FILE

6/8/93

MRID No. 425739-01

DATA EVALUATION RECORD

1. **CHEMICAL:** Flumetsulam (Triazolo pyrimidine). Shaughnessey No. 129016.

2. **TEST MATERIAL:** DE-498 technical; Lot No. ADE2041FNEO1; 98% purity; a white powder.

3. **STUDY TYPE:** 123-1. Non-Target Plants: Seed Germination, Seedling Emergence, and Vegetative Vigor Phytotoxicity Tests - Tier 2. Species Tested: Soybean, Lettuce, Radish, Rape, Tomato, Sugarbeet, Cucumber, Cabbage, Oat, Ryegrass, Corn, and Onion.

4. **CITATION:** Feutz, E. 1992. Evaluating the Effects of DE-498 on the Germination, Emergence, and Vegetative Vigor of Non-Target Terrestrial Plants. Laboratory Project ID No. 40291. Conducted by ABC Laboratories, Inc., Columbia, MO. Submitted by DowElanco, Indianapolis, IN. EPA MRID No. 425739-01.

5. **REVIEWED BY:**

Michael Davy
Agronomist
USEPA/OPP/EFED/EEB

Signature: Michael Davy
Date: 6-2-93

6. **APPROVED BY:**

Daniel Rieder
Section Head
USEPA/OPP/EFED/EEB

Signature: Daniel Rieder 6-8-93
Date:

7. **CONCLUSIONS:** Germination, Seedling Emergence, Vegetative Vigor: the results for all the species tested except rape are scientifically sound but do not meet the guideline requirements for Tier 2 non-target plant phytotoxicity studies. A negative control was not included in the study design. However, tests conducted to examine the effect of the solvent systems used on plant growth in comparison to a negative control could possibly validate the results. The rape was invalid due to three other fungicides were applied but since there are more than 10 species left without rape, rape need not to be redone except in the seedling emergence and vegetative vigor studies since this species is one of the most sensitive species.

1

Germination: The NOEL and LOEL for percentage germination for the eleven test species are 0.0675 and >0.0675 lb ai/A, respectively. No EC_{25} value could be found due to lack of sensitivity to DE-498.

The EC_{25} and EC_{50} values for the most sensitive species (sugar beet) are 0.0060 lb ai/A and 0.0271 lb ai/A, respectively for the root length parameter. Rape is more sensitive with EC_{25} and EC_{50} values of 0.0032 lb ai/A and 0.0144 lb ai/A, respectively, but the rape study is invalid because of the 3 additional fungicides added to the test. EC_{25} values could not be determined for the monocots due to lack of sensitivity.

Seedling Emergence: The NOEL and LOEL for percentage emergence for the eleven test species are 0.0675 and >0.0675 lb ai/A, respectively.

Only three out of twelve species showed 25% inhibition in the shoot length parameter. The most sensitive species (rape) had three different fungicide treatments and therefore was invalid. Of the remaining, cucumber was the most sensitive species with an EC_{25} =0.00159 lb ai/A and EC_{50}=0.4580 lb ai/A. No inhibition greater than 25% was found in the monocots.

Vegetative Vigor: None of the grasses showed any significant inhibition but onion (a monocot) had an EC_{25} of 0.0004 lb ai/A and NOEL=0.000093 lb ai/A for shoot weight. The most sensitive dicot was the radish with an EC_{25} of 0.0003 lb ai/A and NOEL=0.000093 lb ai/A for shoot length and shoot weight. Rape was treated with three other fungicides thereby invalidating the test for rape. Even with the additional treatments, rape EC_{25} = 0.0001 lb ai/A and NOEL=0.000093 lb ai/A for shoot length.

8. **RECOMMENDATIONS:** Rape be redone for germination, seedling emergence, and vegetative vigor tests because preliminary testing indicate that this species may be the most sensitive species but tests were done with fungicide treatments without a valid controls, thereby making the tests invalid. Negative control data should be furnished for all tests in order to upgrade studies to core category.

