

US EPA ARCHIVE DOCUMENT

**Data Evaluation Report on the Acute Oral Toxicity of AE 0172747 to Avian Species  
{Colinus virginianus}**

PMRA Submission Number 2006-2445

EPA MRID Number 468017-29

|                          |                 |              |
|--------------------------|-----------------|--------------|
| <b>Data Requirement:</b> | PMRA Data Code  | DACO 9.6.2.1 |
|                          | EPA DP Barcode  | D328639      |
|                          | OECD Data Point | IIA 8.1.1    |
|                          | EPA MRID        | 468017-29    |
|                          | EPA Guideline   | 850.2100     |

**Test material:** Pyrasulfotole Purity: 95.4%  
**Common name:** AE 0317309  
**Chemical name:** IUPAC: (5-hydroxy-1,3-dimethylpyrazol-4-yl)(2-mesyl-4-trifluoromethylphenyl)methanone  
 CAS name: Not reported  
 CAS No.: Not reported  
 Synonyms: Not reported

**Primary Reviewer:** Rebecca Bryan  
Staff Scientist, Dynamac Corporation

**Signature:** *Rebecca L. Bryan*  
**Date:** 5/18/06

**Secondary Reviewer:** Teri S. Myers  
Senior Scientist, Cambridge Environmental Inc.

**Signature:** *Teri S. Myers*  
**Date:** 5/22/06

**Primary Reviewer:** Melissa Panger  
EPA

**Date:** 7-7-06 *M. Panger*

**Secondary Reviewer:** J.D. Whall (Officer No. 1268)  
PMRA

**Date:** 11/21/06 *J.D. Whall*

**Secondary Reviewer(s):** David McAdam **Date:** 7 Nov 2006  
Australian Commonwealth Department of the Environment and Heritage (DEH)

*D. McAdam*

**Reference/Submission No.:** {.....}

**Company Code** BCZ  
**Active Code** PSA  
**Use Site Category:** 13, 14  
**EPA PC Code** 000692

**Date Evaluation Completed:** 11-27-2006

**CITATION:** Stoughton, T.L. 2006. Technical AE0317309: An Acute Oral LD<sub>50</sub> with Northern Bobwhite. Unpublished study performed by Bayer Corporation, Agriculture Division, Research and Development Department, Environmental Research and Toxicology, Stilwell, Kansas. Study No. A9711701/201125. Study sponsored by Bayer CropScience, Research Triangle Park, NC. The final report issued January 11, 2006.

**DISCLAIMER:** This document provides guidance for EPA and PMRA reviewers on how to complete a data evaluation record after reviewing a scientific study concerning the acute oral toxicity of a pesticide to avian species. It is not intended to prescribe conditions to any external party for conducting this study nor to establish absolute criteria regarding the assessment of whether the study is scientifically sound and whether the study satisfies any applicable data requirements. Reviewers are expected to review and to determine for each study, on a case-by-case basis, whether it is scientifically sound and provides sufficient information to satisfy applicable data requirements. Studies that fail to meet any of the conditions may be accepted, if appropriate; similarly, studies that meet all of the

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conditions may be rejected, if appropriate. In sum, the reviewer is to take into account the totality of factors related to the test methodology and results in determining the acceptability of the study.

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{*Colinus virginianus*}

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### EXECUTIVE SUMMARY:

The acute oral toxicity of Pyrasulfotole to 18-week old Northern bobwhite quail (*Colinus virginianus*) was assessed over 14 days. Pyrasulfotole was administered to the birds via gelatin capsules at nominal concentrations of 125, 250, 500, 1000, and 2000 mg/kg (doses were adjusted for percent active ingredient).

By 14 days, there were no mortalities in the control or treatment groups. No clinical signs of toxicity were observed. No adverse effects on bodyweight or feed consumption were observed. The NOAEL is  $\geq 2000$  mg/kg based on all endpoints. The 14-day acute oral toxicity LD<sub>50</sub> was estimated as  $>2000$  mg/kg, which categorizes Pyrasulfotole as practically nontoxic to Northern bobwhite quail.

