

DATA EVALUATION RECORD

MRID No. 41286502

1. Chemical: Vernam 97.1% a.i.
2. Test Material: Vernam (Vernolate)
3. Study Type: An Acute Dietary Toxicity Study With The Bobwhite Quail.
4. Study ID: Vernam: An Acute Dietary Toxicity Study With The Bobwhite Quail. Conducted by: Wildlife International Ltd, Project No.: 268-101; Submitted to: Drexel Chemical 2487 Pennsylvania Street Memphis, Tennessee 38109; Completion Date: 08-11-89; Study Author: Jennie Grimes; MRID No.: 412865-02
5. Reviewed by: Daniel Balluff  
Wildlife Biologist  
EEB/EFED (H7507C)      Signature: *Daniel Balluff*  
Date: 12-19-90
6. Approved by: Henry Craven  
Head Section IV  
EEB/EFED (H7507C)      Signature: *Henry T. Craven*  
Date:
7. Conclusion:

This study appears scientifically sound but does not fulfill EEB guideline requirements for a dietary toxicity test of Vernam 97.1% a.i. with bobwhite quail due to the fact that an amount of test diet sufficient to last the five day exposure period was presented to the birds at the initiation of the study and nominal test concentrations were not confirmed. Vernolate is reported to be a highly volatile compound. Therefore, an unknown amount of test material may have volatilized or degraded during the five day exposure period.

The LC50 was reported to be greater than 5620 ppm the highest dosage tested. The no-mortality level was 5620 ppm. When compared to the controls, there appeared to be a reduction in body weight at the 5620 ppm dosage level. There was no effect on feed consumption.
8. Recommendations: This study must either be repeated or additional information to substantiate the amount of test material present during the study must be provided.
9. Background: N/A
10. Discussion of Individual Tests: N/A

- a. Test Animals - Ten day old northern bobwhite (Colinus virginianus) were obtained from Fritts Quail Farm, RD # 3, Box 362, Phillipsburg, New Jersey 08865.
- b. Test System - The birds were housed in pens with galvanized wire and sheeting with floor space measuring approximately 72 x 90 cm and ceiling height 23 cm. The average temperature in the brooding compartment was 37°C, average room temperature was 26°C, average relative humidity was 66%. The photoperiod was sixteen hours of light per day.
- c. Dosing - Nominal doses were 562, 1000, 1780, 3160, 5620 ppm a.i.. The carrier was a 2% concentration of corn oil. The control group was dosed with the 2% carrier only. An amount of diet sufficient to last the five day exposure period was presented to the birds at the initiation of the study. A test material stability study was not provided. The birds received no form of antibiotic during the study.
- d. Design - Birds were assigned to five test groups and five control groups by random draw. Each treatment group and control group contained ten chicks that were not differentiated by sex because of their age. All birds were acclimated to caging for ten days prior to study initiation. Individual bodyweights were measured at initiation of the test, on Days 5, and at termination of the test on Day 8. Feed consumption was measured. Following test initiation birds were observed at least twice daily.
- e. Statistics - Due to the lack of sufficient mortality, an estimation of the LC50 value was made by a visual inspection of the data.

## 12. Reported Results:

There was one mortality in the control groups. There were no mortalities or overt signs of toxicity at any of the concentrations tested. At 1780 ppm, lesions from hockpicking were noted in as many as five birds from Day 6 until study termination. When compared to controls there appeared to be a slight reduction in body weight at 5620 ppm a.i. during the exposure period (Days 0-3). All birds were normal in

appearance and behavior throughout the study. There was no effect on feed consumption at any of the test concentrations.

13. Study Authors Conclusion:

The dietary LD50 value for northern bobwhite exposed to Vernolate was determined to be greater than 5620 ppm a.i., the highest concentration tested. The no-mortality level was 5620 ppm a.i.. There appeared to be a slight reduction in body weight gain at 5620 ppm a.i. during the exposure period, compared to the controls.

