DATA EVALUATION RECORD

STUDY 5

CHEM 129034 Flumioxazin §164-1
CAS No. 103361-09-7
FORMULATION–06–WETTABLE POWDER

STUDY ID 44295045
Pensyl, J. W. 1996. Field dissipation study with V-53482 WDG herbicide in Mississippi. Valent Project No.: VP-1013. Unpublished study performed by Valent U.S.A. Corp., Greenville, MS (in-life phase); Valent USA Corporation, Dublin, CA (analytical phase); and Chevron Chemical Company, Richmond, CA (analytical phase); and submitted by Valent USA Corporation, Walnut Creek, CA.

STUDY ID 44295042
Kruplak, J. F. 1995. Independent laboratory validation of the method of quantitation of flumioxazin in soil. ADC Project Number: 1550-1. Unpublished study performed by Analytical Development Corporation, Colorado Springs, CO; and submitted by Valent U.S.A. Corporation, Walnut Creek, CA.

DIRECT REVIEW TIME = 43 Hours

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CONCLUSIONS

Field Dissipation - Terrestrial

1. This study is scientifically valid and provides useful information on the terrestrial field dissipation of flumioxazin (soybean use pattern) on a plot of silt loam soil planted with soybeans in Mississippi.

2. This study does not meet Subdivision N Guidelines for the partial fulfillment of EPA data requirements on terrestrial field dissipation for the following reason:

   (i) soil samples were not analyzed for degradates; therefore, the patterns of formation and decline of degradates could not be addressed.

3. Flumioxazin (Sumisoya®; V-53482 WDG, 50.9% a.i.), broadcast applied once as a spray at a nominal application rate of 42.5 g a.i./A, dissipated with a registrant-calculated half-life of 10.3 days ($r^2 = 0.97$) on a plot of silt loam soil planted with soybeans (the day after application) in Mississippi; the observed first half-life occurred between 5 and 8 days posttreatment. However, the half-life of the parent is of questionable worth since the data utilized in the half-life calculation were determined on a wet-weight basis. Residue data were reported as means of multiple replicates. I n the 0- to 7.5-cm depth, the parent was 0.070-0.071 ppm at 0-1 day posttreatment, decreased to 0.051 ppm by 5 days, was 0.031-0.032 ppm from 8 to 14 days, and was last detected at 0.011 ppm at 28 days. The parent compound was not detected below the 0- to 7.5-cm depth. Samples were not analyzed for degradates of flumioxazin.

METHODOLOGY

Flumioxazin (Sumisoya®; V-53482 WDG, 50.9% a.i.) was broadcast applied once as a spray at a nominal rate of 42.5 g a.i./A, onto a plot (120 x 120 ft with nine subplots of 25 x 25 ft, slope 0.5-2.0%; p. 12) of silt loam soil (0-30 cm: 26% sand, 58% silt, 16% clay, organic matter 1.1%, pH 6.0, CEC 12.6 meq/100 g; p. 13) in Greenville, Mississippi (pp. 12-14). The application was made using a tractor-mounted sprayer with eight nozzles and a boom height of 18 inches above the soil (p. 14). Following the application, the pesticide was incorporated to a depth of 1-2 inches; soybeans were planted in the test plot following incorporation (1 day after treatment). An untreated control plot (25 x 25 ft) was located 150 feet from the treated plots (p. 12). A three-year plot history indicated no prior use of flumioxazin or related compounds (Appendix XVIII, p. 204). Plots were treated once with Treflan® 4ED (trifluralin) on the day of pesticide application and once each with Select® (clethodim) and Blazer® 2 (acifluorfen) at 1 month posttreatment to control weeds (Appendix VIII, p. 231). The depth to the water table was approximately 17 feet (p. 12).

Precipitation was supplemented with irrigation; total water input during May and June, 1991 (14 days prior to application through 19 days following the last detection of flumioxazin residues; 9.4 inches) was 107% of the 30-year mean annual precipitation during those months (pp. 15, 21). Precipitation was measured on-site; pan-evaporation data were not reported.

