128210
SHAUGHNESSEY NO.

REVIEW NO.

EEB BRANCH REVIEW

DATE: IN 3-2-84 OUT 5-11-84

FILE OR REG. NO. 352-EUP-RRI

PETITION OR EXP. PERMIT NO.

DATE OF SUBMISSION 2-10-84

DATE RECEIVED BY HED 2-28-84

RD REQUESTED COMPLETION DATE 5-19-84

EEB ESTIMATED COMPLETION DATE 5-12-84

RD ACTION CODE/TYPE OF REVIEW 700/EUP

TYPE PRODUCTS(S): I, D, H, F, N, R, S Fungicide

DATA ACCESSION NO(S).

PRODUCT MANAGER NO. H. Jacoby (21)

PRODUCT NAME(S) DPX H6573

COMPANY NAME E.I. DuPont de Nemours & Company

SUBMISSION PURPOSE Proposed EUP For Use On Peanuts

SHAUGHNESSEY NO.	CHEMICAL, & FORMULATION	% A.I.
128210	Bis (4-fluorophenyl)methyl(1H-1,2,4-triazol-	
	1-ylmethy)silane	88

60

Pesticide Name
DPX-H6573

100 Submission Purpose and Label Information

Proposed EUP for use on peanuts

100.1 Submission Purpose and Pesticide Use

Proposed EUP for use on peanuts for the control of early leafspot (Cercospora arachidicola) and late leafspot (Cerosporidium personatum).

DPX H6573 EXPERIMENTAL PROGRAM

1. (i) Participants who will be supervising the experimental work:

Name	Qualification	Address/Phone
Scotty H. Crowder	Du Pont Development Rep	629 Post Road Drive Stone Mountain, GA 30088 (404) 469-1017
Glenn G. Hammes	" " "	1116 Beauford Drive Opelika, AL 36801 (205) 745-5379
R. Erick Seay	" " "	P.O. Box 424 Byron, GA 31008 (912) 825-7010

(ii) Names, addresses and telephone numbers of cooperators will be furnished as they become available.

2. (i) The following states are included in the program and will receive shipments for further distribution.

State	Acres	1984 Approximate Amount Product	Active Ingredient	Estimated No. of Locations
Alabama	15	6.0 liters	2.4 kg	3
Florida	5	6.0 liters	0.8	1
Georgia	30	10.0 liters	4.0	5

3. Program Details

(i) Disease control evaluations will be made 2-4 times at each location. Evaluations will include number and percent of leaves infected, number of leasions/leaf, percent defoliation and crop injury. These evaluations will be made from randomly selected leaves in each plot. Yields will be taken at harvest.

(ii) The target diseases are early leafspot (Cercospora arachidicola) and late leafspot (Cercosporidium personatum).

(iii) The crop to be treated is peanuts (Arachis hypogaea).

(iv) Trials will be 3-10 acres each. Each treatment within a trial will contain 3-4 replicates. Numbers per state are contained in Section 2(i).

(v) Applications will begin about 30 days after crop emergence, usually late June-early July, and will continue on a 2-3 week schedule until 2 weeks prior to harvest, usually in October. The average number of applications on a 2-week schedule is 6 with a maximum of 8.

4. The objectives of this program are listed below:

- Compare methods of application, ground vs. aerial
- Evaluate performance under varied climatological and geographical conditions
- Collect crop samples for residue analysis from commercial applications
- Monitor effects on non-target organisms such as insects and wildlife
- Evaluate effect of addition of surfactants to spray mixture.

The program is designed to be highly limited and tightly controlled. As additional information is obtained, the program may be expanded through a temporary tolerance petition to include more states, more diverse growing conditions, larger test plots and more cooperators.

5. Applications at twice the maximum rate being tested for efficacy (maximum 2X rate = 9.6 fl oz/A) will be made to monitor phytotoxicity and for residue sampling. The area treated with 2X rates will be extremely small relative to test size. It will usually be 50-100 ft long and one swath of the sprayer wide. Disposition of the crop portion treated with 2X rates will be identical to that of the other treatments covered under the experimental label.

6. Fifty acres and 18.0 liters of product are necessary to generate the quality and quantity of data needed to support label claims.

The United States peanut-growing area is concentrated in nine Southern states ranging from Virginia to New Mexico. Over half the total acres are concentrated in Georgia, Alabama and Florida. The disease pressure is higher in this area due to more intensively cropped peanuts and environmental conditions more conducive to rapid disease development.

Also, late leafspot, which is considered harder to control by many university plant pathologists, is the primary disease. Therefore, initial larger-scale testing under the experimental program will be confined to Georgia, Alabama and Florida.

