



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OREB
9-12-96

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

MEMORANDUM

DATE: 9/12/96

SUBJECT: **PP#6F4654.** Cyfluthrin in/on Poultry Facilities. Request to Increase Poultry Tolerances and Application for Amended Registration to Add Use in Poultry Facilities with the Birds Present.

DP Code: D222616

Trade Names: Countdown® WP Premise
Countdown® WP Premise in
Packets

Case #: 287265

Reg #: 11556-111 and 11556-113

Chem #: 128831

40 CFR: §180.436

Caswell: 266E

MRID#s: 438942-00, 438942-01, 438942-02, and
438942-03

Class: Insecticide

TO: G. Larocca, PM Team 13
Insecticide-Rodenticide Branch
Registration Division (7505C)

FROM: José J. Morales, William Dykstra, Charles Lewis
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Risk Characterization and Analysis Branch
Health Effects Division (7509C)

José J. Morales
9/12/96

THRU: Michael Metzger, Acting Branch Chief
Risk Characterization and Analysis Branch
Health Effects Division (7509C)

Michael S. Metzger

INTRODUCTION

Bayer Corporation, Agriculture Division, Animal Health is submitting an application to amend the registration of Countdown® WP Premise Insecticide and Countdown® WP Premise Insecticide in Packets to add use in poultry facilities with the birds present. Also, the petitioner is proposing to increase the existing tolerances for poultry meat, fat and meat by-products, and eggs.

Tolerances have been established under 40 CFR §180.436 for residues of cyfluthrin [cyano(4-fluoro-3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate] in numerous plant commodities with tolerances ranging from 0.05 to 4.0 ppm; in the fat, meat and meat byproducts of cattle, goats, hogs, horses and sheep at 0.40 ppm; milkfat at 2.5 ppm (reflecting 0.08 ppm in whole milk); and poultry fat, meat and meat byproducts and eggs at 0.01 ppm. Food and feed additive tolerances of 0.05 ppm have also been established as a result of use of cyfluthrin in food/feed handling establishments and are listed in 40 CFR §185.1250 and §186.1250, respectively.

RECOMMENDATION

HED cannot recommend for the amended registration for cyfluthrin use in poultry facilities with the birds present. In the absence of radiolabeled metabolism data or feeding studies showing levels of metabolite DCVA (3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropane carboxylic acid) in animal commodities, insufficient data are available to conduct dietary risk assessment calculations. Also, new feeding studies and a revised Section B and F are needed as stated under Dietary Exposure Conclusions 1 and 4.

Occupational exposure should not be increased by the addition of poultry facility treatment to the existing labels. RD should insure that the appropriate Worker Protection Standard (WPS) information appears on the labels.

HED notes that the Food Quality Protection Act of 1996 has amended and strengthened FIFRA's "unreasonable adverse effects" standard and thus tightened the requirements for registration under FIFRA. OPP is still assessing the full impact of this change in the law on the registration process and plans to issue guidelines concerning registration requirements. Any new registrations will have to meet the requirements of FIFRA as amended by the FQPA and OPP may require additional data to determine if the terms of the amended statute are met. Our review of this registration indicates that it clearly would have been disapproved under FIFRA prior to its recent amendment. Since FQPA has raised the standard for registration, it is not necessary to conduct a full review under the new statute. The registrant is advised that at such time as the Agency issues guidelines concerning registration requirements, additional deficiencies may need to be addressed.