Soil samples were collected from the treated plots one day prior to the application and at 0, 1, 3, 5, 8, 14, 21, 28, 56, 84, 114, 175, and 262 (samples not analyzed) days posttreatment (p. 15). The control plot was sampled one day prior to the application and at 0, 14, 28, 84, and 175 days posttreatment. At each sampling interval, three soil cores were collected randomly from five designated subplots within the treated plot (15 total; Appendix A, p. 45) and three soil cores were collected from the control plot. A 0- to 90-cm depth sample (diameter unspecified) was collected using a zero-contamination Giddings hydraulic probe with acetate liners. Samples were stored frozen until being shipped overnight on dry ice to one of two analytical laboratories; samples were sectioned into 7.5-cm increments, and composited by depth (p. 16). Soil samples were stored frozen for 6-51 days prior to extraction with the exception of those collected at 175 days posttreatment which were stored for 107-147 days (Table V, pp. 34-36).

Soil samples were analyzed only for the parent compound (p. 17). Soil samples (10 g) were extracted twice by shaking with acetone:0.1 *N* HCl (5:1, v:v; Appendix II, p. 67); the extracts were filtered (filter paper) and combined. The extracts were partitioned with 5% aqueous sodium chloride and dichloromethane; the organic phase was filtered through sodium sulfate and partitioned a second time with dichloromethane. The combined extracts were concentrated by rotary evaporation, redissolved in ethyl acetate:hexane (1:2, v:v), and loaded onto a solid phase extraction column (Florisil). The parent compound was eluted from the column with hexane:ethyl acetate (2:1, v:v) and concentrated by rotary evaporation; extracts were redissolved in acetone and analyzed for the parent by gas chromatography (DB-17 megabore column) with nitrogen-phosphorus flame ionization detection (Appendix II, p. 66); the limits of detection and quantitation were 0.005 ppm and 0.01 ppm, respectively (pp. 19, 20).

The application rate was not confirmed using monitoring pads or a similar method. The concentration of the parent in the 0- to 7.5-cm soil depth immediately following the application was 67% of the expected, based on the nominal application rate (p. 21).

In a method validation study, mean recoveries (± c.v.) of flumioxazin from soil samples fortified with the parent compound at 0.01 ppm (n = 3) and 0.05 ppm (n = 6) were 101 ± 2.3% and 100 ± 16.0%, respectively (p. 17); complete data were not reported.

Mean concurrent recoveries (± c.v.) from control soil samples (depth not specified) fortified with flumioxazin at 0.01-0.05 ppm were 102 ± 11.9% (3 of 60 samples >120%; Table III, pp. 30-32).

In a frozen storage stability study, soil samples collected from the test site were fortified in the laboratory with the parent compound at 0.05 ppm, and stored frozen (-20°C) for up to 405 days (p. 17). The parent compound appeared to be stable in frozen storage for up to 405 days. Mean corrected recoveries of flumioxazin were 80-100% following 0-405 days of storage (Table IV, p. 33); a overall pattern of degradation was not observed.

Independent Method Validation (MRID 44295042)

Duplicate soil samples (source and texture not specified) were fortified with the parent compound at 0.01 ppm and 0.05 ppm (p. 11). Samples were extracted and analyzed by GC (J&W DB-17 column) as previously described for the test samples (pp. 12, 13); the limit of detection was 0.004 ppm (p. 15). Recoveries (across all fortifications) of the parent ranged from 85% to 90% (Table 2, p. 18).

DATA SUMMARY

Flumioxazin (Sumisoya®; V-53482 WDG, 50.9% a.i.), broadcast applied once as a spray at a nominal application rate of 42.5 g a.i./A, dissipated with a registrant-calculated half-life of 10.3 days ($r^2 = 0.97$; Figure 1, p. 37) on a plot of silt loam soil planted with soybeans (the day after application) in Mississippi; the observed first half-life occurred between 5 and 8 days posttreatment (see Comment #5). However, the half-life of the parent is of questionable worth since the data utilized in the half-life calculation were determined on a wet-weight basis. Residue data were reported as means of multiple replicates. The parent compound was present in the 0- to 7.5-cm depth at 0.070-0.071 ppm from 0 to 1 day posttreatment, decreased to 0.051 ppm by 5 days posttreatment, was 0.031-0.032 ppm from 8 to 14 days posttreatment, and was last detected at 0.011 ppm at 28 days posttreatment (Table II, pp. 28-29). The parent compound was not detected below the 0- to 7.5-cm depth. Samples were not analyzed for degradates of flumioxazin.

