DP Barcode :
PC Code No. : 80807
EFGWB Out : JAN 23 1992

To: JoAnne Miller
Product Manager PM 23
Registration Division (H7505C)

From: Elizabeth Behl, Head (acting)
Ground Water Technology Section
Environmental Fate & Ground Water Branch/EFED (H7507C)

Thru: Henry Jacoby, Chief
Environmental Fate & Ground Water Branch/EFED (H7507C)

Attached, please find the EFGWB review of...

Reg./File # :

Chemical Name : Simazine

Type Product : Herbicide

Product Name : Princep

Company Name : CIBA-GEIGY Corporation

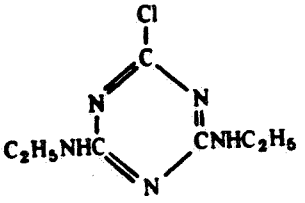
Purpose :Review of the Interim Report-Ottawa County (Ohio) Paired Watershed Project

Action Code : 350 EFGWB #(s): 900499 Total Review Time: 0.5 days

EFGWB Guideline/MRID Summary Table: The review in this package contains...				
161-1	162-1	164-1	165-1	166-1
161-2	162-2	164-2	165-2	166-2
161-3	162-3	164-3	165-3	166-3
161-4	162-4	164-4	165-4	167-1
201-1	163-1	164-5	165-5	167-2
202-1	163-3			

1. CHEMICAL:

Chemical name: 2-Chloro-4-bis(ethylamino)-s-triazine
Common name: Simazine
Trade name: Princep
Structure:



2. TEST MATERIAL:

Simazine

3. STUDY/ACTION TYPE

Review of the detections of simazine and other pesticides in the ground water in Ohio.

4. STUDY IDENTIFICATION:

Title: Water Quality Monitoring of Tile Effluent and Shallow Well Water within the Ottawa County Paired Watershed Demonstration Project (an Interim Report)
EPA/OPP Identification Number: 28
EPA/OPP Record Number : 262,298

Submitted by: Karen S. Stumpf
CIBA-GEIGY Corporation
P.O. Box 18300
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5. REVIEWED BY:

Larry Liu, Ph.D. Signature: Larry Liu
Environmental Scientist
OPP/EFED/EFGWB/Ground-Water Section Date: 1-22-92

6. APPROVED BY:

Elizabeth Behl Signature: D A Wall for EB
Acting Section Chief
OPP/EFED/EFGWB/Ground-Water Section Date: 1-22-92

7. CONCLUSIONS:

The number of herbicides detected in the samples collected at the no-till site is much higher than the conventional site. Atrazine was not only the most frequently-detected herbicide in ground water at no-till site but the herbicide that resulted in the most detections above the established HA.

One detection of alachlor above the MCL (2 ppb) was also reported but is believed by the authors to be erroneous.

Pesticides detected in the ground water in Ottawa County, Ohio are listed below at the descending order of detection frequency: atrazine, metolachlor, metribuzin, simazine, alachlor, cyanazine.

8. RECOMMENDATIONS:

The registrant should submit the final report including any available information about the wells with detections to the Agency when available.

9. BACKGROUND:

This study was sponsored in part by CIBA-GEIGY Corp., the Ohio Environmental Protection Agency and others. The Ottawa County Paired Watershed Demonstration Project is a five year effort to evaluate nonpoint source controls in reducing pesticide pollution on lake plain soils in northwest Ohio. Two watersheds were selected, Bayou Ditch and LaCarpe Creek. Bayou Ditch is treated with best management practices principally conservation no-till, while the other watershed, LaCarpe Creek, is under conventional tillage and serves as a control watershed. A series of well clusters were installed within four of the six sites selected in the study area. Each cluster consisted of three wells at depths of 7, 12, and 18 feet. Results from samples collected between April and December 1989 at one site (B-1) in the Bayou watershed were included in the report.

Ground-water samples were analyzed for six commonly-used corn and soybean herbicides. These include: alachlor, atrazine, cyanazine, metolachlor, metribuzin, and simazine.

10. DISCUSSION:

The purpose of this review is to comment on the interim report regarding the detections of six herbicides in the ground water in Ohio. The report did not include the levels of herbicide residues for all detections. Preliminary results for ground-water samples collected at no-till and conventional sites are summarized as follows:

Pesticide	HA or MCL ppb	Number of Detections in: 7 Foot Well No-Till	7 Foot Well Conv.	12 Foot Well No-Till	12 Foot Well Conv.	18 Foot Well No-Till	18 Foot Well Conv.
Alachlor	2	2	0	1	0	1	0
Atrazine	3	13	1	9	0	7	1
Cyanazine	1	1	0	1	0	1	1
Metolachlor	100	8	1	9	4	7	3
Metribuzin	200	5	0	5	0	4	1
Simazine	1	3	0	4	0	2	0

Notes:

1. HA = lifetime health advisory
   MCL = maximum contaminant level
2. HA was reported as 2 ppb for alachlor in the report. However, 2 ppb is for MCL and there is no HA value for alachlor (EPA, 1991).
3. HA was reported as 10 ppb for cyanazine in the report. However, HA is 1 ppb for cyanazine (EPA, 1991).

Atrazine was the most frequently detected herbicide in this study with 68 detections in tile and well samples. The no-till sites produced 59 of the 68 detections with an average concentration of 6.9 ppb. Sixteen of the detections are reportedly above 3 ppb (the present MCL). The highest atrazine concentration reported was 83.9 ppb from a no-till site.

Eight tile and well samples from the no-till sites contained alachlor residues. A detection 19.6 ppb of alachlor was reported for well B-1-7. The authors believe this to be erroneous. The remaining seven detections did not exceed 2 ppb and have an average concentration of 0.4 ppb. No alachlor detections are reported from any samples from the conventional tillage sites.

The authors concluded that little carryover of herbicides is occurring at their study sites and that atrazine concentrations in tile water increases following application.

Detection frequency of the herbicides examined at various depth in ground water are presented below:

7 feet

Atrazine > metolachlor > metribuzin > simazine > alachlor > cyanazine

12 feet

Atrazine = metolachlor > metribuzin > simazine > alachlor ≥ cyanazine

18 feet

Atrazine = metolachlor > metribuzin > simazine > alachlor = cyanazine

Reference:

Environmental Protection Agency. 1991. Drinking Water Regulations and Health Advisories. Office of Water.