

US EPA ARCHIVE DOCUMENT

DP Barcode: D237791

MRID No.: 442873-02

DATA EVALUATION RECORD

§ 71-2(A) -- UPLAND GAME BIRD DIETARY LC₅₀ TEST

1. CHEMICAL: 2-chloro-4,6-bis(isopropylamino)-s-triazine PC Code
No.: 080808

2. TEST MATERIAL: Propazine Purity: 98.0 %

3. CITATION

Authors: C. E. Jameson; J. Veltri
Title: Acute dietary toxicity of propazine to
bobwhite quail (*Colinus virginianus*)

Study Completion Date: 11/23/94

Laboratory: ABC Laboratories, Inc.

Sponsor: Griffin Corporation

Laboratory Report ID: ABC Laboratories #41758

MRID No.: 442873-02

4. REVIEWED BY: Thomas M. Steeger, Ph.D., Fishery Biologist,
EFED, ERB IV, U.S. EPA

Signature: *Thomas M. Steeger*

Date: 10/14/97

5. APPROVED BY: Nicholas E. Federoff, Wildlife Biologist, EFED,
ERB IV, U.S. EPA

Signature: *Nicholas E. Federoff*

Date: 10/15/98

6. STUDY PARAMETERS

Scientific Name of Test Organism: *Colinus virginianus*

Age of Test Organisms at Test Initiation: 10 days

Definitive Study Duration: 264 hrs (11 days)

7. CONCLUSIONS: This study is scientifically sound and fulfills the 71-2(A) guideline requirements for acute dietary toxicity tests for bobwhite quail. The vehicle (corn oil/acetone) represented 5% of the diet as opposed to the recommended maximum of 2%. Diminished feed consumption, slow growth and cannibalism were observed during the exposure period at treatments ranging from 578 to 4,930 ppm a.i. Although, the 120-hour LC₅₀ for propazine was greater than 4,930 ppm a.i., average daily feed consumption on Days 1 through 5 was significantly dependent ($P \leq 0.0358$) on the concentration of Propazine in the diet. Both regression and correlation analysis suggest a possible chemical-induced anorexia that was resolved subsequent to quail being provided normal feed.



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Results Synopsis

LC₅₀: >4,930 ppm ai
NOEL: _____ ppm ai*

95% C.I.: _____ - _____ ppm ai
Probit Slope: _____

8. ADEQUACY OF THE STUDY

- A. Classification: Core
- B. Rationale:
- C. Repairability:

9. GUIDELINE DEVIATIONS

- 1. Vehicle amount (5%) exceeded the specified maximum of 2%
- 2. (etc.)

10. SUBMISSION PURPOSE: Acute dietary bioassay to determine the 120-hr and end time LC₅₀ levels for propazine in bobwhite quail.

11. MATERIALS AND METHODS

A. Test Organisms

Guideline Criteria	Reported Information
Species: An upland game bird species, preferably the bobwhite (<i>Colinus virginianus</i>).	<i>Colinus virginianus</i>
Age at beginning of test: 10-14 days old.	10 days old (hatched 9/12; administered treatment 9/22)
Supplier	Stevenson Game Bird Farm
Chicks appeared healthy and did not have excessive mortality before the test?	Yes
Acclimation period: As long as possible.	9 days

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B. Test System

Guideline Criteria	Reported Information
Pen size: about 35 x 100 x 24 cm	97.8 x 34.3 x 24.1
Brooder temperature: about 35°C (95°F)	Not reported
Room temperature: 22-27°C (71-81°F)	19 - 22°C
Relative humidity: 30-80%	64 - 82%
Adequate ventilation?	Not reported
Photoperiod Minimum of 14 h of light.	14 hrs light
Diet: A commercial diet for game birds.	Purina Gamebird Startena

C. Test Design

Guideline Criteria	Reported Information
Range finding test?	Yes
Definitive Test Nominal concentrations: Four minimum, 5 or 6 strongly recommended, in a geometric scale, unless $LC_{50} > 5000$ ppm.	Control, negative control, 650, 1080, 1800, 3000, and 5000 ppm
Controls: Control group tested with diet containing the maximum amount of vehicle used in treated diets?	Control and negative (vehicle) control
Number of birds per group: 10 (strongly recommended)	10