COMMENTS

1. The registrant-calculated half-life is of questionable worth, as is the observed first half-life. The data were reported on a wet weight basis. Because the moisture in the soil samples was not consistent over time (9.7-18.3%) for 0- to 7.5-cm depth soil samples collected between 0 and 28 days posttreatment (p. 16), the resulting concentration data may not be validly compared over time, as a dilution or concentration effect may occur. All data should be reported on a dry-weight basis (corrected for moisture content). The reviewer

notes, however, that the parent compound dissipated relatively rapidly and that a corrected half-life may not be significantly different from the half-life reported in the study.

2. The study failed to adequately demonstrate the field dissipation of the test compound. The parent did not leach, but degraded relatively rapidly. However, the patterns of formation and decline of degradates were not addressed. Soil samples were not analyzed for degradates of flumioxazin. One of the primary purposes of a terrestrial field dissipation study is the determination of the patterns of formation and decline of major degradates of the parent. However, the study author stated that in two aerobic soil metabolism studies (MRID's 42684906 and 42884009) conducted with radiolabeled moieties of the parent compound, only minor degradates ($\leq$0.01 ppm or $\leq$6.6% of the applied radioactivity) were detected (p. 11).

3. Pan evaporation data were not reported. Such data are necessary to determine water balances and to assess whether sufficient moisture was present in the soil to facilitate leaching of the test substance. The reviewer notes that the parent compound was not observed to leach.

4. The soybean plants were not analyzed for the parent or its degradates. It is necessary that total residues in the crop be monitored in order to accurately determine the routes of dissipation of the test material. The study author did not state whether the soybean plants were harvested or remained on the plot throughout the study period.

5. The study author stated that day 8 samples (Event #6) "were inadvertently left out of the freezer overnight on the day of receipt" at the analytical laboratory (p. 16). The reviewer notes that, as a result of this error, the day 8 samples may not be useful for the determination of the half-life of flumioxazin. It is further noted that the data reported for that interval do not follow the general pattern of decline observed throughout the study.

6. Confirmation of the application rate was not performed. Typically, application monitoring pads or similar devices of a known surface area are utilized to confirm the application rate.

7. The soil series at the test site was a reported as a Dundee very fine sandy loam soil (Appendix VIII, p. 203); however, based on soil characterization data reported for the top 0-30 cm depth (p. 13), the soil was classified as a silt loam (p. 203).

8. The formulation was reported as a "water dispersible granular formation" for which no formulation code was available (p. 12); therefore, the reviewer reported it as a wettable powder (formulation code 06).

9. The study was conducted at one site (Mississippi). Additional terrestrial field dissipation studies conducted in Illinois (MRID 44295044), Iowa (MRID 4429504), Indiana (MRID 44295047), and North Carolina (MRID 44295048) were also submitted.

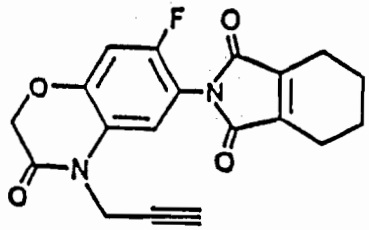
10. The study author stated that during a four-day period the storage freezer was 5 °F (p. 19); the study author stated that freezer storage stability data indicated that storage stability was not affected by the temperature deviation.

11. The nominal application rate for the test compound (42.5 g a.i./A) was slightly less than the proposed maximum use rate for soybeans (43.4 g a.i./A; p. 11). The reviewer notes, however, that in MRID 44295048 (p. 10), the study author stated that the proposed maximum use rate for flumioxazin is 36.1 g a.i./A for soybeans and 43.4 g a.i./A for peanuts.

