(TDR03B) DATA EVALUATION RECORD PAGE 1 OF

CASE GS0140 ALDICARB PM 300 09/29/82

CHEM 098301 Aldicarb (2-methyl-2-(methylthio)propi

BRANCH EEB DISC 40 TDPIC 05103542 GUIDELINE 40 CFR 163.71-5

FORMULATION 04 = GRANULAR

FICHE/MASTER ID 00101956 CONTENT CAT 01

Back, R. (1968) Temik 10G Granular Pesticide: Field Evaluation of Potential Hazard to Bobwhite Quail. (Unpublished study received Apr 18, 1969 under 9F0798; submitted by Union Carbide Corp., New York, NY; CDL:091373-AB)

SUBST. CLASS = S.

DIRECT RVW TIME = (MH) START-DATE END DATE

REVIEWED BY: RICHARD R. STEVENS
TITLE: ECOLOGIST
ORG: EEB/HED
LOC/TEL:

SIGNATURE: Richard R. Stevens DATE: 4/4/84

APPROVED BY:
TITLE:
ORG:
LOC/TEL:

SIGNATURE: DATE:

DATA EVALUATION RECORD

CHEMICAL: Aldicarb, 10 G

CITATION: Back, R. (1968) Temik 10 G Granular Pesticide: Field Evaluation of Potential Hazard to Bobwite Quail. (Unpublished study received April 18, 1969 under 9F0798; submitted by Union Carbide Corp., New York, NY; CDL:091373-AB) (00101956).

REVIEWED BY: Richard R. Stevens
Ecologist, EEB/HED
March 28, 1984

TEST TYPE: Field Evaluation
Bobwhite quail

RESULTS: Results obtained from this study indicate that TEMIK 10 G applied at 10 pounds per acre as an in-furrow and at 30 pounds per acre as a side-dress treatment to cotton did not cause any toxicity hazard to bobwhite quail.

CONCLUSION: This small pen field study is too limited to be of much value for defining hazards and fulfilling guideline requirements.

Methods/Materials

Test Procedures

The test birds used in this study were young pen-reared, unmated adults, 19 weeks old.

The 72 birds were maintained adjacent to the test area in a 3' x 12' x 1' outdoor holding pen for three weeks, during which they were sexed and tagged. To acclimate the birds during holding, the pen was placed on essentially bare ground but was shaded to prevent full exposure to sunlight.

"One week before placement of the test cages on the treated areas, birds were individually weighed. Each bird was placed in a tared rat cage and weighed to the nearest gram. Average weights are recorded in Table II. One pair was placed in each of 24 test cages, and these were held on the untreated control area (Plot I) for the final week of acclimation. Three birds died during weighing when the daily high was 96 F. These were replaced."

Each test cage consisted of a newly-constructed open-bottomed wooden cage 3' x 7' x 1' high. At the center on one side of the cage a shelter 10" x 12" x 18" was fastened. This shelter had plywood sides, a hardware cloth floor, and an aluminum roof.

"Acid delinted Carolina Queen cottonseed was planted on two, one-acre test plots on July 3, 1968. Plot I received no TEMIK 10 G. Plot II received 10 pounds of TEMIK 10 G placed one-half to one inch deep in-furrow with the seed. Row spacing was 42 inches; a seeding rate to give an average of 3 to 4 plants per row foot was used. The soil type was Norfolk sandy loam. Two additional one-acre plots were established in the identical manner on August 14, 1968. Plot IV was untreated and Plot III received the in-furrow applicaton of TEMIK 10 G. On this same date, the cotton in Plots I and II was beginning to square and was 1 to 2 feet tall. Plot II, which had received the in-furrow TEMIK at planting, was now side-dressed with TEMIK 10 G at 30 pounds per acre placed 3 to 4 inches deep and 6 inches both sides of each row.

"The TEMIK 10 G formulation used in this study was from a standard production run made in late 1967.

[redacted]

"Applications were made with a Noble granular applicator. Planting furrows were closed by disc and roller; side dressings were by chisel and closure was by gravity only. There was no contamination of untreated areas."

"All the test cages on each plot were moved five to ten feet to a new position, and birds observed, fed, and watered on a daily basis. On Plots III and IV, 3 of the cages were placed parallel to and over one row...and 3 perpendicular to and over two rows... Each cage placed parallel covered 7 row-feet; those placed across 2 rows covered 6 row-feet. Cage locations throughout the test were never closer than 4 rows from the edge of the plots."

"Daily records on applications, symptoms or death of birds, replacement of birds, and other notes were made. These appear in Table I. Table II presents bird weight before the test, at start-up, and upon conclusion...."

Plots were planted and treated in sequence so that the 14-day bird exposure could be accomplished simultaneously on in-furrow and on side-dressed applications. In addition to the 4-week acclimation period and the 2-week test period, all birds were removed to untreated areas and observed for one week after conclusion of the exposure period. Since all were normal and healthy one month after test termination, they were not sacrificed but were released at that time.

