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Review No.  
080801  
Shaughnessey No.

EEB REVIEW

DATE: IN 2-27-89 OUT 10-6-89

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PETITION OR EXP. NO. \_\_\_\_\_  
DATE OF SUBMISSION 1-31-89  
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TYPE PRODUCTS(S): I, D, H, F, N, R, S HERBICIDE  
MRID NO(S). 409958-01 thru 11  
PRODUCT MANAGER NO. F. Rubis (50)  
PRODUCT NAME(S) Ametryn  
COMPANY NAME Ciba-Geigy  
SUBMISSION PURPOSE Submission of Data in Response to  
Comprehensive DCI

SHAUGHNESSEY NO.	CHEMICAL AND FORMULATION	% A.I.
<u>080801</u>	<u>Ametryn Technical</u>	<u>99.0%</u>
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Submission of Data Required by Ametryn  
Comprehensive DCI

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

TO: Franklin D. Rubis, (PM 50)  
Special Review  
Special Review and Registration Division H7508C

Ecological Effects Branch has completed its review of ecotoxicity data for Ametryn submitted by Ciba-Geigy Corporation. The following is a brief summary of the results of these data:

CITATION: Grimes, J., and M. Jaber. 1988. Ametryn: An Acute Oral Toxicity Study with the Bobwhite. Submitted by Ciba-Geigy Corporation, Greensboro, North Carolina. Study performed by Wildlife International Ltd., Easton, Maryland. Laboratory Study No. 108-291. EPA Accession No. 409958-01.

CONCLUSIONS: The acute oral LD<sub>50</sub> of Ametryn was determined to be greater than 2250 mg/kg, the highest dosage tested. This value classifies Ametryn as practically non-toxic to bobwhite quail. The no-observed-effect dosage was 486 mg/kg, based on signs of toxicity, body weight loss, and reduced food consumption at 810 mg/kg. The study is scientifically sound and meets the requirements for an avian single dose oral LD<sub>50</sub> test.

CITATION: Grimes, J., and M. Jaber. 1988. Ametryn: A Dietary LC<sub>50</sub> Study with the Mallard. Submitted by Ciba-Geigy Corporation, Greensboro, North Carolina. Study performed by Wildlife International Ltd., Easton, Maryland. Lab Study No. 108-290A. EPA Accession No. 409958-02.

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CONCURRENCES							
SYMBOL	H-7507C	H-7507C	H-7507C				
SURNAME	QD	QD	QD				
DATE	5/24/89	8/2/89	10/6/89				

EPA Form 1320-1 (12-70)

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**CONCLUSIONS:** The dietary LC<sub>50</sub> of Ametryn was determined to be greater than 5620 ppm, the highest concentration tested. This value classifies Ametryn as practically non-toxic to mallard ducklings. Sub-lethal effects were observed, however, and included abnormal behavior, reduced food consumption, loss of body weight, and reduced body weight gain. The no-observed-effect concentration was less than the lowest concentration tested (562 ppm) based on a reduction in body weight gain. The study is scientifically sound and meets the requirements for an avian dietary LC<sub>50</sub> test.

**CITATION:** Grimes, J., and M. Jaber. 1988. Ametryn: A Dietary Toxicity Study with the Bobwhite. Submitted by Ciba-Geigy Corporation, Greensboro, North Carolina. Study performed by Wildlife International Ltd., Easton, Maryland. Laboratory Study No. 108-289. EPA Accession No. 409958-03.

**CONCLUSIONS:** With an LC<sub>50</sub> value greater than 5620 ppm, Ametryn is considered practically non-toxic to bobwhite chicks. The no-observed-effect concentration was 1780 ppm based on a reduction in body weight gain at 3160 ppm. The study is scientifically sound and meets the requirements for an avian dietary LC<sub>50</sub> test.

**CITATION:** Surprenant, D. C. 1989. Acute Toxicity of Ametryn Technical to Bluegill (Lepomis macrochirus) under Static Conditions. Report #89-1-2917. Study #1781.0888.6189.100. Prepared by Springborn Life Sciences, Inc., Wareham, Massachusetts. Submitted by Ciba-Geigy Corporation. Accession No. 409958-04.

**CONCLUSIONS:** This study is considered supplemental due to deviations from acceptable EPA Guidelines. The 96 hour LC<sub>50</sub> value, based upon mean measured concentrations of Ametryn technical to bluegill sunfish (Lepomis macrochirus) was 8.5 mg a.i./L. Therefore, Ametryn is considered moderately toxic to bluegill sunfish. The NOEC was determined to be 6.4 mg a.i./L after 96 hours. Due to availability of data from other studies, EEB believes additional data will not be useful in an attempt to repair this study.

**CITATION:** Surprenant, D.C. 1989. Acute Toxicity of Ametryn Technical to Rainbow trout (Salmo gairdneri) under Static Conditions. Laboratory Report #89-1-2919. Study #1781.0888.6188.103. Prepared by Springborn Life Sciences, Inc., Wareham, Massachusetts. Submitted by Ciba-Geigy Corporation. Accession No. 409958-05.

**CONCLUSIONS:** This study is considered supplemental due to deviations from acceptable EPA guidelines. The 96 hour LC<sub>50</sub> value, based upon mean measured concentrations of Ametryn technical to Salmo gairdneri was 5.1 mg a.i./L. Therefore, Ametryn is considered moderately toxic to rainbow trout. The NOEL was determined to be < 2.5 mg a.i. /L after 96 hours. Due to availability of data from other studies, EEB believes additional data will not be useful in an attempt to repair this study.