9. **BACKGROUND:**

10. **DISCUSSION OF INDIVIDUAL TESTS:** N/A.

11. **MATERIALS AND METHODS:**

A. **Test Plants:** Dicotyledon plants were represented by eight species from six families (i.e., soybean, lettuce, radish, rape, sugarbeet, tomato, cucumber, and cabbage). Monocotyledon plants were represented by four species from two families (i.e., corn, oat, ryegrass, and onion). Cultivars, seed sources, lot numbers, and germination ratings were provided in the report. Rape seed was treated with benomyl, iprodione, and captan.

B. **Test System:**
Seed Germination: Two circles of filter paper were placed in the bottom of each disposable petri plate (9- or 15-cm diameter). The highest concentration test solution was prepared in either a 2.5 or 5% acetone deionized water solution or a 2.5% methanol deionized water solution. Lower concentration test solutions were prepared by serial dilution of the highest concentration test solution with the appropriate solvent system. Twenty milliliters of the test solution were added to each plate of soybean, cucumber, oat, sugarbeet, and corn. Seven milliliters were added to plates of rape, lettuce, radish, tomato, cabbage, ryegrass, and onion. Solution addition was done immediately after solution preparation.

Ten seeds of each crop (25 for sugarbeet) were added to each petri plate. The plates were covered with moist towels to reduce evaporation of the compound. The plates were placed in an incubator which was maintained at 20 to 25°C. The relative humidity in the incubator was >90%. The seeds were incubated for five or six days.

Seedling Emergence: Ten seeds of each crop were planted in each plastic pot (10 x 10 x 14 cm), filled with sandy-loam soil (pH 7.0, 0.8% organic matter) and then the test material was applied to the soil. Application was accomplished within 24 hours after planting.

All applications were performed with a single nozzle track sprayer pressurized to 30 psi. The highest rate test solution was prepared in a 5% acetone deionized water solution containing 0.25% v/v X-77 surfactant. Lower rate test solutions were prepared by serial dilution of the highest rate test solution with the

same solvent system. The plants were sprayed at the equivalent of 40 gpa.

The pots were kept within a growth room located inside a greenhouse. The room measured 8 by 24 feet and was supplied with supplemental lighting which provided illumination of 14 hours per day. Irrigation was accomplished with drip emitters and pots were watered 1-2 times per day for a total of 60 ml/pot/day. Temperature ranged from 19 to 39°C and the relative humidity was 38-99%.

Vegetative Vigor: Seeds of each crop were planted in plastic pots (10 x 10 x 14 cm) filled with a sandy-loam soil (pH 7.0, 0.8% organic matter). Each pot was thinned to five plants/pot before application. Solution preparation and application conditions were identical to the seedling emergence test. The test was conducted in a greenhouse with an approximate photoperiod of 15 hours of light per day. The greenhouse was maintained at 15-36°C with a relative humidity of 20-99% and each pot of plants received 35 or 81 ml of water/day.

C. **Dosage:** All three studies were conducted at rates of 0.000093, 0.00028, 0.00083, 0.0025, 0.0075, 0.0225, and 0.0674 lb active ingredient (ai)/acre (A). The test solutions were not adjusted for percent purity of the test material (98%). The maximum proposed labeled rate of the test compound was reported to be 0.0675 lb ai/A. A solvent control was prepared for all studies. No negative control was prepared.

D. **Design:**
Seed Germination: Each treatment/crop combination was replicated four times (i.e., 10 or 25 seeds/plate, 4 plates/treatment) and plates were randomly placed in the incubator using a randomized complete block design. After 5 or 6 days of incubation, percent seed germination was calculated for all species by measuring the radicle lengths. Seeds were considered germinated if the radicle was 5 mm long. Toxicological observations were also noted.

Seedling Emergence: Each crop/treatment combination was replicated four times (i.e., 10 seeds/pot, 4 pots/ treatment level). The pots were randomized within the environmental room by species.

