

EEB File-128701
2-6-90

256320
RECORD NO.

128701
SHAUGHNESSEY NO.

REVIEW NO.

EEB REVIEW

FEB 6 1990

DATE: IN 12/29/89 OUT _____

FILE OR REG. NO. 8340-EUP-RR

PETITION OR EXP. NO. _____

DATE OF SUBMISSION 12/06/89

DATE RECEIVED BY EFED 12/20/89

RD REQUESTED COMPLETION DATE 02/01/90

EEB ESTIMATED COMPLETION DATE 02/01/90

RD ACTION CODE/TYPE OF REVIEW 750

TYPE PRODUCT(S) Herbicide

DATA ACCESSION NOS. 412769-01,02,03,04,05,06

PRODUCT MANAGER NO. J. Miller (23)

PRODUCT NAME(S) fenoxaprop-ethyl (Super Whip Herbicide)

COMPANY NAME Hoechst Celanese

SUBMISSION PURPOSE EUP on rice

SHAUGHNESSEY NO.	CHEMICAL AND FORMULATION	% AI
_____	<u>fenoxaprop-P-ethyl</u>	<u>6.27</u>
_____	_____	_____
_____	_____	_____

EEB REVIEW

Chemical: Super Whip herbicide

100 Submission Purpose and Label Information

100.1 Submission Purpose and Pesticide Use

Hoechst Celanese is proposing an EUP program to evaluate the efficacy of Super Whip herbicide for weed control in rice.

100.2 Formulation Information

ACTIVE INGREDIENTS:

fenoxaprop-P-ethyl: (+)-ethyl 2-[4-[(6-chloro-2-benzoxazolyl)oxy]phenoxy]propanoate.....6.27%*

INERT INGREDIENTS:.....93.73%**

TOTAL: 100.00%

- * (0.55 # active ingredient per gallon)
- ** (contains petroleum distillates)

100.3 Application Methods, Directions, and Rates

Super Whip herbicide will be used in 18 trials in 5 states on 450 acres of rice (25 acres/trial). The maximum total amount of active ingredient to be used will be 74.25 pounds. Super Whip will be applied exclusively by air in a minimum of 5 gallons water per acre. A minimum spray pressure of 20 psi plus use of D-8 nozzles that give 150 to 300 microns are recommended. Raindrop nozzles are not allowed. The label recommends that aircraft fly at least 10 feet above the rice canopy. (These label statements are provided to enhance spray coverage with small droplets. However, the potential for off-target drift also increases with smaller droplets.) The label cautions not to apply by aircraft if wind speed exceeds 8 MPH and to avoid direct or indirect contact to neighboring fields.

A maximum of 2.4 pints per acre (0.165# ai) are allowed per season. Each application can range from 0.9 to 1.2 pints per acre (0.062 to 0.0825# ai) and is applied from the 4 leaf stage of growth to the late tillering stage. For pre-flood use, the label cautions not to flush the rice field for at least 7 days after Super Whip use. If application is made to non-flooded rice, the label cautions not to flood for 4 to 5 days after application. A deep flood is allowed 21 days after application. The water depth (flood or flush) should not exceed 25% of the rice height for 21 days after treatment. For post-flood use, the label recommends reflooding to normal depth 2 to 3 days after treatment. Water

level at the time of application should cover no more than 25% of the rice/grassy weed foliage.

Other restrictions include a 6 day interval between Super Whip and other pesticides, not to use after late tillering but prior to panicle initiation, not to use rice irrigation water to irrigate crops not registered in the S.W. U.S. within 14 days of the last treatment, not to tank-mix Super Whip with Blazer, Propanil, Ordram, phenoxy herbicides or liquid fertilizers, and not to apply within 7 days after Furadan insecticide.

100.4 Target Organisms

Super Whip will be used for postemergence foliar control of annual and perennial grassy weeds or sedges. Thorough coverage of foliage is necessary.

100.5 Precautionary Labeling

The proposed EUP label states: "This pesticide is toxic to fish. Do not apply directly to a body of water outside of the treated rice field. Do not apply when weather conditions favor runoff or drift. Do not contaminate arable land and/or water when disposing of equipment washwaters."

Endangered species restrictions by County are given on the proposed EUP label to protect the fat pocketbook pearly mussel (Potamilus capax) and it's habitat. The label also states "Do not apply Super Whip herbicide in areas where catfish and crayfish are commercially cultivated."

