Shaughnessy Number: 028201

Date out of EFGWB: JAN 30 1990

To: Product Manager 74 (Baker)
Reregistration Division

From: Emil Regelman, Supervisory Chemist
Environmental Fate Review Section #2
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (H7507C)

Thru: Hank Jacoby, Chief
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (H7507C)

Hank Jacoby 2/1/90

Attached, please find the EFGWB review of...

Reg./File #: 0226

Chemical Name: Propanil

Type Product: herbicide

Product Name:

Company Name: Propanil Task Force

Purpose: submission of protocol for confined rotational crop study

Date Received: 12/19/89

Action Code: 352

EFGWB#(s): 90-0226

Total Reviewing Time (decimal days): 2

Deferrals to: ___Ecological Effects Branch, EFED

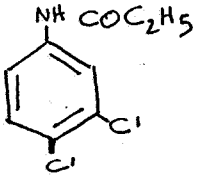
___Science Integration and Policy Staff, EFED

___Non-Dietary Exposure Branch, HED

___Dietary Exposure Branch, HED

___Toxicology Branch

1. CHEMICAL:

chemical name:	3,4-dichloropropionanilide, N-(3,4-dichlorophenyl) propanamide
common name:	propanil
trade name:	n.a.
structure:	
CAS #:	709-98-8
Shaughnessy #:	28201

2. TEST MATERIAL:

3. STUDY/ACTION TYPE: protocol for confined rotational crop study

4. STUDY IDENTIFICATION: n.a.

5. REVIEWED BY:

Typed Name:	E. Brinson Conerly
Title:	Chemist, Review Section 2
Organization:	EFGWB/EFED/OPP

E. B. Conerly 1/30/90

6. APPROVED BY:

Typed Name:	Emil Regelman
Title:	Supervisory Chemist, Review Section 2
Organization:	EFGWB/EFED/OPP

JAN 30 1990

7. CONCLUSIONS:

The protocol is acceptable with a few minor modifications detailed below. However, EFGWB notes that what is described is essentially a field study and will not provide "worst case" uptake conditions as a "pot study" would.

The applicant proposes to test soybean (legume), sorghum (small grain), and forage (grass) follow crops. This includes all categories of crops expected to follow rice, except for rice itself. EFGWB will not require testing on a rice follow crop since possible residues would be encompassed under DEB's tolerance setting process for the primary crop.

Approval of the protocol does not guarantee acceptability of the resulting study.

8. RECOMMENDATIONS:

The applicant should do the following:

1) proceed with the proposed rotational crop studies with the following modifications:
   a) analyze at least three independent samples for each time period, material, and depth.
   b) analyze trimmings from the forage planting
   c) analyze soil samples at time zero.
2) fulfill outstanding data requirements detailed in previous reviews on aqueous **hydrolysis**, aqueous **photolysis**, anaerobic **aquatic metabolism**, aerobic **aquatic metabolism**, and **aquatic field dissipation**. Because of reported damage to non-target crops, EFGWB has also required lab volatility, spray drift, and downwind crop deposition data. A protocol for the crop deposition study must be approved in advance.

RD should confirm the cancellation of uses other than rice.

EFGWB reserves requiring certain other studies pending receipt and evaluation of the studies and information listed above, and waives the fish bioaccumulation requirement.

9. BACKGROUND:

Data requirements for aquatic food use and their status is as follows:

hydrolysis -- pending
photolysis in water -- pending
anaerobic aquatic metabolism -- pending
aerobic aquatic metabolism -- pending
leaching/adsorption/desorption -- pending
aquatic field dissipation -- pending
confined accumulation on rotational crops -- pending, discussed in this review
field accumulation on rotational crops -- requirement reserved pending results of confined study
confined accumulation on irrigated rotational crops -- pending
fish bioaccumulation -- waiver recommended due to low k_{OW} and applicant's affirmation of low accumulation in fathead minnows

Because of informal reports that propanil applied to rice subsequently reached and damaged non-target crops, especially prune trees, EFGWB also requires the following studies, which are not usually imposed for aquatic uses:

lab volatility
spray drift -- EFGWB believes some studies have already been done. If this is the case, they should be submitted and evaluated before additional work is initiated
downwind monitoring of deposition on other crops -- for this special study, a protocol must be submitted and approved in advance. It should be designed to identify formulation type(s), if any, which inhibit or enhance migration of propanil from the target crop.

