.62
3	2	MON 87705	M	32	40.33	2.77	4.27	1.56	0.25	1.55
			F	9	40.17	2.44	3.93	1.64	0.23	1.63
3	3	MON 87705	M	79	41.00	2.89	4.49	1.57	0.22	1.57
			F	73	42.50	2.48	4.02	1.65	0.24	1.64
3	4	MON 87705	M	50	41.50	2.71	4.17	1.65	1.46	1.57
			F	70	41.50	2.41	3.88	1.64	0.21	1.63
3	5	MON 87705	M	20	40.67	2.87	4.47	1.58	0.24	1.57
			F	61	38.83	2.39	3.82	1.63	0.24	1.62
4	1	Anand	M	2	41.83	2.83	4.51	1.62	0.26	1.61
			F	38	41.33	2.49	4.08	1.67	0.26	1.65

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	2	Anand	M	30	41.83	2.68	4.19	1.59	0.26	1.58
			F	12	41.17	2.54	4.11	1.65	0.24	1.64
4	3	Anand	M	75	40.50	2.83	4.40	1.57	0.12	1.57
			F	76	41.17	2.48	4.02	1.64	0.22	1.63
4	4	Anand	M	72	42.50	2.95	4.60	1.58	0.26	1.57
			F	51	43.00	2.42	3.91	1.64	0.24	1.63
4	5	Anand	M	62	41.33	2.81	4.30	1.67	1.54	1.58
			F	22	42.17	2.37	3.91	1.83	2.38	1.66
5	1	UA4805	M	6	42.50	2.92	4.52	1.57	0.24	1.57
			F	7	42.17	2.45	3.89	1.65	0.52	1.62
5	2	UA4805	M	28	41.83	2.80	4.28	1.55	0.24	1.54
			F	25	41.83	2.32	3.78	1.66	0.24	1.65
5	3	UA4805	M	44	43.33	2.93	4.51	1.56	0.24	1.55
			F	77	41.83	2.40	3.82	1.62	0.28	1.61
5	4	UA4805	M	52	42.33	2.83	4.33	1.55	0.24	1.54
			F	54	42.00	2.39	3.85	1.64	0.23	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)
5	5	UA4805	M	63	40.17	2.82	4.36	1.57	0.21	1.56
			F	59	40.17	2.38	3.84	1.64	0.22	1.63
6	1	NK S38-T8	M	34	42.33	2.86	4.45	1.58	0.27	1.57
			F	3	41.00	2.42	3.83	1.61	0.23	1.60
6	2	NK S38-T8	M	27	39.83	2.78	4.13	1.51	0.16	1.51
			F	29	40.00	2.28	3.56	1.59	0.11	1.59
6	3	NK S38-T8	M	43	42.67	2.81	4.31	1.56	0.27	1.55
			F	47	41.83	2.26	3.68	1.66	0.27	1.64
6	4	NK S38-T8	M	67	43.50	2.90	4.39	1.67	2.17	1.55
			F	71	40.83	2.33	3.79	2.00	4.57	1.61
6	5	NK S38-T8	M	23	42.67	2.79	4.25	1.55	0.26	1.54
			F	64	41.83	2.48	3.99	1.63	0.25	1.62
7	1	Ozark	M	33	43.00	2.72	4.27	1.59	0.19	1.59
			F	39	41.33	2.48	4.04	1.66	0.24	1.65
7	2	Ozark	M	14	42.83	2.80	4.40	1.60	0.23	1.59
			F	16	40.83	2.28	3.74	1.67	0.24	1.66

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)
7	3	Ozark	M	74	41.17	2.75	4.33	1.60	0.21	1.59
			F	42	41.00	2.35	3.95	1.71	0.24	1.70
7	4	Ozark	M	68	40.67	2.79	4.32	1.57	0.24	1.57
			F	65	42.83	2.41	3.84	1.85	2.34	1.66
7	5	Ozark	M	18	41.67	2.67	4.20	1.60	0.24	1.59
			F	60	40.83	2.37	3.81	1.64	0.25	1.63
8	1	A3525	M	40	41.50	2.98	4.67	1.59	0.26	1.58
			F	1	42.50	2.43	3.92	1.64	0.23	1.63
8	2	A3525	M	10	41.67	2.84	4.36	1.67	2.10	1.55
			F	31	40.67	2.29	3.70	1.64	0.17	1.64
8	3	A3525	M	48	42.00	2.88	4.44	1.57	0.22	1.56
			F	41	40.83	2.45	3.92	1.62	0.22	1.62
8	4	A3525	M	55	43.17	2.82	4.38	1.57	0.24	1.56
			F	69	42.50	2.49	4.03	1.65	0.24	1.64
8	5	A3525	M	17	40.17	2.66	4.06	1.58	0.68	1.54
			F	58	39.17	2.36	3.76	1.62	0.14	1.61