101 Hazard Assessment

101.1 Discussion

Super Whip contains the same active ingredient as the currently registered rice herbicide Whip, but the mixture of active enantiomers is different. The Super Whip formulation contains a higher percentage of the d enantiomer than Whip, making it more biologically active. The ratios are: Whip 50:50, d to l; Super Whip 85:15, d to l. To compensate for the higher level of activity the Super Whip product is formulated as 0.55# active ingredient per gallon vs 1.0# active ingredient per gallon for the Whip product. The maximum Super Whip use rate per application has been reduced from 0.2# active ingredient per acre for Whip to 0.0825# active ingredient per acre for Super Whip; a 2.4 x reduction. The total maximum amounts (from 2 total treatments) allowed per year are 0.3# active ingredient/A for Whip and 0.165# active ingredient/A for Super Whip; a 1.8 x reduction. In July 1988, EEB requested that Hoesch conduct a mysid shrimp LC50 study using the Super Whip product; shrimp being the most sensitive aquatic species to Whip herbicide. If found acceptable, this study was to serve as a bridge to other Whip studies. The Super Whip mysid shrimp study was submitted to EEB in October 1989 and is under review.

When compared with Whip formulation studies, Super Whip formulation studies for rainbow trout, bluegill, and Daphnia indicate that Super Whip is approximately twice as toxic as Whip in LC/LD 50 tests.

101.2 Likelihood of Adverse Effects on Nontarget Organisms

Terrestrial Organisms

Acute contact LD50 data previously submitted for Whip herbicide indicates that fenoxaprop-P-ethyl at Super Whip label rates should pose no hazard to honey bees.

Fenoxzprop-P-ethyl was classified as "practically nontoxic" to birds as follows:

Bird Study	Formulation	LD/LC50
mallard duck dietary	96.6% tech.	>5620 ppm
bobwhite quail "	96.6% tech.	>5620 ppm
bobwhite acute oral	96.6% tech.	>2510 ppm

From a previous review (proposed registration of Whip 1EC, 5/03/89), the mammalian LD50 is: >2000 mg/kg. Assuming a maximum application rate of 0.0825 # active ingredient per acre, the following residues could be expected immediately after application:

long grass	<10.0 ppm
short grass	<20.0 ppm
leaves, leafy crops	<10.0 ppm
forage	< 6.0 ppm
pod crops, legumes	< 1.0 ppm
tree fruits	< 0.8 ppm

These values are well below the LC50 values for mallard duck, bobwhite quail, and mammalian species. In a previous EAB review (Study 12- Review dated 12/02/86 for fenoxaprop-P-ethyl), the turfgrass perennial ryegrass was sprayed with 0.5# active ingredient per acre of Whip 1EC (approximately 6x the Super Whip rate). In this study, dislodgeable residues dissipated with a half-life of < 3 hours (from 11 to 1.5 ppm). The half-life of total extractable residues was 1 to 3 days.

Based on these data, the hazard from use of two applications of Super Whip is expected to be minimal to birds, mammals, and bees.

Aquatic Organisms

Past EEB reviews have addressed potential adverse effects to aquatic organisms from use of Super Whip on rice. Because of these concerns, a mysid shrimp study and a Selenastrum capricornutum alga study were requested for Super Whip by EEB in July 1988. Based on a comparison of Whip vs Super Whip formulation studies in EEB files, Super Whip is expected to be highly toxic to

mysid shrimp (LC50 below 1ppm). If one-half the Whip mysid shrimp LC50 is taken (one-half 1.71 ppm), the Super Whip LC50 would be approximately 0.855 ppm. If the maximum application rate per application of Super Whip is used (0.0825# ai/A) and were applied to a 6" depth of water, the resulting concentration would total 61 ppb. One-tenth the shrimp LC50 for Super Whip would total 85 ppb resulting in no adverse trigger. One-twentieth the shrimp LC50 for Super Whip would total 43 ppb which is below the EEC, triggering endangered species concerns.