Small plot testing with diseases like early and late leafspot may not give a true indication of results received from larger plot testing. The degree of disease control is likely to be higher in larger test areas. In small plot tests, untreated border or guard rows are routinely left between each plot to allow for a uniform disease population throughout the test area and also to guard against contamination across plots. Therefore, while small plot tests may adequately reflect the relative effectiveness of treatments, larger plots are needed to determine results under commercial conditions.

Adequate overage is allowed for those test initiated which for various reasons become invalid and do not provide acceptable data.

7. The proposed duration of this program is one year.

8. Unused DPX H6573 and containers not emptied will be returned to the Du Pont Company. Empty containers should be triple-rinsed (or equivalent) and offered for recycling or reconditioning, or punctured and disposed of in a sanitary landfill, or by other approved state and local procedures.

111-1(a)(7)(ii) Treated peanuts will be destroyed. Following harvest, the peanuts will either be taken to a sanitary landfill or, if only reprsentative samples are taken for yield assessments and residue analyses, the remaining crop will be buried or ploughed under. In the latter case, any volunteer plants will be frost killed prior to maturity. Treated peanut vines will not be grazed or used for forage or hay. They will be tilled into the soil after harvest as in normal cultivation practices.

100.2 Formulation Information

Active Ingredient:	
Bis (4-fluorophenyl)methyl (1H-1,2,4-triazol-1-ylmethyl) silane	40%
Inert Ingredients	60%

100.3 Application Methods, Directions, Rates

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

DPX H6573 Fungicide should be used only in accordance with recommendations on this label or in separate published Du Pont recommendations available through local dealers.

Du Pont will not be responsible for losses or damages resulting from the use of this product in any manner not specifically recommended by Du Pont.

Du Pont DPX H6573 Fungicide is recommended for experimental use on peanuts to control early and late leafspot.

HOW TO USE

Apply 1.75 to 4.8 fluid ounces of DPX H6573 per acre in sufficient water to provide thorough coverage. Application may be made by ground or air.

Begin treatments about 30 days after plants emerge or when disease symptoms first appear and continue on a 14 to 21-day schedule as needed. Use the higher rate and shorter interval for heavy disease pressure or when conditions are conducive for rapid disease buildup such as periods of frequent rainfall.

Surfactants may be added to the sppray mixture at the rate of 1 to 2 pts per acre.

SPRAY PREPARATION

Add required amount of DPX H6573 to necessary volume of water in spray tank agitated by hydraulic or mechanical means. Where a surfactant is used, add as last ingredient to spray tank. Before full scale mixing of DPX H6573 with other pesticides, test mix small proportionate quantities of each to insure compatibility.

NOTE:

1. Do not apply within 14 days of harvest.
2. Do not harvest treated crops for human or animal consumption. Do not graze or feed treated forage or hay to livestock.
3. Do not rotate to any crop other than peanuts for 12 months following application.

100.4 Target Organisms

Early and late leafspot disease.

100.5 Precautionary Labeling

DANGER

Don not get in eyes. Do not breathe vapors or spray mist. Avoid contact with skin or clothing. For worker protection during mixing, loading and application, wear a hat, long sleeve shirt, and long legged trousers or overalls. In addition, during mixing an loading or otherwise handling, wear goggles and rubber gloves. Protective clothing should be laundered separately following appplication.

ENVIRONMENTAL HAZARDS

Do not apply directly to water or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes.

100.6 Fish and Wildlife Toxicology

Species	LC/LD50	Date	Status	Reviewer	% A.I.
Mallard Duck	>1590 mg/kg	4-11-84	Core	Laird	97.3
Mallard Duck	1560 ppm	4-11-84	Core	Laird	97.3
Bobwhite Quail	>5620 ppm	4-13-84	Core	Laird	97.3
Rainbow Trout	1.3 ppm	4-16-84	Core	Laird	95.5
Bluegill Sunfish	1.9 ppm	4-13-84	Core	Laird	95.5
Bluegill Sunfish	Bioaccumulation	4-18-84(biological)	Core	Laird	95.8
Daphnia magna	3.3 ppm	4-16-84	Core	Laird	95.5
Honey Bee	Cotact LD_{50}		Invalid	Vaughan	Unknown

101 Hazard Assessment

Based upon the available data DPX-H6573 is slightly toxic to mallard duck and practically nontoxic to bobwhite quail, moderately toxic to rainbow trout, bluegill sunfish and Daphnia magna. The honey bee acute contact LD_{50} is unknown.

101.1 Likelihood of Adverse Effects to Non-target Organisms

This pesticide will be applied 6 to 8 times per growing season at the rate of 1.75 to 4.8 fluid ounces per acre on a 14 to 21-day intervates.