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 Weight, kg	Mean Chilled Weight, kg	Mean Wings Wt, kg	Mean Drum Wt, kg	Mean Thigh Wt, kg	Mean Breast Wt, kg
1	1	NC+ 2A86	M	5	2.76	0.039	2.00	0.21	0.28	0.34	0.56
			F	37	2.58	0.047	1.88	0.19	0.25	0.32	0.56
1	2	NC+ 2A86	M	26	2.81	0.037	1.98	0.21	0.27	0.35	0.54
			F	15	2.59	0.043	1.88	0.20	0.23	0.31	0.56
1	3	NC+ 2A86	M	80	2.63	0.036	1.89	0.20	0.26	0.33	0.54
			F	45	2.53	0.042	1.85	0.20	0.24	0.32	0.54
1	4	NC+ 2A86	M	49	2.81	0.041	2.02	0.21	0.28	0.36	0.55
			F	53	2.49	0.044	1.82	0.18	0.24	0.31	0.53
1	5	NC+ 2A86	M	19	2.77	0.036	2.01	0.21	0.28	0.36	0.56
			F	21	2.47	0.040	1.78	0.19	0.23	0.31	0.52
2	1	NK 25-J5	M	8	2.88	0.042	2.09	0.21	0.28	0.36	0.59
			F	36	2.48	0.043	1.79	0.18	0.23	0.32	0.52
2	2	NK 25-J5	M	11	3.00	0.040	2.20	0.23	0.30	0.38	0.63
			F	13	2.45	0.041	1.77	0.19	0.23	0.31	0.52
2	3	NK 25-J5	M	46	2.93	0.044	2.13	0.22	0.29	0.37	0.61
			F	78	2.59	0.045	1.88	0.20	0.24	0.32	0.55

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

Trt #	Block	Treatment	Gender	Pen #	Avg Processing Live Body Wt, kg/bird	Mean Fat Pad Weight, kg	Mean Chilled Weight, kg	Mean Wings Wt, kg	Mean Drum Wt, kg	Mean Thigh Wt, kg	Mean Breast Wt, kg
2	4	NK 25-J5	M	66	2.78	0.042	2.02	0.22	0.28	0.35	0.58
			F	56	2.50	0.038	1.83	0.19	0.23	0.31	0.55
2	5	NK 25-J5	M	57	2.82	0.040	2.03	0.21	0.28	0.35	0.57
			F	24	2.57	0.049	1.87	0.20	0.24	0.32	0.54
3	1	MON 87705	M	35	2.63	0.037	1.91	0.20	0.26	0.33	0.55
			F	4	2.50	0.042	1.81	0.19	0.24	0.31	0.53
3	2	MON 87705	M	32	2.76	0.035	1.99	0.21	0.28	0.35	0.56
			F	9	2.53	0.047	1.84	0.18	0.24	0.32	0.54
3	3	MON 87705	M	79	2.85	0.035	2.08	0.22	0.28	0.36	0.59
			F	73	2.56	0.045	1.85	0.19	0.24	0.32	0.55
3	4	MON 87705	M	50	2.69	0.038	1.96	0.20	0.27	0.35	0.55
			F	70	2.47	0.039	1.80	0.19	0.23	0.31	0.54
3	5	MON 87705	M	20	2.86	0.037	2.07	0.22	0.29	0.36	0.56
			F	61	2.46	0.041	1.78	0.18	0.23	0.30	0.52
4	1	Anand	M	2	2.80	0.034	2.01	0.22	0.27	0.36	0.57
			F	38	2.56	0.047	1.86	0.19	0.24	0.31	0.54

