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[A] [W] [J]

Date Out EFB: MAY 19 1981

To: Product Manager Stubbs (PM 41)
TS-767

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

Attached please find the environmental fate review of:

Reg./File No.: 81-AZ-04

Chemical: Aldicarb

Type Product: Insecticide

Product Name: Temik

Company Name:

Submission Purpose: Sec. 18 for use on guayule seed

ZBB Code: Sec. 18

ACTION CODE: 515

Date in: 5/8/81

EFB # 836

Date Completed: MAY 19 1981

TAIS (level II)

Days

Deferrals To:

51

2

Ecological Effects Branch

Residue Chemistry Branch

Toxicology Branch

1.0 INTRODUCTION

1.1 Purpose

The Arizona Commission of Agriculture and Horticulture is requesting a Section 18 emergency exemption allowing the 1981 use of Prowl herbicide and aldicarb insecticide on Guayule (submission of April 27, 1981).

Guayule is a perennial rubber shrub that will be planted over 110 acres in Casa Grande, Pinal county for the purpose of seed production. The Environmental Fate Branch was asked to comment on the potential problem of ground water contamination with aldicarb.

1.2 Proposed Program

The commission is proposing a preplant incorporated application of Prowl at 0.5-1.0 lb. ai/A for weed control. Prowl was recommended by the Biological and Environmental Consultant Services, Inc. after some testing by the University of Arizona and by New Mexico. Prowl performance was tested against Dacthal, Devrinol, Amiben, Lasso and Treflan. In the insecticide area, aldicarb was recommended because of its systemic action and its effectiveness against a wide range of sucking insects. Aldicarb will be used at 1.0 lb ai/A after transplanting. Proposed uses for Prowl are to begin May 15; whereas, aldicarb will begin June 15, 1981.

1.3 Justification

According to the Arizona Commission of Agriculture, no pesticides are registered for guayule. A 24-C is not justified because there is not enough data to support five years of use. Proposed uses are for the 1981 season only. The commission added that there should be no well-water problems due to the fact that the wells in the Casa Grande area are 300-500 feet below the surface.

2.0 BACKGROUND

Aldicarb [2-methyl-2-(methylthio) propionaldehyde O-(methylcarbomoyl) oximes] is a registered insecticide/nematicide that is currently used on several crops, mainly oranges, peanuts 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 9 is much faster with half-lives dependent upon both temperature and pH. Aldicarb degradation in soils is dependent upon soil properties.

It is most stable in soils, exhibiting coarse texture, low pH, and low moisture. The compound is readily displaced by water and is carried deep into the soil matrix during periods of rain or irrigation. Annual rainfall averages in the proposed use area 3 to 7 inches. Average temperature is 70-72 °F. The soils are sandy loams which are moderately permeable, moderate to strongly alkaline, deep, and well drained.

The 1980 field monitoring data from Maricopa and Yuma counties, Arizona showed no detectable residues in wells 20, 375, and 450 feet deep. In only one well, 18 feet deep, aldicarb residues of 6 ppb were detected. These residues are below the Federal maximum permissible level of 10 ppb. This well and the 20 feet deep well were adjacent to cotton fields which were treated with aldicarb at 2.2 lbs ai/A for 10 years.

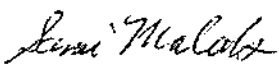
3.0 DISCUSSION OF DATA

Except for comparability efficacy testing referred to above under 1.2, no data of any kind were submitted. It should be noted, however, that both Prowl and Aldicarb are registered and their fate in the environment is known.

4.0 RECOMMENDATIONS

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

- (a) Low aldicarb dosage of 1 lb ai/A/year.
- (b) Use will be to transplanted perennial shrubs with extensive root system.
- (c) Water table in use areas is 300-500 feet below the surface.
- (d) The recharge rate is negligible.


Sami Malak, Ph.D.
Review Section, #1
Environmental Fate Branch
Hazard Evaluation Division