EEB BRANCH REVIEW

DATE: IN 1-25-83 OUT 3-29-83

FILE OR REG. NO. 279-EUP-OA

PETITION OR EXP. PERMIT NO.

DATE OF SUBMISSION 1-18-83

DATE RECEIVED BY HED 1-24-83

RD REQUESTED COMPLETION DATE 4-21-82

EEB ESTIMATED COMPLETION DATE 4-14-83

RD ACTION CODE/TYPE OF REVIEW 710/EUP

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

DATA ACCESSION NO(S).

PRODUCT MANAGER NO. H. Jacoby (21)

PRODUCT NAME(S) Funginex 1.6 EC

COMPANY NAME FMC Corporation

SUBMISSION PURPOSE Proposed EUP for use on Almonds (California)

SHAUGHNESSEY NO. CHEMICAL, & FORMULATION % A.I.

107901 Triforine 18.2%

Inert Ingredients 81.8%
Funginex 1.6 EC

100.0 Pesticide Use

The proposed use is an EUP for use on almonds in California.

100.1 Application Methods/Directions

For full coverage spray only, mix 12 fl. oz. of Funginex 1.6 EC per 100 gallons and apply to run-off. For low volume sprayers, apply 36 to 48 oz. of undiluted Funginex per acre per application in sufficient water (50-200 gallons of water per acre) or a minimum of 20 gallons of water for aerial application.

Apply a maximum of 2 applications during the blossom period. Do not apply after petal fall.

100.2 Application Rates

Formulation: 36-48 oz/acre
Active ingredient: 7.2-9.6 oz/acre (0.45-0.6 lb ai/acre)

100.3 Precautionary Labeling

The following Environmental Hazards labeling appears on the proposed label:

"Do not apply directly to water. Do not contaminate water by cleaning of equipment or disposal of wastes. Apply this product only as specified on this label."

100.4 Proposed EUP Program

100.4.1 Objectives

The registrant proposes that a maximum of 200 acres of almonds be treated in the state of California to determine the efficacy of Funginex 1.6 EC under commercial use conditions.

100.4.2 Duration/Date/Amount Shipped

This permit will cover two years, February 1983 through February 1985. The maximum amount of product required is 150 gallons (240 lb. active ingredient).

100.4.3 Application Procedures

Ground:

1) Dilute 12 fl. oz. of Funginex per 100 gallons apply to run-off.

2) Low volume, 36-48 oz. of undiluted Funginex per acre in 50-200 gallons of water.
Aerial:

1) 36-48 oz. of undiluted Funginex per acre in minimum 5 gallons of water.

100.4.4 Target Pests

Fungi: *Monilinia laxa*

100.4.5 Geographical Site Features

Almonds in the State of California

100.4.6 Restrictions

Two (2) applications per season.
Do not apply after petal fall.
Crop destract almond hulls.

101 Chemical and Physical Properties

101.1 Chemical Name

\[(N,N'-[1,4-piperazinediy1-bis-(2,2,2-
trichloroethylidene)]-bis-[formamide])\]

101.2 Common Name

Triforine

101.3 Structural Formula

\[
\text{\includegraphics{formula.png}}
\]

101.4 Molecular Weight

435

101.5 Physical State

Colorless, odorless white solid material. Melting point 155°C.
101.6 Solubility

Water: 27-29 ppm at room temperature
Acetone: insoluble
Benzene: insoluble

102 Behavior in the Environment (From EEB review of 3/14/78).

102.1 Soil

Half-life about 2 weeks (slower in dry seasons). Degradation is probably chemical rather than biological. Parent compound may not leach; but metabolites appear to be fairly mobile in soil.

102.2 Water

Rapid degradation in water (2 days - 1 week)

102.3 Plant

Uptake by roots and transported to aerial portions of plant with half-life of 9-10 days (study done with 3-week old barley plants after a soil drench).

102.4 Animal

In a rat study, 96% of dose was excreted through urine and feces after 72 hours.

