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PAIS-EGT
~~PAIS~~. 3125-EGA

100601

Nemacur

CITATION Effects on the Environment
Feb 1, 1973

Study Type: April 26, Formulation

SINGLE-SPECIES FIELD STUDY ABSTRACT

ACCESSION NO.

1) Bobwhite quail & English sparrows and New Zealand Rabbits
(formulation 15% granular)
Birds caged over bluegrass turf that had been treated with 134 lbs/A formulation. Birds exposed to treated turf with ½" A irrigation and without irrigation. 14 day exposure.
Results—Hazard to birds on non-irrigated plots and considerably less hazard to birds on irrigated plots.

a) English sparrows — Deaths

day	control	non irrigated	irrigated
1	4/12	5/12	2/12
2	0/12	5/12	3/12
3	"	4/12	4/12
4	1/12	4/12	0/12
5	0/12	2/12	1/12
6		1/12	0/12
7		2/12	"
8		1/12	"
9		1/12	"
10		1/12	1/12
11		0/12	0/12
12		1/12	0/12
13		0/12	1/12
14		0/12	0/12
TOTAL DEATH/TOTAL	5/17	27/39	12/24
PERCENTAGE	29%	69%	50%

b) Bobwhite quail

control	non irrigated	irrigated
0/12	2/12	0/12

c) New Zealand Rabbits

control	non irrigated	irrigated
0/12	0/12	0/12

8 pages w/ ATTACHMENT (4 pages)

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Formulation

CITATION Effects on the Environment

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SIMULATED FIELD STUDY ABSTRACT | ACCESSION NO.

2) Pheasants 3 lb/gal/conc.

Formulation foliar sprayed on pineapple at 5 lb a.i./A, birds penned on treated areas.

Results - No toxicity to birds penned on 100% exposure area for 14 days.

3) Pheasants 15% granular

REPRODUCTIVE STUDY ABSTRACT

Birds caged on pineapple bed incorporated with 15% granular at 40% a.i./A

Results - ≅ 20% mortality in 100% exposure area, 14 days.

No mortality in 50% exposure area, 14 days

4) Rice birds - 15% granular

Birds caged on pineapple bed incorporated with 15% granular at 40 lbs a i /A.

Results - ≅ 10% mortality in 100% exposure area, 14 days.

No mortality attributable to treatment in 50% exposure, 14 days

5) Rice birds - 3 lbs/gallon spray conc.

Formulation foliar sprayed at 5 lb ai/A, birds penned on treated areas.

Results - ≅ 25% mortality in 100% exposure area, 14 days.

No toxicity in 50% exposure area, 14 days.

Formulation

CITATION

ACCESSION NO.

Residues

1. Nemacur (14C-ethyl, 3H-methylthio) was rapidly metabolized in soil to mainly the sulfoxide and lesser amounts of sulfone.

2. Degradation curve – degradation rapid first three months with half-life ≅ 1 month.

3. Nemacur in runoff water – 6 lb ai/A use rate → 1.5 ppm in runoff water. Breakdown in water has "half-life" 7 days. Accumulation would not occur in fish.

