

US EPA ARCHIVE DOCUMENT

## MEMORANDUM

Subject: EEC Request for Trifluralin

To: Hank Jacoby  
Branch Chief  
Environmental Fate and Effects Branch, 7507C

From: Anthony F. Maciorowski  
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*Anthony F. Maciorowski*  
10/24/94

EEB is requesting an EEC Model to be run for trifluralin. Based on the groundwater review, trifluralin has an affinity to bind tightly to soil, which may lead to runoff to aquatic environments.

The PM states that "the rates are dependent on soil texture and range from 0.4 lbs. ai per acre to 2 lbs ai per acre for all crops except sugarcane use in Hawaii. The use on sugarcane is 3 to 4 lbs. ai per acre". The major use for trifluralin is on soybeans. In a meeting with DOW, it was mentioned that ornamentals have a higher rate than other crops; no labels for ornamentals have been submitted to EEB.

In closing, I would like to request EEC models on trifluralin for soybeans and sugarcane and if feasibly possible, ornamentals (Dana Lateulere, the EEB reviewer, can meet with the modeler to determine what crops to substitute for ornamentals, or if in fact they are needed).

Questions regarding this matter should be directed to Dana Lateulere of my staff at 308-2856.

**EEC Calculation Sheet**

for Trifluralin  
H2O Solubility = .3

Note: H2O Solubility of:

- <1.0 ppm = 1% Runoff
- 1-100 ppm = 2% Runoff
- ≥ 100 ppm = 5% Runoff
- Pyrethroids = 0.1% Runoff

**I. Un-incorporated ground application.**

Runoff

$$\underline{4} \text{ lb(s) a.i./A} \times \underline{0.01} \text{ (\%runoff)} \times \underline{10A} \text{ (from 10A drainage basin)} = \underline{.4} \text{ lb(s)}$$

EEC of 1 lb. a.i. direct application to 1A pond 6-foot deep = 61 ppb, 6-inch deep = 734 ppb. Therefore:

$$\begin{aligned} \text{6 foot EEC} &= 61 \text{ ppb} \times \underline{.4} \text{ (lb)} = \underline{24.4} \text{ ppb.} \div 1000 = \underline{.0244} \text{ ppm} \\ \text{6 inch EEC} &= 734 \text{ ppb} \times \underline{\quad} \text{ (lb)} = \underline{\quad} \text{ ppb.} \div 1000 = \underline{\quad} \text{ ppm} \end{aligned}$$

**II. For incorporated ground application**

Runoff

$$\underline{4} \text{ lb(s) a.i./A} \div \underline{2.54} \text{ (cm) (depth of incorp.)} \times \underline{0.01} \text{ (\% runoff)} \times \underline{10A} = \underline{.16} \text{ lb(s)}$$

$$\begin{aligned} \text{Therefore:} \\ \text{6 foot EEC} &= 61 \text{ ppb} \times \underline{.16} \text{ (lb)} = \underline{9.6} \text{ ppb.} \div 1000 = \underline{.0096} \text{ ppm} \\ \text{6 inch EEC} &= 734 \text{ ppb} \times \underline{\quad} \text{ (lb)} = \underline{\quad} \text{ ppb.} \div 1000 = \underline{\quad} \text{ ppm} \end{aligned}$$

**III. For aerial application (or mist blower).**

**A. Runoff**

$$\underline{4} \text{ lb(s) a.i./A} \times \underline{0.6} \text{ (appl. efficiency)} \times \underline{0.01} \text{ (\%runoff)} \times \underline{10A} \text{ (basin)} = \underline{.24} \text{ lb(s) (total runoff)}$$

**B. Drift**

$$\underline{4} \text{ lb(s) a.i./A} \times \underline{0.05} \text{ (5\% drift)} = \underline{.2} \text{ lb(s) total drift}$$

$$\text{Tot. loading} = \underline{.24} \text{ lb(s) (total runoff)} + \underline{.2} \text{ lb(s) (total drift)} = \underline{.44} \text{ lb(s)}$$

Therefore:

$$\begin{aligned} \text{6 foot EEC} &= 61 \text{ ppb} \times \underline{.44} \text{ (lb)} = \underline{26.84} \text{ ppb.} \div 1000 = \underline{.0268} \text{ ppm} \\ \text{6 inch EEC} &= 734 \text{ ppb} \times \underline{\quad} \text{ (lb)} = \underline{\quad} \text{ ppb.} \div 1000 = \underline{\quad} \text{ ppm} \end{aligned}$$

26.84 ppb (ug/l) ~~ug/l~~