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

Trt #	Block	Treatment	Gender	Pen #	Avg Processing Live Body Wt, kg/bird	Mean Fat Pad Weight, kg	Mean Chilled Weight, kg	Mean Wings Wt, kg	Mean Drum Wt, kg	Mean Thigh Wt, kg	Mean Breast Wt, kg
4	2	Anand	M	30	2.65	0.040	1.91	0.21	0.27	0.33	0.52
			F	12	2.62	0.050	1.89	0.19	0.24	0.32	0.57
4	3	Anand	M	75	2.80	0.040	2.02	0.21	0.27	0.35	0.59
			F	76	2.55	0.045	1.86	0.20	0.24	0.32	0.54
4	4	Anand	M	72	2.93	0.040	2.12	0.22	0.29	0.37	0.59
			F	51	2.50	0.047	1.82	0.18	0.23	0.31	0.54
4	5	Anand	M	62	2.81	0.040	2.04	0.21	0.28	0.35	0.59
			F	22	2.46	0.046	1.78	0.18	0.24	0.31	0.53
5	1	UA4805	M	6	2.93	0.044	2.11	0.22	0.29	0.37	0.60
			F	7	2.55	0.047	1.85	0.19	0.24	0.32	0.53
5	2	UA4805	M	28	2.77	0.039	2.02	0.21	0.27	0.35	0.57
			F	25	2.39	0.043	1.74	0.18	0.22	0.30	0.51
5	3	UA4805	M	44	2.90	0.040	2.10	0.22	0.29	0.37	0.59
			F	77	2.46	0.043	1.78	0.19	0.24	0.30	0.51
5	4	UA4805	M	52	2.80	0.045	2.01	0.21	0.28	0.36	0.57
			F	54	2.44	0.044	1.78	0.19	0.23	0.30	0.54

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

Trt #	Block	Treatment	Gender	Pen #	Avg Processing Live Body Wt, kg/bird	Mean Fat Pad Weight, kg	Mean Chilled Weight, kg	Mean Wings Wt, kg	Mean Drum Wt, kg	Mean Thigh Wt, kg	Mean Breast Wt, kg
5	5	UA4805	M	63	2.80	0.042	2.05	0.21	0.29	0.37	0.57
			F	59	2.45	0.043	1.78	0.18	0.23	0.31	0.52
6	1	NK S38-T8	M	34	2.85	0.042	2.07	0.22	0.28	0.36	0.58
			F	3	2.49	0.043	1.81	0.19	0.24	0.31	0.51
6	2	NK S38-T8	M	27	2.76	0.034	2.01	0.22	0.28	0.37	0.53
			F	29	2.35	0.037	1.72	0.18	0.22	0.30	0.52
6	3	NK S38-T8	M	43	2.78	0.038	2.02	0.22	0.28	0.36	0.55
			F	47	2.32	0.041	1.68	0.17	0.22	0.29	0.48
6	4	NK S38-T8	M	67	2.89	0.038	2.09	0.22	0.29	0.37	0.58
			F	71	2.43	0.044	1.78	0.19	0.23	0.29	0.54
6	5	NK S38-T8	M	23	2.77	0.044	2.00	0.21	0.27	0.36	0.55
			F	64	2.56	0.044	1.86	0.19	0.24	0.32	0.54
7	1	Ozark	M	33	2.70	0.037	1.95	0.20	0.28	0.34	0.56
			F	39	2.55	0.050	1.85	0.19	0.23	0.31	0.55
7	2	Ozark	M	14	2.79	0.039	2.01	0.21	0.28	0.36	0.56
			F	16	2.35	0.040	1.69	0.17	0.22	0.29	0.50