This study is classified as **ACCEPTABLE**; it is scientifically sound and does satisfy the guideline requirement for an acute avian oral toxicity study with *Colinus virginianus*.

### Results Synopsis

Test Organism Size/Age (Mean Weight): Approximately 18 weeks old, 267-307 g (combined sexes)

|                                  |               |
|----------------------------------|---------------|
| LD <sub>50</sub> : $>2000$ mg/kg | 95% C.I.: N/A |
| Probit slope: Not determined     | 95% C.I.: N/A |
| NOAEL: $\geq 2000$ mg/kg         |               |

Endpoint(s) Affected: None

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**I. MATERIALS AND METHODS**

**GUIDELINE FOLLOWED:** The study protocol was based on procedures outlined in the U.S. EPA Pesticide Assessment Guidelines, Series 71-1. The deviation from the OPPTS Guideline No. 850.2100, Avian acute oral toxicity test included:

No deviations were observed

**COMPLIANCE:** Signed and dated GLP, Quality Assurance, and Data Confidentiality statements were provided. This study was conducted in accordance with the U.S. EPA Good Laboratory Practice Standards (40 CFR Part 160).

**A. MATERIALS:**

**1. Test Material** Pyrasulfotole (AE 0317309)

**Description:** Light brown powder

**Lot No./Batch No. :** OP 1-4

**Purity:** 95.4%

**Stability of compound under test conditions:** The stability of test substance concentrations during the course of the study was not determined.

**Storage conditions of test chemicals:** Stored at room temperature.

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**Physicochemical properties of Pyrasulfotole.**

| Parameter  | Value  | Comment  |
|--|--|--|
| Molecular weight                                       | 362.3 g/mol  |  |
| Water Solubility (g/L) at 20°C                         | 4.2 at pH 4<br>69.1 at pH 7<br>49.0 at pH 9  | Very soluble   |
| Vapor Pressure/Volatility                              | 2.7 x 10 <sup>-7</sup> Pa at 20°C<br>6.8 x 10 <sup>-7</sup> Pa at 25°C                           | Non-volatile   |
| UV Absorption  | water $\lambda_{max} = 264$<br>0.1M HCl $\lambda_{max} = 241$<br>0.1M NaOH $\lambda_{max} = 216$ | Not likely to undergo photolysis.                                  |
| Pka  | 4.2 ± 0.15   |  |
| log K <sub>ow</sub> at 23°C                            | 0.276 at pH 4<br>-1.362 at pH 7<br>-1.58 at pH 9   | Not likely to bioaccumulate  |
| Stability of compound at room temperature, if provided |  | No significant degradation over 12 months at ambient temperatures. |

Data obtained from pyrasulfatole chemistry review of Submission 2006-2445.

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**2. Test Organism:**

**Species (common and scientific names):** Northern bobwhite quail (*Colinus virginianus*)

**Age at study initiation:** Approximately 18 weeks old

**Weight at study initiation (mean and range):** Mean: 286.5 g; range 267-307 g (combined sexes)

**Source:** Barrett's Quail Farm, Houston, Texas

*(EPA recommends using either bobwhite quail or mallard duck. Birds should be at least 16 weeks old at test initiation and should be uniform in size and weight as well as phenotypically indistinguishable from wild birds).*

**B. STUDY DESIGN:**

**1. Experimental Conditions**

a. Range-finding study: No range-finding study was reported.

b. Definitive study

**Table 1: Experimental Parameters**

| Parameter  | Details   | Remarks  |
|--|---|--|
|  |   | Criteria   |
| <u>Acclimation</u><br>Period:<br>Conditions: (same as test or not)<br>Feeding:<br>Health: (any mortality observed) | 34 days<br>Same as test<br>Teklad Bayer Starter Ration and local tap water were provided, <i>ad libitum</i> , except for the 21 hours of fasting prior to testing.<br>No mortality observed during acclimation. | <i>The recommended acclimation period is a minimum of 15 days. OECD recommends a minimum of 7 days.</i>  |
| Pen size and construction materials  | Stainless steel cages measuring 36L x 30W x 10H inches.   | <i>Pen size and construction should conform to good husbandry practices and should not create crowding stress.<br/><br/>OECD recommends that pens be suitable for the captive rearing of that species.</i> |
| Test duration  | 14 days   |  |