CONCLUSIONS

Hazard Assessment

1. Occupational Exposure Endpoint Selection

- a) **Short- and Intermediate-Term Dermal Risk.** For short- and intermediate-term dermal MOE calculations, the Ad Hoc TES Committee [SAB Chief, TB II Chief, TB I Chief, TB II Section Head, TB II Section Head, TB I reviewer, pirat toxicologist] recommended use of the dermal toxicity NOEL of 250 mg/kg/day [highest dose tested] from the 21-day dermal rabbit toxicity study (MRID No. 00131527). There was no LEL in the study.
- b) **Short- and Intermediate-Term Inhalation Risk.** For short- and intermediate-term inhalation MOE calculations, the Ad Hoc TES Committee [same as above] recommended use of the NOEL of 0.00059 mg/L [0.15 mg/kg/day] from the inhalation developmental study (MRID No. 40968501). At the LEL of 0.0011 mg/L [0.29 mg/kg/day], there were unspecified sternal anomalies and increased incidence of runts.
- c) **Chronic Risk.** Chronic MOE calculations have not been done, since a chronic exposure scenario does not exist for this use pattern.
- d) **Cancer Risk.** Cyfluthrin has not been classified as a carcinogen by the Cancer Peer Review Committee.
- e) **Dermal Penetration.** The default value of 100% is being used for dermal penetration in the absence of actual data.

2. Dietary Endpoint Selection

- a) **Acute Dietary Risk.** 20 mg/kg/day. For acute dietary risk assessment, the Ad Hoc TES Committee [same as above] recommended use of the NOEL of 20 mg/kg/day, based on resorptions (MRID No. 42675401) at the LEL of 60 mg/kg/day, from the oral developmental study in rabbits. This risk assessment will evaluate acute dietary risk to pregnant females 13+ and older.
- b) **Chronic Dietary Risk.** RfD = 0.025 mg/kg/day. The RfD was established based on the rat chronic feeding/carcinogenicity study (MRID No. 00137303) with a NOEL of 2.5 mg/kg/day and an uncertainty factor of 100 based on decreased body weight in males and inflammatory foci in the kidneys of females at the LEL of 7.5 mg/kg/day.

- c) **Cancer Risk.** Cyfluthrin has not been classified as a carcinogen by the Cancer Peer Review Committee.

Occupational Exposure

Based on the use pattern sought, there should be no increase in worker exposure over currently registered uses of cyfluthrin.

Toxicology data are not available to PIRAT for the proposed formulations. RD should insure that the appropriate WPS information appears on the proposed labels. In addition, the labels provided with the submission state: "Wear safety glasses, goggles, or a face shield when handling the undiluted material and wear a respirator when making general surface, overhead application." These statements are not in the appropriate WPS terminology.

Dietary Exposure

1. The HED Metabolism Committee concluded at its 8/12/96 meeting that tolerances should be set in terms of parent cyfluthrin only. It was also concluded that metabolite FPB and its conjugates are not of concern based on toxicology data for FPB. In the absence of toxicology data, the cis and trans isomers of metabolite DCVA (3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropane carboxylic acid) are considered to be of comparable toxicity to the parent. Therefore, risk assessment should include cis and trans-DCVA. There are no radiolabeled metabolism data or feeding studies showing levels of DCVA in animal commodities. In the absence of these data, the petitioner is required to submit new feeding studies where residues of cis and trans DCVA and parent cyfluthrin are reported.
- 2a. Adequate enforcement methodology is available to enforce the tolerance expression. Analytical methodology [Mobay Report 85883: "An Analytical Method for Baythroid in Bovine and Poultry Tissues, Milk, and Eggs", EPA MRID #403015-02, GC/ECD, Limit of Detection is 0.01 ppm] for enforcing cyfluthrin tolerances in animal commodities, has also undergone successful PMV [PP# 4F3046], and been forwarded [3/88] to FDA for inclusion in PAM II.
- 2b. Cyfluthrin has been analyzed using the FDA multiresidue protocols. According to the FDA Pestrack database, it can be completely (> 80%) recovered using protocol A (see also 12/4/87 memo of M. Bradley, PP# 4F3046).
3. Residues of cyfluthrin are not expected to exceed 0.01 ppm in poultry meat, meat by-products and eggs; and 0.05 ppm in poultry fat as a result of the proposed use.

