(TDR03B) DATA EVALUATION RECORD PAGE 1 OF 1

CASE ALDICARB PM 1/20/84

CHEM 098301

BRANCH EEB DISC TOPIC

FORMULATION 00 Active Ingredient

FICHE/MASTER ID BOWOAL01 CONTENT CAT 01

Hill, E.F. and M.B. Camardese. Subacute Toxicity testing with young birds: response in relation to age and interest variability of LC50 estimates, Avian and mammalian wildlife toxicology: Second conference. ASTM STP 757, D.W. Lamb and E.E. Kenaga, Eds., American Society for Testing and Materials, 1981, pp. 41-65.

SUBST. CLASS =

OTHER SUBJECT DESCRIPTORS
PRIM:
SEC:

DIRECT REVIEW TIME = (MH) START DATE END DATE

REVIEWED BY: Charles Bowen II
TITLE: Fishery Biologist
ORG: EEB
LOC/TEL:

SIGNATURE: Richard R Bowen DATE: 4/2/84

REVIEWED BY:
TITLE:
ORG:
LOC/TEL:

SIGNATURE: DATE:

Chemical: Aldicarb

Formulation: Technical (99% A.I)

Citation: Hill, E. F. and Camardese, M. B., "Subacute Toxocity Testing with Young Birds: Response in Relation to Age and Interest Variability of LC_{50} Estimates," Avian and Mammalian Wildlife Toxicology: Second Conference. ASTM STP 757, D. W. Lamb and E. E. Kenaga, Eds., American Society for Testing and Materials, 1981, pp. 41-65 (BOWOAL01).

Reviewed By: Charles A. Bowen II

Title: Fishery Biologist

ORG: Ecological Effects Branch (EEB)

Test Type: Eight Day Acute Avian Dietary Study

A. Species - Japanese Quail

Reported Results:

	95 % C. L
LC_{50} = 355 ppm	(294 - 422)
NOEL = 150 ppm	

Reviewer's Conclusions:

This bioassay is scientifically sound and demonstrates that technical aldicarb is highly toxic to upland game birds. This study will not fulfill the requirements for a eight day avian dietary study.

Methods and Materials:

Basic Subacute Test Method

Five or six geometrically arranged concentrations of technical-grade chemical were fed to Japanese quail of the same age for 5 days followed by at least 3 days of posttreatment observation for persistence of overt clinical signs. One pen containing 10 to 15 birds was used for each concentration and served as the basic statistical unit. Concentrations were spaced so that the mortality ranged from about 10 to 90 percent. For each test a number of control pens equal to the number of pesticide concentrations were used, and these pens served as common controls for all the concurrently tested compounds. A completely randomized design was used to assign birds and diets to pens. Food consumption was measured daily for two concentrations per pesticide, that is, second and fourth for five concentrations or second and fifth for six concentrations.

Toxicity statistics (LC_{50}, 95 percent confidence limits, and slopes of probit regression lines) were derived by probit analysis from tabulations of the deaths during each experiment. Correction for deaths of the controls was by Abbott's formula. Where groups of data were compared, one-way analysis of variance or the t-test was used when data were normally distributed; otherwise the two-tailed nonparametric Wilcoxon rank sum test was used. Mean separations were considered statistically acceptable at $P \leq 0.05$. Individual LC_{50}s were considered significantly different when the 95 percent confidence limits (fiducial probability interval) did not overlap.

Test birds were the progeny of a randomly bred but genetically closed quail colony maintained at the Patuxent Wildlife Research Center, Laurel, Md. All tests were conducted in standard brooding batteries with heat thermostatically maintained at the appropriate temperature for the age of the chicks being tested. The light regimen was 24 h light and 0 h dark (24L:)D) during all the tests. Fresh feed (turkey starter mash) and water were provided daily. At the end of the pesticide exposure, both the toxic and the control feed were replaced by untreated feed. All the diets contained corn oil in the ratio of 2:98, by weight, which served as a diluent for treating feed with pesticide.

Experiment 1 - Age-Associated Response to Subacute Toxicity Testing

Aldicarb concentrations were tested concurrently at each age. The LC_{50}s, 95 percent confidence limits, slopes of dose-response lines (probit on log concentration) toxicity ratios, and relative toxic rankings were compared between ages. Food consumption and deaths at theoretically equipotent concentrations were evaluated and compared among the various test ages and pesticides.