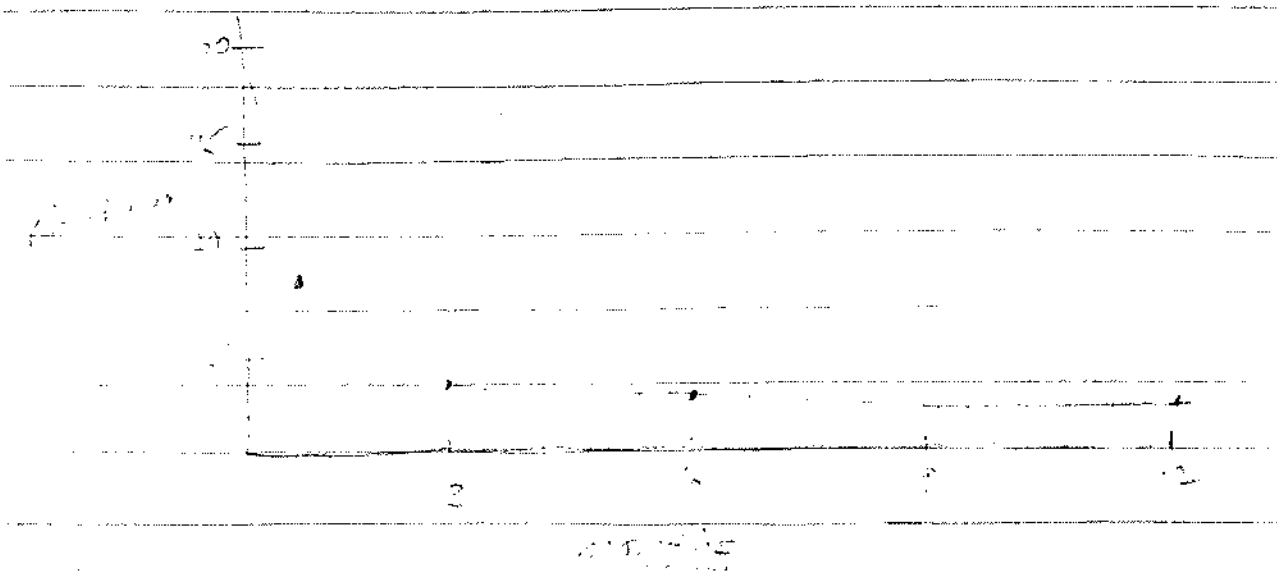
4. Leaching – Nemacur adsorbed on soil and resists leaching.

5. Fish – Fish exposed to Nemacur Sulfoxide – 14C at concentration of 0.01 and 0.5 ppm for a 15 day period.
There were NO significant accumulations of residues in the animal tissues

3/25 - Eng

Vernacur - Effects on the environment

Feb. 1973



	3lb/gal n.c		
Phase +	5% granular		

9/29/73

Chemagro has assured us that the 1/2" irrigation is practical. (See attached)

New uses should require field monitoring studies. We know that this product will kill birds. How extensive could a kill be in a sensitive area? Population studies are needed.

TURF USE Acceptable because:

1) Simulated field testing has been done.

2) 1/2" of irrigation water to be applied immediately after application.

3) For commercial or professional use only

4) This product is toxic to fish and wildlife. Keep out of lakes, streams, or ponds. Birds feeding on treated areas may be killed.

(5) No repeat application

(6) Completely empty the contents and bury the unused chemical at least 18 inches deep in an isolated location away from water supplies.

Chevrogro

Nemacur

3125-EGA
3125-EGT

Comments on proposed turf use for control of nematodes. Also see back.

1/29/73

( ) The simulated field studies using sparrows, bobwhite quail and rabbits have been reviewed. These studies bear out our concern about the effects of Nemacur on wildlife, especially birds. We do not agree with your conclusions that ~~there~~ there is little or no hazard to sparrows. We note the apparent reduction in mortality resulting from the ½ inch irrigation, but remain concerned about the mortality on irrigated and non-irrigated plots.

Over the entire test, the average daily mortality for the sparrows was ≅2.0 for the non-irrigated and 1.0 for the irrigated compared to ≅ ~~[illegible]~~ .4 for the control. Additionally, there was only one death beyond day 1 for the controls and 22 and 10 deaths for the non-irrigated and irrigated respectively. These mortality patterns are causing us some concern.

( ) We must be assured that the ½ inch irrigation is practical in field operations. We also note your directions recommend ¼ to ½ inch. We suggest that you expand this statement to indicate a minimum of ½ inch and also ~~[illegible]~~ include the need for ~~[illegible]~~ irrigating immediately after treatment.

Olj concur
Gallagher
1/29/73
Jura

( ) The environmental safety review cannot be completed until the ~~[illegible] data~~ additional 70-15 data have been submitted.