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

Trt #	Block	Treatment	Gender	Pen #	Avg Processing Live Body Wt, kg/bird	Mean Fat Pad Weight, kg	Mean Chilled Weight, kg	Mean Wings Wt, kg	Mean Drum Wt, kg	Mean Thigh Wt, kg	Mean Breast Wt, kg
7	3	Ozark	M	74	2.73	0.038	1.96	0.21	0.26	0.34	0.55
			F	42	2.43	0.041	1.76	0.18	0.22	0.29	0.53
7	4	Ozark	M	68	2.76	0.035	2.00	0.21	0.27	0.35	0.57
			F	65	2.48	0.044	1.78	0.18	0.22	0.29	0.53
7	5	Ozark	M	18	2.66	0.037	1.90	0.20	0.26	0.33	0.54
			F	60	2.44	0.047	1.75	0.18	0.22	0.30	0.52
8	1	A3525	M	40	2.98	0.043	2.17	0.22	0.29	0.37	0.63
			F	1	2.50	0.040	1.82	0.19	0.24	0.31	0.53
8	2	A3525	M	10	2.84	0.035	2.09	0.22	0.28	0.36	0.62
			F	31	2.36	0.041	1.71	0.18	0.23	0.30	0.49
8	3	A3525	M	48	2.86	0.041	2.09	0.22	0.29	0.37	0.58
			F	41	2.54	0.045	1.83	0.18	0.23	0.31	0.54
8	4	A3525	M	55	2.82	0.039	2.06	0.22	0.28	0.36	0.59
			F	69	2.58	0.040	1.88	0.19	0.23	0.32	0.57
8	5	A3525	M	17	2.66	0.035	1.92	0.20	0.26	0.34	0.53
			F	58	2.44	0.043	1.75	0.18	0.22	0.30	0.52

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	NC+ 2A86	M	5	72.39	1.40	28.16	10.37	17.08	13.77
			F	37	73.09	1.83	29.73	10.21	16.89	13.09
1	2	NC+ 2A86	M	26	70.82	1.33	27.00	10.82	17.86	13.82
			F	15	72.34	1.67	29.59	10.46	16.75	12.52
1	3	NC+ 2A86	M	80	71.92	1.36	28.29	10.74	17.66	13.71
			F	45	73.27	1.65	29.19	10.52	17.15	13.11
1	4	NC+ 2A86	M	49	71.88	1.44	27.30	10.67	17.69	13.86
			F	53	73.12	1.75	29.07	10.15	17.07	12.98
1	5	NC+ 2A86	M	19	72.49	1.29	27.90	10.62	17.78	13.86
			F	21	72.17	1.59	29.21	10.42	17.17	13.04
2	1	NK 25-J5	M	8	72.32	1.44	28.21	10.28	17.13	13.39
			F	36	72.19	1.72	29.16	10.33	17.80	12.62
2	2	NK 25-J5	M	11	73.14	1.33	28.57	10.57	17.25	13.71
			F	13	72.21	1.65	29.24	10.53	17.52	13.02

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	3	NK 25-J5	M	46	72.73	1.52	28.42	10.54	17.40	13.67
			F	78	72.58	1.73	29.38	10.70	16.91	13.01
2	4	NK 25-J5	M	66	72.68	1.51	28.67	10.79	17.37	14.07
			F	56	73.12	1.51	29.92	10.25	16.90	12.74
2	5	NK 25-J5	M	57	72.20	1.42	28.16	10.57	17.16	13.94
			F	24	72.74	1.90	28.89	10.46	17.29	13.05
3	1	MON 87705	M	35	72.94	1.41	28.47	10.55	17.22	13.70
			F	4	72.28	1.68	29.23	10.71	16.86	13.06
3	2	MON 87705	M	32	72.03	1.25	28.10	10.78	17.39	13.89
			F	9	72.81	1.86	29.37	9.98	17.31	13.02
3	3	MON 87705	M	79	72.98	1.23	28.41	10.62	17.37	13.56
			F	73	72.40	1.77	29.44	10.38	17.28	13.12
3	4	MON 87705	M	50	72.80	1.43	27.96	10.43	18.00	13.88
			F	70	72.72	1.59	30.22	10.31	17.01	12.70

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)
3	5	MON 87705	M	20	72.25	1.29	27.26	10.66	17.52	13.95
			F	61	72.53	1.67	29.22	10.21	17.01	13.03
4	1	Anand	M	2	71.55	1.22	28.39	10.73	17.77	13.22
			F	38	72.98	1.86	29.05	10.29	16.76	13.00
4	2	Anand	M	30	72.22	1.49	27.33	10.86	17.08	14.34
			F	12	72.30	1.92	30.30	10.03	16.97	12.64
4	3	Anand	M	75	72.30	1.44	29.00	10.52	17.26	13.47
			F	76	72.82	1.74	28.96	10.54	17.37	12.98
4	4	Anand	M	72	72.56	1.36	27.98	10.50	17.65	13.79
			F	51	72.65	1.86	29.83	10.09	16.81	12.84
4	5	Anand	M	62	72.37	1.43	28.94	10.49	17.27	13.49
			F	22	72.38	1.88	29.68	10.20	17.39	13.32
5	1	UA4805	M	6	72.03	1.51	28.14	10.39	17.41	13.64
			F	7	72.55	1.84	28.54	10.36	17.16	12.87

