201063 - RECORD NUMBER

SHAUGHNESSEY NO. 100601

REVIEW NO.

EEB REVIEW

DATE: IN 8-13-87 OUT 8-28-87

FILE OR REG. NO 87-OR-24

PETITION OR EXP. NO.

DATE OF SUBMISSION 7-31-87

DATE RECEIVED BY HED 8-11-87

RD REQUESTED COMPLETION DATE 8-24-87

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RD ACTION CODE/TYPE OF REVIEW 510

TYPE PRODUCT(S) : I, D, H, F, N, R, S INSECTICIDE / NEMATACIDE

DATA ACCESSION NO(S).

PRODUCT MANAGER NO. D.STUBBS (41)

PRODUCT NAME(S) NEMACUR 3EC

COMPANY NAME OREGON DEPT. OF AGRICULTURE

SUBMISSION PURPOSE PROPOSED SEC§18 FOR USE OF NEMACUR (FENAMIPHOS) ON BLUEBERRIES

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

7 pages

EEB REVIEW

Fenamiphos

100.0 Submission Purpose and Label Information

100.1 Submission Purpose and Pesticide Use

Emergency exemption request by the State of Oregon Dept. of Agriculture for the use of Nemacur on blueberries to control nematode pests.

100.2 Formulation Information

Nemacur 3 EC (EPA Reg. No. 3125-283)

Fenamiphos.....	35%
Inerts.....	65%
	100.0%

100.3 Application, Methods, Rates, etc.,

Rate: 2-4 gallons of Nemacur 3 EC (6-12 lbs ai/A)
Application: Apply as a broadcast spray to established plantings during the period of August 30, 1987 through November 30, 1987, or February 1 through March 15, 1987, when periods of rainfall can be expected. Apply in sufficient water to ensure uniform distribution (20-100 gallons of water/acre). A minimum of two inches of water (irrigation and/or rainfall) should be received following application. Direct the spray to the soil surface and the base of the plant. Do not apply within 94 days of harvest. Do not apply more than once in 12 months. Use the high rates in fields with high fields with high populations (greater than 1200 Pratylenchus per quart of soil) or in fields having a history of serious nematode damage.
Treatment criteria: If a soil or root nematode tests indicate nematode counts greater than 700 Pratylenchus (lesion) or 500 Xiphinema (dagger) per quart of soil during September-March. Lower counts of Pratylenchus in a combination with a diagnosis of Phytophthora root rot complex would also require treatment.
Affected counties: Washington, Multnomah, Marion, Clackamas, Linn, Benton, Clatsop, Columbia, Coos, Curry, Jackson, Josephine, Hood River, Lincoln, Tillamook, Polk, Lane, Douglas, and Yamhill in 660 acres in unspecified locations with a maximum of 880 pounds of active ingredient or 2,640 gallons of Nemacur 3 EC.

100.5 Precautionary Labeling

No labeling was available for review.

100.6 Target Organisms

Pratylenchus (lesion) and Xiphinema (dagger) nematodes

101. Hazard Assessment

EEB's Science Chapter for the Fenamiphos Registration Standard was completed February 13, 1987. The ecological effects profile characterizes femaniphos as very highly toxic to upland avian species (bobwhite quail LC_{50}=38 ppm) and highly toxic to the waterfowl species (mallard duck LC_{50}=316 ppm). Reproductive studies indicate that fenamiphos NOEL for waterfowl and upland game birds at 8 and 2 ppm, respectively.
Aquatic toxicity data indicates that fenamiphos is very highly toxic to both warmwater (bluegill LC_{50}= 9.6 ppb) and coldwater (rainbow trout LC_{50}=72.1 ppb) fish.

101.1 Likelihood of Adverse Effects to Nontarget Organisms

The maximum application rate of 12 lbs ai/A would produce terrestrial EECs ranging from 2880 ppm (shortrange grass) to 84 ppm (fruit). On avian favored food items such as forage/small insects, the levels would be 696 ppm. These levels are obviously of acute and chronic concern because nonendangered (EEC>1/2 LC_{50}) and endangered (EEC>1/20 LC_{50}) species unacceptable risk criteria. Restricted Use Criteria (EEC>1/10 LC_{50}) are also exceeded but fenamiphos is already classified as a restricted use pesticide. However, the method of application prescribes direct spray application to the base of the blueberry plant and washed into the soil by rainfall or irrigation following application. Therefore, the hazards to avian species is mitigated, although birds feeding in the treated area can still potentially be at risk. Although it is difficult to determine the exact EECs resulting from this practice, this emergency exemption action should minimally address endangered species concerns.

Exposure to aquatic organisms would be possible through runoff after rainfall and/or irrigation. Given that the pesticide is highly mobile in soils, a minimum of 5% can be expected to runoff producing an aquatic EEC greater than 366 ppb (see attachment). This level can be expected to produce acute effects to fish because it exceeds LC_{50} values. This conclusion is comparable to the previous EXAMS II findings derived from a tobacco field simulation at a higher rate with similiar application methods.