TABLE 1

Nomenclature and Structures of Reference Standards

Common Name	Chemical Name	Identifying Numbers
Flumioxazin V-53482 S-53482	7-fluoro-6-((3,4,5,6-tetrahydro)phthalimido)-4-(2-propynyl)-1,4-benzoxazin-3(2H)-one	CAS#: 103361-09-7 Lot #: PYG-89021-M Purity: 94.8% Lot #: PPG-90111-M Purity: 94.7%



MATERIALS (CONTINUED)

Summary of Soil Characterization (Treated Plot)

Physical Property	Depth, cm		
	0-30	30-60	60-90
% Sand	26	18	28
% Silt	58	56	58
% Clay	16	26	14
% Organic Matter	1.1	1.1	0.6
pH	6.0	6.4	6.8
Exchange Cap (meq/100 g)	12.6	19.6	11.6
Field Capacity (1/3 bar)	21.03	30.79	17.09
Bulk Density	1.33	1.27	1.29
Textural Classification	Silt Loam	Silt Loam	Silt Loam

WEATHER DATA

Weather information collected at the test site during the study can be found in Appendix VIII along with historical data collected at the NOAA Midsouth Agricultural Weather Service Center in Stoneville, Mississippi. A summary of the weather data for the study interval of interest is tabulated below:

Summary of Weather Conditions During Study

Study Month & Year	Air Temp, °F		% Humidity		Total Rainfall, in.
	Min	Max	Min	Max	
May 1991	52	91	40	94	6.31
June 1991	62	97	35	94	2.58

A comparison of the monthly rainfall during the study with historical rainfall information is presented with the irrigation data in the next section of this report.

MATERIALS (CONTINUED)

PLOT HISTORY

In 1988 the test plot area was fallow. In 1989-90, the test plot area was planted with cotton and treated with Treflan and Cotoran for weed control and with Pydrin, Baythroid, Swat, Orthene, and Curacron for insect control. In 1991, in preparation for study initiation, the plot area was planed and blank planted. On May 14, 1991 (the day of test substance application), Treflan was applied for weed control. Complete pesticide history can be found in the FRDB in Appendix VIII.

TEST METHOD

The study protocol is found in Appendix I. Information on the field portion of the study can be found in Appendix VIII.

APPLICATION

V-53482 WDG Herbicide was applied at the rate of 42.5 grams active ingredient per acre in a single application to bare ground and incorporated to a depth of 1-2 inches. Soybeans were planted in the test plots on the same day that the application was made. The test material was diluted in water and applied in 20 gallons per acre using a tractor mounted spray boom equipped with eight flat fan nozzles (#11003) spaced 20 inches apart. Nozzle height was 18 inches above ground level. The application was made within 30 minutes of preparing the spray mixture. No adjuvants were used in the application.

Pertinent weather information at the time the application was made is summarized in the following table:

Weather Conditions During Application

Application Date	Rainfall (Inches)	Air Temp °F	Soil Temp °F*	Relative Humidity %	Wind MPH/Direction
5/14/91	0.00	75	75	90	4/East

* Soil temperature taken at 2 inch depth.

POST-TREATMENT PLOT MAINTENANCE

On June 14 , Select and Blazer were applied for weed control. Further information on test plot maintenance chemical usage can be found in Appendix VIII.

TEST METHOD (CONTINUED)

IRRIGATION

The test plots were irrigated periodically during the study to ensure 100 to 110% of the monthly average rainfall for the test site area and to maintain soil moisture appropriate for the soybean crop. Complete irrigation information is found in Appendix VIII. The test site irrigation and rainfall data are summarized in the following table along with 30-year average rainfall data from the NOAA, Midsouth Agricultural Weather Service Center in Stoneville, Mississippi:

Summary of Irrigation and Rainfall at Test Site

Study Month	30 Year Avg Rainfall Inches	Rainfall During Study, Inches	Irrigation Applied Inches	Total Inches	% of Monthly Normal Precip.
May	5.09	6.31	0	6.31	124
June	3.72	2.58	0.5	3.08	83
Totals	8.81	8.89	0.5	9.39	107

