

US EPA ARCHIVE DOCUMENT

CASE: GS0140 ALDICARB PH 9/29/82

CHEM 098301

BRANCH EEB DISC TOPIC Special Order

FORMULATION 04 Granular

FICHE/MASTER ID 00101960 CONTENT CAT 01

Clarkson, V.; Haines, R.; Hennesley, W.; et al. (1969) Report on Additional Field Tests with Temik 10G Aldicarb Pesticide on the Potential Hazard to Bobwhite Quail. (Unpublished study received Aug 20, 1970 under OF1008; submitted by Union Carbide Corp., Washington, DC; CDL:091748-C)

SUBST. CLASS # 5.

OTHER SUBJECT DESCRIPTORS

PRIM:

SECI

DIRECT RV* TIME # 4 hrs. (MM) START-DATE 1/11/78 END DATE 1/11/78

REVIEWED BY: Larry Turner
TITLE: Biologist
ORG: EEB
LOC/TEL:

SIGNATURE:

Richard R. Stevens

DATE: 1/20/84

APPROVED BY:

TITLE:

ORG:

LOC/TEL:

SIGNATURE:

DATE:

FORMULATION:			IA	IB	T	FW	EC	R		
% a.i.	SC #	CHEMICAL NAME	Validator:				Date:			
10%		Aldicarb	Larry Turner				1/11/78			
			Test Type:							
			Small pen field test Bobwhite quail							
			Test ID.# ES-DD3							

CITATION:

Clarkson, V.A. et.al. 1969. Report on additional field tests with TEMIK 10G Aldicarb pesticide on the potential hazard to bobwhite quail. 7 p. Submitted by Union Carbide Corp. Reg.# 1016-78; Acc.#230977; submitted 5/15/70; resubmitted 8/5/77.

Results:

Bobwhite quail were exposed to various applica^{ic}tions of Aldicarb 10% granules in a small pen field test. In four of the five dryland tests that were completed, mortality was in excess of 50%, with 100% mortality occurring in one in-furrow treatment, and one unincorporated broadcast treatment. No mortality occurred in three of the five irrigated plots; one death in six birds occurred in one unincorporated broadcast treatment and 3 deaths in six birds occurred in the incorporated broadcast treatment. Most birds died within 24 hours. Toxic symptoms included weakness, regurgitation, ataxia, drooping wings, and huddling.

Validation

category: Supplemental

Category

rationale. Although adverse conclusions are understated, this test appears to have validity with respect to dryland plots vs. irrigated plots. However, R. Felthousen has pointed out serious design flaws, with respect to supplemental feed, pen size, and pen placement, in his Aldicarb review of 4/9/77 and attached memo. In view of these flaws, this study has been classified as supplemental.

Category

repairability: No

Abstract:

At request of USDA-PRD, field evaluations with Aldicarb were conducted to

1. determine if placement of granules less than two inches deep would be unduly hazardous to quail,
2. ascertain efficacy of granules for nematode control, and
3. to observe if irrigation caused treated areas to become hazardous.

An additional trial was included to determine the possible hazard to quail of broadcasting aldicarb with no soil incorporation.

These tests were a continuation of evaluation previously submitted and reviewed by R. W. Felthousen, 4/9/77, although the objectives were different. Tests were conducted at the Union Carbide Agricultural Research Station, Clayton, North Carolina, using mature bobwhite quail from a local commercial bird farm. Quail were housed in open-bottomed pens, 3 ft x 7 ft x 1 ft, with hardware cloth sides and a shelter and shade roof. One pair of quail was in each cage. They were provided with watering fountains. Food was withheld in all tests for 20-24 hours, and thereafter four ounces of Purina Game Chow was supplied to each pen daily. Cages were moved daily for seven days, which was also the duration of the tests.

Presence of a crop was considered irrelevant for these tests, and thus cages were placed on bare soil. Aldicarb 10% granular was applied to the plots in three ways:

1. Granules were placed in-furrow at a depth of 0.5 - 1 inch with a rate of 1 pound a.i./acre;
2. Broadcast application with no soil incorporation at a rate of 10 pounds a.i./acre; and
3. Broadcast application evenly incorporated to a depth of 4-6 inches at a rate of 20 pounds a.i./acre.

Additional in-furrow applications were begun, but tests were terminated after 3 days due to adverse weather. Each of the three plots was divided into one-half which received no irrigation and one-half which received 1.5 acre inches of water. No rainfall occurred during the tests; no runoff from irrigation was observed. Six bobwhite were exposed to each half-plot; quail dying were replaced daily.

Birds made depressions in dry soil for dusting purposes, causing exposure of incorporated granules. No dusting occurred on irrigated plots. Birds chose exposed granules as food, apparently because food had been withheld. Dermal toxicity was ruled out, since birds were observed standing in puddles with soaked granules. Mortality is given below:

Mortalities of bobwhite quail from plots treated with Temik 10G
Clayton, North Carolina, 1969

Test number and dates	Rate lb. ai/A	Application Method	Total dead/total birds 48 hr. count	
			dryland	irrigated
1. 9/9-16	1	in-furrow (.5-1")	6/6 ^a	0/6
	10	broadcast (unincorp.)	4/6 ^b	1/6
	20	broadcast (incorp. 4-6")	5/6 ^c	3/6 ^d
	0	(untreated)	0/6	0/6
2. 10/10-17	1	in-furrow (.5-1")	2/6 ^e	0/6
	10	broadcast (unincorp.)	6/6 ^f	0/6
	0	(untreated)	0/6	0/6
3. 10/21-24 (terminated due to ad- verse weather)	1	in-furrow (.5-1")	0/6	0/6
	1	in-furrow (2")	0/6	0/6
	0	(untreated)	0/6	0/6

Additional bird deaths: [Reviewer's note: These are apparently from replacement birds]

^aone more on sixth day

^bone on seventh day

^cone on fourth day

^dlast plot to be irrigated; dryland conditions for at least two hours

^eone on third day

^ftwo more on third day

Investigators concluded:

1. Exposed TEMIK 10G granules are toxic to bobwhite quail when under severe food stress and confined conditions.
2. No hazard to quail occurred with 1 pound ai/acre in-furrow treatment if it is applied at two inches below soil surface.
3. Rates for nematode control not exceeding 5 pounds ai/acre broadcast and incorporated four to six inches in moist soil are not hazardous to quail. If treated land is irrigated after application, as is often done, the risk of quail loss will be virtually nil.
4. TEMIK 10G can be applied at proposed label rates without massive hazard to quail, if directions for use and good agriculture practices are followed.

Reviewer's Comments:

1. TEMIK granules are always toxic to bobwhite quail, although they are more of a hazard under food stress and confinement.
2. Food deprivation for 20-24 hours may constitute some food stress, but hardly qualifies as "severe food stress."
3. Conclusions with respect to 2 inch deep in-furrow treatment seem to be less than reliable when based on one weather-shortened test.
4. Conclusion #4 above seems valid, but less than massive hazard can still be substantial. In addition, American farmers are an extremely independent group, and should not always be relied upon to follow Union Carbide's definition of good agricultural practices or even their use directions in all cases.