US EPA ARCHIVE DOCUMENT

Shaughnessy No: 113201

Date Out of EAB: JUN 21 1985

To: Donald Stubbs
Product Manager 41
Registration Division (TS-767)

From: Samuel M. Creeger, Chief
Environmental Chemistry Review Section 1
Exposure Assessment Branch
Hazard Evaluation Division TS-769c

COPY

Attached, please find the EAB review of:

Reg./File # : 85-WA-06

Chemical Name: Vinclozolin

Type Product : Fungicide

Product Name : RONILAN

Company Name : State of Washington

Purpose : Emergency exemption for use on lima beans.

Action Code : 510

EAB #(s) : 5636

Date Received : 5/30/85

TAIS Code: 21

Date Completed: 6/17/85

Reviewing Time: 1.0 day

Deferrals to:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

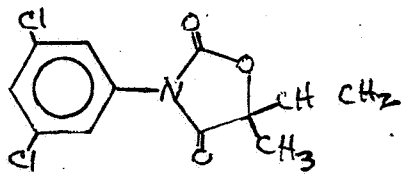
_____ Toxicology Branch

1. CHEMICAL: Common Name- vinclozolin

Chemical Name- 3-(3,5-dichlorophenyl)-5-ethenyl-methyl-2,4-oxazolidinedione

Trade Name- Ronilan 50W

Chemical Structure-



2. TEST MATERIAL: Not applicable. No new data were submitted.

3. STUDY/ACTION TYPE: Request by the Department of Agriculture of the State of Washington for an Emergency Exemption (Section 18) to use vinclozolin to control white mold (Scerotinia sclerotiorum) on lima beans in Benton, Franklin, and Walla Walla counties. Two applications of one pound of Ronilan 50W each will be made about 7 to 10 days apart. They expect the maximum treated acreage will be 2,500 acres, giving 2,500 lbs ai maximum used. Supporting information is attached.

4. STUDY IDENTIFICATION: Not applicable. No new data were submitted.

5. REVIEWED BY:

Herbert L. Manning, Ph.D.
Microbiologist
EAB/HED

Signature: Herbert L. Manning
Date: 17 June 1985

6. APPROVED BY:

Samuel M. Creeger
Chief, Section 1
EAB/HED

Signature: Samuel M. Creeger
Date: JUN 21 1985

7. CONCLUSIONS:

The environmental fate data in our files supports the use of this fungicide on lima beans. A brief summary of each of the data requirements is as follows:

- Hydrolysis- half-lives at 25°C and pH 9, 6, and 3 were 12 minutes, 61 hours, and 70 days, respectively.

- Photodegradation(aqueous)- buffered solutions at several pH values from 0 to 5 showed varying degrees of degradation. Greatest stability (near 100%) was at pH 2.0 over 23 days. Sensitized photolysis (1.8% acetone) at pH 2-3 gave half-life of 3.6-3.8 hours.

- Photodegradation(soil)- half-life on loamy sand soil was 19 days.

- Aerobic soil metabolism- half-life in loamy sand at pH 6.8 was 3-7 weeks; half-life in a loam soil at pH 7.4 was 3-4 days.

- Anaerobic soil metabolism- degradation is slower under anaerobic conditions than aerobic.

- Leaching- vinclozolin did not leach in a soil column; aged residues leached weakly.

- Soil field dissipation- Studies in CA, ND, and OR strawberry plots detected residues greater than 0.05 ppm only in the top 12 inches of soil. The ND plot gave a half-life of about one month.

- Rotational crop- an EAB review completed Jan 11, 1983 gave the rotational crop restrictions on the Ronilan label. A copy of this is attached to this review under the heading "Restrictions and Limitations for Strawberries."

- Fish accumulation- Bluegill Sunfish accumulated vinclozolin 100X in edible tissues, 320X in non-edible tissue, and 240X in whole fish. 97-98% depurated after 2 weeks.

8. RECOMMENDATIONS:

The data in EAB files supports the request for an Emergency Exemption (Section 18) to use vinclozolin on lima beans in Washington.

9. BACKGROUND:

A. Introduction

See Section 3 of this review.

B. Directions for Use

See attached information.

10. DISCUSSION OF INDIVIDUAL TESTS OR STUDIES:

A. Study Identification

Not applicable. No new data were submitted.

11. COMPLETION OF ONE-LINER:

No data were submitted.

12. CONFIDENTIAL APPENDIX:

No CBI were submitted.

C. Alan Pettibone
Director

STATE OF WASHINGTON
DEPARTMENT OF AGRICULTURE
406 General Administration Bldg AX-41 • Olympia Washington 98504 • (206) 753-5063

May 17, 1985

CERTIFIED

RECEIVED 5/24/85

Donald Stubbs, Head
Emergency Response Section
Registration Division (TS-767C)
401 M Street Southwest
Washington, DC 20460

RE: Emergency use of vinclozolin (Ronilan), 3-(3,5-dichlorophenyl)-5-ethenyl-methyl-2,4-oxazolidinedione on lima beans

Section 18 of amended FIFRA provides the Administrator may, at his discretion, exempt any state or federal agency from provisions of FIFRA if he determines emergency conditions exist which require such exemptions.