Reported Results:

One female was found dead the morning of August 15 in one of the cages of Plot III, which had been treated with TEMIK in-furrow the proceding day. This bird was not analyzed.

Five days after placement on the treated areas a female on Plot III exhibited illness. At this time new seedlings were emerging, and the foliage may have contained TEMIK residues. If the foliage was a possible source of poisoning it seems likely other birds would have been affected. This bird appeared normal the following day, its mate displayed no illness, and it remained normal for the rest of the test.

One female was accidentally killed during cage moving on the 12th day. This was on Plot IV, the untreated planting-time plot. It was replaced.

No other mortality or signs of illness were reported.

Reviewers Evaluation:

Validation Category: Supplemental

Category Rationale: The procedures used in this study seem reasonable for a pen study. This study indicates that aldicarb treatments, as described herein, should not result in excessive mortality in bobwhite. It is difficult to identify any one field study as fulfilling guideline requirements. This study is not sufficient to determine whether or not there is risk. Pen studies in general, are too limited in scope to be of much value.

Field studies under less contrived conditions and involving carcass searches and residue analyses are better for defining hazards and fulfilling guideline requirements for such testing.

TABLE I

CHRONOLOGIC TABLE OF OBSERVATIONS

Days in Relation Start of Test	Date	Observations Made
-42	July 3, 1968	Planted and treated Plots I and II for subsequent "pinhead square" sidedress application of TEMIK.
-35	July 10	Holding cage (3' x 12' x 1') and one field cage (3' x 7' x 1') were obtained.
-27	July 18	Seventy-two unsexed birds placed in holding pen for acclimation period. Birds were hatched March 11, 1968. Birds 19 weeks old.
-22	July 23	Birds were sexed and tagged with numbered aluminum bands. Forty males and 32 females on hand.
-16	July 29	One pair of birds placed in field cage and moved daily to acquaint local staff with procedure.
-15	July 30	One bird pecked to death in holding pen. Remaining 23 field cages were completed. Received and tagged eight female birds from same hatch to even out pairs of birds.
- 7	August 7	Dr. T. E. Shellenberger, a consultant from the Gulf South Research Institute, inspected our field preparations and suggested several modifications.
- 6	August 8	Weighed birds, placed one pair in each cage, and moved cages into untreated Plot I. Three birds died of heat during the weighing process.
0	August 14	Planted and treated second area, Plots III and IV. Sidedressed Plot II. Weighed birds and moved cages onto all treatments. Exposure to TEMIK part of test started.
1	August 15	Found one dead bird (female #775) at 8:15 a.m. Body cold and limp. Cage placed perpendicular to the rows of cotton on the 1 pound active ingredient per acre in-furrow at planting treatment of TEMIK 10G (Plot III). Heavy rain (0.5 inch) the night of August 14-15 exposed some cottonseed and may have washed up some TEMIK granules. Mate of bird (male #708) placed in separate cage. Another pair taken from holding pen and placed in field cage.
2	August 16	All birds apparently healthy. Feeding well, talking, and pacing
3	August 17	All birds well. Cotton in in-furrow area planted August 14 (Plots III and IV) cracking the ground.
4	August 18	Female #745 in Plot III with a perpendicular cage placement is sick. Bird is unable to stand, legs and wings do not respond, stays huddled in corner with very rapid heart beat. No visible symptoms of external injury. Mate shows no adverse symptoms. Female may have fed on germinating cotton leaves. All other birds normal.
5	August 19	All birds including female #745 appear to be normal.
6	August 20-25	All birds normal.
11	August 25	Accidentally killed female #712 (weight 142 g.) during weighing in Plot III. Replaced with female #770 from holding pen.
12	August 26-28	All birds normal, including #708 male.
14	August 28	Terminated test. Weighed all birds and moved cages to untreated area for further observation.
15 - 21	August 29 - September 4	Birds held under observation for one week after test. All birds normal at the end of this holding period.

TABLE II

TREATMENTS AND WEIGHT OF BOBWHITE QUAIL

Treatment	Application Method	Cage Placement	Average[1] Bird Weight in grams					
			Female			Male		
			8/8	8/14	8/28	8/8	8/14	8/28
Check		Parallel	163	163	162	138	147	149
TEMIK	IF + Sidedress	Parallel	165	164	172	161	163	162
Check		Cross row	140	147	151	145	143	145
TEMIK	Sidedress	Cross row	145	157	161	145	153	156
Check		Parallel	145	151	156	145	156	159
TEMIK	In-furrow	Parallel	143	146	150	155	156	158
Check		Cross row	148	160	163	149	152	158
TEMIK	In-furrow	Cross row[2]	153	155	150	145	157	150

[1] Average of three birds. Average weight at beginning of field test - females 155 g., males 153 g.

[2] Does not include weights of dead or removed birds.