The percentage of the 10 seeds planted in each pot which emerged was calculated for each treatment two weeks after application. A seedling was considered emerged when the cotyledons penetrated the soil surface. Shoot length at test termination (2 weeks) was measured and toxicological observations were noted.

Vegetative Vigor: Each crop/treatment combination was replicated four times (i.e., 5 plants/pot, 4 pots/ treatment level). After treatment, the pots were randomized within species in the greenhouse and allowed to grow for 18-22 days.

At test termination, shoot height was measured by extending the seedling to its maximum height and recording the height to the nearest millimeter for monocot species and lettuce. Measurements were made to the apical bud for dicot species. Shoots were dried for a minimum of 48 hours at 40-60°C and weighed to the nearest 0.01 g. Signs of phytotoxicity were rated based on a scale extending from 0 to 100% and the rating was based on all plants within a pot.

E. **Statistics:** All data were entered into a Lotus 1-2-3 spreadsheet. The spreadsheet calculated replicate means, treatment means and standard deviations. Treatment means were used to calculate the percent effect resulting from the treatment. Analysis of variance (ANOVA) and Dunnett's test ($p \leq 0.05$) were used to determine significant differences between each treatment and the solvent control. Percentage data were transformed by the arcsine of the square-root of the proportion. The EC_{25} and EC_{50} values were determined using nonlinear regression.

12. **REPORTED RESULTS:**

Seed Germination: Treatment related toxicological effects noted were reduced radicle elongation. The effects on germination and initial radicle growth were not considered severe. The most affected species appeared to be cucumber, radish, rape, and sugarbeet.

Percent germination: No significant difference in percent germination existed between treatment and solvent control means for all test species. The no-observed-effect-level (NOEL) for all species was equal to or greater than the maximum concentration of 0.203 μg ai/ml (Table 29, attached).

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Radicle length: The NOELs of the twelve species, in increasing sensitivity to DE-498 for the germination percentage parameter (in μg ai/ml) are: lettuce = oat = onion = ryegrass = soybean (≥0.203) < tomato = corn (0.0676) < cabbage (0.0226) < cucumber = radish (0.0075) < rape (0.0025) < sugarbeet (0.00084). No EC_{25} value could be found due to lack of sensitivity to DE-498.

The EC_{25} and EC_{50} values for the most sensitive species (sugar beet) are 0.0060 lb ai/A and 0.0271 lb ai/A, respectively for the root length parameter. Rape is more sensitive with EC_{25} and EC_{50} values of 0.0032 lb ai/A and 0.0144 lb ai/A, respectively, but the rape must be declared to be invalid because of the 3 additional fungicides added to the test. EC_{25} values could not be determined for the monocots due to lack of sensitivity.

Seedling Emergence: The major response to DE-498 treatment was reduced growth. The most affected species appeared to be cabbage, cucumber, onion, radish, rape, and sugarbeet.

Percent emergence: No significant difference in percent emergence existed between treatment and solvent control means for all test species except cucumber. The NOEL for all species except cucumber was ≥0.0674 lb ai/A. The NOEL for cucumber was 0.00028 lb ai/A (Table 44, attached).

Shoot length: The NOELs of the twelve species, in increasing sensitivity to DE-498 (in lb ai/A) are:

oat = onion = radish = soybean (≥0.0674) < corn = ryegrass = tomato = sugarbeet (0.0225) < cabbage = cucumber = lettuce = rape (0.0075).

Only one species (rape) demonstrated inhibition greater than 50%. The EC_{25} and EC_{50} for rape shoot length were 0.0079 and 0.0288 lb ai/A, respectively. The EC values for the remaining species were not determined.

Vegetative Vigor: Signs of phytotoxicity were manifested as chlorosis and stunted growth. These symptoms were generally dose dependent.