Amount of a.i. per acre

Density 8.6-lb/gallon
3.34-lbs a.i./gallon
4.8 oz application rate

$\therefore$ 3.34-lbs x $\frac{4.8 \text{ oz}}{128 \text{ oz}}$

= 0.13 - lb a.i./A

Maximum Expected Residues on Vegetation (ppm)

Vegetation Type Insect/Soil Surface	Residues from 0.13 - lb a.i./A
Short Rangegrass	31.2
Long Grass	14.3
Leaves and Leafy Crops	16.25
Forage - alfalfa, clover	7.5
Pod containing Seeds legumes	1.56
Fruit-Cherries, peaches	0.9
Water 0.5 ft. depth of water	95.4 ppb or 0.0954 ppm
Soil 0.1 inch	2.86 ppm

Aquatic EEC's

Utilizing L. Touart's 10-13-82 memo, the following aquatic EEC's for Water were developed:

- 5A X 0.13-lb ai/A X 1% runoff = 0.0065-lb a.i. reaching water
- 0.0065-lb a.i. X 734 ppb/1-lb ai per 0.5 A-ft water = 4.771 ppb

- Runoff Values:

1 %	Runoff	4.771 ppb	Toxicant
2.51%	"	11.975	"	"
5%	"	28.8545	"	"
10%	"	47.71	"	"
20%	"	95.42	"	"
25%	"	119.275	"	"
Direct Application		95.4	"	"

101.2 Hazards

The proposed use provides for exposure of DPX-H6573 to animals such as:

Bobwhite Quail
Cottontail Rabbit
Squirrel
Deer
Wild Turkey
Raccoon
Opossum
Songbirds
Honey Bee

The above list of animals will utilize the peanut field for feeding, loafing, nesting brooding, roosting-bedding and foraging. These uses will vary from low to high depending upon the animal. This pesticide will be exposed to non-target avian, mammalian and insect species for a period of 8 to 12 weeks. The available data appear to indicate DPX-H6573 is slightly toxic to Mallard duck and practically non-toxic to bobwhite quail, moderately toxic to fish and aquatic invertebrates.

The use of DPX-H6573 should provide minimal acute hazard to nontarget terrestrial and aquatic organisms. Estimated residues for vegetative food matter and aquatic EEC's are well below LC_{50} values. A direct application to water does not exceed the calculated LC_{50} for rainbow trout (0.0954 ppm versus 1.3 ppm). A one percent runoff, a situation more likely than direct application, provide for only 4.771 ppb DPX-H6573, a value 272.5 times < the LC_{50} value (1300 ppb). For birds the highest terrestrial EEC (31.2 ppm) is much less than the LC_{50} vlaues of 1560 ppm.

Chronically, it is too early to estimate potential risks. Further environmental fate data are needed to make this determination. However, based upon the information that this material is applied repeatedly throughout the growing

season, chronic aquatic (fish embryo-larvae) and avian (avian reproduction) studies may be required to support registration.

101.3 Non-Target Insect Hazard

Information provided by the registrant was insufficient to determine bee hazard. Although an acute toxicity study was submitted, the study was determined to be invalid. Honey bees will utilize peanut fields to collect pollen from open blooms.

101.4 Endangered Species Consideration

The expected residues of DPX-H6573 are not likely to harm terrestrial animal life. Aquatic EEC's from 1% runoff are well below the LC_{50} for rainbow trout. A direct application value (0.0954 ppm does not exceed the LC_{50} value for rainbow trout (1.3 ppm). Minimal acute hazards to endangered aquatic species are unlikely. One should keep in mind, however, that the toxicity data used is without fate data. As for chronic hazards, more data are required to make a determination.

101. Adequacy of Toxicity Data

Mallard Duck LD_{50}	>1590 mg/kg	Core
Malalrd Duck LC_{50}	1560 ppm	Core
Bobwhite Quail LC_{50}	>5620 ppm	Core
Rainbow Trout LC_{50}	1.3 ppm	Core
Bluegill Sunfish LC_{50}	1.9 ppm	Core
Bluegil Sunfish Bioaccumulation	biological	Core
Daphnia magna	3.3 ppm	Core

101.5 Inadequacy of Toxicity Data

Honey Bee	Acute Contact LD_{50}	invalid

101.6 Adequacy of Labeling

No comment at this time

102.0 Classification

General

103.0 Conclusions

EEB has completed this EUP for DPX-H6573 for use on peanuts. Based upon the available data, EEB concludes the proposed use provides for minimal acute risks to nontarget terrestrial and aquatic wildlife. However, the effects of this product to honey bees remain unknown due to insufficient acute toxicity data.

Based upon the information that this material is applied throughout the growing season, chronic aquatic (fish embryo-larvae) and avian (avian reproduction) studies may be required to support registration. A final determination on this can be made once EEB receives the results, and reviews by the appropriate HED Branches, of the environmental fate and acute/chronic mammalian data.