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	2	UA4805	M	28	73.05	1.39	28.25	10.53	17.54	13.57
			F	25	72.76	1.80	29.13	10.40	16.94	12.48
5	3	UA4805	M	44	72.53	1.36	27.84	10.70	17.75	13.62
			F	77	72.55	1.74	28.74	10.49	17.04	13.59
5	4	UA4805	M	52	71.90	1.60	28.36	10.54	17.73	13.92
			F	54	72.79	1.82	30.24	10.45	16.96	12.86
5	5	UA4805	M	63	73.21	1.48	28.05	10.33	18.01	13.91
			F	59	72.46	1.76	29.11	10.36	17.55	13.03
6	1	NK S38-T8	M	34	72.56	1.48	28.24	10.61	17.64	13.58
			F	3	72.54	1.74	28.38	10.58	17.18	13.09
6	2	NK S38-T8	M	27	72.61	1.24	26.57	10.86	18.21	14.15
			F	29	73.43	1.58	30.25	10.39	17.28	12.85
6	3	NK S38-T8	M	43	72.59	1.35	27.21	10.85	17.75	13.81
			F	47	72.23	1.78	28.42	10.32	17.08	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)
6	4	NK S38-T8	M	67	72.19	1.33	28.03	10.62	17.82	13.72
			F	71	73.25	1.82	30.22	10.45	16.44	12.91
6	5	NK S38-T8	M	23	72.03	1.59	27.46	10.52	17.76	13.76
			F	64	72.49	1.72	29.23	10.16	17.36	12.94
7	1	Ozark	M	33	72.09	1.34	28.64	10.55	17.35	14.17
			F	39	72.24	1.97	29.88	10.45	16.82	12.60
7	2	Ozark	M	14	72.01	1.38	27.84	10.47	17.91	13.68
			F	16	72.00	1.71	29.74	10.27	17.29	12.86
7	3	Ozark	M	74	71.92	1.37	27.94	10.63	17.48	13.21
			F	42	72.49	1.67	30.07	10.29	16.55	12.67
7	4	Ozark	M	68	72.74	1.26	28.55	10.44	17.52	13.43
			F	65	71.79	1.79	29.72	10.27	16.05	12.61
7	5	Ozark	M	18	71.64	1.38	28.29	10.64	17.56	13.80
			F	60	71.98	1.91	29.84	10.19	16.93	12.75

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)
8	1	A3525	M	40	72.82	1.42	29.13	10.30	17.22	13.53
			F	1	72.52	1.61	29.35	10.33	17.09	13.12
8	2	A3525	M	10	73.40	1.23	29.73	10.57	17.18	13.37
			F	31	72.57	1.72	28.77	10.47	17.50	13.16
8	3	A3525	M	48	73.05	1.43	27.98	10.47	17.53	13.65
			F	41	72.26	1.79	29.61	9.99	17.08	12.75
8	4	A3525	M	55	73.10	1.39	28.51	10.45	17.27	13.74
			F	69	73.01	1.56	30.24	10.14	17.04	12.49
8	5	A3525	M	17	72.32	1.30	27.74	10.58	17.52	13.41
			F	58	71.97	1.77	29.68	10.11	17.36	12.58

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	NC+ 2A86	M	5	75.01	22.81	0.92	77.44	19.44	1.72
			F	37	75.34	22.68	0.93	77.59	20.01	2.14
1	2	NC+ 2A86	M	26	74.93	22.20	1.49	76.96	20.64	2.30
			F	15	75.55	22.58	0.96	77.74	20.45	1.22
1	3	NC+ 2A86	M	80	74.38	23.59	0.93	77.02	19.41	1.15
			F	45	75.20	23.08	1.03	77.50	20.21	1.61
1	4	NC+ 2A86	M	49	74.57	22.70	1.17	77.22	20.12	1.02
			F	53	75.12	22.70	0.91	77.22	19.49	1.54
1	5	NC+ 2A86	M	19	74.22	22.41	2.09	76.88	17.85	2.33
			F	21	75.29	23.13	0.82	77.18	20.89	1.04
2	1	NK 25-J5	M	8	75.41	22.55	1.03	77.75	19.32	1.03
			F	36	75.53	22.53	1.12	77.18	20.79	1.43
2	2	NK 25-J5	M	11	75.45	21.94	1.36	77.31	20.16	2.61
			F	13	75.11	22.46	1.45	77.23	19.46	1.34
2	3	NK 25-J5	M	46	74.30	23.01	1.22	77.49	17.81	1.98
			F	78	74.45	23.53	0.92	77.29	20.52	1.97