Shoot length: The NOELs of the twelve species, in increasing sensitivity to DE-498 (in lb ai/A) are:

lettuce = oat = ryegrass = soybean (≥0.0674) < corn (0.0225) < cucumber (0.0025) < cabbage (0.00083) < sugarbeet = tomato (0.00028) < rape = radish (0.000093) < onion (<0.000093).

The EC_{25} and EC_{50} values for the test species are listed in Table 57 (attached).

Shoot weight: The NOELs of the twelve species, in increasing sensitivity to DE-498 (in lb ai/A) are:

lettuce = ryegrass ($\geq$0.0674) < corn = soybean (0.0225) < oat (0.0075) < cucumber = sugarbeet (0.0025) < rape (0.00083) < cabbage = tomato (0.00028) < radish = onion (0.000093).

The EC_{25} and EC_{50} values for the test species are listed in Table 57 (attached) and the NOEL values are listed in Table 58 (attached).

13. **STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES:** The author concluded that the species in the Cruciferae family (cabbage, radish, and rape) appeared to the most sensitive to DE-498, while those of the Graminae (corn, oat, and ryegrass) appeared to resistant. The remaining families demonstrated varying degrees of sensitivity.

Quality Assurance Unit and Good Laboratory Practice (GLP) statements were included in the report, indicating compliance to 40 CFR Part 160.

14. **REVIEWER'S DISCUSSION AND INTERPRETATION OF STUDY RESULTS:**

A. **Test Procedure:** The test procedures did not follow the SEP and Subdivision J guidelines; the following are deviations:

A negative control was not included in the study design.

A three-fold (rather than the recommended two-fold) dilution progression was used for the test rates.

The NOEL was not determined for onion shoot length for the vegetative vigor study.

Rape seed was treated with three different fungicides.

Raw data for percent germination and emergence were not submitted.

B. **Statistical Analysis:** Analysis of variance and Dunnett's test were used to determine the NOEL and lowest-observed-effect level (LOEL) and probit analysis was used to determine the EC values. The most

sensitive valid species and parameter for the vegetative vigor study was radish shoot length. The results obtained by the reviewer are either similar or slightly less conservative than those of the author (see attached printouts). Statistical analysis was not conducted for the germination and emergence studies due to the factors mentioned in the next section.

C. **Discussion/Results:**

Seed Germination: Since there was not a negative control included in the study design, the solvent effects on growth (radicle elongation) could not be determined. Perhaps a test comparing negative control radicle elongation to solvent control elongation could be conducted to determine if the solvent control solution system affected solvent control plant growth. As it stands now, this study does not meet the guideline requirements for a Tier 2 non-target plant phytotoxicity study.

Germination of the twelve species was within 8% of the germination listed for the seeds. Therefore, the effects of DE-498 on percentage germination could be viewed as valid information (except for rape, which is invalid due to seed treatment). The NOEL and LOEL for percentage germination for the eleven test species are 0.0675 and >0.0675 lb ai/A, respectively.

Seedling Emergence: The NOEL and LOEL for percentage emergence for the eleven test species are 0.0675 and >0.0675 lb ai/A, respectively. Only three out of twelve species showed 25% inhibition in the shoot length parameter. The most sensitive species (rape) had three different fungicide treatments and therefore was invalid. Of the remaining, cucumber was the most sensitive species with an EC_{25} =0.00159 lb ai/A and EC_{50}=0.4580 lb ai/A. No inhibition greater than 25% was found in the monocots.

Vegetative Vigor: Toxicological effects noted for the vigor study included chlorosis, stunting, and mortality. For all species except tomato, the solvent control received a rating of 0% (no effects) for all three categories. Solvent control tomato plants received a rating of 3% for stunting which may not be significant. With the elimination of rape (due to seed treatment), there are eleven remaining test species and the reviewer determined the NOELs for toxicity by

determining at what rate all three categories were scored below 25%. The NOELs of the ten species, in increasing sensitivity to DE-498 (in lb ai/A) are:

corn =lettuce = oat = ryegrass (0.0674) < soybean (0.0225) < cucumber (0.0075) < cabbage = onion = tomato = radish (0.00083) < sugarbeet (0.00028).