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| Parameter  | Details   | Remarks  |
|--|---|--|
|  |   | <i>Criteria</i>  |
|  |   | <i>Recommended test duration is one day for dosing and at least 14 days observation.</i>   |
| Dose preparation [Indicate method of confirmation of dose]   | The appropriate dose of test substance (mg) was placed in the gelatin capsules. |  |
| Mode of dose administration  | Gelatin capsule   | <i>Gavage or gelatin capsule is recommended</i>  |
| <u>Dose levels</u><br>nominal:<br>measured:  | 125, 250, 500, 1000, and 2000 mg/kg<br>Not determined.                          | The dose levels were not measured.<br><br><i>Dose levels should be a minimum of 5 treatment levels unless LD<sub>50</sub> is demonstrated to be greater than 2000 mg ai/kg</i> |
| <u>Solvent/vehicle, if used</u><br>type:<br>amount/bw:   | N/A   | <i>The test material should be administered without a vehicle if possible. Maximum vehicle should not exceed 0.1 to 1.0% of body weight.</i>                                   |
| <u>Number of birds per groups/treatment</u><br>for negative control:<br>for solvent/vehicle control:<br>for treated: | 10<br>N/A<br>10   | 5 males and 5 females per treatment group.<br><br><i>Recommended number of birds in a treatment group is 10 and 10 birds for each control and vehicle group.</i>               |
| No. of feed withholding days before dosing   | 21 hours  | <i>Food should be withheld for at least 15 hours prior to dosing.</i>  |
| <u>Test conditions</u><br>Temperature:<br>Relative humidity:<br>Photoperiod:   | 22°C<br>54%<br>10 hours light/14 hours dark                                     | <i>The recommended photoperiod is 10 hours of light and 14 hours of dark.</i>  |
| <u>Reference chemical, if used</u><br>name:<br>concentrations tested:  | N/A   |  |

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**2. Observations:**

**Table 2: Observations**

| Criteria   | Details   | Remarks<br><i>Criteria</i>  |
|--|---|---|
| <p><u>Parameters measured</u><br/>(mortality/individual body weight at test initiation and termination/ mean feed consumption/ others)</p> | <p>- Mortality<br/>- Clinical signs of toxicity<br/>- Mean feed consumption (g/bird/day)<br/>- Mean body weight</p>   | <p><i>Body weight should be measured at test initiation, on day 14 and at the end of the test if the test is extended beyond 14 days. Mortality should not be more than 10% in controls.<br/>Feed consumption should be measured as average daily food consumption.</i></p> |
| <p>Indicate if the test material was regurgitated</p>  | <p>No regurgitation was reported.</p>   | <p><i>Regurgitation is an indication that the dose was rejected. If this problem persists, the test should be repeated.</i></p>   |
| <p>Groups on which necropsies were performed</p>   | <p>All surviving birds.</p>   | <p><i>Gross necropsies should be performed with inspections of the GI tract, liver, kidneys, heart, and spleen.</i></p>   |
| <p>Observation intervals</p>   | <p>Mortality and signs of toxicity: Determined three times on Day 0 and daily (1 to 2 times) thereafter.<br/>Feed consumption: Determined daily<br/>Body Weight: Days -1, 7, and 14</p> |   |
| <p>Were raw data included?</p>   | <p>Yes</p>  |   |

**II. RESULTS AND DISCUSSION:**

**A. MORTALITY:**

By 14 days, there were no mortalities in the control or treatment groups. The NOAEL based on mortality was  $\geq 2000$  mg/kg.