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	4	NK 25-J5	M	66	75.77	22.02	1.05	77.79	18.24	2.11
			F	56	74.24	22.96	1.35	76.60	21.15	2.00
2	5	NK 25-J5	M	57	75.65	22.33	0.73	78.19	18.94	1.04
			F	24	74.33	23.14	1.08	76.55	21.05	1.84
3	1	MON 87705	M	35	75.28	22.84	0.75	77.35	20.10	1.02
			F	4	75.52	22.70	0.97	78.06	19.05	1.19
3	2	MON 87705	M	32	75.58	22.23	1.26	77.43	20.20	1.92
			F	9	75.17	22.92	1.17	76.55	21.07	1.61
3	3	MON 87705	M	79	74.27	23.02	1.74	76.66	20.43	1.58
			F	73	74.70	23.42	0.90	77.33	21.05	0.88
3	4	MON 87705	M	50	74.85	22.97	1.17	77.00	19.19	1.75
			F	70	75.35	22.80	1.03	76.86	19.91	2.36
3	5	MON 87705	M	20	75.60	22.62	1.47	77.42	20.55	1.50
			F	61	75.19	23.26	0.83	77.12	20.94	1.49
4	1	Anand	M	2	74.16	22.38	2.24	76.53	21.15	2.48
			F	38	75.11	22.76	0.71	77.73	20.54	0.93

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	2	Anand	M	30	74.62	22.63	1.43	77.00	20.44	2.33
			F	12	75.76	22.08	0.91	77.51	20.29	1.91
4	3	Anand	M	75	75.12	22.97	0.93	77.02	20.53	1.38
			F	76	75.06	23.06	0.86	77.45	20.65	1.21
4	4	Anand	M	72	75.03	23.10	1.15	77.11	20.13	1.05
			F	51	75.34	22.46	1.37	77.62	20.22	1.89
4	5	Anand	M	62	75.62	21.75	1.05	77.55	19.12	3.11
			F	22	75.30	22.72	0.94	77.42	20.33	2.51
5	1	UA4805	M	6	75.06	22.96	1.24	77.17	20.42	1.48
			F	7	75.85	22.03	0.86	78.09	20.20	1.02
5	2	UA4805	M	28	75.40	22.08	1.37	77.30	20.22	2.56
			F	25	75.85	22.40	0.89	77.03	19.99	1.49
5	3	UA4805	M	44	75.74	22.20	0.75	77.05	18.95	2.49
			F	77	75.13	23.06	1.12	77.16	20.74	1.55
5	4	UA4805	M	52	74.27	23.52	1.03	76.65	20.77	1.42
			F	54	74.92	23.31	0.86	76.83	21.39	1.16

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)
5	5	UA4805	M	63	74.74	22.38	1.08	76.95	20.01	2.44
			F	59	74.89	23.23	0.74	77.70	20.26	1.19
6	1	NK S38-T8	M	34	74.54	22.79	1.58	76.95	19.71	2.64
			F	3	75.07	23.13	0.64	77.41	20.18	1.74
6	2	NK S38-T8	M	27	76.06	21.60	1.23	76.92	20.44	1.97
			F	29	75.33	22.70	0.85	77.44	20.98	0.94
6	3	NK S38-T8	M	43	75.76	21.82	1.35	77.91	18.10	1.65
			F	47	74.80	22.98	1.09	76.55	21.28	2.60
6	4	NK S38-T8	M	67	75.73	21.08	1.27	77.14	19.46	2.01
			F	71	75.82	22.47	0.69	77.77	20.18	1.93
6	5	NK S38-T8	M	23	75.54	22.56	1.21	77.52	20.14	0.89
			F	64	75.04	23.09	1.04	77.08	20.95	1.58
7	1	Ozark	M	33	74.80	23.02	1.12	77.92	19.43	2.20
			F	39	74.94	23.45	0.74	76.96	20.92	1.26
7	2	Ozark	M	14	74.42	23.02	1.75	77.44	19.96	2.07
			F	16	74.84	23.29	1.00	77.35	20.45	1.61