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103.1 Additional Data Required

The registrant should conduct a honey bee acute contact LD_{50} test prior to seeking registration of this product because a maximum of eight applications per growing season is recommended at rates of 1.75 to 4.8 fl. oz/A at 14-21-day intervals. Based upon the above information, honey bee will be eposed to DPX-H6573 throughout, the growing season. Also, see comments in 103.0 concerning chronic data.

Curtis E. Laird 5-11-84
Curtis E. Laird
Fishery Biologist
EEB/HED (TS-769c)

Norman Cook 5.11.84
Norman Cook
Head, Section #2
EEB/HED (TS-769c)

5/11/84
Clayton Bushong
Chief
EEB/HED (TS-769c)

1. Chemical Name: DPX-H6573

2. Formulation: 97.3%

3. Citation: Beavers, J. (1983) Acute Oral Toxcity study in the Malalrd Duck; Project #112-141; Prepared by Wildlife International LTD for E.I. Du Pont De Nemours and Company, Haskell Laboratory, Newark, Delaware 19711.

4. Reviewed By: Curtis E. Laird
Fishery Biologist
EEB/HED

5. Date Reviewed: 4-11-84

6. Test Type: Acute Oral LD_{50}

A. Test Species: Mallard Duck

7. Reported Results: Controls - There were no mortalities in the control group. All birds were normal in appearance and behavior throughout the test period.

H # 14,960 - No mortalities occurred and no overt symptoms of toxicity were observed at the 398 mg/kg, 631 mg/kg or 1000 mg/kg dosages. At the 1590 mg/kg dosage one drake was found dead on Day 4 without having exhibited any prior overt signs of toxicity. No overt symptoms of toxicity were observed at this dosage throughout the test period.

At the 2510 mg/kg dosage some regurgitation following water consumption was noted soon after dosing. No mortalities occurred and no other sumptoms of toxicity were observed.

When compared to the control group, the 1000mg/kg dosage group showed a reduction in body weight gain for the first three days of the study. A dosage related loss of body weight for the first three days of the study was observed at the 1590 mg/kg and 2510 mg/kg dosages. Compensatory body weight gain had occurred by the termination of the study.

There was a dosage related reduction in feed consumption for the first three days of the study at the 631 mg/kg, 1000 mg/kg, 1590 mg/kg and 2510 mg/kg dosages. For the following four days of the study there was an increase in feed consumption at those four levels. Feed consumption remained elevated at the 2510 mg/kg dosage until the termination of the study.

In conclusion, the acute oral LD_{50} value of H # 14,960 to the mallard was determined by inspection to be greater than 1590 mg/kg, the highest level at which regurgitation did not occur. There appeared to be a slight reduction in feed consumption for the first three days of the test in the 631 mg/kg group. However, there was no corresponding reduction in body weight gain. The no-observed-effect level appears to be 398 mg/kg.

8. Reviewer's Conclusions: This study indicates DPX-H6573 is slightly toxic to Mallard duck with an acute oral LD_{50} >1590 mg/kg. This study does fulfill requirement in support of registration. The 2510 mg/kg dosage is not considered in this review because some birds regurgitated. There were no regurgitation and one drake died on day 4 at the 1590 mg/kg dosage level. Since DPX-H6573 is considered slightly toxic to avian using 4 dosage levels. This study can be accepted as core.

Material/Methods

Test Procedure

The test procedure complied with the recommended EPA protocol of Oct. 1982 (part 158).

Statistical Analysis

No statistics were performed due to lack of mortality.

Discussion/Results

The acute oral LD_{50} value is >1590 mg/kg.

Reviewer's Evaluation

A. Test Procedure

The test procedure complied with the recommended EPA protocol of Oct. 1982 (part 158).

B. Statistical Analysis

No statistics were performed due to lack of mortality.

C. Conclusions

1. Category: Core

2. Rationale: N/A

3. Repairability: N/A

1. Chemical Name: DPX-H6573

2. Formulation: 97.3%

3. Citation: Beavers, J.B. (1983) A Dietary LC_{50} in the Mallard with H #14, 960; Project #112-140; Prepared by Wildlife International LTD for E.I. Du Pont De Nemours and Company, Newark, Delaware 19711.

4. Reviewed By: Curtis E. Laird
Fishery Biologist
EEB/HED

5. Date Reviewed: 4-11-84

6. Test Type: Eight-Day Dietary LC_{50}

A. Test Species: Mallard Duck

7. Reported Results:

Controls - There were no mortalities in the negative control group. All birds were normal in appearance and behavior throughout the test period.