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**Table 3: Effect of Pyrasulfotole on Mortality of Northern bobwhite quail, *Colinus virginianus***

| Treatment (mg/kg)  | No. of Birds     | Cumulative Mortality |       |        |
|--------------------|------------------|----------------------|-------|--------|
|                    |                  | day 1                | day 7 | day 14 |
| Control            | 10               | 0                    | 0     | 0      |
| 125                | 10               | 0                    | 0     | 0      |
| 250                | 10               | 0                    | 0     | 0      |
| 500                | 10               | 0                    | 0     | 0      |
| 1000               | 10               | 0                    | 0     | 0      |
| 2000               | 10               | 0                    | 0     | 0      |
| NOAEL              | ≥2000 mg/kg      |                      |       |        |
| LD <sub>50</sub>   | >2000 mg/kg      |                      |       |        |
| Reference chemical | mortality        | N/A                  |       |        |
|                    | LD <sub>50</sub> | N/A                  |       |        |
|                    | NOAEL            | N/A                  |       |        |

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**B. SUBLETHAL TOXICITY ENDPOINTS:**

No clinical signs of toxicity were observed. No adverse effects on bodyweight or feed consumption were observed. The NOAEL based on all sublethal endpoints was  $\geq 2000$  mg/kg.

No treatment-related findings were observed during necropsy.

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**Table 4: Sublethal Effect of Pyrasulfotole on Northern bobwhite quail, *Colinus virginianus***

| Mean Body Weight (and Change), g |  |             |             |                |             |              |
|----------------------------------|--|-------------|-------------|----------------|-------------|--------------|
| Treatment (mg/kg)                | Males                                  |             |             | Females        |             |              |
|                                  | Day 0                                  | Day 7       | Day 14      | Day 0          | Day 7       | Day 14       |
| Control                          | 289.2                                  | 293.0 (3.8) | 290.0 (0.8) | 287.6          | 291.4 (3.8) | 286.8 (-0.8) |
| 125                              | 287.6                                  | 291.2 (3.6) | 290.6 (3.0) | 286.8          | 291.2 (4.4) | 285.8 (-1.0) |
| 250                              | 287.8                                  | 296.8 (9.0) | 296.4 (8.6) | 284.6          | 285.8 (1.2) | 284.6 (0)    |
| 500                              | 286.2                                  | 289.2 (3.0) | 291.0 (4.8) | 284.0          | 284.2 (0.2) | 283.0 (-1.0) |
| 1000                             | 286.6                                  | 290.8 (4.2) | 293.8 (7.2) | 285.0          | 290.2 (5.2) | 288.6 (3.6)  |
| 2000                             | 287.2                                  | 295.0 (7.8) | 294.8 (7.6) | 285.6          | 292.4 (6.8) | 292.4 (6.8)  |
| NOAEL                            | ≥2000 mg/kg                            |             |             | ≥2000 mg/kg    |             |              |
| EC <sub>50</sub>                 | Not determined                         |             |             | Not determined |             |              |
| Reference chemical               | effect:<br>NOEL:<br>LD <sub>50</sub> : | N/A         |             |                |             |              |

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| Mean Feed Consumption, g/bird/day |                                 |                |                |
|-----------------------------------|---------------------------------|----------------|----------------|
| Treatment (mg/kg)                 |                                 | Males          | Females        |
|                                   |                                 | Days 0-14      | Days 0-14      |
| Control                           |                                 | 29.7           | 23.0           |
| 125                               |                                 | 29.9           | 20.3           |
| 250                               |                                 | 34.6           | 21.7           |
| 500                               |                                 | 28.2           | 17.0           |
| 1000                              |                                 | 24.6           | 29.0           |
| 2000                              |                                 | 23.9           | 24.7           |
| NOEL                              |                                 | ≥2000 mg/kg    | ≥2000 mg/kg    |
| EC <sub>50</sub>                  |                                 | Not determined | Not determined |
| Reference chemical                | effect NOEL<br>LD <sub>50</sub> | N/A            | N/A            |

**C. REPORTED STATISTICS:**

The LD<sub>50</sub> could not be calculated because there were no mortalities. The body weight and body weight change data were analyzed using the chi-square test for normality and the Levene's test for homogeneity of variance. The body weight treatment group data were compared to the control using Bonferroni's one-tailed test ( $\alpha=0.05$ ). The statistical analyses on body weight were conducted using the TOXSTAT version 3.4 computer program. Nominal concentrations were used in all estimations. Feed consumption data were not analyzed statistically.