SAMPLE COLLECTION

At each sampling interval, soil cores were collected to a depth of 90 cm using a zero contamination probe equipped with acetate liners, attached to a Giddings hydraulic sampler. The untreated control plot was always sampled prior to the treated plot. Soil cores were collected from designated subplots in the five sections of the treated plot and the control plot as described in the study protocol. At each scheduled sampling interval, three cores were collected from each of the five designated subplots in the treated plot and, at selected intervals, from the designated subplot in the untreated control plot.

Soil cores were collected from the treated plot one day prior to the application (i.e. pretreatment), immediately after the application and incorporation (Day 0) and also at 1, 3, 5, 8, 14, 21, 28, 56, 84, 114, 175 and 262 days following the application. The untreated control plot was sampled at the pretreatment interval and at 0, 14, 28, 84, and 175 days following the application.

The cores were capped in the field and immediately placed horizontally in insulated coolers on ice and held until sampling was completed. All core samples were placed in a freezer within two hours of sampling and were stored frozen until shipped to Chevron's Residue Laboratory in Richmond, California or Valent's Dublin Laboratory in Dublin, California for analysis. The frozen cores were packed on dry ice in insulated boxes and shipped by overnight delivery.

Soil information for sampling dates of interest are summarized in the following table:

TEST METHOD (CONTINUED)

Summary of Soil Conditions on Sampling Days

Sample Date	Sampling Interval	Soil Moisture % (0-7.5 cm)*	Soil Temperature °F at 15 cm
5/13/91	Day -1	15.2	75
5/14/91	Day 0	14.8	75
5/15/91	Day 1	13.3	76
5/17/91	Day 3	12.1	76
5/19/91	Day 5	17.9	76
5/22/91	Day 8	18.3	75
5/28/91	Day 14	16.7	76
6/04/91	Day 21	10.9	79
6/11/91	Day 28	9.7	77

* Mean of 3 replicate samples.

SAMPLE HANDLING

Segmenting of soil cores was performed in accordance with Chevron's SOP # RE-48/Valent SOP #VR-044, "Segmentation of Soil Cores". For each sampling interval, three replicate composite samples (designated X, Y, and Z) were prepared from the treated plot cores by combining, by depth, one of the three cores from each of the five sampled sections of the treated plot.

For the untreated control plot, one composite sample (designated U) was obtained by combining the appropriate soil segments from the three soil cores collected. All cores were cut while frozen using a power band saw. (Samples for Event #6 were inadvertently left out of the freezer overnight on the day of receipt. The samples were cut the next day). After cutting, samples were placed in polyethylene bags and stored frozen until analysis. Prior to analysis, the samples were thawed for several hours at room temperature and composited by thoroughly mixing by hand. Subsamples were removed for analysis and the remaining sample returned to the freezer.

ANALYSIS

For the treated plot, a minimum of three depth segments (0-7.5, 7.5-15 and 15-22.5 cm) were analyzed at each sampling interval. In addition, for the pretreatment interval and the Day 14, 28, 56, 84, 114, and 175 post-application intervals, the lower depth segments were also analyzed. For the UTC samples, one depth segment was analyzed with each set of treated samples. These depth segments were randomly selected to obtain residue data (i.e. matrix background and recovery) on all segments.

TABLE II
RESIDUES OF FLUMIOXAZIN (TRIAL V-1013)

Sampling Event	Sampling Internal	Sampling Date	Flumioxazin Found, ppm											
			0-7.5 cm	7.5-15 cm	15-22.5 cm	22.5-30 cm	30-37.5 cm	37.5-45 cm	45-52.5 cm	52.5-60 cm	60-67.5 cm	67.5-75 cm	75-82.5 cm	82.5-90 cm
1	Day -1	5/13/91	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005
2	Day 0	5/14/91	0.084 0.040 0.047 0.097 0.082	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005									
3	Day 1	5/15/91	0.081 0.067 0.066	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005									
4	Day 3	5/17/91	0.064 0.058 0.062	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005									
5	Day 5	5/19/91	0.040 0.048 0.065	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005									
6	Day 8	5/22/91	0.028 0.031 0.035	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005									
7	Day 14	5/28/91	0.033 0.031 0.032	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005
8	Day 21	6/4/91	0.019 0.014 0.014	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005									
9	Day 28	6/11/91	0.012 0.011 0.009	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005

