098301

Date Out EFB: AUG 06 1981

PROPRIETARY

To: Product Manager 41 Stubbs
TS-767

From: Dr. Willa Garner
Chief, Review Section No. 1
Environmental Fate Branch

Attached please find the environmental fate review of:

Reg./File No.: 81-NJ-15

Chemical: Aldicarb

Type Product: Insecticide

Product Name: Temik 15G

Company Name: New Jersey Department of Environmental Protection

Submission Purpose: Review for possible groundwater contamination

ZBB Code: other

ACTION CODE: 510

Date in: 7/20/81

EFB # 893

Date Completed: AUG 06 1981

TAIS (level II)	Days
51	2

Deferrals To:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

1.0 INTRODUCTION

The New Jersey Department of Environmental Protection is requesting a Section 18 emergency exemption allowing the 1981 use of aldicarb on eggplant grown in hot-houses, 2 weeks prior to transplanting for the purpose of combatting the Colorado potato beetle in the field (File No. 81-NJ-15, EFB # 893).

2.0 BACKGROUNO

Aldicarb [2-methyl-2-(methylthio) propionaldehyd O-(methylcarbomyl) oximes] is a registered insecticide/nematicide that is currently used on several crops, mainly oranges, peanut, potatoes, cotton, sugarcane, dry beans sugarbeets, and sweet potatoes at rates of up to 10 lbs ai/A/year (Reg. No. 264-330 and 331). The chemical in its granular formulation can be applied and incorporated 2-3 inches below the surface. Aldicarb is stable to hydrolysis at pH 5-7, however, the reaction at pH $\geq$8 is much faster with a half-life of 8 days. Considering all modes of environmental dissipation, the half-lives for aldicarb and its two major metabolites, aldicarb sufloxide and aldicarb sulfone are 14 days, 60-90 days and >90 days respectively.

Aldicarb has high water solubility (6000 ppm), and very low partition coefficient (K_d <4). It leaches into the soil and contaminates ground water. The 1980 ground water monitoring data showed aldicarb contamination to the ground water in New York, Maine, Wisconsin, and Missouri. It is very likely that it will show in other areas as well. For these reasons, decisions on aldicarb uses should be handled on a case-by-case basis.

3.0 PROPOSED PROGRAM

The New Jersey Department of Environmental Protection is proposing use of aldicarb 15% G at 0.4 to 0.8 gm/pot of eggplant (4"x4" surface) in what was referred to as hot-house application. Seedlings will be transplanted in the field 2 weeks after application. The Oepartment is proposing treating enough seedlings to plant 1000 acres in the field. For this, the Oepartment is requesting 7533.3 pounds of aldicarb 15G, equivalent to 1130 lbs ai for use in the following counties: Atlantic, Burlington, Camden, Cumberland, Cape May, Gloucester, Monmouth and Salem. Use is scheduled to begin April 15 and Terminates on June, 1981.

4.0 JUSTIFICATIONS

According to the New Jersey Oepartment of Environmental Protection, the Colorado potato beetle is resistant to all insecticides registered on eggplant. They added, no soil systemic insecticide is labeled to-date for use on eggplant. After transplanting, it is expected that aldicarb treatment should provide from 44 to 68 days of protection against overwintered beetles.

5.0 DISCUSSION OF DATA

5.1 No environmental chemistry or ground water monitoring data were submitted from New Jersey.

5.2 According to the New Jersey Department of Environmental Protection, residue studies conducted under IR-4 project in 1979 and 1980, showed no detectable aldicarb residues in the fruit at first harvest.

5.3 A PESTAN leaching model was carried out for a typical eggplant field in New Jersey. The input and output parameters are filed in the EFB. Predictions obtained showed that aldicarb would reach a concentration of 3.5×10^{-18} ppb in the 350 cm substratum below the soil surface, 700 days after application. Even if we assume that this concentration is actually in ground water, it is quite far below the SNARL value of 10 ppb for aldicarb.

6.0 RECOMMENDATIONS

We concur with the proposed Section 18 emergency exemption. Aldicarb uses, as proposed, should not pose hazards to ground water in New Jersey for the following reasons:

(a) Low aldicarb dosage of 1.3 lbs ai/A/year.

(b) Use will be to actively growing seedlings with extensive root system,

(c) Use is only temporary and will be discontinued after the emergency.

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