**D. VERIFICATION OF STATISTICAL RESULTS:**

Statistical Method: Percent body weight gain was calculated for males and females during the day 0-7 and 7-14 intervals; data were statistically analyzed for the day 0-7 interval only because there were no significant effects during that interval and it could be visually determined that effects did not occur during the later time interval (days 7-14). Analyzed data satisfied the assumptions of normality and homogeneity of variances. The NOAEL values were determined using ANOVA via Toxstat statistical software. Replicate feed consumption data were not provided, so this endpoint was not statistically analyzed; however, percent reduction from control was calculated by the reviewer.

LD<sub>50</sub>: >2000 mg/kg                      95% C.I.: N/A

NOAEL: ≥2000 mg/kg

Probit Slope: Not determined              95% C.I.: N/A

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**E. STUDY DEFICIENCIES:**

There were no study deficiencies.

**F. REVIEWERS' COMMENTS:**

The reviewers' conclusions were identical to the study author's. The reviewers calculated a 17 and 20% reduction from control in food consumption for males at the 1000 and 2000 mg/kg treatment levels, respectively; however, because no significant effects were detected on body weight gain, the reduced food consumption was not considered to be a toxicological response.

**G. CONCLUSIONS:**

The study is scientifically sound and is classified as **ACCEPTABLE**. The NOAEL is  $\geq 2000$  mg/kg based on all endpoints. The 14-day acute oral toxicity LD<sub>50</sub> was estimated as  $>2000$  mg/kg, which categorizes pyrasulfotole as practically non-toxic to Northern bobwhite quail on an acute oral basis.

LD<sub>50</sub>:  $>2000$  mg/kg                      95% C.I.: N/A

Probit slope: Not determined              95% C.I.: N/A

NOAEL:  $\geq 2000$  mg/kg

Endpoint(s) Affected: None

**III. REFERENCES:**

Anonymous, Pesticide Assessment Guidelines, FIFRA Subdivision E, Hazard Evaluation: Wildlife and Aquatic Organisms, subsection 71-1, Environmental Protection Agency, Office of Pesticide Programs, October 1982.

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Stephan, C.E. 1977. Methods for Calculating an LC50. In: Aquatic Toxicology and Hazard Evaluation, ASTM STP 634. F.L. Mayer and J.L. Hamelink, eds. American Society for Testing Materials, Philadelphia, PA. 65-84.

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**APPENDIX I. OUTPUT OF REVIEWER'S STATISTICAL VERIFICATION:**

% body weight gain (males)

File: 1729mw Transform: NO TRANSFORMATION

ANOVA TABLE

| SOURCE         | DF | SS      | MS    | F     |
|----------------|----|---------|-------|-------|
| Between        | 5  | 17.898  | 3.580 | 0.557 |
| Within (Error) | 24 | 154.132 | 6.422 |       |
| Total          | 29 | 172.030 |       |       |

Critical F value = 2.62 (0.05,5,24)

Since F < Critical F FAIL TO REJECT Ho:All groups equal

% body weight gain (males)

File: 1729mw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

| GROUP | IDENTIFICATION | TRANSFORMED MEAN | MEAN CALCULATED IN ORIGINAL UNITS | T STAT | SIG |
|-------|----------------|------------------|-----------------------------------|--------|-----|
| 1     | control        | 1.418            | 1.418                             |        |     |
| 2     | 125            | 1.366            | 1.366                             | 0.032  |     |
| 3     | 250            | 3.142            | 3.142                             | -1.076 |     |
| 4     | 500            | 1.052            | 1.052                             | 0.228  |     |
| 5     | 1000           | 1.462            | 1.462                             | -0.027 |     |
| 6     | 2000           | 2.688            | 2.688                             | -0.792 |     |

Dunnett table value = 2.36 (1 Tailed Value, P=0.05, df=24,5)

