5-28-91

MRID No. 413611-01

DATA EVALUATION RECORD

1. **CHEMICAL:** Propanil-3, 4-Dichloropropionilide.
Shaughnessey Number: 028201.

2. **TEST MATERIAL:** Propanil. Batch No. 01; Aliquot No. 27; Code Blue; 97.6% purity; a light brown to dark purple solid.

3. **STUDY TYPE:** Avian dietary LC_{50} Test.
Species Tested: Bobwhite quail (Colinus virginianus).

4. **CITATION:** Grimes, J. and M. Jaber. 1989. Propanil: A Dietary LC_{50} Study with the Bobwhite. Study performed by Wildlife International Ltd., Easton, Maryland. Laboratory Study No. 271-101. Submitted by Propanil Task Force, Liberty, Missouri. MRID No. 413611-01.

5. **REVIEWED BY:**

Rosemary Graham Mora, M.S.
Associate Scientist
KBN Engineering and
Applied Sciences, Inc.

Signature: Rosemary L. Mora
Date: 5/28/91

6. **APPROVED BY:**

Michael Whitten, M.S.
Wildlife Toxicologist
KBN Engineering and
Applied Sciences, Inc.

Signature: Michael L. Whitten
Date: 5/28/91

Henry T. Craven, M.S.
Supervisor, EEB/HED
USEPA

Signature: Dan Ballard
Date:

7. **CONCLUSIONS:** The study is scientifically sound and meets the requirements for an avian dietary LC_{50} test. With an LC_{50} of 2861 ppm (based on nominal concentrations) the test material is considered to be slightly toxic to bobwhite quail. The NOEC could not be determined. < 562 ppm - lowest dose - showed wt loss

8. **RECOMMENDATIONS:** N/A

9. **BACKGROUND:**

10. **DISCUSSION OF INDIVIDUAL TESTS:** N/A.

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10. **DISCUSSION OF INDIVIDUAL TESTS:** N/A.

11. **MATERIALS AND METHODS:**

A. **Test Animals:** The test birds were bobwhite quail (Colinus virginianus) obtained as two day old chicks from Fritts' Quail Farm, Phillipsburg, New Jersey. At the time of test initiation the birds were 11 days old. The birds were immature, and therefore could not be differentiated by sex. All birds were acclimated to the caging and facilities for 9 days prior to initiation of the test. Each of the treatment and control groups contained ten birds.

B. **Test System:** All birds were housed indoors in pens constructed of galvanized wire and sheeting. Pen dimensions were 72 cm x 90 cm x 23 cm high. Fluorescent lights provided 16 hours of light per day. The average brooder compartment temperature was 36°C ± 2°C (SD). The average ambient temperature was 26 ± 1°C (SD). The relative humidity was 67% ± 7% (SD).

C. **Dosage:** Avian Dietary LC_{50} Test. Based upon known toxicity data, nominal concentrations selected for the study were 562, 1000, 1780, 3160, and 5620 parts per million (ppm). Concentrations were not adjusted for purity of the test substance (Propanil, 97.6% purity).

D. **Design:** Groups of ten birds were randomly assigned to each of five treatment groups and five control groups. Each concentration was assigned one pen. All treatment birds were fed Wildlife International Ltd.'s game bird ration with the appropriate amount of test substance. Food and water were supplied ad libitum during acclimation and during the test.

Appropriate amounts of the test substance were mixed into the ration with corn oil using an industrial mixer. The concentration of corn oil in the control and treatment diets was 2%. Chemical analysis of the test diet was performed for samples collected at test initiation and at the end of the exposure period (Day 5) (Addendum III, attached).

All birds were observed at least twice daily for mortalities, signs of toxicity, and abnormal behavior. Each group of control and treatment birds was weighed

2 3

at test initiation, and on Day 5 and Day 8. Group food consumption was determined for days 0-5 and 6-8.

E. **Statistics:** The LC_{50} and 95% confidence limits were calculated by the probit test method using the computer program of C.E. Stephan (1978).

12. **REPORTED RESULTS:** There were no mortalities in the control groups. All birds appeared and behaved normally throughout the test period (Table 1, attached).

No mortality was observed in the 562 ppm group. No signs of intoxication in this group were noted throughout the test period.

No mortality was observed in the 1000 ppm concentration, however signs of intoxication were first observed on the afternoon of Day 3. Signs of intoxication included lethargy and wing droop. All birds appeared normal from Day 6 until test termination.

Ten percent, 70%, and 90% mortality was observed in the 1780, 3160, and 5620 ppm groups, respectively (Table 2, attached). Signs of toxicosis in the 1780 ppm group began on the morning of Day 3 and continued until the afternoon of Day 6; signs of toxicosis included wing droop and lethargy. In the 3160 ppm group a ruffled appearance, reduced reaction to external stimuli, lethargy and wing droop were observed from Day 3 to the morning of Day 8, at which time all survivors appeared normal. The birds in the 5620 ppm group illustrated signs of toxicosis including ruffled appearance, lethargy, wing droop, reduced reaction to external stimuli, depression, and lower limb weakness. The sole survivor appeared normal by the morning of Day 8.