Author's Results:

JAPANESE QUAIL Coturnix C. Japonica

Sex: Mixed Age: 7 days Test-date: 30 April 1976

Concn. (ppm)	Birds (n)	Deaths by test-day 1	2	3	4	5	6	7	8	Mortality (%)
Control	60		1							2
150	10			1	2				1	40
212	10	1								10
300	10	1							1	20
424	10	4	2	1						70
600	10	8	1		1					100

Statistical summary: LC50: 335 ppm 95% CI: 294-422 ppm Slope: 8.0

Concn. (ppm)	Birds (n)	Feed consumption, g/bird-day 1	2	3	4	5	Mortality (%)
Control	60	5	4	6	7	7	2
212	10	4	3	4	7	6	10
424	10	2	3	3	4	5	70

EEB Statistical Validation: N. A.

Reviewer's Conclusions:

The conclusions drawn by the author are supported by the dose mortality data. Deviations from EPA's current guidelines for avian dietary studies are noted below:

1. lighting regimes were not reported.

2. Japhanese quail are not an acceptable test species.

3. Temperature and relative humidity regimes were not reported.

4. Gross pathology was not reported.

5. Feed consumption data was not reported for all groups tested.

Validation Status: Supplemental

Category repairability:

This study will not be re-examined due to the deficiencies cited above.

Chemical: Aldicarb

Formulation: Technical (99% A.I)

Citation: Hill, E. F. and Camardese, M. B., "Subacute Toxocity Testing with Young Birds: Response in Relation to Age and Interest Variability of LC_{50} Estimates," Avian and Mammalian Wildlife Toxicology: Second Conference. ASTM STP 757, D. W. Lamb and E. E. Kenaga, Eds., American Society for Testing and Materials, 1981, pp. 41-65 (BOWOAL01).

Reviewed By: Charles A. Bowen II

Title: Fishery Biologist

ORG: Ecological Effects Branch (EEB)

Test Type: Eight Day Acute Avian Dietary Study

A. Species - Japanese Quail

Reported Results:

	95 % C. L
LC_{50} = 542 ppm	(451 - 849)

(No mortality at 200 ppm)

Reviewer's Conclusions:

This bioassay is scientifically sound and demonstrates that technical aldicarb moderately toxic to upland game birds. This study will not fulfill the requirements for a eight day avian dietary study.

Methods and Materials: See Japhanese quail eight day avian dietary study (BOWOAL01).

Author's Results:

JAPANESE QUAIL (Coturnixs c. Japonica)
(cont.)

Sex: Mixed Age: 14 days Test-date: 16 April 1976

Concn. (ppm)	Birds (n)	Deaths by test-day 1	2	3	4	5	6	7	8	Mortality (%)
Control	60									0
200	10									0
263	10		1							10
346	10									0
456	10	3		1						70
600	10	3	1			1	1			60

Statistical summary: LC50: 542 ppm 95% CI: 451-849 ppm Slope: 5.8

Concn. (ppm)	Birds (n)	Feed consumption, g/bird-day 1	2	3	4	5	Mortality (%)
Control	60	10	10	9	11	10	0
263	10	6	7	10	14	13	10
456	10	4	5	7	17	9	40

Reviewer's Conclusions:

The conclusions drawn by the author are supported by the dose mortality data. Deviations from EPA's current guidelines for avian dietary studies are noted below:

1. lighting regimes were not reported.

2. Japhanese quail are not an acceptable test species.

3. Temperature and relative humidity regimes were not reported.

4. Gross pathology was not reported.

5. Food consumption data were not reported for all groups tested.

Validation Status: Supplemental

Category repairability:

This bioassay will not be re-evaluated due to the deficiencies cited above.

Chemical: Aldicarb

Formulation: Technical (99% A.I)

Citation: Hill, E. F. and Camardese, M. B., "Subacute Toxocity Testing with Young Birds: Response in Relation to Age and Interest Variability of LC_{50} Estimates," Avian and Mammalian Wildlife Toxicology: Second Conference. ASTM STP 757, D. W. Lamb and E. E. Kenaga, Eds., American Society for Testing and Materials, 1981, pp. 41-65 (BOWOAL01).

