

Shaughnessy Number: 103801

Date Out of EFGWB: APR 20 1989

TO: Hoyt L. Jamerson
Registration Support Branch
Registration Division (H7505C)

FROM: Patrick Holden, Chief *C. E. Holden*
Ground-Water Section
Environmental Fate & Ground-Water Branch/EFED (H7507C)

THRU: Henry Jacoby, Chief (Acting) *Henry Jacoby*
Environmental Fate & Ground-Water Branch/EFED (H7507C)

Attached, please find the EFGWB review of:

Reg./File #: _____

Chemical Name: Oxamyl

Type Product: Insecticide-Nematicide

Company Name: E.I. DuPont de Nemours

Purpose: Evaluate potential for ground-water contamination from proposed use of oxamyl on non-bell peppers.

Date Received: 3/9/89 ACTION CODE: 202

Date Completed: 4/19/89 EFGWB #(s): 90140

Monitoring study requested: X Total Review Time: 1.7 days

Monitoring study voluntarily: ___

Deferrals To: ___ Ecological Effects Branch
___ Science Integration & Policy Staff, EFED
___ Non-Dietary Exposure Branch, HED
___ Dietary Exposure Branch, HED
___ Toxicology Branch, HED

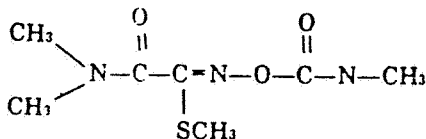
1. CHEMICAL:

Chemical name: Methyl N,N'-dimethyl-N-[(methylcarbamoyl)oxyl]-1-thiooxaminidate

Common name: Oxamyl

Trade name: Vydate

Structure:



2. TEST MATERIAL:

Not Applicable.

3. STUDY/ACTION TYPE:

Evaluate potential for ground-water contamination from proposed use of oxamyl on non-bell peppers.

4. STUDY IDENTIFICATION:

Title(s): (1) Amendment to Pesticide Petition No. 4E3048— A tolerance for Oxamyl for use in non-bell pepper production. Volume 1 of 2. Interregional Research Project No. 4.

(2) Petition Proposing a Tolerance for Oxamyl for use in Bell Pepper Production. Interregional Research Project No. 4.

Author: Rutgers University. The State of New Jersey, New Brunswick, NJ 08903.

Submitted by: E.I. DuPont de Nemours

Identifying No.: 4E3048

Action Code: 202

Accession Number: 408175-00

Record Number: 229644

Date Sent to EFED: 11-14-88

5. REVIEWED BY:

Elizabeth Behl
Hydrogeologist Consultant to
OPP/EFED/EFGB/Ground-Water Section

Signature: Elizabeth Behl

Date: 4/19/89

6. APPROVED BY:

Patrick W. Holden
Chief
OPP/EFED/EFGB/Ground-Water Section

Signature: C. Holden for

Date: 4/20/89

7. CONCLUSIONS:

DuPont has submitted a request to amend the oxamyl label to include use on non-bell peppers. The objective of this review is to assess the potential impact of this new use on ground-water quality. No information has been submitted relevant to typical soils or locations in which peppers are grown. It is important to note that a ground-water monitoring study of oxamyl has been required by EPA in response to the Agency's concerns about the mobility of this pesticide and its potential to contaminate ground water.

The ground-water advisory specifically states that oxamyl should "not be used where the water table is close to the surface and where the soils are very permeable i.e. well drained soils such as loamy sands." (Guidance for the Reregistration of Pesticide Products Containing Oxamyl as the Active Ingredient, June 1987). Based on this statement oxamyl use will be prohibited on some agricultural land in pepper producing areas.

Agronomic conditions for non-bell peppers are similar to those for bell peppers (i.e. soil, climate, irrigation and tillage practices). Common agricultural areas for non-bell peppers are the same as those for bell peppers. Proposed application rates for non-bell peppers are the same as those for bell peppers. Based on this information, there is no expected difference in the fate of oxamyl when applied to bell or non-bell peppers.