% body weight gain (males)

File: 1729mw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

| GROUP | IDENTIFICATION | NUM OF REPS | Minimum Sig Diff (IN ORIG. UNITS) | % of CONTROL | DIFFERENCE FROM CONTROL |
|-------|----------------|-------------|-----------------------------------|--------------|-------------------------|
| 1     | control        | 5           |                                   |              |                         |
| 2     | 125            | 5           | 3.782                             | 266.7        | 0.052                   |
| 3     | 250            | 5           | 3.782                             | 266.7        | -1.724                  |
| 4     | 500            | 5           | 3.782                             | 266.7        | 0.366                   |
| 5     | 1000           | 5           | 3.782                             | 266.7        | -0.044                  |
| 6     | 2000           | 5           | 3.782                             | 266.7        | -1.270                  |

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% body weight gain (males)

File: 1729mw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

| GROUP | IDENTIFICATION | N | ORIGINAL MEAN | TRANSFORMED MEAN | ISOTONIZED MEAN |
|-------|----------------|---|---------------|------------------|-----------------|
| 1     | control        | 5 | 1.418         | 1.418            | 1.392           |
| 2     | 125            | 5 | 1.366         | 1.366            | 1.392           |
| 3     | 250            | 5 | 3.142         | 3.142            | 1.885           |
| 4     | 500            | 5 | 1.052         | 1.052            | 1.885           |
| 5     | 1000           | 5 | 1.462         | 1.462            | 1.885           |
| 6     | 2000           | 5 | 2.688         | 2.688            | 2.688           |

% body weight gain (males)

File: 1729mw Transform: NO TRANSFORMATION

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

| IDENTIFICATION | ISOTONIZED MEAN | CALC. WILLIAMS | SIG P=.05 | TABLE WILLIAMS | DEGREES OF FREEDOM |
|----------------|-----------------|----------------|-----------|----------------|--------------------|
| control        | 1.392           |                |           |                |                    |
| 125            | 1.392           | 0.016          |           | 1.71           | k= 1, v=24         |
| 250            | 1.885           | 0.292          |           | 1.79           | k= 2, v=24         |
| 500            | 1.885           | 0.292          |           | 1.82           | k= 3, v=24         |
| 1000           | 1.885           | 0.292          |           | 1.83           | k= 4, v=24         |
| 2000           | 2.688           | 0.792          |           | 1.84           | k= 5, v=24         |

s = 2.534

Note: df used for table values are approximate when v > 20.

% body weight gain (females)

File: 1729fw Transform: NO TRANSFORMATION

ANOVA TABLE

| SOURCE         | DF | SS     | MS    | F     |
|----------------|----|--------|-------|-------|
| Between        | 5  | 18.423 | 3.685 | 1.638 |
| Within (Error) | 24 | 53.992 | 2.250 |       |
| Total          | 29 | 72.415 |       |       |

Critical F value = 2.62 (0.05,5,24)

Since F < Critical F FAIL TO REJECT Ho:All groups equal

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% body weight gain (females)  
File: 1729fw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

| GROUP | IDENTIFICATION | TRANSFORMED MEAN | MEAN CALCULATED IN ORIGINAL UNITS | T STAT | SIG |
|-------|----------------|------------------|-----------------------------------|--------|-----|
| 1     | control        | 1.338            | 1.338                             |        |     |
| 2     | 125            | 1.544            | 1.544                             | -0.217 |     |
| 3     | 250            | 0.404            | 0.404                             | 0.985  |     |
| 4     | 500            | 0.108            | 0.108                             | 1.297  |     |
| 5     | 1000           | 1.848            | 1.848                             | -0.538 |     |
| 6     | 2000           | 2.352            | 2.352                             | -1.069 |     |

Dunnett table value = 2.36 (1 Tailed Value, P=0.05, df=24,5)