Part 166, Chapter 1, Title 40, Rules and Regulations, provides criteria for emergency exemptions. We are applying for emergency use of Ronilan 50W to control white mold on lima beans. Information requested in 40 CFR 166.3(a) and by policy is as follows:

1. White mold is caused by Sclerotinia, a fungal disease endemic to beans in Washington state. Sclerotia overwinter in the soil and germinate to form apothecia under cover of heavy foliage. They may survive in the soil for several years. They are moved about on plant materials, farm implements and irrigation water. The disease rots pods, beans and stems and foliage. Infection occurs most frequently under moist, cool weather conditions. High humidity under sprinkler irrigation forms favorable conditions for disease development. Virtually all of Washington's lima bean crop is grown under sprinkler irrigation. Because of the ability of the sclerotia to survive several seasons and the multitude of susceptible host species, innoculum is always present.

   The losses from Sclerotinia occur from 1) loss of yield in the field 2) fields unharvested because cost of harvesting was greater than the yield 3) downgrading at processing due to orange coloration caused by the disease in otherwise acceptable beans.

2. The pest to be controlled is white mold/Sclerotinia sclerotiorum.

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3. Benomyl is the material of choice, and widely used, for white mold control; however, resistance to benomyl has been demonstrated in many fungal disease populations on the Pacific coast. Use of benomyl causes problems because Botrytis (grey mold) is also a problem in the fields, and benomyl resistant populations of Botrytis are likely to increase if Sclerotinia populations decrease with use of benomyl. Because of its similarity to benomyl, the same objections exist for thiophanate-methyl (Topsin M). Ziram is known to be ineffective. Research data indicate captan gives virtually no control with two applications.

   Sclerotia persist through 5-year crop rotations, and innoculum from other susceptible crops is always present. There are no varieties available with acceptable levels of resistance.

   The major way of reducing losses is through irrigation water manipulation. Unfortunately, the need for water during the hottest part of the summer is so great that growers cannot stop irrigating for the time necessary to control the disease without loosing an equivalent amount of crop to severe water stress.

4. Ronilan 50W, EPA reg. no. 7969-53, manufactured by BASF Wyandotte Corporation.

5. (i) A maximum of two applications of one pound of Ronilan 50W each should be made approximately seven to ten days apart. We anticipate the maximum treated Washington lima bean acreage will be 2,500 acres. This would lead to a maximum of 5,000 pounds of formulation, or 2,500 pounds a.i. used. We anticipate actual use may be much lower, depending on weather.

   (ii) Benton, Franklin, and Walla Walla Counties.

   (iii) Ground rigs with 40-100 gallons of water/acre, or air.

   (iv) Applications should begin at 5% - 10% of the bloom, between June 15 and September 15, depending on the planting date. The preharvest interval should be 17 days.

   (v) Cannery waste is customarily fed to livestock. For this reason, we also request temporary action levels be established for meat and milk as appropriate. However, if residue data are not available to do this, we request this Section 18 be granted anyway, as the disease problem is severe enough that the industry would be willing to refrain from feeding treated crop residue.

   (vi) BASF has informed us that a bean registration package with residue data has already been submitted to EPA.

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6. Economic benefits and losses:

Lima beans is an exceedingly minor crop in Washington, although it is important to individual growers and to two processors.

1. Production costs per acre:

1981	$382
1982	$396
1983	$430
1984	$448
estimated 1985	$466

2.

	Acreage Harvested	Yield/Acre (lb)
1981	620	3078
1982	2,800	3449
1983	3,225	3303
1984	3,270	2984

3.

	Price/ton	Price $/acre	Crop Value
1981	$324	$499	$ 307,400*
1982	$330	$570	$1,597,700
1983	$331	$547	$1,763,000
1984	$326	$486	$1,586,500

* additional processor entered in 1982

4. Data indicate about 50% control on Ronilan treated fields. With currently registered products only, best estimates indicate rejection of about 4% of the harvested crop for mold by the processor, substantial grade reduction due to disease-caused orange staining of the beans, and an unknown amount of crop left unharvested.

The knowledgeable expert is i: lis Kiel, P.O. Box 818, (1164 Dell Avenue), Walla Walla, Washi: on 99362, phone (509) 525-7890. If you have any questions, pl se contact me at (206) 753-5064.

Sincerely,

Mary Toohey

Mary Martin Toohey, Chief
Registration & Services
Ag Chemical Division

MMT/lm

cc: Bob Mitchell, Jon Hel r, Dick Maxwell, Clarke Brown, Melinda Schluter

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Restrictions and Limitations for Strawberries

Do not apply more than a total of 35 pounds of Ronilan per acre in one season.

Ronilan does not control rhizopus rot of strawberries in the field or in storage. There may be a competitive relationship between botrytis and rhizopus incidence such that control of botrytis may result in an increase of rhizopus rot in stored fruit. Rhizopus rot becomes a problem as a result of certain climatic conditions (such as, prolonged warm, humid periods) and cultural practices (such as, high nitrogen fertilization which may lead to the production of softer fruit). If conditions are conducive for rhizopus development, including those described above, do not use Ronilan.

Lettuce (head types only) may be planted after strawberries.

Leafy vegetables may be planted 6 months after treatment that does not exceed 12 pounds active ingredient per acre (24 pounds product per acre).

Cucurbits may be planted 2 months after treatment that does not exceed 9 pounds active ingredient per acre (18 pounds product per acre).

Corn may be planted 2 months after treatment that does not exceed 9 pounds active ingredient per acre (18 pounds product per acre), provided only the corn grain is used for food and or feed purposes.

Other grain crops may be planted 9 months after treatment that does not exceed 8 pounds active ingredient per acre (16 pounds product per acre).

Any rotational crops may be planted 20 days after treatment that does not exceed 3 pounds active ingredient per acre (6 pounds product per acre).

Do not use Ronilan as a plant dip as injury will occur.