

US EPA ARCHIVE DOCUMENT

6/8/84

Pendamethalin Registration Standard - Nontarget Insects

Effects on Beneficial Insects

The following study received full review under this topic:

<u>Author</u>	<u>ID</u>
Atkins et al.	00099890

Study is outlined in Table 1.

Table 1. Toxicity Studies on Beneficial Insects with Pendamethalin.

<u>Species</u>	<u>Formulation</u>	<u>Results</u>	<u>Author</u>	<u>Date</u>	<u>MIRD #</u>
Honey bee	Technical	No mortality at 49.746 micrograms per bee (relatively non-toxic)	Atkins et al.	1974	00099890

There is sufficient information to characterize pendamethalin as relatively non-toxic to honeybees.

Pendamethalin Registration Standard - Nontarget Insects

The following study received abbreviated review:

Author
Atkins

ID
00108773

Pendamethalin Registration Standard - Nontarget Insects

Statement for Disciplinary Review

Effects of pendamethalin on beneficial insects

Pendamethalin was shown to be relatively non-toxic to honey bees in a laboratory study (Atkins et al. 1974).

References (for Disciplinary Review)

Atkins, E.L., E.A. Greywood-Hale, R.L. Macdonald, and D.T. Ferguson. 1974.
Effect of pesticides on apiculture. Project No. 1499. 1974 Annual Report.
Dept. of Entomology, Univ. of California, Riverside. Fiche/Master ID 00099890.

TABLE A
 GENERIC DATA REQUIREMENTS FOR PENDAMETHALIN

Data Requirement	Composition	1/ Use 2/ Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes No or Partially)		Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)3/
			No	Yes		
<u>\$158.155 Nontarget Insect</u>						
<u>NONTARGET INSECT TESTING - POLLINATORS:</u>						
141-1 - Honey bee acute contact LD50	TGAI	A,B	Yes		00099890	No
141-2 - Honey Bee - toxicity of residues on foliage	TEP	A,B	No			No ^{4/}
141-4 - Honey bee subacute feeding study	[Reserved]					
141-5 - Field testing for pollinators	TEP	A,B	No			No ^{4/}

1/ Composition: TGAI = Technical grade of the active ingredient; TEP = Typical end-use product.
 2/ The use patterns are coded as follows: A=Terrestrial, Food Crop; B=Terrestrial, Non-Food; C=Aquatic, Food Crop; D=Aquatic, Non-Food; E=Greenhouse, Food Crop; F=Greenhouse, Non-Food; G=Forestry; H=Domestic Outdoor; I=Indoor.
 3/ Data must be submitted no later than _____.
 4/ As acute toxicity data shows pendamethalin to be non-toxic to bees, no further testing is required.
 5/ Reserved pending development of test methodology.
 6/ Reserved pending Agency decision as to whether the data requirements should be established.

TABLE A
 GENERIC DATA REQUIREMENTS FOR PENDAMETHALIN

Data Requirement	Composition	Use Pattern	Does EPA Have Data To Satisfy This Requirement? (Yes No or Partially)	Bibliographic Citation	Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)3/
158.155 Nontarget Insect (continued)					
<u>NONTARGET INSECT TESTING - AQUATIC INSECTS:</u>					
2-1 - Acute toxicity to aquatic insects	[Reserved] 6/				
2-2 - Aquatic insect life-cycle study	[Reserved] 6/				
2-3 - Simulated or actual field testing for aquatic insects	[Reserved] 6/				
3-1 - <u>NONTARGET INSECT TESTING - PREDATORS AND PARASITES</u>					
3-3	[Reserved] 6/				

CASE GS0187

PENDAMETHALIN

PM PN# 02/15/83

CHEM 108501

Pendimethalin (N-(1-ethylpropyl)-3,4-d

BRANCH EEB DISC 40 TOPIC 05103545

FORMULATION NO - ACTIVE INGREDIENT

FICHE/MASTER ID 00099890

CONTENT CAT 02

Atkins, E.; Hreywood-Hale, E.; Macdonald, R.; et al. (1974) Effect of Pesticides on Apiculture: Project No. 1499. 1974 annual rept. (Unpublished study received Jul 31, 1978 under 148-1259; prepared by Univ. of California--Riverside, Citrus Research Center and Agricultural Experiment Station, Dept. of Entomology, submitted by Thompson-Hayward Chemical Co., Kansas City, KS; CDL:234511-S)

SUBST. CLASS = S.

DIRECT RVW TIME = (MH) START-DATE 6/6/84 END DATE 6/6/84

REVIEWED BY: Allen W. Vaughan
TITLE: Entomologist
ORG: EEB/HED
LOC/TEL: Crystal Mall #2 / 557-7600

SIGNATURE: *Allen W. Vaughan*

DATE: 6/8/84

APPROVED BY:
TITLE:
ORG:
LOC/TEL:

SIGNATURE:

DATE:

1. CHEMICAL: Pendamethalin
2. FORMULATION: Technical
3. CITATION: Atkins, E.L., E.A. Greywood-Hale, R.L. Macdonald, and D.T. Ferguson. 1974. Effect of pesticides on apiculture. Project No. 1499. 1974 Annual Report. Dept. of Entomology, Univ. of California, Riverside. Fiche/Master ID 00099890.
4. REVIEWER: Allen W. Vaughan
Entomologist
EEB/HED
5. DATE REVIEWED: June 6, 1984
6. TEST TYPE: Toxicity to honey bee
 - A. Test Species: Honey bee (Apis mellifera)
7. REPORTED RESULTS: Pendamethalin was determined to be relatively non-toxic to honey bees in a laboratory acute contact toxicity test. When test bees were exposed to direct treatment at 49.746 micrograms per bee, there was no mortality.
8. REVIEWER'S CONCLUSIONS: This study is scientifically sound, and shows pendamethalin to be relatively non-toxic to honey bees.

Materials and Methods

Test Procedures

A bell-jar vacuum duster is used to apply the pesticide, mixed with a pyrolite dust diluent, to the test bees. Dosages of dust are weighed, bees are aspirated into dusting cages and treated, and bees are then transferred into holding cages. Observations are recorded at 12, 24, 48, 72, and 96 hours.

Statistical Analysis

Analysis of the data was performed to enable the authors to determine LD₅₀ values of pesticides from either dosage-mortality curves or from LC₅₀ values. The slope value was also obtained from the dosage-mortality curve.

Discussion/Results

See "Reported Results", above.

Reviewer's Evaluation

A. Test Procedure

Procedures were sound.

B. Statistical Analysis

Analysis as performed by the authors was assumed to be valid. No validation was performed by EEB.

C. Discussion/Results

This study is scientifically sound..

CASE GS0187

PENDAMETHALIN

PM PM# 02/15/83

CHEM 108501

Pendimethalin (N-(1-ethylpropyl)-3,4-d

BRANCH EEB DISC 40 TOPIC 05000045

FORMULATION 00 - ACTIVE INGREDIENT

FICHE/MASTER ID 00108773

CONTENT CAT 02

Atkins, E. (1974) Letter sent to A. Tafuro dated May 20, 1974
toxicity of Avenge to honey bees. (Unpublished study received
Nov 14, 1975 under 6F1703; prepared by Univ. of California--
Riverside, Citrus Research Center and Agricultural Experiment
Station, Dept. of Entomology, submitted by American Cyanamid
Co., Princeton, NJ; CDL:094735-F)

SUBST. CLASS = S.

DIRECT RVW TIME = (MH) START-DATE 6/6/84 END DATE 6/6/84

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SIGNATURE:

DATE:

Information provided in this study duplicates that
provided in MRID# 00099890