Because of the risk to both nonendangered and endangered fish species, a 20 yard buffer zone would be advantageous to employ in this use situation in order to mitigate the potential for adverse impact.
The lack of aquatic invertebrate toxicity data does not permit a hazard assessment for aquatic invertebrates.

101.2 Endangered Species Considerations

As indicated, there is concern for endangered avian and aquatic species that could be jeopardized by the exposure in this emergency exemption pesticide use in Oregon.

EEB's files indicate the following affected species and exemption action-associated counties:

Bald eagle - Clackamas, Clatsop, Columbia, Coos, Jackson, Josephine, Linn, Lincoln, Curry, Douglas, Marion, Tillamook, and Lane;
Aleutian Canada Goose - unspecified county.
California Condor - all remaining species are now in captivity, subject to breeding programs.
Oregon silverspot butterfly - Clatsop, Lane, and Lincoln.
Borax lake chub - unspecified county.
Hutton chi chub - unspecified county.
Foskett speckled dace - unspecified county.
Warner sucker - unspecified county.

FWS OES was contacted to discuss endangered species concerns (see attachment). Their field office indicated that the emergency use would not jeopardize the endangered species on the basis of habits, habitat locations, proximity of blueberry fields, and the application method of the pesticide. The FWS requested that they be contacted prior to the pesticide application so that they can be advised and aware of the use situation.

101.3 Adequacy of Toxicity Data

The toxicity database is inadequate for making a complete hazard assessment. The Registration Standard will address the data gaps and associated requirements.

101.5 Adequacy of Labeling

The labeling for this product and emergency exemption was not available for review. The labeling for this emergency use must bear the language prescribed by the Fenamiphos Registration Standard: "This pesticide is toxic to fish and wildlife. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not apply directly to water or

wetlands (swamps, bogs, marshes, and potholes). Do not contaminate water by cleaning of equipment or disposal of wastes.

102.0 Conclusions

EEB conditionally concurs with the emergency request by the State of Oregon for the use of fenamiphos on blueberries. The following are the stipulations of EEB's concurrence:

The USFWS OES Field Office (Diana Wong: FTS 429-6179) must be contacted prior to the pesticide application;

A 20 yard buffer zone adjacent to any aquatic environments must be utilized to mitigate any runoff that would be capable of producing adverse impact to fish;

Before this use pattern is considered for registration or future emergency exemption request, the data requirements of the Fenamiphos Registration Standard must be addressed.

John Noles, Biologist
Ecological Effects Branch
Hazard Evaluation Division (TS-769C)

John Noles 8/26/87

Otto Gutenson, Acting Section Head IV
Ecological Effects Branch
Hazard Evaluation Division (TS-769C)

8/27/87

Henry T. Craven, Acting Branch Chief
Ecological Effects Branch
Hazard Evaluation Division (TS-769C)

Henry T. Craven 8/28/87

RECORD OF COMMUNICATION

SUBJECT: SEC 18 BY THE STATE OF OREGON TO USE NEMACUR (FENAMIPHOS) ON BLUEBERRIES.

DATE: 8/24 - 8/26/87

FROM: JOHN NOLES, EEB

TO: USFWS OES: PORTLAND, OREGON FIELD OFFICE
DIANA WONG: FTS 429-6179

EEB'S HAZARD ASSESSMENT OF THE ABOVE REFERRED TO EMERGENCY EXEMPTION REQUEST INDICATED THAT ENDANGERED SPECIES CRITERIA FOR UNACCEPTABLE RISK ARE EXCEEDED UNDER THE PROPOSED PESTICIDE USE. OES WAS CONTACTED TO NOTIFY THEM OF THE SITUATION. OES INDICATED LITTLE CONCERN FOR EXPOSURE ON THE BASIS THAT THE ENDANGERED SPECIES WERE NOT ASSOCIATED WITH BLUEBERRY FIELDS. AS A PRECAUTIONARY MEASURE, OES REQUESTED THAT THEY BE CONTACTED BEFORE THE PESTICIDE APPLICATIONS BEGIN SO THEY CAN FURTHER ASSESS THE SITUATION WHICH PRESENTLY IS LIMITED BY THE TIMEFRAME OF OPP'S REVIEW AND APPROVAL.

Attachment A

EEC CALCULATION SHEET

I. For foliar application

A. Runoff

12 lbs x 0.05 (% runoff) x 10 (A) (from 10 A. drainage basin) = 6 lbs (total runoff)

EEC of 1 lb a.i. direct application to 1 A. pond 6-foot deep = 61 ppb.

Therefore, EEC = 61 ppb x 6 (lbs) (total runoff) = 366 ppb

II. For aerial application

A. Runoff

_____ lbs x 0.6 (appli. efficiency) x 0.0 (% runoff) 10 (A) (from 10 A. drainage basin) = _____ lbs (total runoff)

B. Drift

_____ lbs x 0.0 (% runoff) = _____ lbs (total runoff)

Total loading = _____ lb (runoff) + _____ lb (drift) = _____ lbs

Therefore, EEC = 61 ppb x _____ lbs (total runoff) = _____ ppb.