H # 14,960 - No mortalities occurred at the 562 ppm or 1000 ppm concentrations. There was 70% mortality rate at the 1780 ppm concentration, and 100% mortality at both the 3160 ppm and 5620 ppm concentrations.

At the 562 ppm concentration, lethargy was the only symptom of toxicity observed. Lethargy was first noted on Day 2 in some birds. By day 4 all birds were lethargic, but by Day 5 most birds had recovered. All birds were asymptomatic by Day 6 and remained so there the termination of the study.

At the 1000 ppm concentraton lethargy was first observed on Day 2 and was apparent in all of the birds. Symptoms of toxicity increased in severity until Day 5 when there appeared to be some recovery. All birds were asymptomatic by Day 7 and remained so until the termination of the study. Symptoms of toxicity noted at this concentration included lethargy, depression, reduced reaction to external stimuli (sound and movement), wing droop and lower limb weakness.

At the 1780 ppm concentration symptoms of toxicity were first noted on Day 1 and continued to increase in severity until Day 3 when five mortalities occurred. Two additional mortalities were noted on Day 4. All three surviving birds were asymptomatic by Day 8. At the 1780 ppm concentraton symptoms of toxicity included lethargy, depression, reduced reaction to external stimuli (sound and movement), wing droop and lower limb weakness.

At the 3160 ppm concentration symptoms of toxicity were first noted on Day 1 and continued to increase in severity until mortality occurred. Five mortalities were noted on Day 3, and three more by Day 4. At this concentration all birds had died by Day 5. Symptoms of toxicity noted prior to death included lethargy, depression, reduced reaction to external stimuli (sound and movement) and lower limb weakness.

Symptoms of toxicity at the 5620 ppm concentraton were similar to those observed at 1780 and 3160 ppm. The symptoms included lethargy, depression, reduced reaction to external stimuli (sound and movement), wing droop, lower limb waeakness and prostrate posture progressing to death. One mortality was noted on Day 2, six more on Day 3 and the remaining three birds were noted dead on Day 4.

There was a marked concentration related reduction in body weight gain of all surviving birds during the exposure period. At the 1780 ppm concentration there was an average weight loss of 40 grams, compared to an average control gain of 127 grams for the exposure period. There was also a marked concentration related reduction in feed consumption at all concentrations tested.

In conclusion, the LC_{50} vlaue of H # 14,960 in the mallard was determined to be 1584 ppm, with 95% confidence limits of 1328 ppm to 1888 ppm. There were no mortalities at concentrations of 1000 ppm or less. Mortalities occurred at concentrations of 1780 ppm or greater. Based on symptoms of toxicity, body weight gain and feed consumption, the no-observed-effect level of H # 14,960 is less than 562 ppm, the lowest concentration tested.

8. Reviewer's Conclusions: This study indicated DPX-H6573 is slightly toxic to mallard duck with an LC_{50} value of 1560 ppm. This study does fulfill the requirement in support of registration.

Material/Methods

Test Procedure

The test procedure complied with the recommended EPA protocol of Oct. 1982 (part 158).

Statistical Analysis

Moving Average

Discussion

The eight-day dietary LC_{50} value was reported to be 1584 ppm, with 95% C.L. of 1328 to 1888 ppm.

Reviewer's Evaluation

A. Test Procedure

The test procedure complied with the recommended EPA protocol of Oct. 1982 (part 158).

B. Statistical Analysis

The binomial test shows the LC_{50} value to be approximate 1560 ppm.

C. Conclusions

1. Category: Core
2. Rationale: N/A
3. Repairability: N/A

LAIRD DPX-H6573 EIGHT-DAY DIETARY LC50 FOR MALLARD DUCK

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
5620	10	10	100	.0976563
3160	10	10	100	.0976563
1780	10	7	70	17.1875
1000	10	0	0	.0976563
562	10	0	0	.0976563

THE BINOMIAL TEST SHOWS THAT 1000 AND 3160 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 1560.47

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE NOR THE PROBIT METHOD CAN GIVE ANY STATISTICALLY SOUND RESULTS.

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1. Chemical Name: DPX-H6573

2. Formulation: 97.3%

3. Citation: Beavers, J.B. (1983) A Dietary LC_{50} in the Bobwhite with H #14,960; Project # 112-139; Prepared by Wildlife International LTD for E.I. Du Pont De Nemours Company, Hakel Laboratory, Newark, Delaware 19711.

4. Reviewed By: Curtis E. Laird
Fishery Biologist
EEB/HED

5. Date Reviewed: 4-13-84

6. Test Type: Eight-Day Dietary LC_{50}

A. Test Species: Bobwhite Quail

7. Reported Results:

Controls - There were no mortalities in the negative control group. A few birds in one of the control groups were observed with lesions of nostril picking on Day 5. One additional bird in another control group was noted with lesions of this form of cannibalism on Day 8. All other control birds were normal in appearance and behavior throughout the test period.