% body weight gain (females)  
File: 1729fw Transform: NO TRANSFORMATION

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

| GROUP | IDENTIFICATION | NUM OF REPS | Minimum Sig Diff (IN ORIG. UNITS) | % of CONTROL | DIFFERENCE FROM CONTROL |
|-------|----------------|-------------|-----------------------------------|--------------|-------------------------|
| 1     | control        | 5           |                                   |              |                         |
| 2     | 125            | 5           | 2.239                             | 167.3        | -0.206                  |
| 3     | 250            | 5           | 2.239                             | 167.3        | 0.934                   |
| 4     | 500            | 5           | 2.239                             | 167.3        | 1.230                   |
| 5     | 1000           | 5           | 2.239                             | 167.3        | -0.510                  |
| 6     | 2000           | 5           | 2.239                             | 167.3        | -1.014                  |

% body weight gain (females)  
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WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

| GROUP | IDENTIFICATION | N | ORIGINAL MEAN | TRANSFORMED MEAN | ISOTONIZED MEAN |
|-------|----------------|---|---------------|------------------|-----------------|
| 1     | control        | 5 | 1.338         | 1.338            | 0.848           |
| 2     | 125            | 5 | 1.544         | 1.544            | 0.848           |
| 3     | 250            | 5 | 0.404         | 0.404            | 0.848           |
| 4     | 500            | 5 | 0.108         | 0.108            | 0.848           |
| 5     | 1000           | 5 | 1.848         | 1.848            | 1.848           |
| 6     | 2000           | 5 | 2.352         | 2.352            | 2.352           |

% body weight gain (females)

**Data Evaluation Report on the Acute Oral Toxicity of AE 0172747 to Avian Species**  
**{*Colinus virginianus*}**

PMRA Submission Number 2006-2445

EPA MRID Number 468017-29

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WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

| IDENTIFICATION | ISOTONIZED MEAN | CALC. WILLIAMS | SIG P=.05 | TABLE WILLIAMS | DEGREES OF FREEDOM |
|----------------|-----------------|----------------|-----------|----------------|--------------------|
| control        | 0.848           |                |           |                |                    |
| 125            | 0.848           | 0.516          |           | 1.71           | k= 1, v=24         |
| 250            | 0.848           | 0.516          |           | 1.79           | k= 2, v=24         |
| 500            | 0.848           | 0.516          |           | 1.82           | k= 3, v=24         |
| 1000           | 1.848           | 0.538          |           | 1.83           | k= 4, v=24         |
| 2000           | 2.352           | 1.069          |           | 1.84           | k= 5, v=24         |

s = 1.500

Note: df used for table values are approximate when v > 20.

