250501
Record No.

Review No.
2
128804
Shaughnessey No.

EEB REVIEW

DATE: IN 8.31.89 OUT 9-11-89

FILE OR REG. NO. 89-FL-20

PETITION OR EXP. NO.

DATE OF SUBMISSION 8.09.89

DATE RECEIVED BY EFED 8.29.89

RD REQUESTED COMPLETION DATA 9.13.89

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RD ACTION CODE/TYPE OF REVIEW 511

TYPE PRODUCTS(S): I, D, H, F, N, R, S Miticide

DATA ACCESSION NO(S).

PRODUCT MANAGER NO. D. Stubbs (41)

PRODUCT NAME(S) Abamectin (Agri-Mek 0.15 EC)

COMPANY NAME State of Florida

SUBMISSION PURPOSE Proposed Section 18 for use on strawberries

SHAUGHNESSEY NO.	CHEMICAL AND FORMULATION	% A.I.
	Avermectin	

ECOLOGICAL EFFECTS BRANCH REVIEW

100.1 SUBMISSION PURPOSE AND PESTICIDE USE

The State of Florida has requested an emergency exemption under Section 18 of FIFRA for the use of avermectin to control spider mites in strawberries. It is proposed to treat a maximum of 5400 acres in west central Florida in Hillsborough, Pasco, Manatee and Polk counties. The exemption is requested through July 31, 1990.

100.2 FORMULATION INFORMATION (excerpted from label)

Merck and Co., Agri-Mek 0.15 EC Insecticide/Miticide (EPA Reg. No. 618-98)

Active Ingredients:
Avermectin B1 (a mixture of avermectins containing at least 80% avermectin B1a and 20% or less avermectin B1b)..... 2.0%
Inerts:..... 98.0%
Containing 0.15 lb. Avermectin B1 per gallon

100.3 APPLICATION METHODS, DIRECTIONS, RATES (excerpted from submission request)

An application rate of 0.02 lb. ai/acre of avermectin is proposed (equivalent to 16 fluid oz. of product per acre.) There will be a maximum of four applications per growing season. The product label allows ten applications at seven day intervals. Application will be made with conventional ground equipment.

100.4 TARGET ORGANISMS

Two-spotted spider mites (Tetranychus urticae.)

101.0 HAZARD ASSESSMENT

101.1 TERRESTRIAL SPECIES

A summary of the known toxicity and environmental fate information can be found in a previous review by D. Rieder (4/11/89.) If avermectin is applied at the rate of 0.02 lb. ai/ac, the following residues (ppm) are expected to occur on terrestrial food items immediately after treatment (Hoerger and Kenaga,1972.)

	Short Grass	Long Grass	Leafy Crops	Insects Forage	Seed Pods	Fruit
Maximum	4.8	2.2	2.5	1.2	0.24	0.14
Typical	2.5	1.8	0.7	0.7	0.06	0.03

These residue levels do not exceed the lowest avian dietary

LC50 of 383 ppm nor the avian reproductive NOEL of 12 ppm. Therefore, this exemption poses no hazard to non-endangered birds.

C. Moulton (Record # 248727, 8/10/89) determined that typical residue levels resulting from the use of avermectin at 0.02 lb. ai/acre would exceed the LC50 for weanling meadow voles and reproductive NOEL's for small herbivores, omnivores and insectivores but there is no known significant use of strawberries by wildlife (Florida Freshwater Fish and Game Dept.) and this would have little impact on populations of non-endangered species in the target area.

101.2 AQUATIC SPECIES

Florida strawberry fields tend to be flat and irrigation is generally required during the growing season (U.S.D.A. Farmers Bulletin #2246). This, coupled with low solubility of avermectin (7.8 ppb), would result in minimal transport by runoff (1%). If we assume a pond six feet deep with a surface area of one acre and a watershed of ten acres the expected avermectin concentrations due to runoff would be 0.122 ppb (10 acres x 0.02 lb. ai/ac x 0.01 x 61 ppb = 0.122 ppb.) This is less than the LC50 for shrimp, oysters, and Daphnia. It does not exceed the lowest fish LC50 (rainbow trout, 3.2 ppb) but does exceed the Daphnia magna chronic NOEL of 0.03 ppb and the mysid shrimp MATC of 0.0035 ppb.

This comparison of exposure levels to chronic effect levels might represent a localized risk to aquatic invertebrates but, because the area proposed for avermectin application (5000 acres) represents less than 0.2 % of the total land area of the four counties involved, the impact is expected to be minimal.

The State of Florida requests approval for a maximum of four applications per growing season (November - June) but does not specify an application interval. Even if we assume that it will be used at the shortest label-approved application interval of seven days, there should be no problem with buildup in adjacent aquatic ecosystems because the half-life of avermectin in water is approximately 12 hours. Again, the impact of this proposal should be minimal to non-target aquatic species.

101.3 ENDANGERED SPECIES CONSIDERATION

No endangered small mammals or invertebrates are found in the affected counties. This exemption would not be hazardous to endangered species.

101.4 ADEQUACY OF THE TOXICITY DATA

The available toxicity database was adequate to conduct a hazard assessment of the emergency exemption request.

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101.5 ADEQUACY OF LABELING

EEB is providing the following statements for possible incorporation into supplemental labeling.

"This pesticide is toxic to fish and aquatic invertebrates. Do not apply directly to water or wetlands (swamps, bogs, marshes and potholes.) Drift and runoff may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwater or rinsate."

102 CONCLUSIONS

EEB concludes that the emergency exemption request by the State of Florida has little potential for risk to non-target species.

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