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DATA EVALUATION RECORD PAGE 1 OF

CASE: GS0333 FENAMIPHOS

CONT-CAT: 01 GUIDELINES: 71-5

MRID: 121292

Lamb, D.; Carsel, M.; Toll, P. (1982) Nemacur 3: Field Study with Bobwhite Quail: Study No. 81-905-01; 80748. (Unpublished study received December 16, 1982 under 3125-283; submitted by Mobay Chemical Corp., Kansas City, MO; CDL:071291-E).

REVIEW RESULTS:

VALID X INVALID ____ INCOMPLETE ____

GUIDELINE: SATISFIED ___ PARTIALLY SATISFIED ___ NOT SATISFIED X

DIRECT RVW TIME = START DATE: END DATE:

REVIEWED BY: Richard W. Felthousen

TITLE: Wildlife Biologist

ORG: EEB/HED

LOC/TEL: 557-1392

SIGNATURE: DATE: 12/06/86

APPROVED BY: O. Gutenson

TITLE: Acting Registration Standard Coordinator

ORG: EEB/HED

LOC/TEL:

SIGNATURE: DATE: 12/21/87

The study was scientifically sound; however, because of some design deficiencies it cannot be used to satisfy the Guideline Requirement. It can be used as supplemental information in a hazard assessment.

DATA EVALUATION RECORD

1. Chemical: Nemacur

2. Formulation: Nemacur 3 (35% ai)

3. Citation: Lamb, D. W. June 1982. Nemacur 3 Field Study with Bobwhite Quail. No. 81-905-01. Prepared by Mobay Chemical Corp. Stilwell, Kansas. (EPA Accession No. 071291)

4. Reviewed By: Charles A. Bowen II
Fisheries Biologist
Ecological Effects Branch
Hazard Evaluation Division (TS-769)

5. Date Reviewed: March 3, 1983

6. Test Type: 14-Day Simulated Field Study

A. Test Species: Bobwhite Quail (Colinus virginianus)

7. Reported Results:

Fenamiphos was applied to bare soil at the rate of 6, 10, 20 lb ai/acre and immediately incorporated to a depth of 2 to 3 inches. Under the conditions of this study Nemacur 3 had no significant effect on mortality, weight gain, clinical signs, gross lesions or brain cholinesterase activity. All study mortalities were limited to day 1, no further signs of intoxication were observed.

8. Reviewer's Conclusion:

This bioassay is scientifically sound and demonstrates that incorporation significantly reduces the hazard to large (150-200 g) upland gamebirds. This study is acceptable and can be used in support of product registration.

9. Test Procedures:

Adult male and female bobwhite quail (150 to 200 g, Colinus virginianus, were obtained from Morris Quail Farm, Goulds, Florida.

10. Animal Care:

Birds were maintained on Purina Game Bird Chow. Water was available ad libitum. They were housed in 4 ft x 5 ft x 3 ft high pens consisting of a metal frame covered with 1/2-inch mesh hardware cloth. The bottom of the pen was open to the ground. Plastic storage tubs were used as shelters. The quail were acclimated to outdoor weather conditions 2 weeks prior to the start of the study.

11. Environmental Conditions:

During the course of the study, temperatures ranged from 23 to 60°F with relative humidity of 47 to 100%. On day 8 of the study, there was 1.05 inches of precipitation.

12. Test Groups:

Forty males and forty females were randomly assigned to a control group and to three test groups. Each group had ten pens with one male and one female per pen.

13. Application:

The study area was bare ground that had been plowed, disked, and rototilled. Before application 350 sq ft of each test area was scattered with feed at a rate of 2.5 g/sq ft. The test substance was applied to three test areas at rates of 6, 10, or 20 lbs of active ingredient per acre. A control area was left untreated. A walking bicycle sprayer with a 10-foot boom was used to apply a 1500 ml solution to each area (750 sq ft).

After application the entire study area was disked to incorporate the test substance 2 to 3 inches in the soil, and pens were placed in position. Each group had five pens in the area with feed and five pens in the area without feed. Shelters and waterers were put in the pens, and birds were introduced into the pens after being weighed.

14. Observations:

The quail were observed daily for mortality and signs of toxicity for 14 days after the application of the test substance. Birds in the study were weighed on the day of application, and the replacement birds were weighed on the day they were put on the study. Survivors were weighed on day 14 after application.

Sufficient feed and water were available at all times except on the day of application when only one-half of the pens in each group had feed. For the remainder of the study, 50 g of feed was scattered in each pen daily. Feed consumption was not measured due to the inaccuracy involved in scattering feed on the ground and trying to recover any that remained.

The brains of the quail were used to analyze the cholinesterase activity after the birds were sacrificed and examined for gross lesions on day 14 of the study.

15. Statistical Analysis:

Using each pen as a replicate, mortality and weight gain were compared between each application rate group and the corresponding control group, fed and unfed, on the first day. Means were compared using Student's T test.

16. Results/Discussion:

One day after application a female at 6 lbs ai, a male at 10 lbs ai and two males at 20 lbs ai/acre were found dead. These birds were replaced on day 1, and no further mortality or signs of intoxication were observed.

Weight gain data are summarized in Table I. In the 20 lb/acre unfed on day 1 group, there was a 7.82 g (4%) reduction in weight gain. While this difference was statistically significant, its magnitude was well within the range of intra-group variation and is not considered biologically significant.

Brain cholinesterase activities are presented in Table II. Values were similar for all groups.

No compound-related lesions were observed in birds that were sacrificed on day 14 or in birds that died on the first day of the study.

17. EEB Statistical Analysis: Not applicable

18. Reviewers's Conclusions:

The conclusion shown by the registrant's testing facility is supported by the observations reported in Tables I and II. Deviation from EPA recommended protocols are as follows:

1. Test location was not reported.

2. Individual measured body rates were not reported.

3. Measured residues in vegetation, soil were not reported.

4. Methodology for cholinesterase measurements was not described.

The fact that the authors failed to determine measured residues on vegetation, soil and supplemental food was unfortunate as these data would have helped characterize the extent and duration of fenamiphos residues. It is also important to note that as is the case with all small pen studies conducted with adult bobwhite they completely miss

the toxicological hazard to small birds. There is no record of EEB participation in this study so deficiences noted are the responsibility of the registrant.

19. Validation Status: Supplemental

20. Category Repairability: This bioassay should be reviewed on a case-by-case basis.

Ecological Effects Branch Reviews - Fenamiphos

Pages 6 through 7 are not included. The pages contain detailed test data submitted by the Mobay Corporation and stamped confidential.