FILE

Date Out EFB:

JAN 18 1983

TO: Don Stubbs
Product Manager 41
TS-767

FROM: Emil Regelman,
Acting Chief
Review Section No. 1
Environmental Fate Branch
Hazard Evaluation Division

Attached please find the environmental fate review of:

Reg./File No.: 83-FL-09 83-FL-10

Chemical: Cyromazine

Type Product: Insecticide

Product Name: Trigard 75

Company Name CIBA-Geigy, Inc.

Submission Purpose: Review of extension of Section 18

Address rotational crop question.

ZBB Code: Section 18

ACTION CODE: 500, 500

Date in: 1/7/83

EFB # 135, 136

Date Completed: 1/18/83

TAIS (level II)	Days
51	2

Deferrals To:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

1.0 INTRODUCTION

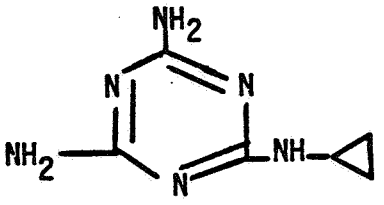
The Florida Department of Agriculture & Consumer Services has submitted Section 18 emergency exemption requests for use of Trigard 75 WP on clery and lettuce to control leafminers.

1.1 Chemical

Common name: Cyromazine (Larvadex)

Chemical name: N-Cyclopropyl-1,3,5-triazine-2,4,6-triamine

Chemical structure:



Formulation: Trigard 75 WP is a wettable powder containing 75% active ingredient.

2.0 DIRECTIONS FOR USE

Celery, Lettuce (Florida ~~only~~): Apply $^1/_6$ lb. per acre ($^1/_8$ or 0.125 lb. a. i. per acre) as foliar spray as leafminers first appear. Repeat applications at 7 day intervals or as necessary to maintain control.

Notes: make application in a minimum of 50 gals. of water per acre by ground or 5 gals. by air. Do not make more than 12 applications to one crop of celery or 8 applications to one crop pf lettuce

3.0 DISCUSSION OF DATA

No new data were submitted with the application.

Data on the environmental fate of Cyromazie have been previously reviewed to support the registration for use as a fly control agent in poultry manure.

4.0 EXECUTIVE SUMMARY

4.1 Cyromazine is stable to hydrolysis.

4.2 Cyromazine is stable to photolysis in aquesous solution without sensitizer. The half-life in aqueous solution with sensitizer (1% acetone) is about 10 hours.

4.3 Cyromazine is stable to photolysis on soil surfaces (after being exposed to UV irradiation for 24 hours). There was no significant differences between exposed and covered soil. Only parent cyromazine and unextractable material were present in soil.

4.4 Aged and unaged residues are mobile in slightly alkaline sand. Parent cyromazine and one degradation product, melamine, were found in leachate. Aged and unaged residues are moderately mobile in silt loam soil. Unaged residues are moderately mobile in Lakeland (FL) sand and sandy clay loam soils.

4.5 Adsorption K val;ues range from 0.52 (in a sand soil, 2.2% organic matter) to 17 (in an organic soil, 22.9% organic matter).

4.6 No data are available for soil metabolism of cyromazine muck soil typical of lettuce and celery growing areas of Florida.

In a loam soil/poultry manure mixture (1:1), cyromazine is relatively persistent. Aerobic soil metabolism half-life is 493 days (16 months). Metabolism of cyromazine alone in soil was not reported.

Degradation to melamine and binding to soil particles are the major routes of dissipation in the soil environment. Microbial activity is involved in the degradation of cyromazine. These two factors should greatly influence the metabolism/degradation of cyromazine in muck soil.

4.7 Cyromazine has little potential for bioaccumulation in bluegill sunfish. Highest bioaccumulation factor was 2.5X in non-edible tissue on day 1 of exposure. Bioaccumulation for all other residues were less than 1X. Depuration half-life was 3 to 7 days.

4.8 No field dissipation study was submitted. However, a field/greenhouse accumulation study was conducted where cyromazine was applied at 5 ppm in 20 tons chicken manure per acre to a Mississippi silt loam soil and aged in the field 12 weeks. The soil was held an additional 9 days before rotational crops were planted.

The field half-life is calculated to be 12 weeks. No detectable residues were found below the 3 inch soil depth (soil sampled at 0-3, 3-6, and 6-9 inch depths). These data seem to contradict the results of the lab leaching studies. Total rainfall during the field trial was 18.17 inches.

4.9 Greenhouse soil metabolism half-life was calculated to be greater than 17 weeks in a Georgia sandy loam soil. Application to soil was 5 ppm in 5 T manure (0.05 lb. ai/A).

4.10 No data are available for rotational crop uptake of residues of cyromazine in muck soil.

^{14}C-Cyromazine residues occurred in lettuce at 0.03 ppm when planted 95 days after a Mississippi silt loam soil was amended with chicken manure containing ^{14}C-cyromazine at 5 ppm (equivalent to 0.2 lb ai/A).

^{14}C-Cyromazine residues were not quantifiable (0.009 ppm) in lettuce grown in the Georgia sandy loam soil amended with manure and fortified with ^{14}C-cyromazine at 0.05 lb. ai/A and sampled 61 days after last treatment.

5.0 RECOMMENDATION

EFB recommends that a restriction be placed on the label prohibiting the planting of crops other than lettuce or celery in soil treated with cyromazine.

Note: EFB was informed by CIBA-Geigy that they are several years from applying for registration for cyromazine on lettuce and celery. The Florida Department of Agriculture and Consumer Services should be informed that, if future emergency exemptions will be requested, data must be submitted on soil metabolism of cyromazine in a muck soil and on uptake of residues by crops commonly rotated with lettuce and celery.

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