14. Reviewers Discussion and Interpretation of the Study:

a. Test Procedures -

The test diets were prepared on the day of the study initiation. An amount of diet sufficient to last the five day exposure period was presented to the birds at the initiation of the study.

Since Vernolate is highly volatile with a vapor pressure of 10.4 mm Hg at 25°C (EEB Chemical profile dated 1-6-84) an accurate determination cannot be made as to whether the nominal test concentrations accurately reflect actual concentrations of vernam in the test diets under the conditions of the study for the duration of the exposure period.

Test diets should be provided to birds on a daily basis unless it can be adequately demonstrated that the test material is not a volatile or rapidly degrading compound under the conditions of the study. In the absence of this information, the concentrations of test material in actual test diets should be measured.

The authors provided no information on the stability of vernam in avian diet under the acute dietary test conditions. For the duration of the five day exposure period the test material was left out in the open air and exposed to 16 hours of light per day.

b. Statistical Analysis -

The highest dosage level in the study (5620 ppm) did not result in mortality. Therefore, no statistical analysis was required.

c. Discussion/ Results -

This study appears scientifically sound but does not

fulfill EEB guideline requirements for a dietary toxicity test of Vernam 97.1% a.i. with bobwhite quail due to the fact that an amount of test diet sufficient to last the five day exposure period was presented to the birds at the initiation of the study and nominal test concentrations were not confirmed. Vernolate is reported to be a highly volatile compound. Therefore, an unknown amount of test material may have volatilized or degraded during the five day exposure period.

The LC50 was reported to be greater than 5620 ppm the highest dosage tested. The no-mortality level was 5620 ppm. When compared to the controls, there appeared to be a reduction in body weight at the 5620 ppm dosage level. There was no effect on feed consumption.

d. Adequacy of Study

1) Classification: Supplemental

2) Rationale: This study must either be repeated or additional information to substantiate the amount of test material present during the study must be provided.

3) Repairability: N/A

15. Completion of One-Liner: N/A

TABLE 3  
BODY WEIGHT AND ESTIMATED FEED CONSUMPTION OF CONTROL BOBWHITE

Concentration ppm	Average Body Weight (Grams)						Feed Consumption Grams Per Bird Per Day	
	Exposure			Observation		Total Change	Exposure	Observation
	Day 0	Change	Day 5	Change	Day 8		Days 0-5	Days 6-8
0	16	10	26	7	33	17	9	10
0	17	8	25	8	33	16	6	8
0	17	9	26	7	33	16	8	12
0	15	8	23	7	30	15	14	14
0	18	10	28	7	35	17	7	8

TABLE 4

BODY WEIGHT AND ESTIMATED FEED CONSUMPTION OF BOBWHITE

EXPOSED TO VERNOLATE FOR FIVE DAYS

Concentration ppm a.i.	Average Body Weight (Grams)						Feed Consumption Grams Per Bird Per Day	
	Exposure			Observation		Total Change	Exposure	Observation
	Day 0	Change	Day 5	Change	Day 8		Days 0-5	Days 6-8
562	15	9	24	7	31	16	10	13
1000	16	8	24	7	31	15	7	10
1780	18	8	26	5	31	13	8	6
3160	16	7	23	6	29	13	7	11
5620	17	5	22	8	30	13	7	13

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TABLE 1  
 CUMULATIVE MORTALITIES OF CONTROL BOBWHITE

Concentration ppm	Number Dead/Number Exposed								
	Day of Study								
	0	1	2	3	4	5	6	7	8
0	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10
0	0/10	0/10	0/10	0/10	0/10	1/10	1/10	1/10	1/10
0	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10
0	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10
0	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10

TABLE 2  
 CUMULATIVE MORTALITIES OF BOBWHITE  
 EXPOSED TO VERNOLATE FOR FIVE DAYS

Concentration ppm a.i.	Number Dead/Number Exposed								
	Day of Study								
	0	1	2	3	4	5	6	7	8
562	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10
1000	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10
1780	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10
3160	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10
5620	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10

The LC50 value was determined to be greater than 5620 ppm a.i., the highest concentration tested.