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

JUL 22 1991

OFFICE OF  
PESTICIDES AND TOXIC  
SUBSTANCES

MEMORANDUM:

SUBJECT: ID #062719-00118. TRIFLURALIN® on sugar cane in the  
State of Hawaii: amended registration. [DEB:#8074]  
[DP Barcode:D164872]

FROM: William L. Anthony, Chemist  
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THRU: Francis B. Suhre, Section Head  
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*Susan V. Hummel  
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TO: Daniel Kenny, PM #23  
Herbicide & Fungicide Branch  
Registration Division [H7505C]

DowElanco has requested an amendment to the registered use of their herbicide, TREFLAN®-5 [EPA Reg.#62719-118], for Postplant treatment of sugarcane in Hawaii to control most annual grasses, including guineagrass. The amendment calls for two additional applications of the herbicide at up to 4.0 lbs ai/A for a total of 12 lbs ai/A/season and a 180 day PHI.

Tolerances

Tolerances are established for residues of the active ingredient, trifluralin [ $\alpha, \alpha, \alpha$ -Trifluro-2,6-dinitro-N,N-dipropyl-p-toluidine] in/on sugarcane at 0.05(N)ppm. Tolerances are also established for numerous other RACs ranging from 0.05(N)ppm to 1.0 ppm. The Residue Chemistry Chapter of the Trifluralin Registration Standard is dated 7/3/85.

Registered use

In Hawaii, TREFLAN®5 [5 lbs ai /gallon] is registered for use



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postplant, to control most annual grasses including guinea grass at the broadcast rate of 4.8 to 6.4 pt [3.0 to 4.0 lbs ai/A] for all soil mixtures. In plant cane, the beds should be formed or rolled before application. In ratoon cane, the crop residue should be removed before application. No PHI is stipulated.

Note to PM: According to the Trifluralin Registration Standard, (7/3/85), the available residue data are sufficient to support the current registered uses and indicate that trifluralin residues in/on sugarcane will not exceed the established 0.05 ppm tolerance.

#### Proposed Use

The registrant has proposed amending the registered use to permit one or two additional applications (up to 4.0 lbs ai/per acre per application) of TREFLAN®5, post-planting, to sugarcane with a 180 day PHI, to maintain weed control during the early crop development period. This amendment would permit a maximum of 12 lbs ai/per acre/per season which is (3X) times the current label rate. All repeat applications are to be directed to the soil surface to minimize herbicide contamination of the crop.

#### Magnitude of the Residue

Residue data recently submitted to the Agency in support of the continued registration of trifluralin were cited in support of this amendment request (MRID #413067-01).

Summary: TREFLAN®4EC (4 lbs ai/gallon) was applied to sugarcane fields in Louisiana after bedding and again in the following spring. Three plots were treated with the herbicide and one untreated plot remained as a control. Each treated plot (35 ft x 320 ft) was equally divided into two sub-plots for sampling purposes. Plot #1 was treated with 2.0 lbs ai/A + 2.0 lbs ai/A; Plot #2 was treated with 4.0 lbs ai/A + 4.0 lbs ai/A; and Plot #3 was treated with 10.0 lbs ai/A + 10.0 lbs ai/A.

Ground Application: The test material was applied preemergence and incorporated to a depth of two to four inches using a Lilliston rolling cultivator. Each application was made using a tractor mounted sprayer calibrated to deliver 12 gallons of water per acre.

Sugarcane stalks were harvested from each treated plot and the control plot and analyzed for trifluralin residues. Samples from Plot #3, which were treated at an exaggerated rate (5X), were harvested and processed into the following commodities and analyzed for trifluralin residues: (1) bagasse, (2) molasses, and (3) raw sugar.

SUGARCANE: All samples were harvested by hand, following a 180 day PHI and analyzed for trifluralin residues two days later.

Sugarcane stalks from each plot were used to obtain samples. All samples of sugarcane stalks were reported to contain <0.01 ppm trifluralin. Control samples spiked with trifluralin ranging from 0.01 ppm to 0.10 ppm had recoveries ranging from 74% to 84% with a 0.01 ppm detection limit.

BAGASSE, MOLASSES, RAW SUGAR: Treated samples from plot #3 (5X exaggerated rate) and the control plot were processed into approximately 10 lbs of bagasse, one gallon of molasses, and 5 lbs of raw sugar. As with the sugarcane stalks, the results indicated levels of trifluralin at <0.01 ppm.

The percent recovery for samples spiked with trifluralin are noted below:

<u>Processed</u>	<u>ppm/spiked</u>	<u>ppm/recovered</u>	<u>% (ave)</u>
Bagasse	0.01	0.0089	89%
"	0.05	0.040	79%
"	0.10	0.085	85%
Molasses	0.01	0.0086	86%
"	0.05	0.045	89%
"	0.10	0.094	94%
Raw Sugar	0.01	0.009	91%
"	0.05	0.047	95%
"	0.10	0.096	96%

The available residue data indicate that the established trifluralin tolerance of 0.05 ppm in/on sugarcane is adequate to cover the proposed amendment.

#### ANALYSIS

The Eli Lilly Method, #AM-AA-CA-Ro23-AA-755, was used to generate trifluralin residue data on sugarcane (1989; MRID 41306701). All residue analyses were performed by the Analytical Bio-chemical Laboratories, Inc. of Columbia, MO.

Samples were extracted with methanol and filtered. An aliquot of the extract was added to a separatory funnel to which methylene chloride was added. The latter fraction containing the solute was collected and dried by passing the extract through a "bed" of sodium sulfate and then washed with methylene chloride. After the addition of a small amount of decane, the extracts were evaporated to dryness in a rotary vacuum flask. A known amount of

decane was added to the dry residue to reconstitute the contents which was then passed through a clean-up Florisil® column. Detection was by GLC using an EC detector.

A method for enforcement, submitted with PP #7F0555, is available in PAM Vol.I, II. Method sensitivity is 0.01 ppm.

#### CONCLUSIONS

(1) The metabolism of trifluralin in/on sugarcane is adequately understood. The residue of concern is trifluralin.

(2) Sugarcane stalks receiving up to 20 lbs ai/A/season trifluralin (1.7X the proposed amended rate) did not result in any measurable residues (ND,<0.01 ppm).

(3) The existing trifluralin tolerance of 0.05 ppm in/on sugarcane is adequate to cover the proposed amended use.

(4) Based on the field residue trials conducted at exaggerated rates (20 lbs ai/A/per season), there is no likelihood of finite residues occurring in the sugarcane processing fractions, viz., bagasse, molasses, and sugar.

(5) The analyses for the residue data submitted with this amendment were performed by the Analytical Bio-chemical Laboratories, Inc. of Columbia, MO.

#### RECOMMENDATION

CBRS has no objection to this amendment which would permit up to two additional applications (12 lbs ai/A/per season) of trifluralin on sugarcane (in Hawaii only) with a 180 day PHI imposed.

CC: Reviewer;SF[Trifluralin,TREFLAN®];RF;FOD/PIB;Circulation.

RDI: F.Suhre,7/19/91;E.Zager,7/19/91.

H7509C: WLA;wla;Cry.Stat.;4th Fl;X308-8526;7/22/91.