According to the 1987 Registration standard, 95% of the manufactured product is used on rice. The applicant group do not intend to support the terrestrial food uses (i.e. the 5% which is **not** rice). No amended label was submitted to EFGWB for examination.

Rice is rotated to other crops in most growing areas in the United States as described in **Crop Production: Principles and Practice**, Metcalf and Atkins, 1980. Typical rotations are rice/soybeans/fall oats/spring lespedeza (AK); rice/pasture for beef cattle (Gulf Coast); rice/plowed fallow/wheat, oats, or vetch (CA). Based on this, crop rotational data and/or tolerances for these follow crops are needed **unless a suitable label restriction is incorporated, limiting the treated land to rice growing**.

10. DISCUSSION OF INDIVIDUAL TESTS OR STUDIES: See individual DER

11. COMPLETION OF ONE-LINER: no information added

12. CBI APPENDIX: copy of protocol attached

DATA EVALUATION REVIEW

I. Study Type: protocol for confined rotational crop study

II. Citation: Propanil: Confined Rotational Crop Study, data requirement 165-1

III. Reviewer:

Typed Name: E. Brinson Conerly
Title: Chemist, Review Section 2
Organization: EFGWB/EFED/OPP

E.B. Conerly

IV. Conclusions:

V. Proposed Materials and Methods:

Soil contained in a bottomless 3 ft x 9 ft treatment tank will be treated with ring labelled ^{14}C-propanil at 6 lb/A. After 30 days aging of the treated soil, soybeans and sorghum will be planted in the soil and grown to maturity. Additional crops of soybean, sorghum, and forage (such as Bermuda grass) will be grown and harvested starting at 120 days. At 365 days post treatment, additional crops of soybean and sorghum will be planted, and the forage crop continued. Periodic samples of soil and crop material will be taken and analyzed for dissipation and plant uptake.

sampling

soil - sampled when rotated crops are harvested; four cores per sampling period, 1 inch diameter by 12 inches deep, taken at random locations within the plot. These cores will be subdivided into 0-3 inch, 3-6 inch and 6-12 inch sections and corresponding segments composited for analysis.

crops - duplicate 100 gm samples (amount of available material permitting) harvested at approximately 1/4, 1/2, and full maturity. These intervals will be 30, 60, and approximately 120 days after planting, or 60, 90, and approximately 150 days post treatment. Samples at the first two intervals will be aerial foliage. Those taken at maturity will be aerial foliage and that part of the plant used as food or fiber. In the case of grain and soybean, harvest samples will be grain, chaff or hulls, and straw and forage.

agricultural practices -- local practices will be followed. The area will be lightly watered twice weekly when no crops are present, and either twice weekly or every other day when crops are present. Fertilizer will be added at each planting. Herbicide and insecticide use will be only at the permission of the sponsor and will be reported. Soil adhering to the harvested plants will be returned to the plot. The forage crop will be trimmed to ca. 2 inches whenever it exceeds 4 inches in length, but harvested material will not be retained except as noted above.

storage stability -- samples will be frozen at -15 to -20^0 C immediately after being taken or after processing. They will then be stored at -15 to -20^0 until analysis. Specimens of soybean straw and beans, sorghum straw and grain and forage samples will be fortified and analyzed for recovery at 0 day, 2 weeks, 1, 3, 6, and 12 months of storage against freshly

VI. Study Author's Results and/or Conclusions: n.a.

VII. Reviewer's Comments:

The applicant should <u>not</u> composite soil samples to the extent proposed in this protocol. A minimum of three independent samples should be analyzed per time and depth. This serves to establish the basic variability of the data. The same comment applies to samples of plant material.

The material trimmed from the forage area should be analyzed, since these data may provide useful points on the dissipation curve for this crop.

Soil should also be sampled at the time of treatment(s). This serves to establish the rate of application.

Note that the use of radiolabel in an outdoor setting requires careful handling and practices to ensure that the radiolabel does not translocate beyond the boundary of the experimental system. The applicant has not described the precautions which will be taken.

VIII. CBI Information Addendum: copy of protocol attached