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

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OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Isoxaflutole: Review of Phytotoxicity Studies for New Chemical Registration, DP Barcode D240106

FROM: Michael Davy, Agronomist
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Thru: Elizabeth M. Leovey, Chief
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6/22/98

TO: Joanne Miller, PM-23
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With this memorandum, EFED is clarifying its conclusions concerning the adequacy of vegetative vigor studies for three species (lettuce, turnip and ryegrass) submitted by Phone-Poulenc Ag Co., Research Triangle, NC under DP Barcode D240106, MRID number 44399905. These studies were submitted after EFED had completed its ecological risk assessment for the Section 3 registration of Isoxaflutole on corn. Rhone-Poulenc submitted the required number of vegetative vigor studies in the original Section 3 submission. Except for the lettuce and ryegrass studies, these studies were judged to be core. At that time, we requested that lettuce and ryegrass be retested to determine if either was more sensitive than turnips, the most sensitive species tested. The registrant subsequently submitted these requested studies and also retested turnips eventhough the original turnip study was an adequate study.

This second set of vegetative vigor studies on lettuce, ryegrass and turnips were reviewed on 1/21/98. Upon further review however, EFED has concluded that these studies are not core and are supplemental. In these studies, Isoxaflutole was not applied as directed on the label. The volume of water used far exceeded that specified on the label. In addition, plants were tested in a washed sand medium which is not representative of the conditions in which plants are grown.

The amount of water (9.4 ml per 13 cm pot) in which Isoxaflutole was applied to the plants for this study is equivalent to 993 gallons per acre (on a per acre basis). The label supplied to EFED by the registrant recommends that Isoxaflutole be applied to the field in 10 gallons of water per acre. The following describes how EFED calculated the amount of water applied to the pots on a per acre basis. The registrant calculated that the treated surface area of the pots was 2.5×10^{-6} acre.

$$\frac{0.26417205 \text{ gal.}}{\text{L}} \times \frac{\text{L}}{1000 \text{ ml}} \times 9.4 \text{ ml} = 0.0024832 \text{ gallon/pot}$$

$$\frac{0.0024832 \text{ gallon}}{\text{Pot}} \times \frac{\text{Pot}}{2.5 \times 10^{-6} \text{ Acre}} = 993 \text{ gallons/Acre}$$

Current plant testing policies, given in the 10/21/94 memo from Dr. Maciorowski to Anne Barton, Director of EFED, has been distributed to the registrants and testing laboratories. This memo specifies that "For vegetative vigor studies, top watering under the foliage or bottom watering are recommended so that the chemical is not washed off the foliage" The Hazard Evaluation Division Standard Evaluation Procedure *Non-Target Plants: Vegetative Vigor - Tiers 1 and 2* specifically asks, "Were the environmental conditions that prevailed during the test (...watering regime...) provided as appropriate for the site?" In using a larger volume of water than specified on the label, a greater amount of the pesticide will be washed off the foliage than expected. Consequently, the results will under estimate toxicity. For this reason, this second set of studies can only be considered supplemental.

In addition, the plants were grown in a washed sand medium. The label specifies that Isoxaflutole is not to be applied to sandy soils. From the fate data, Isoxaflutole and its degradates are highly mobile. By using sandy soils and a high water volume, the pesticide may have leached through the sand in the pots. This will reduce the amount of pesticide to which the plants are exposed and thereby the toxicity will be underestimated. The 10/21/94 policy memo states that "Soil mixes containing sand loam, loam, or clay loam soil with no greater than 2% organic matter are preferred.....washed sand are not recommended." This further substantiates our conclusion that these studies are only supplemental.

Since the second set of turnip, ryegrass and lettuce vegetative vigor studies are not adequate, the ryegrass and lettuce studies still need to be repeated. The laboratory studies should be performed in a way that follow the label. The original turnip study is adequate and does not need to be repeated. The most sensitive species remains the turnip.

If you have any questions, please do not hesitate to contact Mike Davy at 305-7081.