Since the effect of the solvent system used in this study could not be determined due to the lack of a negative control, it is not known if solvent control growth was affected in some manner that was not measured by the three categories of chlorosis, stunting, and mortality. Perhaps a test comparing negative control growth to solvent control growth could be conducted to determine if the solvent control solution system affected solvent control plant growth. As it stands now, this study is not scientifically sound and does not meet the guideline requirements for a Tier 2 non-target plant phytotoxicity study.

None of the grasses showed any significant inhibition but onion (a monocot) had an EC_{25} of 0.0004 lb ai/A and NOEL=0.000093 lb ai/A for shoot weight. The most sensitive dicot was the radish with an EC_{25} of 0.0003 lb ai/A and NOEL=0.000093 lb ai/A for shoot length and shoot weight. Rape was treated with three other fungicides thereby invalidating the test for rape. Even with the additional treatments, rape EC_{25} = 0.0001 lb ai/A and NOEL=0.000093 lb ai/A for shoot length.

D. **Adequacy of the Study:**

(1) **Classification:** Supplemental for all studies. Only for the species rape is all studies invalid.

(2) **Rationale:** Lack of a negative control (supplemental) and 3 added fungicide treatments to rape (invalid).

(3) **Repairability:** Tests conducted to examine the effect of the solvent systems used on plant growth in comparison to a negative control could possibly validate the results for the studies and redo rape without added pesticides for emergence and vigor studies.

15. **COMPLETION OF ONE-LINER:** Yes, ~~1-14-93.~~ 6-2-93 MW

DATA EVALUATION RECORD

1. **CHEMICAL:** Flumetsulam (Triazolo pyrimidine). Shaughnessey No. 129016.

2. **TEST MATERIAL:** DE-498 technical; Lot No. ADE2041FNE01; 98% purity; a white powder.

3. **STUDY TYPE:** 123-1. Non-Target Plants: Seed Germination, Seedling Emergence, and Vegetative Vigor Phytotoxicity Tests - Tier 2. Species Tested: Soybean, Lettuce, Radish, Rape, Tomato, Sugarbeet, Cucumber, Cabbage, Oat, Ryegrass, Corn, and Onion.

4. **CITATION:** Feutz, E. 1992. Evaluating the Effects of DE-498 on the Germination, Emergence, and Vegetative Vigor of Non-Target Terrestrial Plants. Laboratory Project ID No. 40291. Conducted by ABC Laboratories, Inc., Columbia, MO. Submitted by DowElanco, Indianapolis, IN. EPA MRID No. 425739-01.

5. **REVIEWED BY:**

Mark A. Mossler, M.S.
Agronomist
KBN Engineering and
Applied Sciences, Inc.

Signature: Mark A. Mossler
Date: 1/21/93

6. **APPROVED BY:**

Pim Kosalwat, Ph.D.
Senior Scientist
KBN Engineering and
Applied Sciences, Inc.

Signature: P. Kosalwat
Date: 1/21/93

Henry T. Craven, M.S.
Supervisor, EEB/EFED
USEPA

Signature: Michael Dam 2-93
Date: 2-6-93 Henry Craven

7. **CONCLUSIONS:** For all three studies, the results are not scientifically sound and do not meet the guideline requirements for Tier 2 non-target plant phytotoxicity studies. A negative control was not included in the study design. However, tests conducted to examine the effect of the solvent systems used on plant growth in comparison to a negative control could possibly validate the results for the germination and vegetative vigor studies (except for rape).

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RIN 1948-94

FLUMETSULAM REVIENS (129016)

Page_____ is not included in this copy.

Pages 11 through 19 are not included.

