

US EPA ARCHIVE DOCUMENT

# FILE COPY

Date Out EFB: OCT 29 1981

To: Product Manager 21 Jacoby  
TS-767

From Dr. Willa Garner lll  
Chief, Review Section No. 1  
Environmental Fate Branch

Attached please find the environmental fate review of:

Reg./File No.: 677-313

Chemical: Chlorothalonil

Type Product: Fungicide

Product Name: Bravo 500

Company Name: Diamond Shamrock

Submission Purpose: Protocol - rotational crop study

ZBB Code: other

ACTION CODE: 450

Date in: 10/19/81

EFB # 18

Date Completed: OCT 29 1981

TAIS (level II)

Days

Deferrals To:

80

2

       Ecological Effects Branch

       Residue Chemistry Branch

       Toxicology Branch

## 1.0 INTRODUCTION

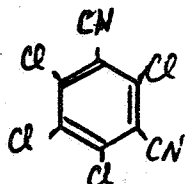
Diamond Shamrock Corporation is requesting review of a field rotational crop protocol for chlorothalonil (EFB #82-18). Chlorothalonil is currently registered under 3(c)(7) for use on several crops under the trade name Bravo 500 (Reg. No. 677-313).

## 2.0 Objectives

- 2.1 To determine under field conditions whether residue of chlorothalonil or its degradation products occur on or in crops which may be grown in rotation after crops treated with chlorothalonil.
- 2.2 To obtain data to support the establishment of a realistic time interval at which rotated crops may be planted following application of chlorothalonil.

## 3.0 CHEMICAL

Common name: : Chlorothalonil  
Trade name : Bravo 500  
Chemical name : 2,4,5-Tetrachloroisophalonitrile  
Type : Fungicide  
Chemical formula:



## 4.0 PROPOSED PROGRAM

- 4.1 A non-labeled product containing 40.4% chlorothalonil will be applied to small, replicated field plots, free of vegetative growth. Applications will be by ground equipment at 4.25 pts/A in 20 gallons of spray solution to a maximum of 8 applications at 7 day intervals. The cumulative total test material applied per acre will be 34 pints.
- 4.2 During the test period, plots will be irrigated and manually cultivated. Additionally, soil characteristics and composition will be recorded.

- 4.3 At intervals of 14, 30, 60, and 90 days following last application, rotational crops such as, small grins, root crops, fruiting and leafy vegetables will be planted in replicated, previously treated and non-treated plots
- 4.4 Soil Sampling - Soil samples consisting of cores 3/4" in diameter and 12" deep will be collected at each location immediately following application and at intervals of 14, 30, 60, 90, 120, and 150 days after last application. Soil samples will be separated into 3" segments and segments from similar depths combined, frozen, and shipped to Diamond Shamrock Laboratories for analysis.
- 4.5 Crop Sampling - At normal crop maturity, samples of wheat grains wheat straw, spinach leaves, carrot roots and bean pods will be collected from each plot, frozen, and shipped to Diamond Shamrock Laboratories for analysis.
- 4.6 Residue Assay - Soil samples and harvested crops will be assayed for residues of chlorothalonil and its degradation products. Residues will be extracted, partitioned, purified using column chromatography, and subsequently quantitated by gas chromatography. The residue of hydroxylated and/or hydrolyzed degradation products will be derivatized prior to quantitation.

#### 5.0 RECOMMENDATIONS

The following recommendations must be observed in order to satisfy rotational crop data requirements for chlorothalonil:

- 5.1 Use the highest label rate.
- 5.2 After last application, chlorothalonil should be aged in the soil for:
  - (a) 30 days for assessing circumstances of crop failure.
  - (b) 120 days for crops that will be rotated immediately after harvest.
  - (c) One year for crops that will be rotated the following year.

5.3 Soil samples for residue analysis should be taken at:

- (a) The end of fourth and eighth applications.
- (b) Time of planting rotational crops.
- (c) Time of harvesting rotational crops.

These soil samplings and analysis may not be needed if the aerobic soil metabolism study, or the field dissipation study provide soil residue data showing complete dissipations of chlorothalonil by the time the original crop is harvested.

5.4 Analysis for residues in root crops must be conducted in both the aerial and root portions.

5.5 Analysis for residues in soil samples must be accompanied by a material balance to account for chlorothalonil and degradation losses through surface and subsurface runoff, as well as through leaching.

6.0 CONCLUSIONS

?? Material balance is not required for a field dissipation study.

To satisfy rotational crop data requirements for chlorothalonil, the above recommendations (5.0) must be observed.

*Sami Malak*

Sami Malak, Chemist  
Review Section #1  
Environmental Fate Branch/HED