H # 14,960 - There were no mortalities at the 562 ppm and 1000 ppm concentrations. One mortality occurred at both the 1780 and 3160 ppm concentrations, and two mortalities occurred at the 5620 ppm concentration.

At the 562 ppm concentration all birds appeared normal throughout the test period. At the 1000 ppm concentration lethargy was first observed on Day 2, and continued to be exhibited through Day 4. Some reduced reaction to external stimuli (sound and movement) also was observed on Days 2 and 3. Several birds were noted with lesions of toe picking beginning on Day 5. Aside from the lesions normally associated with this form of cannibalism, the birds in the 1000 ppm group appeared asymptomatic from Day 5 until the termination of the study.

At the 1780 ppm concentration, lethargy first became apparent on Day 2 and continued through Day 4 and when one bird was found dead. Some evidence of toe picking was noted on Day 5. However, the birds were asymptomatic, and remained so until the termination of the study.

At the 3160 ppm concentration lethargy was observed on Days 2 through 4. Several birds were noted as toe picked on Day 5, but otherwise appeared asymptomatic. All birds appeared normal on Day 6. A single bird was found dead on Day 7 and displayed lesions normally associated with nostril picking. This form of cannibalism may have contributed to the mortality. Some additional birds at this level also displayed lesions of cannibalism on Day 7, but all surviving birds were asymptomatic on Day 8.

At the 5620 ppm concentration, lethargy and some reduced reaction to external stimuli (sound and movement) became apparent on Day 2. On Day 3 one bird was found dead. Other symptoms of toxicity observed on Day 3 included lethargy, reduced reaction to external stimuli (sound and movement), wing droop and lower limb weakness and depression. On Day 4 a second bird was found dead while depression and reduced reaction to external stimuli (sound and movement) continued to be observed. Most birds appeared asymptomatic from Day 5 until the termination of this study, although a few birds exhibited lethargy and lesions of nostril picking on Days 5, 6 and 7. One bird also exhibited depression and reduced reaction to external stimuli (sound and movement) on Day 7. Pronounced lesions of nostril picking were observed on Day 8, but no overt symptoms of toxicity were observed.

There was a concentration related reduction in body weight gain at the 1000 ppm through 5620 ppm concentrations during the exposure phase. Surviving birds at the 5620 ppm concentration level experienced a weight loss for this period. Birds at the 5620 ppm concentration continued to show a reduction in body weight gain during the three day observation phase.

In conclusion the LC50 vlaue of H # 14,960 was determined by inspection to be greater then 5620 ppm. No mortalities ocurred at concentrations of 1000 ppm or less. Based on body weight gain and symptoms of toxicity, the no-observed-effect level in this study was 562 ppm.

8. Reviewer's Conclusions: This study indicated DPX-H6573 is practically non-toxic to bobwhite quail with an LC_{50} >5620 ppm. This study does fulfill the requirement in support of registration.

Material/Methods

Test Procedure

The test procedure complied with the recommended EPA Protocol of Oct. 1982 (part 158).

Statistical Analysis

No statistics were performed.

Discussions

Probit method shows the eight-day LC_{50} value to be 15799.7 ppm.

Reviewer's Evaluation

A. Test Procedure

The test procedure complied with the recommended EPA protocol of Oct. 1982 (part 158).

B. Statistical Analysis

Probit method shows the eight-day LC_{50} value to be 15799.7 ppm.

C. Conclusions

1. Category: Core
2. Rationale: N/A
3. Repairablity: N/A

LAIRD DPX-H6573 FOR BOBWHITE QUAIL EIGHT-DAY DIETARY LC50

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
5620	10	2	20	5.46875
3160	10	1	10	1.07422
1780	10	1	10	1.07422
1000	10	0	0	.0976563
562	10	0	0	.0976563

THE BINOMIAL TEST SHOWS THAT 3160 AND +INFINITY CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 0

THE MOVING AVERAGE METHOD CANNOT BE USED WITH THIS DATA SET BECAUSE NO SPAN WHICH PRODUCES MOVING AVERAGE ANGLES THAT BRACKET 45 DEGREES ALSO USES TWO PERCENT DEAD BETWEEN 0 AND 100 PERCENT.

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
4	1.26993	1	.841314

SLOPE = 1.74665

95 PERCENT CONFIDENCE LIMITS =-.221673 AND 3.71497

LC50 = 15799.7

95 PERCENT CONFIDENCE LIMITS = 5715.45 AND +INFINITY

LC10 = 2961.7

95 PERCENT CONFIDENCE LIMITS = 0 AND +INFINITY

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1. Chemical Name: DPX-H6573

2. Formulation: 95.5%

3. Citation: Hall, C.L. (1983) 96-hour LC_{50} to Bluegill Sunfish; Report #133-83; Prepared by Haskell Laboratory for E.I. Du Pont De Nemours and Company, Elkton Road, P.O. Box 50, Newark, Delaware 1971).

