105001

25 SEP 1985

MEMORANDUM

SUBJECT: Clarification of Terbufos Avian Field Study Methodology

FROM: John Bascietto
Ecological Effects Branch
Hazard Evaluation Division (TS-769C)

TO: William Miller (PM-16)
Insecticide-Rodenticide Branch
Registration Division (TS-767C)

THRU: Charley Lewis, Acting Section Head III
Ecological Effects Branch
Hazard Evaluation Division (TS-769C)

and

Michael Slimak, Chief
Ecological Effects Branch
Hazard Evaluation Division (TS-769C)

EEB has reviewed the additional information submitted by American Cyanamid Co. to provide details of calibration of aircraft for aerial applications of terbufos in a previously reviewed study of same. This information was contained in a letter from their consultants dated June 4, 1985. The submission is Accession No. 258700.

The clarification is accepted and will be placed in the file.

CONCURRENCES								
SYMBOL ▶	TS769	TS769C	TS-769C					
SURNAME ▶	bascietto	Lewis	Cook for					
DATE ▶	9/24/85	9-25-85	9-25-85					

EPA Form 1320-1 (4-81) OFFICIAL FILE COPY

1 page w/ attachment (4 pages)

Wildlife International Ltd.

Solitude Creek Farm • St. Michaels, Maryland 21663 • (301) 822-8600

June 4, 1985

Mr. John Bascietto
U.S. Environmental Protection Agency
Office of Pesticide Programs
Hazard Evaluation Division, TS-769
401 M Street
Washington, DC 20460

Dear John:

Attached is a more thorough explanation of the calibration of the airplane used for the applications in the Counter 15G field study. I have also included a discussion of the differences between the nominal and actual application rates. A copy of this letter is being forwarded to Dr. Paul Walgenbach of American Cyanamid. I hope it addresses all of your questions. If I can be of further assistance, please let me know.

Sincerely,

Mark Jaber

MJ/jf

Enclosure

cc: Dr. Paul Walgenbach
American Cyanamid
P.O. Box 400
Princeton, NJ 08540

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A DISCUSSION OF CALIBRATION METHODS

FOR AERIAL APPLICATION OF COUNTER 15G

WILDLIFE INTERNATIONAL LTD. PROJECT NO. 130-135

The aerial application of Counter 15G during the study (Project No. 130-135) was made by Beiler's Flying Service using a 201C Weatherly with a 450 hp Pratt Whitney engine. The airplane had a hopper into which the Counter 15G was placed. The hopper had an opening at the bottom which was covered by a sliding metal door. The sliding metal door was controlled by a lever in the cockpit. The door was opened by the pilot at the beginning of each application pass and closed at the end. There was an adjustable stop which allowed the pilot to maintain a consistent opening of the door during application. Below the hopper was a manifold. Granules dropped from the hopper into the manifold and were dispersed from the plane in a 35 ft. swath by air flow through the manifold. The rate at which granules fall through the hopper valve and into the manifold is relatively constant and independent of airspeed. Therefore the pilot must maintain a constant airspeed during each run. The airspeed selected to be used during application of Counter 15G was 110 mph.

In the calibration calculations a theoretical swath length of one mile (5280 ft.) was selected arbitrarily. With the known swath width of 35 ft., the number of acres per mile of swath was calculated:

5280 ft X 35 ft = 184,800 ft^2 divided by 43,560 ft^2/acre = 4.24 acres/mile

Since the nominal application rate was 6.7 lbs of product per acre, a total of 28.1 lbs of product had to fall through the hopper valve for each mile of swath length flown. At an airspeed of 110 mph, a mile will be

covered in 32.7 seconds. For convenience in calibration, the time for the product to flow from the hopper was adjusted to 30 seconds:

$$\frac{28.1 \text{ lbs} \times 30 \text{ seconds}}{32.7 \text{ seconds}} = 25.8 \text{ lbs}$$

Thus in order to achieve a nominal application rate of 6.7 lbs per acre, a plane with a 35 ft wide swath flying at 110 mph would have had to deliver 25.8 lbs of product every 30 seconds.

The airplane was calibrated on the ground by placing 150 lbs of Counter 15G in the hopper. The hopper valve was opened for 30 seconds and then closed. All of the granules released from the hopper were collected onto a tarp and weighed. The stop controlling the hopper door opening was adjusted and the process repeated until calibration was complete. The plane was calibrated immediately prior to the applications on July 26, 1984 and July 31, 1984.

Following application the hopper was emptied and all remaining product weighed. Those weighings showed that on July 26 a total of 576 lbs of product were applied on 62.4 acres or 9.2 lbs of product per acre, and on July 31, 724 lbs were applied on 79.9 acres or 9.1 lbs of product per acre.

The differences between the actual amount of Counter applied and the nominal application rate was attributed to swath overlap and overrun.

Flaggers were not used during application but lack of them was not felt to be as important as the physical characteristics of the fields. Local terrain and field size were probably most contributory to the overage. Most test fields were relatively small and irregularly shaped. In addition trees at the field edges required the pilot to fly at heights higher than planned

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at the beginning and ends of some runs. Under such conditions maintaining airspeed can be difficult. These factors resulted in fewer long even runs, more edge dressing and overruns. Additionally, some overlapping of swaths can be expected.

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