UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460
ENVIRONMENTAL FATE AND EFFECTS DIVISION, 7507C,
OFFICE OF PESTICIDE PROGRAMS

3/29/1999

RE: Isoxaflutole Plant Field Studies, D253375, D253213

To: Joanne Miller, PM-23
Herbicide Branch
Registration Division

From: Michael Davy, Agronomist
Environmental Risk Branch 2
Environmental Fate and Effects Division

Thru: Betsy Grim, Acting Branch Chief
Environmental Risk Branch 2
Environmental Fate and Effects Division

EFED has reviewed the protocols for "Simulated Isoxaflutole Drift on" canola, cotton, soybean, oat, rice and sunflower and for established crops "irrigated with water containing RPA202248" for soybean, cotton, rice and sunflower. These are under barcodes D253375 and D253213.

Simulated Drift

The EFED requestss the following general changes for all the species to be tested under simulated drift:

1. Six replicates for each test dose and control should be provided. Each replicate should consist of a split plot. Each plot should have randomized allocation of treatments. There should be a 50 foot buffer inside each plot between the test and control plots. There should be at least 100 feet between adjacent plots. Each control should have metal flashings around the plot to protect from runoff from other treated plots. See diagram for details.

2. At time of application, the control should be on the windward side of the treated plot. Rows are to be planted perpendicular to the wind so that shield guards can be more effective. See diagram for details.

3. Control plants should be protected from spray drift by white, plastic, and light gauge sheeting at time of application and for one hour after application. Shield guards should be used with test plants at application. For the spray, minimum volume of water and maximum PSI as allowed on label should be used. Care must be given to control plants in order to minimize injury

from plastic sheeting. Sheeting should be anchored down with tubing on the edge of plot and with tubing raised in the middle to keep the sheeting off the plants. Plastic should not be re-used.

4. A representative portion of the seed harvested (for yields) from each plot should be sent to a State seed lab where a 400 seed germination test should be conducted. The amount of seed sent to the lab should be given in the section below that deals with each specific crop. Each sample should be labeled to reflect the replicate and controls it came from. A chain of custody should be maintained for these samples. Results of the test including abnormal seedlings should be a part of the report.

5. Field history of past two years should be provided showing that no pesticide residues are on the field that may inhibit the growth of the crops tested.

6. Under "Test System Maintenance", the protocol should first recommend the use of biological pest controls before using registered pesticides for that specific crop. Controls should also be maintained in same way as the test plots including use of pesticides.

7. During severe moisture stress of crops, irrigation should be used. The timing and methods of irrigation should be documented.

8. After crops are harvested for yield, the roots should be dug up and visual observations noted of the roots as compared to the controls.

9. Twenty plants per replicate instead of 10 plants should be randomly measured for height weekly.

10. The size of the plot should be large enough to harvest five 50-foot rows or more of the crops. At least four rows or 10 ten feet on each side of the crop should serve as border rows that are not to be part of the official yield. The front and back 10 feet should also not be part of the official yield harvest. A minimum of five 50-foot rows should be harvested for yield for each plot.

11. The report should also include calculations made for spray volume, concentration in spray tank, and application of pounds per acre from a spray tank. The report should also show calculations of the yield into pounds per acre and bushels per acre.

12. On site weather station should record humidity, rainfall, temperature and wind speed and direction up to one month prior to application and during application on a daily basis. After application, all rainfall and temperature must be recorded.

13. Map and layout of sites should show the direction of North.

14. At time of application, one sample per tank mix must be taken, frozen immediately, and analyzed as soon as possible for the parent isoxaflutole and the degradate RPA 202248.

RICE: EFED requests the following changes for the protocol for simulated drift on rice:

1. Eliminate treatments 6 weeks prior to emergence and add a treatment 2 weeks after emergence.

2. Timing of flooding and maintenance should be recorded.
3. The minimum size of the seed sample for each replicate and control that should go to the State seed lab is 50 gm.

COTTON: EFED requests the following changes for the protocol for simulated drift on cotton:

1. The application treatment six weeks prior to emergence can be eliminated. EFED recommends that treatment application 2 weeks after planting is added to show possible timing in Louisiana and Texas due to double crop.

2. The minimum size of the seed sample for each replicate and controls that should go to the State seed lab is 300 gm.

SOYBEANS: EFED requests the following changes for the protocol for simulated drift on soybean:

1. Application treatment 14 days prior to emergence can be eliminated. EFED recommends that treatment application 14 days after planting is added to show possible timing in Texas due to double crop.