TABLE II (CON'T)
RESIDUES OF FLUMIOXAZIN (TRIAL V-1013)

Sampling Event	Sampling Interval	Sampling Date	Flumioxazin Found, ppm											
			0-7.5 cm	7.5-15 cm	15-22.5 cm	22.5-30 cm	30-37.5 cm	37.5-45 cm	45-52.5 cm	52.5-60 cm	60-67.5 cm	67.5-75 cm	75-82.5 cm	82.5-90 cm
10	Day 56	7/9/91	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005
11	Day 84	8/6/91	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005
12	Day 114	9/5/91	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005
13	Day 175	11/5/91	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005	<0.005 <0.005 <0.005

TABLE III

RECOVERY OF FLUMIOXAZIN FROM MISSISSIPPI SOIL

Date Analyzed	Amount Added ppm	Amount Found ppm	% Recovery
05/23/91	0.01	0.011	110
05/23/91	0.01	0.008	83
05/24/91	0.01	0.013	127
05/24/91	0.01	0.009	91
05/28/91	0.01	0.010	105
06/11/91	0.01	0.010	101
05/29/91	0.01	0.010	98
06/07/91	0.01	0.011	114
05/31/95	0.01	0.011	113
06/13/91	0.01	0.011	114
06/04/91	0.01	0.010	99
06/12/91	0.01	0.011	107
06/21/91	0.01	0.011	115
06/19/91	0.01	0.012	120
06/25/91	0.01	0.011	112
07/12/91	0.01	0.010	101
07/12/91	0.01	0.007	73
07/17/91	0.01	0.011	109
07/17/91	0.01	0.009	91
07/19/91	0.01	0.012	116
07/10/91	0.01	0.010	97
07/18/91	0.01	0.011	105
06/18/91	0.01	0.010	100
06/20/91	0.01	0.012	123

TABLE III (continued)

RECOVERY OF FLUMIOXAZIN FROM MISSISSIPPI SOIL

Date Analyzed	Amount Added ppm	Amount Found ppm	% Recovery
06/26/91	0.01	0.011	109
06/27/91	0.01	0.012	115
06/28/91	0.01	0.01	105
07/02/91	0.01	0.009	92
07/23/91	0.01	0.01	103
07/30/91	0.01	0.01	96
07/31/91	0.01	0.01	104
07/31/91	0.01	0.008	85
08/01/91	0.01	0.012	119
08/01/91	0.01	0.01	98
08/21/91	0.01	0.011	114
08/21/91	0.01	0.01	102
08/26/91	0.01	0.01	104
09/04/91	0.01	0.011	114
09/05/91	0.01	0.01	96
09/06/91	0.01	0.01	101
09/17/91	0.01	0.011	111
09/18/91	0.01	0.008	76
09/26/91	0.01	0.01	96
09/27/91	0.01	0.01	98
09/30/91	0.01	0.011	105
10/01/91	0.01	0.011	110

TABLE III (continued)

RECOVERY OF FLUMIOXAZIN FROM MISSISSIPPI SOIL

Date Analyzed	Amount Added ppm	Amount Found ppm	% Recovery
10/02/91	0.01	0.010	102
03/05/92	0.01	0.008	84
03/24/92	0.01	0.008	76
03/24/92	0.01	0.012	117
03/27/92	0.01	0.009	93
03/27/92	0.01	0.009	88
03/31/92	0.01	0.009	91
04/01/92	0.01	0.009	92
04/16/92	0.01	0.011	106
08/19/92	0.01	0.009	91
Mean Recovery			102
Coefficient of Variation (n=56)			11.8
07/16/91	0.05	0.041	82
08/09/91	0.05	0.050	101
09/09/91	0.05	0.061	121
11/08/91	0.05	0.056	111
Mean Recovery (0.05 ppm Level)			104
Coefficient of Variation (n=4)			16.0
Overall Mean Recovery			102
Coefficient of Variation (n=60)			11.9