8. RECOMMENDATIONS:

1. Use of oxamyl on bell peppers, which are typically grown in sandy well-drained soils, has been approved previously. The proposed use is substantially similar to that approved for bell peppers; therefore, environmental fate concerns are expected to be the same.
2. The Ground Water Section reserves the right to evaluate the impact on ground-water quality of oxamyl applications to peppers after the results of the small-scale retrospective ground-water monitoring study have been submitted to EPA. The registrant should be encouraged to expedite this study.
3. Oxamyl is not registered for use on bell peppers in California. Although the rationale for this restriction could not be determined, because of similarities between these two crops non-bell peppers should probably have the same restriction applied.

9. BACKGROUND:

Vydate (active ingredient oxamyl) is a general purpose systemic insecticide, acaricide, and nematicide registered for use on terrestrial food crops (predominately apples, potatoes, and tomatoes), terrestrial nonfood crops, greenhouse, and commercial indoor crops. Application rates on terrestrial food crops range from 0.125 to 1.0 # ai/acre for foliar

applications, and from 1.0 to 2.0 # ai/acre for soil applications. Application rates on ornamentals range from 1.0 to 2.0 # ai/acre for foliar applications, and from 6.0 to 20.0 # ai/acre for soil applications. Oxamyl may be ground or aerially applied on leaves by spray, and on soils (primarily pre-plant) by incorporation, broadcast, band treatment, soil mix, liquid drench, and root dip.

As a result of normal agricultural use, oxamyl has been found in ground water in five states and detections have been confirmed at five locations in Florida, Massachusetts, New York, and Rhode Island (Pesticides in Ground Water Database, as of 4/11/89). Concentrations as high as 395 ppb have been detected in ground water. Outdoor application of products containing oxamyl is prohibited in Suffolk and Nassau Counties in New York as a result of ground-water contamination. Based on results of studies submitted for the Ground-Water-Data-Call-In (GWDCI), EPA determined that the registrant should conduct a small scale retrospective ground-water monitoring study to determine if oxamyl and its main degradate, oximino compound, are affecting ground-water quality (EAB #70331; 10/29/87, and memo 10/21/87).

10. DISCUSSION

Because information on soils and agronomic practices has not been submitted for review at this time, it is difficult to fully assess the potential impact on ground-water resources of oxamyl application to non-bell peppers. It is important to note that a ground-water monitoring study of oxamyl has been required by EPA in response to the Agency's concerns about the mobility of this pesticide. This study has not yet been initiated by DuPont. The need for such a study is underscored by this review, as it would provide more conclusive information than is currently available about the leaching potential of oxamyl.

Non-bell peppers are typically grown in sandy, well-drained soils, similar to those in which bell peppers are cultivated. The most common agricultural area of hot pepper production is the Southwestern U.S. (NM, CA, TX, AZ). Pimentos are typically grown in the Southeastern U.S. (TN, GA, AL). These areas generally coincide with typical production areas of bell peppers (FL, CA, TX, NC, NJ, NM) (U.S. Census of Agriculture, 1982).

Oxamyl is stable to hydrolysis under acidic conditions, but hydrolysis is the major degradative pathway at pH 7 and 9. Degradation is more rapid in wet soils than dry soils. Oxamyl is highly toxic to birds, bees, and mammals, and has been placed in Toxicity Category I (Guidance for the Reregistration of Pesticide Products Containing Oxamyl as the Active Ingredient, June 1987). Most common degradates of concern are oxime, oxamhydroxamic acid, and oxamic acid.

Soils in arid areas (where the majority of non-bell peppers are grown) are relatively alkaline, which results in a more rapid breakdown of oxamyl. A leaching study, accepted by EPA, done on aged and unaged soils reported values of the distribution coefficient (Kd) ranging from 0.05 for sandy loam soils to 0.52 for silt loam soils. This indicates that both oxamyl

and its degradates (oxamohydroxamic acid and oxamic acid) are very mobile and readily leach (EAB #s 80817, 80818; 8/18/88).

Application rates on bell peppers range from 0.5 to 1.0 lb/acre for foliar applications and transplant water treatment. Proposed application rates for non-bell peppers are the same.