2. The minimum size of the seed sample for each replicate and controls that should go to the State seed lab is 500 gm.

CANOLA: EFED requests the following changes for the protocol for simulated drift on canola:

The minimum size of the seed sample for each replicate and control that should go to the State seed lab is 10 gm.

SPRING OATS: EFED requests the following changes for the protocol for simulated drift on spring oats:

The minimum size of the seed sample for each replicate and control that should go to the State seed lab is 75 gm.

SUNFLOWERS: EFED requests the following changes for the protocol for simulated drift on sunflowers:

The treatment 6 weeks prior to emergence can be eliminated. The treatment application 2 weeks after emergence should be added to reflect that, sunflowers can be planted two weeks after corn in Texas.

The minimum size of the seed sample for each replicate and control that should go to the State

seed lab is 100 gm.

Irrigation Studies With Isoxafluotle Spike

The EFED requests the following general changes for all the species to be tested with :

1. Six replicates for each test dose and control should be provided. Each replicate should consist of a split plot. Each plot should have randomized allocation of treatments. There should be a 50 foot buffer inside each plot between the test and control plots. There should be at least 100 feet between adjacent plots. See diagram for details.

2. Control plants should be protected from spray drift by white, plastic, and light gauge sheeting over the control plants at time of application and for one hour after application. Care must be given to control plants in order to minimize injury to plants from plastic sheeting. Sheeting should be anchored down with tubing on edge of plots and with tubing raised in middle to keep sheeting off of plants. Do not reuse plastic for any other controls.

3. Metal vertical flashings placed into the soil should help protect control plants from treated water. These flashings should be at least 4 inches above the soil. If metal flashings are not used then levees should be used. In addition, there should be a shallow ditch (about 4 inches deep) that should channel the water away from the control plots. Care must be given to position the controls so that the prevailing winds should not carry moisture from the contaminated irrigation plots. The controls must be at least 50 feet away from the treated plots.

4. A representative portion of the seed harvested (for yield) from each plot should be sent to a State seed lab where a 400 seed germination test be conducted. The amount of seed sent to the lab should be given in the section below that deals with each specific crop. Each sample should be labeled individually. A chain of custody should be maintained for these samples. Results of the test including abnormal seedlings should be a part of the report.

5. Field history of past two years should be provided showing no pesticide residues should be on field that may inhibit the growth of the crops tested.

6. Under "Test System Maintenance", the protocol should first recommend the use of biological pest controls before using registered pesticides for that specific crop. Controls should also be maintained in same way as the test plots.

7. Twenty plants instead of 10 plants should be randomly measured for height weekly.

8. The size of the plot should be large enough to harvest five 50-foot rows or more of the crops and to have at least 3 rows or 10 ten feet on each side of the crop to serve as border rows that are not to be part of the official yield. The front and back 10 feet should also not be part of the official yield harvest. A minimum of five 50-foot rows should be harvested for yield for each replicate.

9. The report should also include calculations of these concentrations in the tanks and the amount of water applied on each plot on a per acre basis. This report should also show

calculations of yield into pounds per acre and bushels per acre.

10. An on site weather station should record humidity, rainfall, temperature and wind speed and direction up to one month prior to application and during application on a daily basis. After application, all rainfall and temperature must be recorded.

11. Map and layout of sites should show the North direction.

12. At time of application, one sample per irrigation dose must be taken, frozen immediately, and analyzed as soon as possible for the parent isoxaflutole and the degradate RPA 202248.

13. Application should be with parent isoxaflutole only or parent isoxaflutole (at least 10%) and RPA 202248. The mixture reflects PRZM-EXAMS ratio at 21 days.

RICE: EFED requests the following changes for the protocol for irrigation on rice:

1. Flashings and shallow ditches are not required if levees are used.

2. Timing of flooding and maintenance should be recorded.

3. The minimum size of the seed sample for each replicate and controls that should go to the State seed lab is 50 gm.

4. Size of plots should reflect above dimensions for borders and harvest area.

COTTON: EFED requests the following changes for the protocol for simulated drift on cotton:

The minimum size of the seed sample for each replicate and control that should go to the State seed lab is 300 gm.

SOYBEAN: EFED requests the following changes for the protocol for simulated drift on soybean:

The minimum size of the seed sample for each replicate and control that should go to the State seed lab is 500 gm.

SUNFLOWERS: EFED requests the following changes for the protocol for simulated drift on sunflowers:

The minimum size of the seed sample for each replicate and control that should go to the State seed lab is 100 gm.

If there are any questions on these changes to the submitted protocols, please contact Mike Davy at 305-7081.

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W = WIND DIRECTION AT APPLICATION TIME

T_1 = test plot at time period 1

T_2 = test plot at time period 2

Example of PLOT DESIGN

Indicate North