Data previously submitted to EEB for the Super Whip formulation are summarized as follows:

rainbow trout	LC50, 2.4 ppm (Moderately Toxic)
daphnia magna	LC50, 6.0 ppm (Moderately Toxic)

For comparison, data previously submitted to EEB for the Whip formulation are summarized as follows:

rainbow trout	LC50, 3.4 ppm (Moderately Toxic)
daphnia magna	LC50, 11.5 ppm (Slightly Toxic)
mysid shrimp	LC50, 1.7 ppm (Moderately Toxic)

The 96% technical formulation of fenoxaprop-P-ethyl is very highly toxic to shrimp and oysters in acute studies.

Plants

Based on Tier II vegetative vigor and seed germination studies submitted to EEB in October 1989, the Graminaea family of plants are the most sensitive to Super Whip herbicide.

If two aerial applications are made (as is allowed by the EUP label), the maximum expected environmental concentration from off-target drift totals 0.0165# ai/A. This level of residue triggers off-target plant concerns based on:

Seed Germination/Seedling Emergence

oat	EC25 = 0.008#ai/A
ryegrass	EC25 = 0.014#ai/A
corn	EC25 = 0.004#ai/A

Vetetative Vigor

corn	EC25 = 0.006#ai/A
corn	EC50 = 0.018#ai/A

Based on these data, off-target movement of Super Whip herbicide from aerial application is expected to adversely affect terrestrial plants in the Graminaea family and potentially adversely affect aquatic macrophytes.

101.3 Endangered Species Considerations

The precautionary statements that this pesticide is toxic to fish, do not apply directly to a body of water outside the treated rice field, do not apply when weather conditions favor drift or runoff, and do not apply in areas where catfish and crayfish are commercially cultivated instruct the user of the importance of accurate application and the potential for adverse effects to aquatic organisms. However, droplet size reduction statements on the label may result in increased off-target movement above that predicted by EEB.

On the proposed EUP label endangered species statements are given for the fat pocketbook pearly mussel. This portion of the label must be expanded to include the following endangered mussels in or near the proposed EUP rice growing areas: Louisiana pearlshell mussel (Margaritifera hembeli), Curtis' pearly mussel (Epioblasma florentina curtisi), and the pink mucket pearly mussel (Lampsilis orbiculata). (See 101.5 below, and attached maps.)

It is expected that endangered plants in rice growing areas will be adversely affected if off-target movement occurs. Three endangered/threatened plants growing in proximity to the proposed EUP rice growing areas are: pondberry (Lindera melissifolia), Texas bitterweed (Hymenoxys acaulis var. glabra), and Geocarpon minimum.

Super Whip is not expected to adversely affect endangered birds, mammals, or insect species.

101.4 Adequacy Of Toxicity Data

In response to a previous EEB review (July 12, 1988) regarding the registration of Super Whip on rice, the following studies were requested and received by EPA on Oct. 25, 1989:

- 1.) 96 hour acute Mysidopsis bahia,
- 2.) Tier I algae, Selenastrum capricornutum,
- 3.) Tier I nontarget plant seed germination, seedling emergence,
- 4.) Tier II nontarget plant seed germination, seedling emergence,
- 5.) Tier I nontarget plant vegetative vigor,
- 6.) Tier II nontarget plant vegetative vigor.

These studies are being reviewed by EEB at present. Their adequacy has not been determined to date.

101.5 Adequacy of Labeling

1.) In addition to the fat pocketbook pearly mussel restrictions, revise the proposed EUP label to restrict Super Whip from use in the following rice growing counties:

<u>State</u>	<u>County</u>	<u>Endangered Species</u>
Arkansas	Clay, Lawrence, Randolph.	pink mucket pearly mussel
Louisiana	Rapides.	Louisiana pearlshell mussel
Missouri	Butler, Ripley. Stollard.	Curtis' pearly mussel, pink mucket pearly mussel pink mucket pearly mussel

2.) Revise the proposed EUP label to state: "This product is toxic to aquatic invertebrates."

102.0 Classification

Not currently classified.

Conclusions

Data currently available indicate that the Super Whip hazard to avian, mammalian, and beneficial insect species is expected to be minimal. However, the proposed aerial use of Super Whip on rice does pose a potential hazard to aquatic invertebrates, aquatic plants, and non-target terrestrial plants, including endangered/threatened species. The proposed EUP label recommends methods to reduce droplet size which may result in increased off-target movement of Super Whip during aerial application.

