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SHAUGHNESSEY NO.

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REVIEW NO.

EEB REVIEW

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FILE OR REG. NO 34704-EUP-0

PETITION OR EXP. NO.

DATE OF SUBMISSION 9-10-87

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TYPE OF PRODUCT(S) : I,D,H,F,N,R,S I & I

DATA ACCESSION NO(S).

PRODUCT MANAGER (NO.) W. MILLER (16)

PRODUCT NAME(S) CLEAN CROP HOLDEM (PHORATE & ETHOPROP)

COMPANY NAME PLATTE CHEMICAL CO.

SUBMISSION PURPOSE REVISION OF PROPOSED EUP SUBMITTED ON 12-30-86 FOR USE ON POTATOES

SHAUGHNESSEY NO.	CHEMICAL & FORMULATION	%A.I.

10 pages

EEB REVIEW

UAP 101 or CLEAN CROP HOLDEM 10-10G

100.0 Submission Purpose and Label Information

100.1 Submission Purpose and Pesticide Use

The registrant is resubmitting a request for an EUP for UAP 101 or Clean Crop Holdem 10-10G, which is a granular combination of ethoprop and phorate, for use on potatoes. As both of the chemicals are registered separately for use on potatoes, the registrant believes that combining the two in a granule will be more economical and also maintain efficacy.

The EUP will allow the registrant to test the efficacy of this combination under a variety of soil and climatic conditions. The following twelve states and the acres per state that will be affected are: California (100), Colorado (50), Idaho (1,750), Maine (600), Michigan (300), Minnesota (100), New York (300), North Carolina (100), North Dakota (200), Oregon (75), Washington (375), & Wisconsin (450). The total acreage to be used is 4,400 A and the total amount of formulated product to be applied is 132,000 lbs.

100.2 Formulation Information

Active Ingredients:

Ethoprop (O-ethyl S,S-dipropyl phosphorodithioate)...10.0%
Phorate (O,O-diethyl S-((ethylthio) methyl phosphorodithioate.....10.0%

Inert Ingredients:.....80.0%

100.3 Application Methods, Label Directions & Rates

In order to insure proper application, this product should be applied with a calibrated granular pesticide applicator at the recommended rate.

For the control of aphids, leafhoppers, leafminers, psyllids, flea beetle larvae and the reduction of flea beetle adults use 20 lbs. per acre on sandy or light soils (22 oz per 1000 linear foot of a row, spaced 36 inches between rows), 25 lbs. per acre on medium soils (27.5 oz. per 1000 linear feet on rows that are spaced 36 inches apart) and 30 lbs per acre on heavy silt or clay loam soils (33 oz. per 1000 linear feet per row spaced 36 inches apart. For control of wireworms and

nematodes, such as lesion stubby root and other root feeding nematodes and for suppression of Northern root knot nematodes, use 30 lbs. per acre.

The granules should be distributed in a 10 inch band in front of closing disks at planting time or in a band on each side of a the row at cracking and be incorporated using cultivators. The time between last application and harvest of the potatoes should be at least 90 days.

Do not use as a seed furrow treatment or allow the granules to contact the seed pieces.

100.4 Target Organisms

Wireworms	Aphids
Nematodes	Leafhoppers
Leafminers	Psyllids
Flea beetle larvae	Flea beetle adults

100.5 Precautionary Labeling

These pesticides are toxic to fish and wildlife. Wildlife feeding in treated areas may be exposed to the product and be killed by ingesting it. Do not apply directly to aquatic ecosystems, either streams or wetlands. Runoff from treated areas could be hazardous to aquatic organisms in adjacent sites. Crustaceans, such as crabs, shrimp and crawfish, could also be killed at the label aplication rate. Do not apply in areas where these are important resources. Do not clean equipment or dispose of wastes near water. Cover or incorporate spills. Apply this product only as directed on the label.

This product is toxic to bees exposed to direct application and use should be confined to times of minimum bee activity, usually early morning or late evening.