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|         |   |     |     |     | % body weight gain |        |
|---------|---|-----|-----|-----|--------------------|--------|
|         |   | d0  | d7  | d14 | d 0-7              | d 7-14 |
| control | f | 292 | 294 | 285 | 0.68               | -3.06  |
|         | f | 276 | 283 | 287 | 2.54               | 1.41   |
|         | f | 287 | 290 | 278 | 1.05               | -4.14  |
|         | f | 279 | 283 | 280 | 1.43               | -1.06  |
|         | f | 304 | 307 | 304 | 0.99               | -0.98  |
|         | m | 297 | 282 | 276 | -5.05              | -2.13  |
|         | m | 270 | 285 | 283 | 5.56               | -0.70  |
|         | m | 294 | 302 | 301 | 2.72               | -0.33  |
|         | m | 278 | 286 | 282 | 2.88               | -1.40  |
|         | m | 307 | 310 | 308 | 0.98               | -0.65  |
| 125     | f | 280 | 285 | 278 | 1.79               | -2.46  |
|         | f | 280 | 282 | 279 | 0.71               | -1.06  |
|         | f | 276 | 283 | 282 | 2.54               | -0.35  |
|         | f | 292 | 296 | 289 | 1.37               | -2.36  |
|         | f | 306 | 310 | 301 | 1.31               | -2.90  |
|         | m | 297 | 304 | 305 | 2.36               | 0.33   |
|         | m | 283 | 282 | 285 | -0.35              | 1.06   |
|         | m | 281 | 283 | 278 | 0.71               | -1.77  |
|         | m | 270 | 289 | 282 | 7.04               | -2.42  |
|         | m | 307 | 298 | 303 | -2.93              | 1.68   |
| 250     | f | 278 | 278 | 279 | 0.00               | 0.36   |
|         | f | 283 | 285 | 281 | 0.71               | -1.40  |
|         | f | 293 | 298 | 294 | 1.71               | -1.34  |
|         | f | 277 | 274 | 276 | -1.08              | 0.73   |
|         | f | 292 | 294 | 293 | 0.68               | -0.34  |
|         | m | 283 | 283 | 281 | 0.00               | -0.71  |
|         | m | 285 | 301 | 300 | 5.61               | -0.33  |
|         | m | 300 | 311 | 310 | 3.67               | -0.32  |
|         | m | 301 | 307 | 311 | 1.99               | 1.30   |
|         | m | 270 | 282 | 280 | 4.44               | -0.71  |
| 500     | f | 288 | 284 | 285 | -1.39              | 0.35   |
|         | f | 272 | 279 | 279 | 2.57               | 0.00   |
|         | f | 285 | 289 | 284 | 1.40               | -1.73  |
|         | f | 278 | 277 | 276 | -0.36              | -0.36  |
|         | f | 297 | 292 | 291 | -1.68              | -0.34  |
|         | m | 267 | 267 | 269 | 0.00               | 0.75   |
|         | m | 302 | 304 | 307 | 0.66               | 0.99   |
|         | m | 291 | 299 | 301 | 2.75               | 0.67   |
|         | m | 271 | 276 | 278 | 1.85               | 0.72   |
|         | m | 300 | 300 | 300 | 0.00               | 0.00   |
| 1000    | f | 273 | 280 | 281 | 2.56               | 0.36   |
|         | f | 288 | 296 | 294 | 2.78               | -0.68  |
|         | f | 285 | 283 | 282 | -0.70              | -0.35  |
|         | f | 278 | 288 | 285 | 3.60               | -1.04  |
|         | f | 301 | 304 | 301 | 1.00               | -0.99  |
|         | m | 303 | 308 | 311 | 1.65               | 0.97   |

|        |     |     |     |      |       |
|--------|-----|-----|-----|------|-------|
| m      | 292 | 298 | 301 | 2.05 | 1.01  |
| m      | 296 | 298 | 303 | 0.68 | 1.68  |
| m      | 275 | 281 | 283 | 2.18 | 0.71  |
| m      | 267 | 269 | 271 | 0.75 | 0.74  |
| 2000 f | 286 | 300 | 298 | 4.90 | -0.67 |
| f      | 279 | 280 | 271 | 0.36 | -3.21 |
| f      | 273 | 273 | 285 | 0.00 | 4.40  |
| f      | 302 | 308 | 307 | 1.99 | -0.32 |
| f      | 288 | 301 | 301 | 4.51 | 0.00  |
| m      | 305 | 318 | 319 | 4.26 | 0.31  |
| m      | 292 | 300 | 300 | 2.74 | 0.00  |
| m      | 268 | 270 | 277 | 0.75 | 2.59  |
| m      | 275 | 286 | 278 | 4.00 | -2.80 |
| m      | 296 | 301 | 300 | 1.69 | -0.33 |

% body weight gain (females)

6

5

5

5

5

5

5

control

0.68

2.54

1.05

1.43

0.99

125

1.79

0.71

2.54

1.37

1.31

250

0

0.71

1.71

-1.08

0.68

500

-1.39

2.57

1.4

-0.36

-1.68

1000

2.56

2.78

-0.7

3.6

1

2000

4.9

0.36

0

1.99

4.51

% body weight gain (males)

6  
5  
5  
5  
5  
5  
5

control

-5.05  
5.56  
2.72  
2.88  
0.98  
125  
2.36  
-0.35  
0.71  
7.04  
-2.93  
250  
0  
5.61  
3.67  
1.99  
4.44  
500  
0  
0.66  
2.75  
1.85  
0  
1000  
1.65  
2.05  
0.68  
2.18  
0.75  
2000  
4.26  
2.74  
0.75  
4  
1.69