4. Reviewed by: Curtis E. Laird
Fishery Biologist
EEB/HED

5. Date Reviewed: 4-13-84

6. Test Type: 96-hour LC_{50}

A. Test Species: Bluegill Sunfish

7. Reported Results: The 96-hour LC_{50} was calculated to be 1.7 mg/l of the test material, with 95% confidence limits of 1.4 mg/l and 2.1 mg/l. Clinical signs observed on some fish at 0.86 mg/l and greater were lethargy, tremors, erratic swimming, lying on bottom of the tanks and gasping for air, darkening in color and loss of equilibrium.

8. Reviewer's Conclusions: This study indicates DPX-H6573 is moderately toxic to bluegill sunfish with an LC_{50} of 1.9 ppm. This study doed fulfill the requirement in support of registration.

Material/Methods

Test Procedure

The test procedure complied with the recommended EPA protocol of Oct. 1982 (part 158).

Statistical Analysis

Probit analysis.

Discussion

The binomial test shows the 96-hour LC_{50} vlue to be 1.9 ppm.

Reviewer's Evaluation

A. Test Procedure

The test procedure complied with the recommended EPA protocols of Oct. 1982 (part 158).

B. Statistical Analysis

The statistics were verified with Stephan's computer program.

C. Conclusions

1. Category: Core
2. Rationale: N/A
3. Repairability: N/A

LAIRD DPX-H6573 96-HOUR LC50 FOR BLUEGILL SUNFISH

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
4	10	10	100	.0976563
2.4	10	10	100	.0976563
1.44	10	0	0	.0976563
.86	10	2	20	5.46875
.52	10	0	0	.0976563
.31	10	0	0	.0976563
.18	10	0	0	.0976563
.11	10	0	0	.0976563

THE BINOMIAL TEST SHOWS THAT .52 AND 2.4 CAN BE
USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT
CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL
ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 1.85903

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE
PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE
NOR THE PROBIT METHOD CAN GIVE ANY STATISTICALLY SOUND RESULTS.

****

1. Chemical Name: DPX-H6573

2. Formulation: 95.5%

3. Citation: Hall, C.L. (1983) 96-hour acute toxicity test with Rainbow Trout To H-14,728; Report #108-83; Prepared by Haskell Laboratory for E.I. Du Pont DE Nemours and Company, Elkton Road, P.O. Box 50, Newark, Delaware 19711.

4. Reviewed by: Curtis E. Laird
Fishery Biologist
EEB/HED

5. Date Reviewed: 4-16-84

6. Test Type: 96-hour LC_{50}

A. Test Species: Rainbow Trout

7. Reported Results: Clinical signs observed on some fish at 0.39 mg/l and greater were darkening in color, lying on the bottom of the tanks and gasping for air, lethargic, erratic swimming, tremors, loss of equilibrum and abdomen swollen. The 96-hour LC_{50} was calculated to be 1.2 mg./l of test material.

8. Reviewer's Conclusions: This study indicates DPX-H6573 is moderately toxic to rainbow trout with an LC_{50} of 1.3 ppm. This study does fulfill the requirement in support of registration.

Material/Methods

Test Procedure

The test procedure complied with the recommended EPA protocol of Oct. 1982 (part 158).

Statistical Analysis

Probit Analysis

Discussions

The reported 96-hour LC_{50} vlaue was 1.2 mg/l.

Reviewer's Evaluation

A. Test Procedure

The test procedure complied with the recommended EPA protocol of Oct. 1982 (part 158).

B. Statistical Analysis

The binomial test shows the 96-hour LC_{50} value to be 1.3 ppm.

C. Conclusions

1. Category: Core

2. Rationale: N/A

3. Repairability: N/A

LRD DPX-H6573 FOR RAINBOW TROUT 96-HOUR LC50

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
3	10	10	100	.0976563
1.8	10	10	100	.0976563
1.08	10	2	20	5.46875
.65	10	0	0	.0976563
.39	10	0	0	.0976563
.23	10	0	0	.0976563

THE BINOMIAL TEST SHOWS THAT .65 AND 1.8 CAN BE
USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT
CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL
ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 1.26838

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE
PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE
NOR THE PROBIT METHOD CAN GIVE ANY STATISTICALLY SOUND RESULTS.