Reviewed By: Charles A. Bowen II

Title: Fishery Biologist

ORG: Ecological Effects Branch (EEB)

Test Type: Eight Day Acute Avian Dietary Study

A. Species - Japanese Quail

Reported Results:

LC_{50} = 786 ppm	95 % C. L (664 - 996)
NOEL = 400 ppm	

Reviewer's Conclusions:

This bioassay is scientifically sound and demonstrates that technical aldicarb is moderately toxic to upland game birds. This study will not fulfill the requirements for a eight day avian dietary study.

Methods and Materials: See Japhanese quail eight day avian dietary study (BOWOAL01).

Author's Results:

JAPANESE OUAIL (Coturnixs c. Japonica)
(cont.)

Sex: Mixed Age: 21 days Test-date: 14 May 1976

Concn. (ppm)	Birds (n)	Deaths by test-day 1	2	3	4	5	6	7	8	Mortality (%)
Control	50						1			2
400	10	1								10
526	10	1								10
643	10	3		1						40
912	10	3	1		1	1			1	70
1200	10	6				2				80

Statistical summary: LC50: 786 ppm 95% CI: 664-996 ppm Slope: 5.2

Concn. (ppm)	Birds (n)	Feed consumption, g/bird-day 1	2	3	4	5	Mortality (%)
Control	50	17	13	16	13	13	0
526	10	6	9	14	7	7	10
912	10	9	4	10	5	5	60

Reviewer's Conclusions:

The conclusions drawn by the author are supported by the dose mortality data. Deviations from EPA's current guidelines for avian dietary studies are noted below:

1. lighting regimes were not reported.

2. Japhanese quail are not an acceptable test species.

3. Temperature and relative humidity regimes were not reported.

4. Gross pathology was not reported.

5. Feed consumption data was not reported for all groups tested.

Validation Status: Supplemental

Category repairability:

This study will not be re-examined due to the deficiencies noted above.

Chemical: Aldicarb

Formulation: Technical (99% A.I)

Citation: Hill, E. F. and Camardese, M. B., "Subacute Toxocity Testing with Young Birds: Response in Relation to Age and Interest Variability of LC_{50} Estimates," Avian and Mammalian Wildlife Toxicology: Second Conference. ASTM STP 757, D. W. Lamb and E. E. Kenaga, Eds., American Society for Testing and Materials, 1981, pp. 41-65 (BOWOAL01).

Reviewed By: Charles A. Bowen II

Title: Fishery Biologist

ORG: Ecological Effects Branch (EEB)

Test Type: Eight Day Acute Avian Dietary Study

A. Species - Japanese Quail

Reported Results:

	95 % C. L
LC_{50} = 247 ppm	(151 - 397 ppm)

Reviewer's Conclusions:

This bioassay is scientifically sound and demonstrates that technical aldicarb is highly toxic to upland game birds. This study will not fulfill the requirements for a eight day avian dietary study.

Methods and Materials: See Japhanese quail eight day avian dietary study (BOWOAL01).

Author's Results:

JAPANESE OUAIL (Coturnixs c. Japonica)

Sex: Mixed Age: Hatchling Test-date: 2 April 1976

Concn. (ppm)	Birds (n)	Deaths by test-day 1	2	3	4	5	6	7	8	Mortality (%)
Control	53	1	4							9
150	11		2				1			27
203	11		4							36
274	12	3	3							50
370	11	3	3	1	1					73
500	11	7	2		1					91

Statistical summary: LC50: 247 ppm 95% CI: 151-397 ppm Slope: 3.7

Concn. (ppm)	Birds (n)	Feed consumption, g/bird-day 1	2	3	4	5	Mortality (%)
Control	53	6	-	6	3	4	0
203	11	7	-	4	4	4	36
370	11	5	-	5	3	4	73

Reviewer's Conclusions:

The conclusions drawn by the author are supported by the dose mortality data. Deviations from EPA's current guidelines for avian dietary studies are noted below:

1. lighting regimes were not reported.

2. Japhanese quail are not an acceptable test species.

3. Temperature and relative humidity regimes were not reported.

4. Gross pathology was not reported.

5. Feed consumption data was not reported for all groups tested.

Validation Status: Supplemental

Category repairability:

This study will not be re-examined due to the deficiencies noted above.