



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

11 JUL 1985

MEMORANDUM

SUBJECT: Registration Standard for Talstar - Nontarget Insect Studies

THRU: Norman Cook, Head - Section 2 *McCook*
Ecological Effects Branch
Hazard Evaluation Division (TS-769)

THRU: Michael Slimak, Chief *MSlimak*
Ecological Effects Branch
Hazard Evaluation Division (TS-769)

TO: Tim Gardner, PMT-17
Insecticide-Rodenticide Branch
Registration Division (TS-767)

Attached is EEB's completed review of the nontarget insect studies received under the Registration Standard for Talstar. Attached material includes DER's, topical summary, disciplinary review, and data table.

Allen W. Vaughan
Allen W. Vaughan, Entomologist
Ecological Effects Branch
Hazard Evaluation Division (TS-769-C)

Attachment

cc: H. Craven (EEB/HED)
J. Heckman (OD/HED)
J. Tice (SIS/HED)

Talstar Registration Standard - Nontarget Insects

Effects on Beneficial Insects

The following studies received full review under this topic:

<u>Author</u>	<u>ID</u>
Atkins and Kellum	VAU0TA01

Studies are outlined in Table 1.

Table 1. Toxicity studies on beneficial insects with Talstar.

<u>Species</u>	<u>Formulation</u>	<u>Results</u>	<u>Author</u>	<u>Date</u>	<u>MRID#</u>
Honey bee (<u>Apis mellifera</u>)	0.8 EC	LD ₅₀ = 0.01462 micrograms per bee (highly toxic)	Atkins and Kellum	1981	VAU0TA01

There is sufficient information to characterize Talstar as highly toxic to honey bees. This study fulfills the guideline requirement for a honey bee acute contact LD₅₀ study.

Based on the information provided in this study, the end-use product label should bear the following statement:

This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area.

Talstar Registration Standard - Nontarget Insects

Statement for Disciplinary Review

Effects of Talstar on beneficial insects

Talstar was shown to be highly toxic to honey bees in a laboratory acute contact study (Atkins and Kellum 1981).

Reference (for Disciplinary Review)

Atkins, E.L., and D. Kellum. 1981. Effect of pesticides on apiculture: maximizing the effectiveness of honey bees as pollinators. 1981 Report of Research to California Alfalfa Seed Production Research Board. In EPA Acc. No. 251727, Vol. C-2. Submitted by FMC Corporation, Philadelphia, PA, November 1983.

Precautionary Labeling

Additional data must be submitted to allow completion of the nontarget insect hazard assessment (see Data Requirement Table, Test 141-2). Based on this additional data, the recommended bee precaution statement may be changed.

TABLE A

GENERIC DATA REQUIREMENTS FOR TALSTAR

Data Requirement	Composition	1/ Use Pattern	2/ Does EPA Have - Data to Satisfy This Requirement? (Yes No Partially)	Biblio- graphic Citation	Must Addi- tional Data Be Submitted Under FIFRA Section 3(c)(2)(B)3/
<u>§158.155 Nontarget Insect</u>					
<u>NONTARGET INSECT TESTING - POLLINATORS:</u>					
141-1 - Honey bee acute contact LD ₅₀	TGAI	A	Yes	VAUOTA01	No
141-2 - Honey Bee - toxicity of residues on foliage	TEP	A	No	-----	Yes ^{4/}
141-4 - Honey bee subacute feeding study	[Reserved] ^{5/}				
141-5 - Field testing for pollinators	TEP	A	No	-----	No ^{6/}

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 data from the acute contact study indicate high toxicity, toxicity of residues on foliage must be assessed.

5/ Reserved pending development of test methodology.

6/ This requirement is imposed on a case-by-case basis. Data reviewed to date do not indicate the need for a field study.

7/ Reserved pending Agency decision as to whether the data requirement should be established.

TABLE A
GENERIC DATA REQUIREMENTS FOR TALSTAR

Data Requirement	Composition	1/ Use	2/ Pattern	Does EPA Have Have Data to Satisfy This Requirement (Yes, No, Partially)	Biblio- graphic Citation	Must Addi- tional Data Be Submitted Under FIFRA Section 3(c)(2)(B)3/
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§158.155 Nontarget Insect
(continued)

NONTARGET INSECT TESTING -
AQUATIC INSECTS:

- 141-1 - Acute toxicity
to aquatic
insects [Reserved] 7/
- 141-2 - Aquatic insect
life-cycle study [Reserved] 7/
- 141-3 - Simulated or
actual field
testing for aquatic
insects [Reserved] 7/
- 143-1 - NONTARGET INSECT
thru TESTING -
143-3 PREDATORS AND
PARASITES [Reserved] 7/

CHEM 128825

TALSTAR

BRANCH EEB

DISC

FORMULATION EC

FICHE/MASTER ID VAUØTAØI

CITATION: Atkins, E.L., and D. Kellum. 1981. Effect of pesticides on apiculture: maximizing the effectiveness of honey bees as pollinators. 1981 Report of Research to California Alfalfa Seed Production Research Board. In EPA Acc. No. 251727, Vol. C-2 Subm. by FMC Corporation, Phila., PA, Nov. 1983.

SUBST. CLASS=

OTHER SUBJECT DESCRIPTORS
PRIM:

DIRECT REVIEW TIME=

(MH) START DATE 7/9/85 END DATE 7/9/85

REVIEWED BY: ALLEN W. VAUGHAN

TITLE: ENTOMOLOGIST

ORG: EEB/HED

LOC./TEL: CRYSTAL MALL #2 / 557-7600

SIGNATURE:

Allen W. Vaughan

DATE: 7/9/85

APPROVED BY:

TITLE:

ORG:

LOC/TEL:

SIGNATURE:

DATE:

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1. CHEMICAL: FMC 54800
2. FORMULATION: 0.8 EC
3. CITATION: Atkins, E.L., and D. Kellum. 1981. Effect of pesticides on agriculture: maximizing the effectiveness of honey bees as pollinators. 1981 Report of Research to California Alfalfa Seed Production Research Board. In EPA Acc. No. 251727, Vol. C-2 Subm. by FMC Corporation, Phila., PA, Nov. 1983.
4. REVIEWER: Allen W. Vaughan
Entomologist
EEB/HED
5. DATE REVIEWED: January 3, 1984
6. TEST TYPE: Bee toxicity
 - A. Test Species: Honey bee (Apis mellifera)
7. REPORTED RESULTS:

FMC 54800 was determined to be highly toxic to honey bees in a laboratory acute contact toxicity test ($LD_{50} = 0.01462$ micrograms per bee.)
8. REVIEWER'S CONCLUSIONS:

This study is scientifically sound, and shows FMC 54800 to be highly toxic to honey bees.

Materials and Methods

Test Procedure

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

With an LD₅₀ of 0.01462 micrograms per bee, FMC 54800 is extremely toxic to honey bees exposed to direct application.

Reviewer's Evaluation

A. Test Procedures

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.