12/9/93

DP Barcode : D192285
PC Code No :122804
EEB Out : ___

To: George LaRocca, PM13
Product Manager
Special Review and Reregistration Division (H7508W)

From: Anthony F. Maciorowski, Chief
Ecological Effects Branch/EFED (H7507C)

Attached, please find the EEB review of...

Reg./File # : 000618-00097
Chemical Name : Avermectin
Type Product : Insecticide
Product Name : AGRI-MECK 0.15C
Company Name : Merck & Co.
Purpose : Section 3 Registration

Action Code : 320 Date Due : ___
Reviewer : Rexrode Date In EEB: 5/12/93

EEB Guideline/MRID Summary Table: The review in this package contains an evaluation of the following:

GDLN NO	MRID NO	CAT	GDLN NO	MRID NO	CAT	GDLN NO	MRID NO	CAT
71-1(A)			72-2(A)			72-7(A)		
71-1(B)			72-2(B)			72-7(B)		
71-2(A)			72-3(A)			122-1(A)		
71-2(B)			72-3(B)			122-1(B)		
1-3			72-3(C)			122-2		
71-4(A)			72-3(D)			123-1(A)		
71-4(B)			72-3(E)			123-1(B)		
71-5(A)			72-3(F)			123-2		
71-5(B)			72-4(A)			124-1		
72-1(A)			72-4(B)			124-2		
72-1(B)			72-5			141-1		
72-1(C)			72-6			141-2		
72-1(D)						141-5		

Y=Acceptable (Study satisfied Guideline)/Concur
P=Partial (Study partially fulfilled Guideline but additional information is needed
S=Supplemental (Study provided useful information but Guideline was not satisfied)
N=Unacceptable (Study was rejected)/Nonconcur

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

MEMORANDUM: D192285

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

SUBJECT: Section 3 registration for use of avermectin on strawberries, tomatoes, celery and lettuce.

FROM: Anthony F. Maciorowski, Chief
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

THRU: Henry Jacoby, Chief
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (H7507C)

TO: George Larocca, PM 13
Registration Division

The Ecological Effects Branch (EEB) has received a request for a Section 3 Registration on strawberries, tomatoes, celery and lettuce (D192285) in Florida, California, Texas and Arizona. Previous reviews of avermectin data by EEB, have concluded that an aquatic risk to invertebrates and fish appeared to be high as a result of possible crop runoff and/or drift. The previous runoff model output from the Environmental Fate and Ground Water Branch (EFGWB) (1990) showed that avermectin was expected to persist at 0.1-0.3 ug/L for several days in a pond littoral compartment (Pond-Stream-Stream) and decrease to 0.05 ug/L after 21 days (EXAMS II). Since aquatic toxicity values for fish and invertebrates ranged from 0.02-9.6 ug/L in acute testing and 0.0035-0.96 in chronic studies, EEB concluded that the pesticide residue values could pose a threat to aquatic organisms, especially early life stages.

In an effort to decrease this potential for avermectin exposure to aquatic organisms, to levels that are less than those previously estimated by EFGWB, the registrant (Merck & Co.) has submitted a letter to EPA that proposes certain restrictions for these pending uses. These mitigating factors include 1) reduction in the amount of product used per season from 160 fl. oz. to 48 fl. oz., 2) ground boom application to minimize drift and 3) a reduction in the number of applications from ten to three. EFGWB has evaluated this new information and states that with the described mitigation plan "avermectin B_{1a} may be used (on

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these crops) without causing excessive loading by runoff or drift to bodies of water." This conclusion is based on a quantitative exposure assessment from EFGWB that shows that avermectin runoff to aquatic habitats in California, Texas and Arizona is not likely because of the agricultural practices and low rainfall. However, this does not apply to Florida. EFGWB has reviewed a monitoring study (Florida) that shows the possiblity of avermectin transport by runoff. Because of this exposure potential, EEB will evaluate this Florida use after EFGWB has completed an evaluation of an appropriate exposure model.

EEB has reviewed the resulting response from EFGWB, as well as, information on crop acreage and contends that the use of avermectin on the above listed crops in Texas, California and Arizona should pose negligible exposure to aquatic organisms. However, the uses projected for Florida pose the potential for runoff into an aquatic system and must be evaluated more closely by EFGWB and EEB (Rexrode 305-5578).

NOTE TO PM

RE: Section 3 registration of avermectin on strawberries, tomatoes, celery and lettuce.

In this memo, the EEB is concluding that there is expected to be minimal risk to aquatic organisms from use of avermectin on strawberries, tomatoes, celery and lettuce in California, Texas, and Arizona. This applies only to those three states, and not other areas where strawberries, tomatoes, celery and lettuce may be grown.

This is based on a quantitative exposure assessment from EFGWB where they indicated that because of agricultural practices and low rainfall in California, Texas and Arizona, virtually no transport of avermectin to aquatic habitats via runoff was expected.

Note that this conclusion differs from the conclusion of the EFGWB memo which included Florida in the areas where runoff was expected to be negligible. A recent monitoring study EFGWB is reviewing indicates that in spite of the soil types and topography of Florida, transport of avermectin by runoff is possible and should be modeled. The EEB will evaluate risk to aquatic organisms from use of avermectin on strawberries, tomatoes, celery and lettuce in Florida when the model results have been received.

Dana Rucker

12-9-93