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

JAN 29 1986

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

Subject: Amended registration for trifluralin (3 formulations) use for weed control when applied to alfalfa by chemigation.
Treflan® EC (EPA Reg.No. 1471-35). RCB #285.
Treflan® MT (EPA Reg.No. 1471-116). RCB #286.
Treflan® 5 (EPA Reg.No. 1471-120). RCB #287.

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Elanco Regulatory Services (Elanco Products Company, A Division of Eli Lilly and Company) requests amended registration for use of Treflan® EC, Treflan® MTF and Treflan® 5 when applied on alfalfa by chemigation for control of annual grasses and broadleaf weeds. This revised labeling will prohibit cutting alfalfa for hay or grazing within 21 days after a Treflan application by chemigation. Also proposed is deletion of the 1 lb.a.i./A application rate for alfalfa grown in coarse soils, thus allowing a 2 lb.a.i./A application rate for all soil types when application is made by chemigation.

Tolerances for trifluralin (alpha,alpha,alpha-trifluoro-2,6-dinitro-N,N-dipropyl-p-toluidine) residues have been previously set for many commodities and range from 0.05 to 1.0 ppm. The tolerance for alfalfa hay is 0.2 ppm (N).

The three formulations of trifluralin, Treflan MTF (4 lb.a.i./gal), Treflan EC (4 lb.a.i./gal) and Treflan 5 (5 lb.a.i./gal) have been registered for use as pre-emergence herbicides for broadleaf weeds and grasses on established alfalfa. The application rates for the formulations vary with the type of soil and with the average yearly rainfall. Treflan EC and Treflan MTF are registered only in western states and Treflan 5 for locations having an average annual rainfall less than 20 inches. The application rates for the

three formulations are 1-1.5 pints/A (0.5-0.94 lb.a.i./A) for coarse soils and 2 pints/A (1 or 1.25 lb.a.i./A) for medium and fine soils. Treflan is not to be applied to soil with a content of organic matter greater than 10%. These products should be incorporated into the soil twice, once within 24 hours after application. No pre-harvest interval, maximum yearly application or timing of applications for alfalfa are specified on labels prior to this proposal.

The proposed new use for these three products when applied by chemigation includes deleting the 1 lb.a.i./A rate for use of trifluralin on alfalfa for course soils, and allowing use at a 2 lb.a.i./A rate for all soil types. Also stipulated on the supplemental labeling is a maximum application limit of 2 lb.a.i./A per growing season. Finally, a 21 day PHI is requested where no PHI had been previously specified.

The residual species found in alfalfa treated with trifluralin are trifluralin itself (ca. 80%) and a single metabolite, monopropyl trifluralin. The analytical methods used to measure the residues is the same as that submitted in conjunction with previous residue reports (AM-AA-CA-RO23-AA-755; refinement of PP6F0555 included in PAM II). This method involves extraction of a blended sample of alfalfa hay with methanol followed by partitioning into methylene chloride, florasil column clean-up and analysis by GLC. GC standards used ranged in concentration from 0.025-0.30 ppm trifluralin. Recovery values for this method ranged from 68-103% (ave.=79%); and recovery values for samples stored at -20°C for 55-129 days after previously being frozen in liquid nitrogen ranged from 76-108%. The reported detection limit is 0.003 ppm.

Review of the GC data indicates that there is interference present for some samples using this analytical method. Of the 17 samples analyzed, 3 analyses showed concenrations of 0.011, 0.015 and 0.018 ppm for untreated control samples. The concentration range for the trifluralin treated samples is 0.013 to 0.069 ppm.

In all of these studies, either Treflan 5EC (1 study) or Treflan MTF (5 studies) was applied by chemigation to fields of established alfalfa located in California, Kansas and Colorado. Data submitted shows trifluralin residues ranging from 0.013 to 0.069 ppm (all values corrected to 20% moisture content) following a single application at a rate of 2 lb.a.i./A at various PHI's ranging from 13 to 92 days. A single measurement indicated a residue of 0.223 ppm for the same application rate at a 13 day PHI. The data submitted included values for PHI's of 13 days (2 values), 27, 30, 32 and 34 days (1 value each), and greater than 53 days (11 values). The two values at 13 days were very different (0.069 and 0.223 ppm). Analysis of the data by Elanco assumes that the 0.223 value is an outlier, and that

there is a linear relationship between residue concentration and the PHI. They conclude, therefore, that either with or without the inclusion of the 0.223 ppm value, residue concentrations will not exceed the tolerance level of 0.2 ppm under these conditions.

Half-life calculations of trifluralin in alfalfa using the data above, and again calculated with and without the 0.223 ppm value, predict half-lives of 36 and 11 days respectively. Utilizing either of these half-lives and considering the large degree of scatter in the data points when plotted as ln concentration vs. PHI, we expect that the residue will not exceed the tolerance of 0.2 ppm.

In these studies, Treflan EC and Treflan 5 were not used. However, an EC formulation (Treflan 5EC) and a formulation containing 5 lb.a.i./gal (Treflan 5EC) were used (although in only one study). We feel that the data, therefore, is not completely representative of the range of Treflan formulations, but does give sufficient information to allow judgements to be made regarding the levels of trifluralin residues in treated alfalfa.

Previous residue data submitted by Elanco for various Treflan formulations showed residues ranging from 0.007 to 0.028 ppm in alfalfa. The residues were obtained for PHI's exceeding 30 days and for a single application of Treflan of 2 lb.a.i./A by over-top spray methods. Under these conditions, none of the residue concentrations approached the established tolerance of 0.2 ppm (1471-EUP-90, Dec. 6, 1984).

Conclusions and Recommendations

Based on previous residue data and data submitted with this amended registration, we conclude that it is unlikely that trifluralin residues in or on alfalfa will exceed the 0.2 ppm established tolerance when Treflan 5, Treflan EC or Treflan MTF are applied by chemigation methods at a rate of 2 lb.a.i./A (single application), and allowing a 21 day PHI.

We recommend for the amended registration.

cc:R.F.,circu, M.Metzger,trifluralin S.F., Amended use file, PMSD/JSB
RDI:E.Zager:EZ:1/29/86:RDS:1/29/86
TS-769:RCB:M.Metzger:MM:Rm810:1/29/86