Guideline Criteria	Reported Information
Vehicle: Distilled water, corn oil, propylene glycol, 1% carboxymethylcellulose, or gum arabic.	Corn oil/acetone
Vehicle amount (% of diet by weight): Not more than 2%	250 g/5,000 g = 5%
Test durations: 5 days with treated feed and at least 3 days observation with "clean" feed.	120-hr exposure 72-hr post-exposure
No mortality during last 72 hr of observations?	1 chick dead; associated with cannibalism due to feed avoidance

12. REPORTED RESULTS

Guideline Criteria	Reported Information
Quality assurance and GLP compliance statements were included in the report?	Yes
Body weights measured at beginning and end of study?	Yes
Estimated consumption per pen reported for pretreatment, treatment, and observation periods?	Yes
Control Mortality: Not more than 10%	0%
Raw data included?	Yes
Signs of toxicity (if any) were described?	Yes

Mortality

Conc. (ppm)		No. of Birds	Cumulative Number of Dead								
Nominal	Mean Measured		Day of Study								
			1	2	3	4	5	6	7	8	
Control	--	10	0	0	0	0	0	0	0	0	0
Negative Control	--	10	0	0	0	0	0	0	0	0	0
650	578	10	0	0	0	0	0	0	0	0	0
1080	1050	10	0	0	0	0	0	0	0	0	0
1800	1820	10	0	0	0	0	0	0	0	0	0
3000	2790	10	0	0	0	0	0	0	0	0	0
5000	4930	10	0	0	0	0	0	0	0	0	0

Other Significant Results:

At highest concentration level (5000 ppm) 10% mortality occurred at 264-hrs. Researchers noted that this one bird fell victim to cannibalism indicative of quail starving themselves through food avoidance.

Statistical Results

Statistical Method:

LC₅₀: >5000 ppm 95% C.I.: _____ - _____ ppm

NOEL: _____ ppm Probit Slope: _____

13. Verification of Statistical Results

Statistical Method:

LC₅₀: >4930 ppm 95% C.I.: _____ - _____ ppm

NOEL: _____ ppm Probit Slope: _____

Adjusted for active ingredient: (Optional if over 80% ai)

LC₅₀: >4930 ppm ai 95% C.I.: _____ - _____ ppm ai

NOEL: _____ ppm ai

14. REVIEWER'S COMMENTS:

Researchers noted that 1 bird died in the highest treatment level (5000 ppm) at 264 hrs. The death was attributed to cannibalism associated with food avoidance.

The vehicle control and diets containing 5,000 ppm propazine contained 5% corn oil and deviated from the recommended maximum of 2% vehicle. However, the data from the control birds indicated that this deviation was not detrimental.

Cannibalism was considered indicative of the quail starving themselves and it was concluded that the effect could be attributed to the presence of propazine in the diet, but not to the ingestion of it. It is interesting to note that in the acute oral toxicity study on propazine in bobwhite quail, birds receiving greater than 244 ppm a.i. also avoided food and exhibited weight loss; the decrease in food intake however could not be attributed to the presence of propazine in the food. The acute oral toxicity study exhibited a dose-related effect on food consumption. In the present study, food consumption also appears to be negatively correlated with dose.

Food consumption by bobwhite quail showed a significant negative correlation with dietary Propazine (Pearson correlation coefficient = -0.8727 ; $P < 0.0103$) on Day 1 of exposure. By Day 5, feed consumption continued to exhibit a negative correlation with dietary Propazine (Pearson correlation coefficient = -0.7805 ; $P < 0.0384$); by Day 11 there was no correlation.

Regression analysis of feed consumption over dietary Propazine revealed that 76.17% of the variability in feed consumption was accounted for by dose. The slope, -0.006 , was significant ($P < 0.01$). Average daily feed consumption on days 1 through 5 (Propazine in diet) was significantly dependent ($P < 0.0358$) on Propazine level (slope -0.000453). Regression analysis of average daily feed consumption on Day 1 of exposure was also significant (slope -0.000624 ; $P < 0.0098$). Both regression and correlation analyses suggest a possible chemical-induced anorexia.