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)
7	3	Ozark	M	74	75.04	22.99	1.08	76.86	20.18	2.80
			F	42	75.72	21.96	1.05	77.47	19.50	1.38
7	4	Ozark	M	68	74.71	22.72	1.25	76.36	20.02	1.60
			F	65	74.39	23.09	1.69	76.84	20.54	1.99
7	5	Ozark	M	18	75.07	22.54	1.34	76.78	21.12	2.31
			F	60	74.23	23.74	0.77	76.38	20.51	2.33
8	1	A3525	M	40	74.65	23.28	1.36	77.03	20.38	2.12
			F	1	74.78	23.26	1.03	76.62	20.44	1.96
8	2	A3525	M	10	74.04	23.25	1.25	76.47	20.95	1.81
			F	31	74.82	23.18	1.13	76.93	19.93	1.76
8	3	A3525	M	48	74.83	22.89	0.97	77.92	19.57	1.22
			F	41	74.76	23.70	0.76	76.61	20.92	1.51
8	4	A3525	M	55	75.83	22.12	0.89	77.12	20.55	1.57
			F	69	75.04	23.09	1.07	76.94	20.58	2.04
8	5	A3525	M	17	76.05	21.41	1.05	77.40	20.24	1.97
			F	58	75.25	22.89	0.80	76.87	19.85	1.31

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	0.2811	0.2661	0.1006
2	Bird Weight Day 42, kg/bird	0.0234	0.0369	0.0139
3	Average Feed Intake, kg/bird	0.0391	0.0669	0.0253
4	Average Bird Gain Day 42, kg/bird	0.0234	0.0369	0.0139
5	Feed Conversion (Feed Consumed/ Wt Gain)	0.0199	0.0196	0.0074
6	Adjusted Feed Conversion (adjusted for R/M birds)	0.0055	0.0154	0.0058
7	Average Pre-Processing Live Body Weight, kg/bird	0.0244	0.0353	0.0133
8	Chilled Weight, kg/bird	0.0181	0.0294	0.0111
9	Fat Pad Weight, kg/bird	0.0009	0.0013	0.0005
10	Average Breast Weight, kg/bird	0.0065	0.0102	0.0039
11	Average Wing Weight, kg/bird	0.0019	0.0033	0.0013
12	Average Thigh Weight, kg/bird	0.0034	0.0057	0.0022
13	Average Drum Weight, kg/bird	0.0026	0.0046	0.0017
14	Percent Fat Pad Weight (Fat Pad Wt / Live Wt x 100)	0.0303	0.0409	0.0155
15	Percent Chilled Weight (Chilled Wt/Live Wt x 100)	0.1288	0.2115	0.0800
16	Percent Breast Weight (Breast Wt/ Chilled Wt x 100)	0.1687	0.2627	0.0993
17	Percent Wing Weight (Wing Wt/ Chilled Wt x 100)	0.0499	0.0654	0.0247
18	Percent Thigh Weight (Thigh Wt/ Chilled Wt x 100)	0.0850	0.1352	0.0511
19	Percent Drum Weight (Drum Wt/ Chilled Wt x 100)	0.0802	0.0876	0.0331
20	Breast Moisture (g/100 g)	0.1567	0.1990	0.0752
21	Breast Protein (g/100 g)	0.1519	0.1909	0.0721
22	Breast Fat (g/100 g)	0.0887	0.0880	0.0332
23	Thigh Moisture (g/100 g)	0.1254	0.1838	0.0695
24	Thigh Protein (g/100 g)	0.2171	0.2769	0.1047
25	Thigh Fat (g/ 100g)	0.1693	0.1636	0.0618

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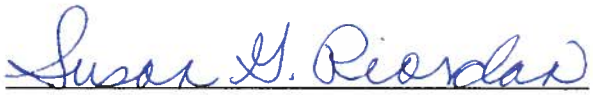

7-14-2009

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