7

1. Need data (70-15)
2. New well will require field or monitoring data.
3 Caution need to be updated. Wait until data for new has been submitted.
4 This is an extremely toxic material. Do not NAC until satisfied Jwa

Chemagro

Division of Baychem Corporation

Kansas City, Mo. 64120

Mr. Charles L. Smith
Acting Assistant Director
Registration Division
Environmental Protection Agency
South Agricultural Building
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Washington, D.C. 20250

P.O. Box 4913
Hawthorn Road

Cable: Kemagro Kansas City
Telephone: 816/483-4250

April 26, 1973

R 192701

Subject: NEMACUR 15% Granular Turf Nematicide
File Symbol No. 3125-EGA
NEMACUR 10% Granular Turf Nematicide
File Symbol No. 3125-EGT

Dear Mr. Smith:

In your letter of March 20, 1973, rejecting our registration application for subject products, you listed six items as your reasons for not accepting these products for registration.

We would comment on each of these items as follows:

In item (1) of your letter, you indicate that discussions held on April 21, 1972, with your Division, resulted in our commitment to supply additional data on 70-15 requirements. We have no record of a discussion held with your Division on this date and assume that the discussions you refer to were those held on April 12, 1972. We also assume that your reference to comments you have made in connection with Pesticide Petition No. OF0982 refers to your letter of September 4, 1970 concerning this petition. In this letter you indicated that you were not willing to certify usefulness of this pesticide on peanuts. Enclosed you will find three copies of our brochure entitled: "NEMACUR - The Effects On The Environment", dated February 1, 1973 which includes a complete compilation of our available environmental data on NEMACUR and we feel that this information is more than adequate to answer any 70-15 questions you had in the above mentioned discussions and correspondence. We would like to comment on the last three paragraphs of your September 4, 1970 letter as follows:

(1) The analytical method you referred to in Report No. 26849 does determine total extractable toxic residues but does not include those that are bound on the soil. You indicate that the method in this report does not mention an oxidation step. We would refer you to page 3, step 4, of this report for information on the oxidation procedure.

(2) All of the soil samples referred to in Chemagro Report Nos. 27013, 27014, 27015, and 27075 were taken at a 6 inch depth. The residues reported in these reports are for total toxic residues of NEMACUR but do not include sorbed residues. Please refer to Chemagro Report No. 28731 which is included in the above mentioned environmental

brochure for a complete method used in analyzing these soil samples.

(3) Regarding your questions on the fate of NEMACUR in soil and information on degradation products formed, we would refer you to Chemagro Report No. 28796, also in the above mentioned environmental brochure, for this information.

In item (2) of your March 20, 1973 letter, you asked what additional environmental studies we planned to conduct. We do not understand how this request relates to the registration of the subject products on turf, however, we do plan to conduct additional environmental studies as follows:

(1) An anaerobic study in soil.
(2) An aged soil leaching study.
(3) Photodecomposition studies in water and on surfaces.

As discussed in previous meetings with personnel of your Division, these studies will be conducted under procedures outlined in the proposed Guidelines for Registering Pesticides in the United States.

Items (3) (4) & (5) of your March 20, 1973 letter, apparently all relate to the volume of water that should be applied after turf has been treated with NEMACUR. Enclosed you will find five copies of revised labeling, dated 4/26/73, for each of the subject products which includes a statement indicating that a minimum of 1/2 inch of water is to be applied immediately after application of NEMACUR Granules. We have investigated the practicality of applying 1/2 inch of water to turf areas and find that this procedure is not only practical under field conditions but is an accepted procedure. A great deal of the efficacy data obtained to support this registration application were obtained on various golf courses where 1/2 inch of irrigation was applied immediately after treatment. These data were submitted with our original application of March 20, 1970 in our brochure entitled: "NEMACUR (BAY 68138) - Biological Performance and Phytotoxicity on Turf", dated January 22, 1970. The reports in this brochure that deal specifically with the application of 1/2 inch of irrigation are Report Nos. 23710, 28121, 30116, 30122, 30145, and 30148. In addition to this information, we are enclosing three copies each of the following documents:

(1) Nematode Control on Golf Courses by V. G. Perry, University of Florida.
(2) Watering and Mowing by J. L. Blackledge as published in the Proceedings of the Florida Turf-Grass Management Conference (1969)
(3) Watering and Mowing Bahia Grass by C. L. McMillen as published in the Proceedings of the Florida Turf-Grass Management (1969)
(4) A letter dated 3/30/73 from Dr. V. G. Perry, Professor of Entomology and Nematology, University of Florida, Gainesville, Florida.