TABLE IV

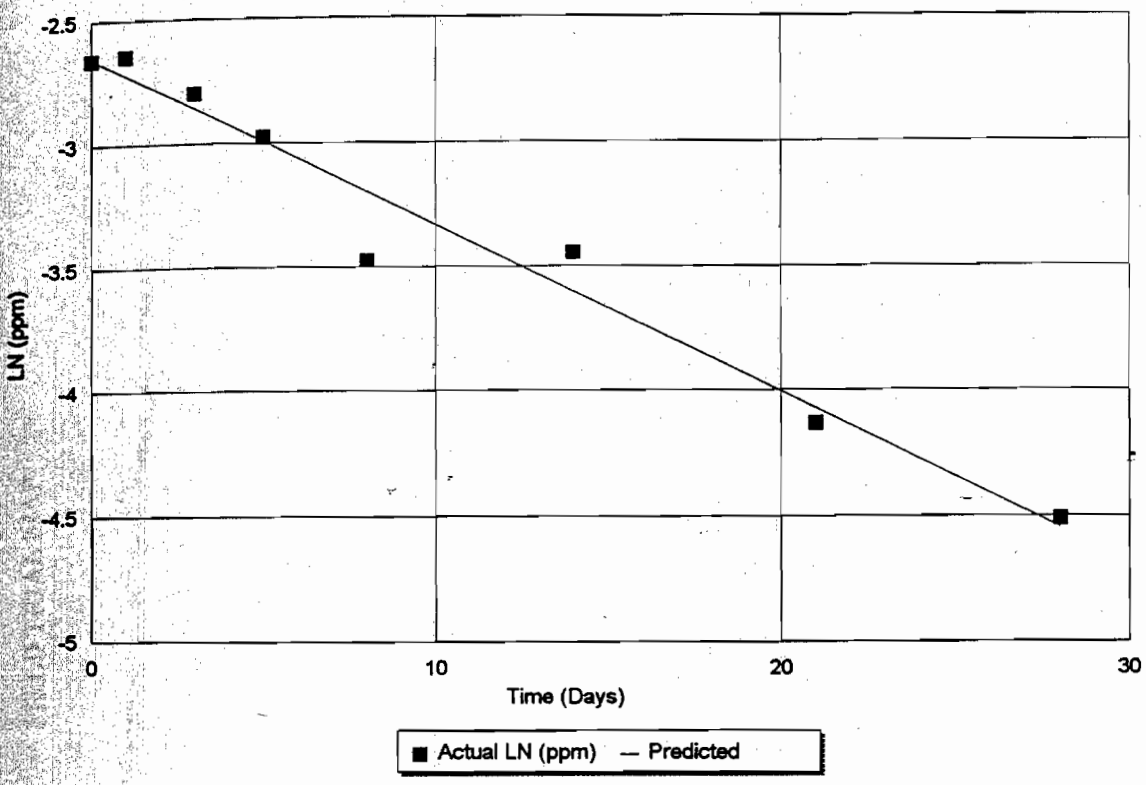
FREEZER STORAGE STABILITY OF FLUMIOXAZIN IN MISSISSIPPI SOIL

Time Interval Days	% Recovery (0.05 ppm Fortification)			Corrected Mean Recovery %
	Freshly Fortified	Stored Sample A	Stored Sample B	
0	82	90	86	86*
30	101	86	104	94
60	121	115	112	94
120	111	102	102	92
279	106	85	85	80
405	91	92	90	100

* This result is mean of the 3 results.