103.0 Toxicological Properties

<table>
<thead>
<tr>
<th>Study</th>
<th>Results</th>
<th>Category/Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rat 13-week dietary</td>
<td>NEL 500 ppm</td>
<td>Unknown (Craven 2/1/77)</td>
</tr>
<tr>
<td>Dog 13-week dietary</td>
<td>NEL 30,000 ppm</td>
<td>Unknown (Craven 2/1/77)</td>
</tr>
<tr>
<td>Bobwhite quail LD₅₀</td>
<td>&gt;5000 mg/kg</td>
<td>Core (upgraded from supplemental) (Laird 9/10/79)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Reider 12/10/81)</td>
</tr>
<tr>
<td>Bobwhite quail LC₅₀</td>
<td>1849 ppm (1142-2994)</td>
<td>Core (Hitch 8/23/77)</td>
</tr>
<tr>
<td>Mallard duck LC₅₀</td>
<td>&gt;4640 ppm</td>
<td>Core (Hitch 8/23/77)</td>
</tr>
<tr>
<td>Daphnia LC₅₀</td>
<td>28 ppm</td>
<td>Core (Craven 11/20/78)</td>
</tr>
<tr>
<td>Rainbow trout LC₅₀</td>
<td>reported as 1000 ppm*</td>
<td>These studies were originally validated as Core by Hitch (8/23/77) who later changed them to Supplemental, possibly after learning of solubility problems in the studies.</td>
</tr>
<tr>
<td>Bluegill sunfish LC₅₀</td>
<td>reported as 1000 ppm*</td>
<td></td>
</tr>
</tbody>
</table>
Hazard Assessment

The following maximum residues are expected after a single application of Funginex at the highest label rate (0.6 lb a.i./acre):

<table>
<thead>
<tr>
<th>Residue Type</th>
<th>Residue Value (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short rangegrass</td>
<td>144</td>
</tr>
<tr>
<td>long grass</td>
<td>66</td>
</tr>
<tr>
<td>leaves/leafy crops</td>
<td>75</td>
</tr>
<tr>
<td>forage/small insects</td>
<td>35</td>
</tr>
<tr>
<td>pods, seeds/large insects</td>
<td>7</td>
</tr>
<tr>
<td>fruits</td>
<td>4</td>
</tr>
<tr>
<td>6&quot; water</td>
<td>0.4</td>
</tr>
</tbody>
</table>

These residues are well below the reported toxicity values for avian and aquatic species. Given the expected residues and the reported toxicity values, no unreasonable hazards to non-target organisms are expected to result from the proposed use of Funginex.

Endangered Species Considerations

The following endangered species are known to occur in counties where almonds are reportedly grown.

<table>
<thead>
<tr>
<th>Species</th>
<th>County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desert slender salamander</td>
<td>Riverside</td>
</tr>
<tr>
<td>Santa Cruz long-toed salamander</td>
<td>Monterey, Santa Cruz</td>
</tr>
<tr>
<td>Mohave chub</td>
<td>Los Angeles, San Bernardino</td>
</tr>
<tr>
<td>Unarmed three-spine stickleback</td>
<td>Los Angeles, Ventura</td>
</tr>
<tr>
<td>Lahontan cutthroat trout</td>
<td>Nevada, Placer</td>
</tr>
<tr>
<td>Little Kern golden trout</td>
<td>Tulare</td>
</tr>
<tr>
<td>Paiute cutthroat trout</td>
<td>Toulumme</td>
</tr>
</tbody>
</table>

The Registrant should ensure that no Federally listed endangered species is affected by the proposed experimental use program.

Adequacy of Toxicity Data

No additional fish and wildlife toxicity data were submitted with this request.

Additional Data Required

Prior to consideration for future conditional registrations the following data may be required:

1) 96-hour LC50 to rainbow trout
2) 96-hour LC50 to bluegill sunfish
Environmental Hazards Labeling

The environmental hazards labeling should be changed to read as follows:

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

Conclusions

EEB has reviewed the proposed experimental use program for the use of Funginex 1.6 EC on almonds. Based upon the available data EEB concludes that the proposed EUA provides for no significant exposure or risk to nontarget organisms.

Special Notes

As pointed out in EFB's review of 1/4/82, the label directions pertaining to application rate are unclear. The registrant should clarify the actual use rate in lb. a.i./acre.

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