Mr. Charles L. Smith
Registration Division
EPA, Washington, D.C.

We believe that the information outlined above clearly demonstrates that it is a common practice to apply 1/2 inch of irrigation to golf courses and other turf areas following application of pesticides. In addition to the above, we have contacted the Mission Hills Country Club, Mission Hills, Kansas and the superintendent of this course also substantiates the practicality of this procedure.

Item (6) of your letter refers to changes and/or additions in precautionary labeling for subject product labels. These changes have been incorporated, as shown, on the enclosed revised labels dated 4/26/73 for NEMACUR 15% Granular Turf Nematicide and NEMACUR 10% Granular Turf Nematicide.

We feel that with this additional information, you should now be in a position to approve the registration of subject products.

Yours very truly,

CHEMAGRO Division of Baychem Corporation

G. E. Brussell

G. E. Brussell, Manager
Registrations
Research & Development

GEB:brh

Enclosures
1. Labels (5 copies each)
2. "NEMACUR - The Effects on the Environment", dated February 1, 1973. (3 copies)
3. Nematode Control on Golf Courses, V. G. Perry (3 copies)
4. Watering and Mowing, J. L. Blackledge (3 copies)
5. Watering and Mowing Bahia Grass, C. L. McMillen (3 copies)
6. Dr. V. G. Perry letter dated 3/30/73 (3 copies)

UNIVERSITY OF FLORIDA
INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES

COLLEGE OF AGRICULTURE AGRICULTURAL EXPERIMENT STATIONS AGRICULTURAL EXTENSION SERVICE SCHOOL O

DEPARTMENT OF ENTOMOLOGY & NEMATOLOGY
GAINESVILLE, FLORIDA 32601

3654

March 30, 1973

Mr. Leland Davis
Chemagro Corporation
P.O. Box 4913
Kansas City, Missouri 64100

Dear Leland:

I was happy to learn from Mr. Wade Cook that you are requesting a label that will allow the use of Nemacur for nematode control on professional turf. As you know we have conducted extensive tests on turf with Nemacur and its performance in nematode control and improved turf was always excellent.

The golf courses in Florida will benefit from the use of Nemacur. Since about 1965 your product Dasanit has been the standard nematicide for use by golf courses in Florida. Nemacur gives better control of nematodes and at about 2/3 the rate of Dasanit used. Also we obtain better turf response with Nemacur than any other granular formulated chemical.

Nematicides have been recommended for and used by golf courses and other professional turf areas in Florida since about 1955. In all cases we have recommended that a minimum of 1/2 acre inch of irrigation be used immediately following application. This has been done quite effectively and in fact most golf courses have used more than 1/2 inch of irrigation. They are all equipped with adequate irrigation systems by necessity in Florida. Most are automatic systems so there is absolutely no problem.

Irrigation is necessary for several reasons. First and foremost the nematicide must be moved into the soil to reach and control the nematodes. The irrigation also serves as a safety factor to prevent contact of the chemical by anyone using the turf areas. Some of the nematicides produce foliage burn at the rates used and irrigation prevents this.

The necessity for immediate irrigation is not so great with Nemacur as with some of the other chemicals. However we shall recommend immediate irrigation since the process is routine anyway and can be easily accomplished.

I shall be happy to provide further information if needed. Visit us when you can and don't forget golf clubs.

Sincerely yours,

V. G. Perry
Professor

VGP:dh
cc: Mr. Wade Cook