FIGURE 1

Disssipation of Flumioxazin From Mississippi Soil
1991 Trial V-1013-A



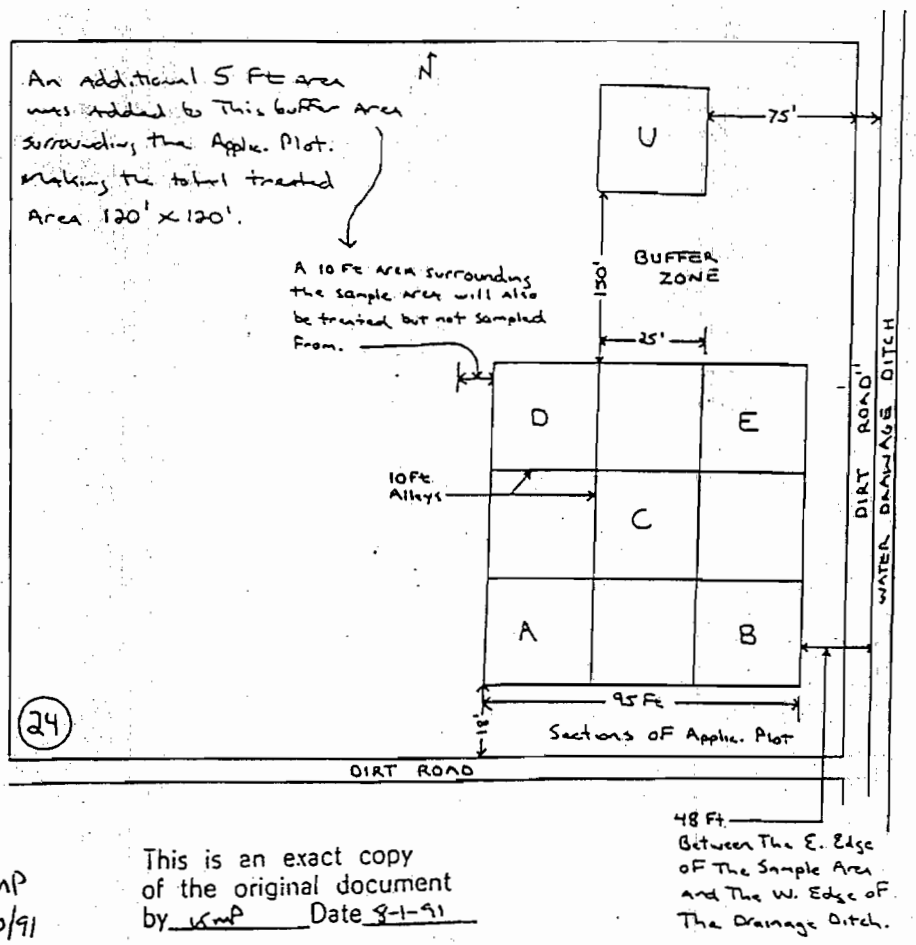
Log Least Square Estimate of 'm' and 'b' for: Y = b*EXP(mX) (or LN Y = mX + LN b) and for correlation coefficient 'r'.					
m=	-0.06754				
LN b=	-2.65435				
b=	0.07034				
Half-life=	10.26 Days				
r=	-0.98254				
X (Days)	Y (ppm)	LN Y	LN YP	YP	Residual
0	0.07	-2.65926	-2.65435	0.070345	0.004914
1	0.071	-2.64508	-2.72189	0.065751	-0.07681
3	0.061	-2.79688	-2.85697	0.057443	-0.06008
5	0.051	-2.97593	-2.99205	0.050185	-0.01612
8	0.031	-3.47377	-3.19467	0.04098	0.279103
14	0.032	-3.44202	-3.5999	0.027326	-0.15789
21	0.016	-4.13517	-4.07268	0.017032	0.062482
28	0.011	-4.50986	-4.54546	0.010615	-0.0356

VALENT TRIAL NUMBER: V- 1013A 6

D.3 PLOT PLAN

NORTH

Percent Slope: 0.5 to 2%



KMP 4/10/91

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Provide Dimensions -- Include sprayed area and buffer area measurements.

COMMENTS: Total treated area is 120'x120'.

COMPLETED BY (SIG): K. M. Perry DATE: 4/10/91