4. The petitioner is proposing the following tolerances for residues of cyfluthrin in/on poultry: eggs at 0.02 ppm; poultry meat, meat by-products, and fat at 0.05 ppm with a preslaughter interval of 1 day. PIRAT considers that since the residues were below the limit of detection in poultry meat, meat by-products, and eggs the established tolerances for residues of cyfluthrin in these commodities are adequate to cover secondary residues arising from the proposed use. However, the tolerance for poultry fat has to be increased to 0.05 ppm. A revised Section F should be submitted proposing tolerances only for residues of cyfluthrin in/on poultry fat at 0.05 ppm. Also, a revised Section B should be submitted proposing a preslaughter interval of 1 day.
5. PIRAT concludes that in the absence of radiolabeled data or feeding studies showing residue levels of DCVA, we cannot make any dietary estimates for residues of cyfluthrin and DCVA in animal commodities. Therefore, a dietary risk assessment will not be conducted.

DETAILED CONSIDERATIONS

DIETARY EXPOSURE

Product Chemistry

The manufacturing process of technical grade cyfluthrin has been previously described and found to be acceptable (see PP# 4F3046, 5/18/84 memo of K. Arne). None of the actual or theoretical impurities are expected to cause residue concerns.

Proposed Use

Two registered cyfluthrin formulations are proposed for use: Countdown® WP Premise Insecticide and Countdown® WP Premise Insecticide in Packets. Countdown® WP Premise Insecticide (EPA Reg. No. 11556-111) and Countdown® WP Premise Insecticide in Packets (EPA Reg. No. 11556-113) are wettable powders containing 20% ai and 80% of inerts.

The registrant proposes use of Countdown® WP Premise Insecticide for general surface application: use two level scoopfuls (3.8 gr ai) per 1000 sq. ft. in sufficient water to adequately cover the area being treated but which will not allow dripping or run-off to occur. Applications can be made to walls, floors, ceilings, in and around cupboards, between, behind and beneath equipment, appliances, around floor drains, window and door frames, and on the underside of shelves, drawers and in similar areas. Applications may be made to floor surfaces along walls and around air ducts, however, do not treat entire area of floor or

floor coverings. All food processing surfaces and utensils should be covered or thoroughly washed following treatment. Cover exposed food or remove from area being treated. Re-application in poultry housing with birds present should not exceed a total of 3 treatments at 21-day intervals. For all other uses, re-application can be made at 10-day intervals, if necessary. Cattle, horses, and poultry may be present at time of treatment. Do not apply directly to animals, feed, food, or watering equipment.

The registrant proposes use of Countdown® WP Premise Insecticide in Packets for general surface application: use two packets (3.8 gr ai) per 1000 sq. ft. in sufficient water to adequately cover the area being treated but which will not allow dripping or run-off to occur. Applications can be made to walls, floors, ceilings, in and around cupboards, between, behind and beneath equipment, appliances, around floor drains, window and door frames, and on the underside of shelves, drawers and in similar areas. Applications may be made to floor surfaces along walls and around air ducts, however, do not treat entire area of floor or floor coverings. All food processing surfaces and utensils should be covered or thoroughly washed following treatment. Cover exposed food or remove from area being treated. Re-application in poultry housing with birds present should not exceed a total of 3 treatments at 21-day intervals. For all other uses, re-application can be made at 10-day intervals, if necessary. Cattle, horses, and poultry may be present at time of treatment. Do not apply directly to animals, feed, food, or watering equipment.

Nature of the Residue

The HED Metabolism Committee concluded at its 8/12/96 meeting that tolerances should be set in terms of parent cyfluthrin only. It was also concluded that FPB and its conjugates are not of concern based on toxicology data for FPB. In the absence of toxicology data, the cis and trans isomers of DCVA (3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropane carboxylic acid) are considered to be of comparable toxicity to the parent. Therefore, risk assessment should include cis and trans-DCVA. There are no radiolabeled metabolism data or feeding studies showing levels of DCVA in animal commodities. In the absence of these data, the petitioner is required to submit new feeding studies where residues of cis and trans DCVA and parent cyfluthrin are reported.

Analytical Methodology

Analytical methodology [Mobay Report 85883: "An Analytical Method for Baythroid in Bovine and Poultry Tissues, Milk, and Eggs", EPA MRID #403015-02, GC/ECD, Limit of Detection is 0.01 ppm] for enforcing cyfluthrin tolerances in animal commodities is available, has also undergone successful PMV [PP# 4F3046], and been forwarded [3/88] to FDA for inclusion in PAM II:

The petitioner stated that the analytical method used in support of this proposed use was a modification of Mobay Report 85883. Validation for the method was submitted in the following report:

"Cyfluthrin - Residue Analytical Methods (Chicken Tissue)"; T. B. Waggoner; 11/18/91; Project No. CYF91A and CYF91A1. Performing Laboratory was M. C. Bowman and Associates, Arkansas (MRID# 438942-02).