The material not included contains the following type of information:

____ Identity of product inert ingredients.

____ Identity of product impurities.

____ Description of the product manufacturing process.

____ Description of quality control procedures.

____ Identity of the source of product ingredients.

____ Sales or other commercial/financial information.

____ A draft product label.

____ The product confidential statement of formula.

____ Information about a pending registration action.

✓ FIFRA registration data.

____ The document is a duplicate of page(s) _____.

____ The document is not responsive to the request.

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.

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radish shoot length

Summary Statistics and ANOVA

Transformation = None

Group (rate (lb ai/A))	n	Mean	s.d.	cv%
1 = control	4	35.7500	7.8899	22.1
2 0.000093	4	30.7500	5.1235	16.7
3 0.00028	4	28.2500	5.1881	18.4
4*0.00083	4	18.5000	4.5092	24.4
5*0.0025	4	13.2500	2.5000	18.9
6*0.0075	4	3.0000	4.0628	135.4
7*0.0225	4	.0000	.0000	.0
8*0.675	4	.0000	.0000	.0

NOEL = 0.00028 lb ai/A

LOEL = 0.00083 lb ai/A

*) the mean for this group is significantly less than the control mean at alpha = 0.05 (1-sided) by Dunnett's test

Minumum detectable difference for Dunnett's test = -7.805765
This difference corresponds to -21.83 percent of control

Between groups sum of squares = 5808.875000 with 7 degrees of freedom.

Error mean square = 19.813333 with 24 degrees of freedom.

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*                                                *
* Warning - the test for equality of variances   *
* could not be computed as 1 or more of the      *
* variances is zero.                             *
*                                                *
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radish shoot length

Estimated EC Values and Confidence Limits

Point	Conc.	Lower 95% Confidence Limits	Upper 95% Confidence Limits
EC 1.00	0.0000	0.0000	0.0001
EC 5.00	0.0001	0.0000	0.0001
EC10.00	0.0001	0.0000	0.0002
EC15.00	0.0002	0.0001	0.0003
EC50.00	0.0009	0.0005	0.0015
EC85.00	0.0052	0.0029	0.0131
EC90.00	0.0078	0.0041	0.0233
EC95.00	0.0145	0.0068	0.0552
EC99.00	0.0461	0.0170	0.2862

$y = 9.14 + 1.36(x)$

y = probit % inhibition

x = log (rate)

$EC_{25} = 0.0003$ 16 oz/A

ABC LABORATORIES
Analytical Bio-Chemistry Laboratories, Inc.

May 26, 1993

Mike Davy
Environmental Protection Agency
OPP/EFED/EEB (H7507C)
401 M Street, SW
Washington, DC 20460

RE: "Tier 2 Seed Germination, Seedling Emergence, and Vegetative Vigor Study with DE-498".

Dear Mike:

Per your request I am providing you with the following information concerning the seedling emergence test for the above mentioned study. The pots used for this test were described as 12 Nu-Pots® and each were filled to within one inch of the top with a sandy-loam soil. On May 19, 1992 the pots were planted with 10 seeds per pot. The seeds were removed from the storage in a refrigerator just prior to planting. The soil was dry at planting and were not irrigated until after treatment. On May 20, 1992 the pots were transfered to the spray booth located at the University of Missouri to be treated with the test spray solutions which were prepared on May 20, 1992. The application of spray solutions was made to the bare-ground surface of the pre-planted pots for the emergence test initiation. After application the pots were placed inside a plant growth chamber at ABC Laboratories for the duration of the test.

On May 20, 1992 the seedlings for the vegetative vigor study were also treated with the same spray solutions as used for the emergence test. The application was made to the actively growing seedlings for the initiation of the vegetative vigor test.

If you have any questions please do not hesitate to call me at (314) 474-8579.