101.0 Hazard Assessment

101.1 Discussion

UAP 101 is a combination of two chemicals that are registered as separate pesticides for use on potatoes, and data does exist for each chemical. Since there are no data on the combined product and the individual products are toxic, data needs to generated on this product

Phorate is classified as highly toxic with LD_{50} values ranging from 0.62 mg/kg for mallards to 7.5 mg/kg for starlings and dietary LC_{50} values from 248ppm for mallards to 381 for upland gamebirds. Ethoprop

is considered to be moderately to highly toxic. The acute LD_{50} values range from 4.2 mg/kg to 12.6 mg/kg for mallards, while the dietary LC_{50} values range from 33 ppm for bobwhite quail to 550 ppm fo mallards.

There are more field testing data and bird kill data for phorate. Several simulated field studies, conducted with Thimet® 20G at a rate equivalent to 2.6 lbs active ingredient per acre, showed mortalities from 20% - 40% of the quail in the fields. A full scale field study was recently conducted and preliminary results indicate that mortalities occurred with granulars applied in corn. Bird kills associated with phorate have been reported to EEB. The numbers of birds killed ranged from 66 to 2000 and the species included waterfowl, raptors, and songbirds.

A field test on Mocap® 10G applied at 6 lbs a.i. per acre on corn killed 33% of the quail in the field. A full-scale field study was recently submitted and is being reviewed. Only one additional bird kill has been reported with ethoprop; a single robin on a lawn in Florida.

The aquatic toxicity data is more complete for phorate than for ethoprop. Phorate is very highly toxic to freshwater and estuarine fish and invertebrates. The ranges of the LC_{50} values are: freshwater fish - 2 to 280 ppb, freshwater invertebrates - 0.68 to 50 ppb, estuarine fish - 1.3 to 5 ppb, and estuarine invertebrates - 0.27 to 900 ppb. Phorate is currently being evaluated in a full scale pond study. Ethoprop is considered to be moderately to highly toxic to freshwater fish - 1.02 to 1.85 ppm and highly toxic to estuarine species - 7 to 232 ppb, oysters, however, had an LC_{50} of 11 ppm. Aquatic field testing for ethoprop is being held in abeyance pending satisfaction of the acute and chronic data gaps.

101.2 Likelihood of Adverse Effects to Non Target Organisma

The data for phorate and ethoprop demonstrate that birds entering a field following treatment with either chemical can ingest enough of the granular pesticide to cause mortality. Although no data exists for UAP 101, we can predict that birds accidentally ingesting the formulated product will die. In the registration standard for phorate, the chemical was implicated in fish kills. The cause of the kills was attributred to surface run-off of the chemical. The Storet Retrieval System lists phorate residues of 0.01 to 40 ppb in streams in California. Although the field testing of phorate is still incomplete and data gaps exist for ethoprop, our assumption of unacceptable hazard for the combination product UAP 101 is valid until the data prove otherwise.

Although EEB is concerned about the toxicity of this product to birds and aquatic organisms, we do not believe that its use on potatoes, under this EUP will result in an increased exposure to non target organisms. The primary reason for this is that the acreage to be treated is less than 1% of the total acreage for potatoes as listed in Agricultural Statistics, 1984.

101.3 Endangered Species Considerations

The evaluation of pesticides under the Endangered Species Protection Program indicated that both of the chemicals, phorate and ethoprop, were likely to jeopardize threatened or endangered species. The registrant's request submission of September 3, 1987, wherein the counties that will not be included in the EUP were listed (attachment), addresses our prior concern.

101.4 Adequacy of Toxicity Data

The individual registration standards for phorate and ethoprop list the data gaps that need to be fulfilled. Because of the potential for additve toxicity, the data sets for the individual active ingredients are not sufficient to assess the combined hazard. In order to obtain full registration, basic toxicity studies - two acute studies with freshwater fish, one acute study with a freshwater invertebrate, two avian dietary studies - must be conducted with TGAI of the single chemicals and commensurate testing of the combined TGAI. In addition, one acute oral acute toxicity study on Bobwhite quail needs to be done using the formulated granular product (see Hill & Camardese, 1984, for methods). Additional testing may be required if the results of these tests indicate it.