Samples of muscle and fat-skin were chopped and fortified with 0.05 ppm cyfluthrin added in acetone. Samples were analyzed using GC with ECD. The average percent recovery for chicken muscle was 89.5%; average percent recovery for chicken fat-skin was 88.7%; 90.4% for liver; and 90.4% for eggs. Submitted chromatograms show well resolved peaks in support of the data.

Cyfluthrin has also been analyzed using the FDA multiresidue protocols. According to the FDA Pestrack database, it can be completely (>80%) recovered using protocol A (see also 12/4/87 memo of M. Bradley, PP# 4F3046).

Residue Data

Residue data were submitted in the following reports:

"Residue Levels of Cyfluthrin in Chicken Tissues and Eggs Resulting from Premise Treatment of Laying Hen House Facilities"; D. C. Ronning; 3/17/93; Study No. C9206; Test Facility was Colorado Animal Research Enterprises, Inc., Co. (MRID# 438942-01).

"Residue Levels of Cyfluthrin in Chicken Tissues and Eggs Resulting from Premise Treatment of Laying Hen House Facilities"; M. C. Bowman; 11/13/92; Study No. CYF92C; Performing Laboratory was M. C. Bowman and Associates (MRID# 438942-01).

The study was conducted using 2 test groups; one was exposed to the test substance (184 birds) and the second was an untreated negative control group (36 birds). The housing facility of group I was treated with a 256 ppm (3.8 gr. ai) cyfluthrin spray solution per 1000 square ft. on days 0, 21, and 42. The solutions were applied to the floor, ceiling, and wall surfaces of the pen house. The spray was applied to ceiling and wall surfaces to the point where runoff occurred. Direct application to birds, nests, eggs, feeders, and waterers was avoided; hens remained in the pen during the spraying. On the day of treatment, prior to spraying, all eggs were removed from the pen. Waterers and feeders were left unprotected, but were not treated directly with spray.

Tissue samples (skin, muscle and liver) of group I hens (the treated group) for residue analyses were collected on days 1, 3, 7, 14, 21, 22, 24, 28, 35, 42, 43, 45, 49, 56, and 63 after the first application. Negative control tissues samples from group II were collected on days 1 and 63. Composite egg samples for residue analyses were collected daily from group 1 from day 0 to study end, and from day 1 to study end for group II. After collection samples were frozen and sent to M. C. Bowman and Associates, AR, for analyses.

The residue data indicates that cyfluthrin residues in chicken muscle ranged from <0.001 ppm to 0.002 ppm; in liver <0.001 ppm; in skin and adhering fat from <0.001 ppm to 0.0376 ppm; in eggs from <0.001 ppm to 0.005 ppm. .

The petitioner is proposing the following tolerances for residues of cyfluthrin in/on poultry: eggs at 0.02 ppm; poultry meat, meat by-products, and fat at 0.05 ppm with a preslaughter interval of 1 day. PIRAT considers that since the residues were below the limit of detection in poultry meat, meat by-products, and eggs the established tolerances for residues of cyfluthrin in these commodities are adequate to cover secondary residues arising from the proposed use. However, the tolerance for poultry fat has to be increased to 0.05 ppm. A revised Section F should be submitted proposing tolerances only for residues of cyfluthrin in/on poultry fat at 0.05 ppm. Also, a revised Section B should be submitted proposing a preslaughter interval of 1 day.

cc: José J. Morales, Charles Lewis, Bill Dykstra, PIRAT, RCAB (D. McCall), TOX (M. Copley), OREB (#128831), Caswell File (#266E), CBTS (PP#6F4654).

7509C: RCAB: PIRAT: CM2: Rm 804 B: 305-5010: 8/20/96
RDI: PIRAT (8/21/96)