Sincerely,

Eric Feutz

Eric Feutz
Agricultural Specialist III

cc: Dennis Lade Ph.D

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CABBAGE EMERGENCE SHOOT LENGTH

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
.0674	100	42	42	0
.0225	100	42	42	0
.0075	100	16	16	0
.0025	100	5	5	0
.00083	100	0	0	0
.00028	100	0	0	0
.000093		100	0	0

0

THE BINOMIAL TEST SHOWS THAT .0674 AND +INFINITY CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 0

THE MOVING AVERAGE METHOD CANNOT BE USED WITH THIS DATA SET BECAUSE NO SPAN WHICH PRODUCES MOVING AVERAGE ANGLES THAT BRACKET 45 DEGREES ALSO USES TWO PERCENT DEAD BETWEEN 0 AND 100 PERCENT.

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
4	.1589193	2.413091	3.390193E-02

SINCE THE PROBABILITY IS LESS THAN 0.05, RESULTS CALCULATED USING THE PROBIT METHOD PROBABLY SHOULD NOT BE USED.

SLOPE = 1.156468
95 PERCENT CONFIDENCE LIMITS = .6954456 AND 1.61749

LC50 = 6.165569E-02
95 PERCENT CONFIDENCE LIMITS = 3.260385E-02 AND .1974683

LC10 = 4.918144E-03
95 PERCENT CONFIDENCE LIMITS = 1.757852E-03 AND 8.96292E-03

****

[3] From: Jim Goodyear 5/27/93 9:48AM (9959 bytes: 15 ln, 1 fl)
To: Jim Goodyear
Subject: Concurence
---------- Message Contents ----------

Text item 1:

There is a WordPerfect text attached to this file. To retrieve it into a WordPerfect file follow these steps:

F10

RAPE EMERGENCE SHOOT LENGTH

****

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
.0674	100	68	68	0
.0225	100	46	46	0
.0075	100	33	33	0
.0025	100	0	0	0
.00083	100	29	29	0
.00028	100	0	0	0
.000093		100	0	0

0

THE BINOMIAL TEST SHOWS THAT .0225 AND .0674 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS .027373

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
2	.1525867	2.502214E-02	1.698828E-02	3.829783E-02

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
4	.6959236	15.51319	0

A PROBABILITY OF 0 MEANS THAT IT IS LESS THAN 0.001.

SINCE THE PROBABILITY IS LESS THAN 0.05, RESULTS CALCULATED USING THE PROBIT METHOD PROBABLY SHOULD NOT BE USED.

SLOPE = .9023472

95 PERCENT CONFIDENCE LIMITS = .1495908 AND 1.655104

LC50 = 2.562401E-02

95 PERCENT CONFIDENCE LIMITS = 5.549739E-03 AND 46.01387

LC10 = 1.002782E-03

95 PERCENT CONFIDENCE LIMITS = 2.984408E-08 AND 4.733162E-03

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****

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
.0674	100	41	41	0
.0225	100	38	38	0
.0075	100	27	27	0
.0025	100	27	27	0
.00083	100	27	27	0
.00028	100	16	16	0
.000093		100	16	16

0

BECAUSE THE NUMBER OF ORGANISMS USED WAS SO LARGE, THE 95 PERCENT CONFIDENCE INTERVALS CALCULATED FROM THE BINOMIAL PROBABILITY ARE UNRELIABLE. USE THE INTERVALS CALCULATED BY THE OTHER TESTS.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 0

THE MOVING AVERAGE METHOD CANNOT BE USED WITH THIS DATA SET BECAUSE NO SPAN WHICH PRODUCES MOVING AVERAGE ANGLES THAT BRACKET 45 DEGREES ALSO USES TWO PERCENT DEAD BETWEEN 0 AND 100 PERCENT.