****

1. Chemical Name: DPX-H6573

2. Formulation: 95.5%

3. Citation: Hall, C.L. (1983) 48-hour acute Toxicity Test With Daphnia magna Exposed to H-14,748; Report #111-83; Prepared by Haskell Laboratory for E.I. Du Pont de Nemours and Company., Inc., Elkton Road, P.O. Box 50, Newark, Delaware 19711.

4. Reviewed by: Curtis E. Laird
Fishery Biologist
EEB/HED

5. Date Reviewed: 4-16-84

6. Test Type: 48-hour LC_{50}

A. Test Species: Daphnia magna

7. Reported Results: The 48-hour LC_{50} was 3.4 mg/l of the test material with 95% confidence limits of 2.2 mg/l and 5.2 mg/l.

8. Reviewer's Conclusions: This study indicates DPX-H6573 is moderately toxic to Daphnia magna with an LC_{50} of 3.3 ppm. This study does fulfill the requirement in support of registration.

Material/Methods

Test Procedure

The test procedure complied with the recommended EPA protocol of Oct. 1982 (part 158).

Statistical Analysis

Probit Analysis

Discussions

The 48-hour LC_{50} was calculated by probit analysis and showed the LC_{50} value to be 3.3 ppm.

Reviewer's Evaluation

A. Test Procedure

The test procedure complied with the recommended EPA protocol of Oct. 1982 (part 158).

B. Statistical Analysis

The statistics were verified with Stephan's computer program.

C. Conclusions

1. Category: Core
2. Rationale: N/A
3. Repairability: N/A

8k

LAIRD DPX-H6573 48-HOUR LC50 FOR DAPHNIA MAGNA

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
10	10	10	100	.0976563
7.5	10	8	80	5.46875
5.4	10	7	70	17.1875
4.2	10	8	80	5.46875
3.2	10	8	80	5.46875
2.4	10	3	30	17.1875
1.8	10	0	0	.0976563
1.3	10	0	0	.0976563
1	10	0	0	.0976563

THE BINOMIAL TEST SHOWS THAT 1.8 AND 10 CAN BE
USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT
CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL
ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 2.68629

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
8	.0750765	3.44541	2.8637	4.23477

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
6	.114912	1	.124287

SLOPE = 4.31427
95 PERCENT CONFIDENCE LIMITS = 2.85179 AND 5.77675

LC50 = 3.33262
95 PERCENT CONFIDENCE LIMITS = 2.74732 AND 4.04767

LC10 = 1.69205
95 PERCENT CONFIDENCE LIMITS = 1.12311 AND 2.14047

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1. Chemical Name: DPX-H6573

2. Formulation: 95.8%

3. Citation: Hutton, D.G. (1983) Residue Studies with ^{14}C phenylabled DPX-H6573 in Bluegill Sunfish; Report #425-83; Prepared by Haskell Laboratory for E.I. Du Pont de Nemours and Company, Inc., P.O. Box 50, Elkton Road, Newark, Delaware 19711.

4. Reviewed By: Curtis E. Laird
Fishery Biologist
EEB/HED

5. Date Reviewed: 4-17-84

6. Test Type: Bioaccumulation Study
A. Test Species: Bluegill Sunfish

7. Reported Results: The fish appeared to have been in good health. They were acclimated in the laboratory for 98 days before being introduced into this test. Only one mortality occurred during the test period.

8. Reviewer's Conclusions: From a biological standpoint the study appears sound. For an anlysis of the Chemical/Analytical portion of the study EEB defers to EAB.

Material/Method

Test Procedure

From a biological standpoint the study appears to be sound. The remaining portions of this study are deferred to EAB.

Statistical Analysis

None performed (deferred to EAB)

Discussion/Results

The fish appeared to have been in good health.

Reviewer's Evaluation

A. Test Procedure

From a biological standpoint the study appears to be sound. The remaining portions of the study are defferred to EAB.

B. Statistical Analysis

None performed

C. Conclusions

1. Category: From biological standpoint: Core

2. Rationale: N/A

3. Repairability: N/A

8C

1. CHEMICAL: H6573

2. FORMULATION: Not reported

3. CITATION: Meade, A.B. 1983. Honey bee toxicity test. Exhibit No. 20, Part C2, in EPA Acc. No. 252481. Submitted by E.I. duPont de Nemours and Company, Wilmington, Delaware, Feb. 13, 1984.

4. REVIEWER: Allen W. Vaughan
Entomologist
EEB/HED

5. DATE REVIEWED: April 19, 1984

6. TEST TYPE: Honey bee acute contact LD_{50}

This study cannot be used to assess hazard of H6573 to honey bees. Major problems with this study are as follows:

1) Formulation information was not provided for H6573 or for the standard (Sevin);

2) Other important information, such as test conditions, handling of controls, etc., was lacking;

3) Control mortality was very high (20%)