260326,260329
RECORD NO.

129008
SHAUGHNESSEY NO

REVIEW NO.

EEB REVIEW

DATE: IN 03/02/90 OUT MAY 23 1990

FILE OR REG. NO. 352-LGU; 352-LGL

PETITION OR EXP. NO.

DATE OF SUBMISSION 02/22/89

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RD ACTION CODE/TYPE OF REVIEW 101

TYPE PRODUCT(S) Herbicide

DATA ACCESSION NO(S) 413943-01

PRODUCT MANAGER, NO. Taylor(25)

PRODUCT NAME(S) Accent Herbicide

COMPANY NAME du Pont

SUBMISSION PURPOSE Review plant data

SHAUGHNESSEY NO.	CHEMICAL	% A.I.
129008	Nicosulfuron	75

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

MAY 23 1990

MEMORANDUM

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

SUBJECT: Review of Phytotoxicity Data for Accent Herbicide

FROM: James W. Akerman, Chief
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

TO: Robert J. Taylor, PM 25
Herbicide-Fungicide Branch
Registration Division (H7505C)

The Ecological Effects Branch has completed its review of the terrestrial nontarget plant data submitted by E. I. du Pont de Nemours and Company for Accent Herbicide (Nicosulfuron). The following is a brief summary of the data:

Rowe, S. W. 1989. Hazard Evaluation of Nicosulfuron on Non-target Plants Grown Under Greenhouse Conditions - Tiers I and II. Accession No. 413943-01.

Seedling emergence - The study does not satisfy the data requirement for either a Tier I or Tier II seedling emergence test. After emergence, but before evaluation, emerged plants were thinned.

Vegetative vigor - The study appears to be scientifically sound, however insufficient data were submitted with the study. A complete description of the soil must be provided along with additional information on the method of herbicide application and sprayer description. Submission of required data may satisfy the requirement for a Tier II study. EC25 values based on fresh weight were: soybean >62.00 gm/ha, cotton >62.00 gm/ha, snapbean >62.00 gm/ha, peanut >62.00 gm/ha, cabbage >62.00 gm/ha, corn >62.00 gm/ha, cucumber 33.77 gm/ha, wheat 29.51 gm/ha, alfalfa 14.74 gm/ha, barley 14.13 gm/ha, sugarbeet 8.59 gm/ha, onion 5.32 gm/ha, lettuce 5.27 gm/ha, rice 4.21 gm/ha, tomato 4.10 gm/ha, sorghum 3.06 gm/ha, and rape 2.82 gm/ha.

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DATA EVALUATION RECORD

1. **CHEMICAL:** Accent (Nicosulfuron)
   Shaughnessey No. - 129008

2. TEST MATERIAL: Formulated material 75% active ingredient (a.i.). Chemical name is 2-(((((4,6-dimethoxypyrimidin-2-yl) aminocarbonyl)) aminosulfonyl))-N,N-dimethyl-3-pyridinecarboxamide.

3. **STUDY TYPE:** Non-target plants:Seedling Emergence, Vegetative Vigor - Tier 2. Species Tested: Soybean, cotton, tomato, snapbean, peanut, cucumber, alfalfa, rape, sugarbeet,cabbage, lettuce, corn, barley, wheat, sorghum, rice, and onion.

4. **CITATION:** Rowe, S. W. 1989. Hazard Evaluation of Nicosulfuron on Non-target Plants Grown Under Greenhouse Conditions - Tiers I and II. Conducted and submitted by E. I du Pont de Nemours and Company, Inc. Wilmington, Del. Accession No. 413943-01.

5. **REVIEWED BY:**

   Charles Lewis
   Ecological Effects Branch
   Environmental Fate and Effects Division

   Signature: Charles Lewis
   Date: May 11, 1990

6. **APPROVED BY:**

   Ann Stavola, Acting Section Head
   Ecological Effects Branch
   Environmental Fate and Effects Division

   Signature: Rexrode for Stavola
   Date: 5/16/90

7. **CONCLUSIONS:** This study does not satisfy the data requirement for a Tier II seedling emergence test but does partially fulfill the requirement for a Tier 2 vegetative vigor toxicity test using the formulated product. EC25 values, based on fresh weight, for those species tested where as follows: soybean >62.00 gm/h, cotton >62.00 gm/h, tomato 4.10 gm/h, snapbean >62.00 gm/h, peanut >62.00 gm/h, cucumber 33.77 gm/h, alfalfa 14.74 gm/h, rape 2.83 gm/h, sugarbeet 8.59 gm/h, cabbage >62.00 gm/h, lettuce 5.27 gm/h, corn >62.00 gm/h, barley 14.13, wheat 29.51 gm/h, sorghum 3.06 gm/h, rice 4.21 gm/h, and onion 5.32 gm/h.

   Nontarget plant data are still outstanding.

8. **RECOMMENDATIONS:** N/A.