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
2	.1523311	1	.7496062

SLOPE = .2742143

95 PERCENT CONFIDENCE LIMITS = .1671895 AND .381239

LC50 = .4580145

95 PERCENT CONFIDENCE LIMITS = 9.553535E-02 AND 13.01057

LC10 = 1.070198E-05

95 PERCENT CONFIDENCE LIMITS = 2.363067E-07 AND 6.216839E-05

****

SLOPE = .2742143 LC50 = .4580145 LC25 = 1.589225E-03

SLOPE = 1.156468 LC50 = 6.165569E-02 LC25 = .0161046

SLOPE = .9023472 LC50 = 2.562401E-02 LC25 = 4.586051E-03

XRM 5313
Trifluralin + XRM 5019

XRM5019
file copy

D168576
DPBARCODE (RECORD)
036101, 129016
SHAUGHNESSY NO

REVIEW NO.

EEB REVIEW

DATE IN: 09-13-91 OUT: _____

CASE # : 030562 REREG CASE #: _____
SUBMISSION # : S402332 LIST A B C D
ID # : 062719-EUP-RT

DATE OF SUBMISSION 08-13-91

DATE RECEIVED BY EFED 09-11-91

SRRD/RD REQUESTED COMPLETION DATE 11-29-91

EEB ESTIMATED COMPLETION DATE 11-29-91

SRRD/RD **ACTION** CODE/TYPE OF REVIEW 710 - EUP

MRID #(S) _____

_____

DP TYPE 001 - Submission Related Data Package

PRODUCT MANAGER, NO. J. Miller (23)

PRODUCT NAME(S) Trifluralin plus XRM-5019 (DE-498)

TYPE PRODUCT F R I N H D Herbicide

COMPANY NAME DowElanco

SUBMISSION PURPOSE EUP Review - soybeans

INCLUDE USE(S) _____

_____

COMMON CHEMICAL NAME Trifluralin, XRM-5019

DP BARCODE: D168576

CASE: 030562 DATA PACKAGE RECORD DATE: 09/10/91
SUBMISSION: S402332 BEAN SHEET Page 1 of 1

* * * CASE/SUBMISSION INFORMATION * * *

CASE TYPE: EUP (SECT 5) ACTION: 710 EUP-NC-F/F USE
CHEMICALS: 036101 Trifluralin (a,a,a-trifluro-2,6-dinitro-N,N-dipro 36.3500%
129016 xrm 5019 herbicide 2.6700%

ID#: 062719-EUP-RT
COMPANY: DOWELANCO
PRODUCT MANAGER: 23 JOANNE MILLER 703-557-1830 ROOM: CM2 237
PM TEAM REVIEWER: STEVEN ROBBINS 703-557-8611 ROOM: CM2 255
RECEIVED DATE: 08/13/91 DUE OUT DATE: 12/11/91

* * * DATA PACKAGE INFORMATION * * *

DP BARCODE: 168576 EXPEDITE: N DATE SENT: 09/10/91 DATE RET.: / /
CHEMICAL: 036101 Trifluralin (a,a,a-trifluro-2,6-dinitro-N,N-dipropyl-p-tol
DP TYPE: 001 Submission Related Data Package
ADMIN DUE DATE: 11/29/91 CSF: N LABEL: Y

ASSIGNED TO	DATE IN	DATE OUT
DIV : EFED	09/11/91	/ /
BRAN: EEB	09/13/91	/ /
SECT:	/ /	/ /
REVR :	09/17/91	/ /
CONTR:	/ /	/ /

* * * DATA REVIEW INSTRUCTIONS * * *

Please review this submission for an EUP with Temp. Tol. 1G4006. The Registrant has cited data submitted to support another EUP (62719-EUP-RA) routed to EEB on 8/12/91. Please check the Data Matrix (attached) for the MRID#s of these studies. Please advise as to the acceptability of this EUP.

* * * ADDITIONAL DATA PACKAGES FOR THIS SUBMISSION * * *

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL
168579	EFGB	09/10/91	11/29/91	Y	N	Y
168581	TB-2	09/10/91	11/29/91	Y	N	Y
168583	TSCB	09/10/91	11/29/91	Y	Y	Y
168585	FHB/PMT-21	09/10/91	11/29/91	Y	N	Y