"When compared to the controls, there was a reduction in body weight gain or body weight loss at all concentrations tested during the exposure period (Days 0 - 5) (see Tables 3 and 4 [attached]). A corresponding reduction in feed consumption was noted at 3160 ppm and 5620 ppm for this same period."

13. **STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES:** The LC_{50} for bobwhite quail exposed to Propanil was 2861 ppm (95% confidence interval of 2204 to 3756 ppm). The no mortality level was 1000 ppm.

The report stated that the study was conducted in conformance with Good Laboratory Practice regulations. This statement was signed by representatives of Wildlife

International Ltd. and a representative of the study sponsor. The Quality Assurance Statement was signed by the Quality Assurance Officer.

14. REVIEWER'S DISCUSSION AND INTERPRETATION OF STUDY RESULTS:

A. Test Procedure: The test procedures were in accordance with Subdivision E and SEP guidelines with the following exceptions:

Food consumption for the pretreatment acclimation period was not presented in the report.

Necropsies were not performed. Necropsies are recommended in the guidelines.

Body weights were measured by group. Individual body weights should have been measured.

Addendum II (attached) indicates that acetone was used to dissolve the test substance, however it does not indicate that the acetone was allowed to "completely evaporate at room temperature prior to feeding," as required in the SEP guidelines.

B. Statistical Analysis: The reviewer used EPA's Toxanal computer program to calculate the LC_{50} value (Printout, attached). The reviewer's results were the same as the authors'.

C. Discussion/Results: Chemical analyses of treatment diets indicate that values for verification and homogeneity were within acceptable limits (Addendum III, attached). The stability of the test material was not clear, with measured values of 72.2% of nominal at 5620 ppm, and 90.7% of nominal at 562 ppm.

With an LC_{50} of 2861 ppm (based on nominal concentrations) the test material is considered to be slightly toxic to bobwhite quail.

The NOEC could not be determined, due to reduced body weight gains at all concentrations tested.

The study is scientifically sound and meets the requirements for an avian dietary LC_{50} test.

D. **Adequacy of the Study:**

(1) **Classification:** Core.

(2) **Rationale:** However, these results should be viewed with caution because the stability of this compound under test conditions is in question, (aerobic metabolism half-life of 0.5 to 2 days).

(3) **Repairability:** N/A.

15. **COMPLETION OF ONE-LINER:** Yes; May 15, 1991.

5 6

RIN 1876-95

PROPANIL EEB REVIEW

Page_____ is not included in this copy.

Pages 6 through 10 are not included.

The material not included contains the following type of information:

____ Identity of product inert ingredients.

____ Identity of product impurities.

____ Description of the product manufacturing process.

____ Description of quality control procedures.

____ Identity of the source of product ingredients.

____ Sales or other commercial/financial information.

____ A draft product label.

____ The product confidential statement of formula.

____ Information about a pending registration action.

✓ FIFRA registration data.

____ The document is a duplicate of page(s) _____.

____ The document is not responsive to the request.

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.

ROSEMARY GRAHAM MORA PROPANIL COLINUS VIRGINIANUS 05-15-91

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
5620	10	9	90	1.074219
3160	10	7	70	17.1875
1780	10	1	10	1.074219
1000	10	0	0	9.765625E-02
562	10	0	0	9.765625E-02

THE BINOMIAL TEST SHOWS THAT 1780 AND 5620 CAN BE
USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT
CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL
ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 2641.575

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
3	.167754	2852.264	2186.996	4007.397

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
20	.2606907	1	.7992923

SLOPE = 5.439637
95 PERCENT CONFIDENCE LIMITS = 2.662284 AND 8.21703

LC50 = 2860.928
95 PERCENT CONFIDENCE LIMITS = 2204.087 AND 3755.862

LC10 = 1671.23
95 PERCENT CONFIDENCE LIMITS = 888.4906 AND 2176.179

Shaughnessey # 028201 Chemical Name Propanil Chemical Class _____ Page 1 of 1

Study/Species/Lab/ MRID #	Chemical % a.i.	Results	Reviewer/ Date	Validation Status
14-Day Single Oral LD_{50}	_____	LD_{50} = mg/kg (95% C.L.) Control Mortality (%) =		
Species		Slope = # Animals/Level = Age (Days) =		
		Sex =		
Lab			_____	_____
		14-Day Dose Level mg/kg/(% Mortality)		
MRID #		( ), ( ), ( ), ( ), ( )		
		Comments:		

8-Day Dietary LC_{50}	97.6%	LC_{50} = 2861 ppm (95% C.L. (2204, 3756)) Control Mortality (%) = 0		
Species		Slope = 5.0 # Animals/Level = 10 Age (Days) = 11	RLM 5/15/91	
OK Colinus virginianus		Sex = ND	Core	Core
Lab				
Wildlife Internat.		8-Day Dose Level pp /(% Mortality)		
MRID #		562 (0), 1000 (0), 1780 (10), 3160 (70), 5620 (90)		
413611-01		Comments: Based on nominal concentrations.		

P 13