**CITATION:** Surprenant, D.C. 1989. Acute Toxicity of Ametryn Technical to Daphnids (Daphnia magna) under Static Conditions. Laboratory Report #89-1-2912. Study #1781.0888.6190.110. Prepared by Springborn Life Sciences, Inc., Wareham, Massachusetts. Submitted by Ciba-Geigy Corporation. Accession No. 409958-06.

**CONCLUSIONS:** This study appears scientifically sound and fulfills the Guideline requirements for a 48-hour static acute toxicity study for freshwater invertebrates. The 48-hour EC<sub>50</sub>, based upon mean measured concentrations, of Ametryn Technical to Daphnia magna was 28 mg a.i./L. Therefore, Ametryn Technical is considered slightly toxic to Daphnia magna. The NOEC was determined to be 12 mg a.i./L after 48 hours of exposure.

123.1  
**CITATION:** Canez, V. M., Jr, 1988. Ametryn: Nontarget Phytotoxicity Test, Seed Germination Tier 2. EPA Guidelines No. 122-1. Conducted by Pan-Agricultural Labs, Inc., Madera, CA. Submitted by Ciba-Geigy Corporation, Greensboro, NC. Accession No. 409958-07.

**CONCLUSIONS:** This study is scientifically sound and fulfills the requirement for a Tier 2 seed germination study using non-target plants. Application of Ametryn (FL-840991) at the maximum label rate of 8.0 lb a.i./a had no effect on seed germination of any crop except corn and onion and no effect on radicle length of any crop except corn and ryegrass. Corn had a no-effect level of 4.0 lb a.i./a for both parameters and showed detrimental effects of 49% for radicle length and 13% for percent germination at the maximum application rate. Onion had a 2.0 lb a.i./a no effect label for percent germination and showed less than 25% detrimental effect at the two higher application rates. Ryegrass had a 4.0 lb a.i./a no effect level and showed a 37% detrimental effect at the maximum label rate.

123.1  
**CITATION:** Canez, V. M., Jr. 1988. Ametryn: Nontarget Phytotoxicity Test Seedling Emergence Tier 2. EPA

1231  
Guidelines No. 122-1. Conducted by Pan-Agricultural Labs, Inc., Madera, CA. Submitted by Ciba-Geigy Corporation, Greensboro, NC. Accession No. 409958-08.

**CONCLUSIONS:** The Study was conducted in a scientifically sound manner in accordance with EPA guidelines for a Tier 2 seedling emergence toxicity study on non-target terrestrial plants. Treatment with Ametryn at concentrations greater than 2.0 lb a.i./a resulted in a significant effect on plant height in all plant species tested. Treatment with Ametryn at concentrations greater than 1.0 lb a.i./a resulted in a significant effect on plant dry weight in all plant species tested. All plant species tested demonstrated a significant effect on 21-day phytotoxicity ratings following treatment with Ametryn technical at 8.0 lb a.i./a. Treatment of the plant species with the initial dose range of 0.5 to 8.0 lb a.i./a resulted in a greater than 90 percent detrimental effect level for all plant species except soybean and corn.

**CITATION:** Canez, V. M., Jr. 1988. Ametryn: Nontarget Phytotoxicity Test, Vegetative Vigor Tier 2. EPA Guidelines No. 122-1. Conducted by Pan-Agricultural Labs, Inc., Madera, CA. Submitted by Ciba-Geigy Corporation, Greensboro, NC. Accession NO. 409958-09.

**CONCLUSION:** This study was conducted in a scientifically sound manner in accordance with EPA guidelines for a Tier 2 test of vegetative vigor of non-target plants. Detrimental effects were greater than 50% for many of the concentrations tested. All plant species treated with Ametryn at concentrations above 1.0 lb a.i./a showed significantly higher 21-day mean phytotoxicity ratings. Treatment of all plant species with Ametryn at rates above 1.0 lb a.i./a resulted in significant reductions in plant height at 21 days after treatment. No-effect concentrations of Ametryn on dry weight ranged from less than 0.006 lb a.i./a for lettuce and cucumber to 0.4 lb a.i./a for carrot, oat, and ryegrass. Treatment of lettuce and cucumber at the 0.006 lb a.i./a resulted in a statistically significant reduction in dry weight of 28% and 13% respectively, in comparison with the control treatment.

**CITATION:** Hughes, J.S. 1989. The Toxicity of Ametryn Technical to Selenastrum capricornutum. Laboratory Study No. 0267-42-1100-1. Prepared by Malcolm Pirnie, Inc., White Plains, NY. Submitted by Ciba Geigy Corporation, Greensboro, NC. EPA Accession No. 409958-10.

**CONCLUSIONS:** This study appears scientifically sound and

fulfills the Guideline requirements for a Tier 2 growth and reproduction of a non-target green alga test. With a 7-day EC<sub>50</sub> value of 3.67 ug/L and NOEC value of 1.14 ug/L nominal concentration, Ametryn Technical is expected to exert a detrimental effect on the green alga (Selenastrum capricornutum) when applied at the maximum application rates up to 8.0 lbs a.i./acre.

**CITATION:** Hoxter, K.A. and M. Jaber. 1988. Ametryn: An Acute Contact Toxicity Study with the Honey Bee. Conducted by Wildlife International Ltd., Easton, Maryland. Project No. 108-288. Submitted by Ciba-Geigy Corporation, Greensboro, N.C. EPA Accession Number 409958-11.

**CONCLUSIONS:** This Study is scientifically sound and fulfills guideline requirements for a honey bee acute contact test. With an LD<sub>50</sub> value of greater than 100 ug/bee, Ametryn is considered relatively non-toxic to honey bee (Apis mellifera).

If you have any questions concerning these studies, please contact Jeffrey Bigler (557-4368) of my staff.