103.0 Conclusions

The Ecological Effects Branch has reviewed the revised EUP for the granular pesticide UAP 101 or Clean Crop Holdem 10-10G, which is 10% phorate and 10% ethoprop. If the registrant, Platte Chemical Co., adheres to its intent to limit application to non endangered species counties, then EEB concludes that there will not be a significant increase in exposure to non target organisms, especially endangered ones. As each of the active ingredients is known to be toxic, the registrant is required to report any mortalities of either fish and/or birds, that occur during the use of UAP 101, to the agency. As noted previously, if the registrant desires full registration, then the data requirements de-

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Platte Chemical Company

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303-356-4400

September 3, 1987

Mr. William Miller
Product Manager 16
Insecticide-Rodenticide Branch
Registration Division
U. S. Environmental Protection Agency
401 M Street, S. W.
Washington, DC 20460

SUBJECT: Clean Crop Holdem 10-10G
EPA Experimental Use Permit File Symbol 34704-EUP-O

Dear Mr. Miller:

This letter is in response to Mr. Harrison's letter of July 2, 1987, concerning the subject application for an experimental use permit.

With regard to item number 1, we are taking the Agency's recommendation to revise our program to include 600 acres in Maine and to delete testing in Nebraska. Enclosed is a copy of a revised listing of the States, acreage, and amount of material that will be used. Please note that we are proposing to add a total of 550 acres to the overall program (600 acres in Maine minus 50 acres from Nebraska), rather than realign the acreage in other states in order to maintain the same total of acreage we originally requested. This approach appears to be acceptable to the Agency.

With regard to item number 2, we have enclosed a statement to revise our program to specify that we will not use the subject product within certain counties, because of a concern that endangered species would be jeopardized.

In Mr. Harrison's letter, no objections were raised to our use of the alternate product name "Clean Crop Hold'em 20G" (subject of our March 31, 1987, letter to Ms. Marilyn Mautz). Therefore, we are assuming that we may use that name for our experimental product.

We believe we have addressed all the points of concern outlined in Mr. Harrison's letter and which prevented issuance of an experimental use permit for 1987. Because we have missed the 1987 use season, please issue the permit to cover testing of the product in 1988. (Actual application of the material would occur anytime from March 1, 1988, through June 30, 1988.)

If there are any questions concerning the enclosed, please do not hesitate to telephone me.

Sincerely,

Diana G. Williams
Registration Manager
Insecticides and Fungicides

DGW/mp

enc

CLEAN CROP HOLDEM 10-10G

States, Number of Acres, Amount of Pesticide
(Program Revision In Accordance with EPA Letter of July 2, 1987)

State	Acreage	Amount Each A.I. (Pounds)	Quantity (Pounds) Formulated Product
California	100	300	3,000
Colorado	50	150	1,500
Idaho	1,750	5,250	52,500
Maine	600	1,800	18,000
Michigan	300	900	9,000
Minnesota	100	300	3,000
New York	300	900	9,000
North Carolina	100	300	3,000
North Dakota	200	600	6,000
Oregon	75	225	2,250
Washington	375	1,125	11,250
Wisconsin	450	1,350	13,500
	4,400 Acres	13,200 Pounds*	132,000 Pounds

*13,200 pounds of phorate
13,200 pounds of ethoprop

The following individual will be supervising, observing and reporting the results of testing in Maine:

Dr. Richard Storch
University of Maine
308 Deering Hall
Orono, Maine 04469
(207)581-2962

9/13/87

CLEAN CROP HOLDEM 10-10G

Experimental Use Program
Revision To Exclude Specific Counties As Testing Locations
Endangered Species Restrictions

Clean Crop Holdem 10-10G, will not be tested under Experimental Use Permit File Symbol 34704-EUP-O, in the following counties because of possible jeopardy to endangered species.

A. California - Butte, Colusa, Glenn, Imperial, Kern, Merced, Modoc, Inyo, Los Angeles, Orange, Riverside, Sacramento, San Bernardino, San Diego, Santa Barbara, Solano, Stanislaus, Sutter, Tehema, Yolo, and Ventura.

B. North Carolina - Edgecombe, Nash, and Pitt.

C. North Dakota - Banson, Bottineau, Burke, Burleigh, Divide, Dunn, Eddy, Emmons, Foster, Kidder, Logan, McHenry, McIntosh, McKenzie, McLean, Mercer, Morton, Mountrail, Nelson, Oliver, Pierce, Ramsey, Ranville, Rolette, Sheridan, Sioux, Stutsman, Towner, Ward, Wells, and Williams.

D. Oregon - Lake.

9/3/87