Pendamethalin Registration Standard - Nontarget Insects

Effects on Beneficial Insects

The following study received full review under this topic:

<table>
<thead>
<tr>
<th>Author</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atkins et al.</td>
<td>00099890</td>
</tr>
</tbody>
</table>

Study is outlined in Table 1.

Table 1. Toxicity Studies on Beneficial Insects with Pendamethalin.

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

There is sufficient information to characterize pendamethalin as relatively non-toxic to honeybees.
Pendamethalin Registration Standard - Nontarget Insects

The following study received abbreviated review:

<table>
<thead>
<tr>
<th>Author</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atkins</td>
<td>00108773</td>
</tr>
</tbody>
</table>
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)

### TABLE A
**GENERIC DATA REQUIREMENTS FOR PENDAMETHALIN**

<table>
<thead>
<tr>
<th>Data Requirement</th>
<th>Does EPA Have Data To Satisfy This Requirement? (Yes No or Partially)</th>
<th>Must Additional Data Be Submitted Under FIFRA Section 3(c)(2)(B)?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>§158.155 Non-target Insect</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NONTARGET INSECT TESTING - POLLINATORS:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>141-1 - Honey bee acute contact LD&lt;sub&gt;50&lt;/sub&gt;</td>
<td>TGAi A,B Yes 00099890</td>
<td>No</td>
</tr>
<tr>
<td>141-2 - Honey Bee - toxicity of residues on foliage</td>
<td>TEP A,B No</td>
<td>No&lt;sup&gt;4&lt;/sup&gt;/</td>
</tr>
<tr>
<td>141-4 - Honey bee subacute feeding study</td>
<td>[Reserved]&lt;sup&gt;5&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>141-5 - Field testing for pollinators</td>
<td>TEP A,B No</td>
<td>No&lt;sup&gt;4&lt;/sup&gt;/</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Data Requirement</th>
<th>Composition</th>
<th>Pattern</th>
<th>Use To Satisfy This Requirement? (Yes No or Partially)</th>
<th>Bibliographic Citation</th>
<th>Must Additional Data Be Submitted Under FIFRA Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>58.155 Nontarget Insect (continued)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TARGET INSECT TESTING - AQUATIC INSECTS:**

| 2-1 | Acute toxicity to aquatic insects | [Reserved] |
| 2-2 | Aquatic insect life-cycle study | [Reserved] |
| 2-3 | Simulated or actual field testing for aquatic insects | [Reserved] |

**3-1 NONTARGET INSECT TESTING -**

| Predators and Parasites | [Reserved] |
| [Reserved] | [Reserved] |
CASE GS0187

PEMDIAMETHALIN

PM PM# 02/15/83

CHEM 106501 Pendimethalin (N-(1-ethylpropyl)-3,4-dichlorobenzamide)

BRANCH EEB DISC 40 TOPIC 05103545

FORMULATION #0 - ACTIVE INGREDIENT

FICHE/MASTER IN 0099890 CONTENT CAT 02


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


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 LD<sub>50</sub> values of pesticides from either dosage-mortality curves or from LC<sub>50</sub> 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

CHEM 108501  Pendimethalin (N-(1-ethylcarboxyl)-3,4-d

BRANCH EEB  DISC 40 TOPIC 05000045

FORMULATION 00 - ACTIVE INGREDIENT

FICHE/MASTER ID 00108773  CONTENT CAT 02

Toxicity of Avena to honey bees. (Unpublished study received
Nov 14, 1975 under 6F1703; prepared by Univ. of California--
Riverside, Citrus Research Center and Agricultural Experiment
Station, vent. of Entomology, submitted by American Cyanamid
Co., Princeton, NJ; CDL:094735-F)

SUBST. CLASS = S.

DIRECT RVW TME = (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:

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