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RECORD NO.

113501  
SHAUGHNESSEY NO.

REVIEW NO.

EEB REVIEW

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PETITION OR EXP. NO. 9F3712

DATE OF SUBMISSION 11-25-88

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RD ACTION CODE/TYPE OF REVIEW 330

TYPE PRODUCT(S) Fungicide

DATA ACCESSION NOS. \_\_\_\_\_

PRODUCT MANAGER NO. B. Chambliss (21)

PRODUCT NAME(S) Metalaxyl (Ridomil 2E Fungicide)

COMPANY NAME Ciba-Geigy

SUBMISSION PURPOSE Proposed label amendment expanding

use on hops to include foliar

applications

SHAUGHNESSEY NO.	CHEMICAL AND FORMULATION	% AI
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<u>113501</u>	<u>Metalaxyl</u>	<u>25.1%</u>
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## EEB REVIEW

Chemical: Metalaxyl (Ridomil 2E Fungicide)

100 Submission Purpose and Label Information

100.1 Submission Purpose and Pesticide Use

The registrant (Ciba-Geigy) proposes to amend the Ridomil 2E label for use on hops. Current labeling specifies use only as a single soil application. The proposed change would allow up to two foliar applications, in combination with a copper fungicide, following the soil application. No new data were submitted with this request.

100.2 Formulation Information

Active Ingredient:

Metalaxyl: N-(2,6-dimethylphenyl)-N-(methoxyacetyl) alanine methyl ester . . . . . 25.1%  
Inert Ingredients: . . . . . 74.9%

Product contains 2 lb ai per gallon.

100.3 Application Methods, Directions, Rates

Ridomil 2E applied as a soil drench followed by foliar applications with Kocide 101 will control downy mildew caused by Pseudoperonospora humulii.

Soil Drench: Apply 1 qt. of Ridomil 2E per acre of hops in a minimum of 20 gals. of water or liquid fertilizer to the soil surface over the crowns after pruning, but before training. Early application before shoots are six inches long is preferable.

Foliar Spray: When primary infection (spikes) persist after a soil drench treatment and/or there is the first evidence of secondary (foliar) infection, foliar sprays of Ridomil 2E in combination with contact copper fungicides may be used. Apply 1 qt. of Ridomil 2E per acre in a tank-mix combination with 2 lb. of Kocide 101 (or an equivalent rate of a comparable copper fungicide). Apply with ground equipment in a minimum of 50 gals. of water per acre.

Notes: To avoid possible illegal residues, (1) Do not make more than three applications of Ridomil 2E per season (one soil drench plus two foliar sprays) and (2) Do not make the last application within 45 days before harvest; (3) Do not apply foliar sprays of Ridomil 2E without a copper fungicide.

#### 100.4 Target Organisms

Target organism is downy mildew caused by Pseu'operonospora humulii.

#### 100.5 Precautionary Labeling

No precautionary labeling was submitted.

#### 101 Hazard Assessment

##### 101.1 Discussion

Metalaxyl is currently registered for use on numerous vegetable, fruit, nut, and field crops, in addition to hops. Registered rates range from 0.5 to 4 lb ai per acre, with multiple applications often allowed.

The proposed label amendment would allow foliar application of Ridomil 2E to hops, in addition to the currently registered use as a soil drench.

##### 101.2 Likelihood of Adverse Effects on Nontarget Organisms

###### Terrestrial Organisms

Metalaxyl is considered to be no more than slightly toxic to birds on an acute oral basis (mallard LD50 = 1466 mg/kg), and practically nontoxic to birds on a dietary basis (mallard and bobwhite quail LC50's > 10,000 ppm). Toxicology data on laboratory animals indicate that metalaxyl is no more than slightly toxic to rats on an acute oral basis (LD50 = 669 mg/kg).

Maximum residues on terrestrial forage items, following application at 0.5 lb ai/acre, would range from 3.5 to 120 ppm. Even after three applications at this rate, and assuming no breakdown of the product, maximum estimated residue would be 360 ppm. Based on these estimates, proposed use of metalaxyl should present no acute hazard to terrestrial nontarget organisms.

According to the Ecological Effects chapter of the Metalaxyl Registration Standard, chronic hazard to terrestrial nontargets is not a concern. Reasons cited include: 1) short half-life; 2) no evidence of bioaccumulation; and, 3) no adverse reproductive or teratogenic effects in mammalian tests.

Since metalaxyl tested practically nontoxic to honey bees in an acute contact study, hazard to honey bees is not a concern.

### Aquatic Organisms

Aquatic organism testing provides the following values for technical metalaxyl:

Bluegill LC50 = 139-150 ppm  
 Rainbow trout LC50 = 130-132 ppm  
 Daphnid LC50 = 28-121 ppm  
 Daphnid chronic MATC > 1.2 ppm, < 2.7 ppm  
 Fathead minnow chronic MATC > 9.1 ppm

Formulated product testing with Ridomil 2E provides the following values:

Bluegill LC50 = 27 ppm  
 Rainbow trout LC50 = 18.4 ppm  
 Daphnid LC50 = 12.5 ppm

These values indicate that the formulated fungicide is more toxic to aquatic organisms than the technical. In either case, metalaxyl is no more than slightly toxic to freshwater organisms. Even assuming a hypothetical "worst case" situation involving direct application to a 6-ft. deep pond, aquatic EEC would be only 30.6 ppb. This value is well below any acute or chronic hazard trigger for freshwater organisms. Thus, hazard to freshwater nontarget organisms is not anticipated from the proposed use.

### Nontarget Plants

The potential exists for fungicides, depending on solubility, to adversely affect algae following applications to terrestrial sites. The water solubility of metalaxyl is 7100 ppm at 20 degrees C., and the product is likely to move in runoff water. Consequently, a Tier I aquatic plant growth study using Selenastrum capricornutum is required.

#### 101.3 Endangered Species Considerations

Hazard to endangered species is not anticipated from the proposed use of metalaxyl on hops. Due to the very low toxicity of this pesticide to nontargets, residues resulting from proposed use will not exceed any hazard triggers for endangered species.

#### 101.4 Adequacy of Toxicity Data

The existing database is adequate to assess hazards to nontargets under the proposed amendment, with the exception of nontarget plants.

101.5 Adequacy of Labeling


The following statement should be on the label of the end use product:

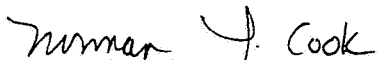
"Do not apply directly to water or wetlands (swamps, bogs, marshes, and potholes). Do not contaminate water when disposing of equipment washwater or rinsate."

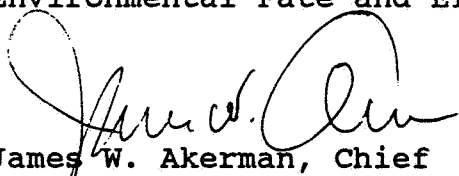
103 Conclusions

EEB has reviewed the proposed label amendment to expand use of Ridomil 2E on hops. Proposed use should not present a hazard to nontarget organisms. No hazard to endangered species is anticipated under the proposed use.

As noted above, a Tier I aquatic plant growth study using Selenastrum capricornutum is required.

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