9. **BACKGROUND:** N/A.

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

11. **MATERIALS AND METHODS:**

A. **Test Plants:** Dicotyledon plants are represented by soybean, cotton, tomato, snapbean, peanut, cucumber, alfalfa, rape, sugarbeet, cabbage, and lettuce. Monocotyledon plants are represented by corn, barley, wheat, sorghum, rice, and onion.

B. **Test System:** Vegetative vigor: Seeds of each crop were planted in small plastic pots (4 to 6 inch depending on species) in a sterilized/fertilized Sassafras soil. After emergence, plants were thinned and treated at rates of 1, 2, 4, 8, 16, 32, and 64 gm/ha (sorghum was treated at 0.25, 0.5,1, 2, 4, 8, and 16 gm/ha). Each treatment was replicated 4 times with 4 untreated controls. The plants were placed in a greenhouse and rated 14 days after treatment. Greenhouse temperature was reported to be 70 to 80 degrees F.

Species	Variety	Stage of Appl.(true leaf)
Corn	Funk G4646	5-6
Soybean	Williams 82	2nd trifol.
Cotton	Coker	2
Tomato	Parks	3
Rice	M-101	3/ 1 tiller
Snapbean	Tendercrop	4
Peanut	Seven	4-5
Cucumber	Straight Eight	3-4
Sorghum	G522	7
Alfalfa	Saranac	5
Barley	Klages	3/ 1 tiller
Rape	Altex	3
Sugarbeet	Great Western	2
Wht. Pot	Cultured	6-7
Onion	Unknown	2
Cabbage	Prem Flat Dutch	3-4
Lettuce	Great Lakes	4

Seedling emergence: Pots (4 and 6 inch) containing a Sassafras soil were sprayed with the test material at rates of 2, 4, 8, 16, 31, 62, and 125 gm/ha. The soil was placed in a blender and incorporated for two minutes. The soil was then placed back in the pots and planted with the appropriate crops. Each dose was replicated 4 times, including the control. Pots were

then placed in a greenhouse. Plants were thinned after emergence and rated 21 days post treatment.

E. **Statistics:** Data for fresh weight were analyzed using logit analysis.

12. **REPORTED RESULTS:** Preplant Incorporated: The rate of nicosulfuron required to cause both a 25% and 50% inhibition of growth (EC25 and EC50) was below the maximum label rate of 70 gm/ha for all plant species tested except corn.

Post-emergence: The rate of nicosulfuron required to cause a 25% inhibition of growth (EC25) was below the maximum label rate of 70 gm/ha for all test species except corn, soybean, peanut, cotton, and cabbage. the rate required to cause a 50% inhibition (EC50) was below the maximum label rate for all species except corn, soybean, peanut, cotton, snapbean, cucumber, alfalfa, and cabbage. Species such as tomato, rape, sugarbeet, lettuce, sorghum, rice, and onion showed a high level of sensitivity to post-emergence applications of nicosulfuron.

13. **STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES:**

No quality control statement or test protocol was included with the report.

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

A. **Test Procedure:** The post emergence test appears to have been conducted in a scientifically sound manner in accordance with EPA Subdivision J Guidelines for a Tier 2 vegetative vigor toxicity test. However, seed source, and lot number were not provided, the soil was not adequately described and the method of herbicide application was not fully described.

A seed germination test was not conducted.

For the seedling emergence test, plants were thinned before they were evaluated for phytotoxic affects.

B. **Statistical Analysis:** Post emergence data was analyzed using the probit method.

C. **Discussion/Results:** The following EC values, in gm/ha, were determined statistically for nicosulfuron:

Species	EC50	EC25	EC10
Rape	11.21	2.82	0.84
Sorghum	8.39	3.06	1.25
Tomato	10.25	4.10	1.83
Rice	10.96	4.21	1.81
Lettuce	51.73	5.27	0.70
Onion	15.16	5.32	2.11
Sugarbeet	28.65	8.59	2.97
Barley	30.27	14.13	7.22
Alfalfa	1202.51	14.74	0.30
Wheat	59.61	29.51	15.89
Cucumber	136.44	33.77	9.86

Preemergence data were not evaluated because the plants were thinned before evaluating them for phytotoxic affects or determining fresh weights.

D. **Adequacy of the Study:**

(1) **Classification:** Vegetative vigor: Supplemental
Seedling emergence: Invalid

(2) **Rationale:** Vegetative vigor: This test generally follows the approved protocol for a Tier 2 vegetative vigor test, however insufficient data were submitted with the report. Refer to Section 14 A.

Seedling emergence: Plants were thinned prior to determining fresh weights or phytotoxic response.

(3) **Repairability:** Submission of data outlined in Section 14 A, may result in upgrading the vegetative vigor study to core.

The seedling emergence test is not repairable.

15. **COMPLETION OF ONE-LINER:**