In addition to the label statements listed above (101.5), it is suggested that the appropriate county Fish and Wildlife officials be consulted regarding the proximity of endangered plant species to the following test areas:

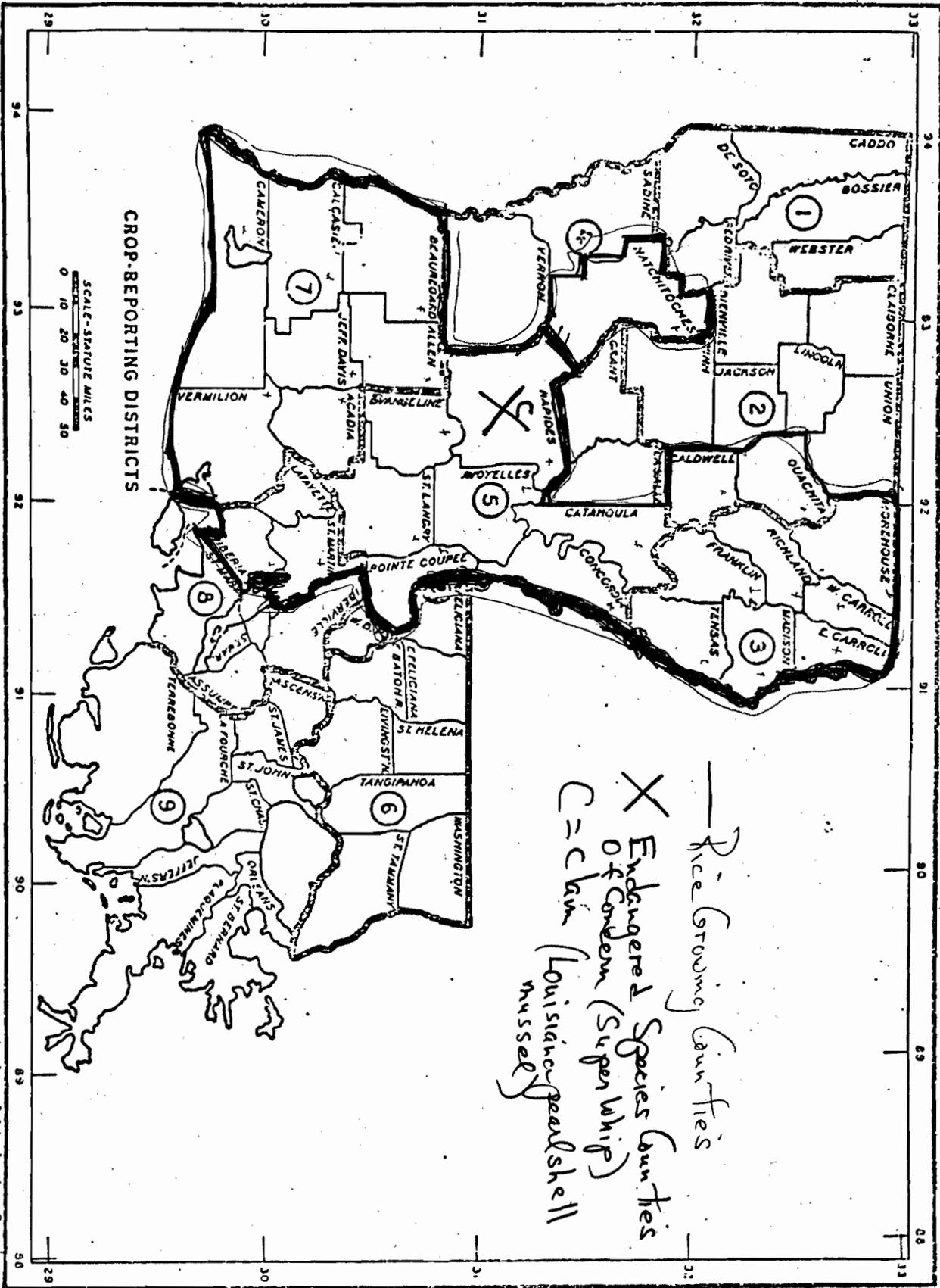
<u>State</u>	<u>County</u>	<u>Endangered Species</u>
Arkansas	Greene, Jackson, Lawrence, Woodruff. Drew, Franklin.	pondberry pondberry <u>Geocarpon minimum</u>
Mississippi	Bolivar, Sharkey, Sunflower.	pondberry pondberry
Missouri	Ripley.	pondberry
Texas	Fort Bend, Harris.	Texas bitterweed

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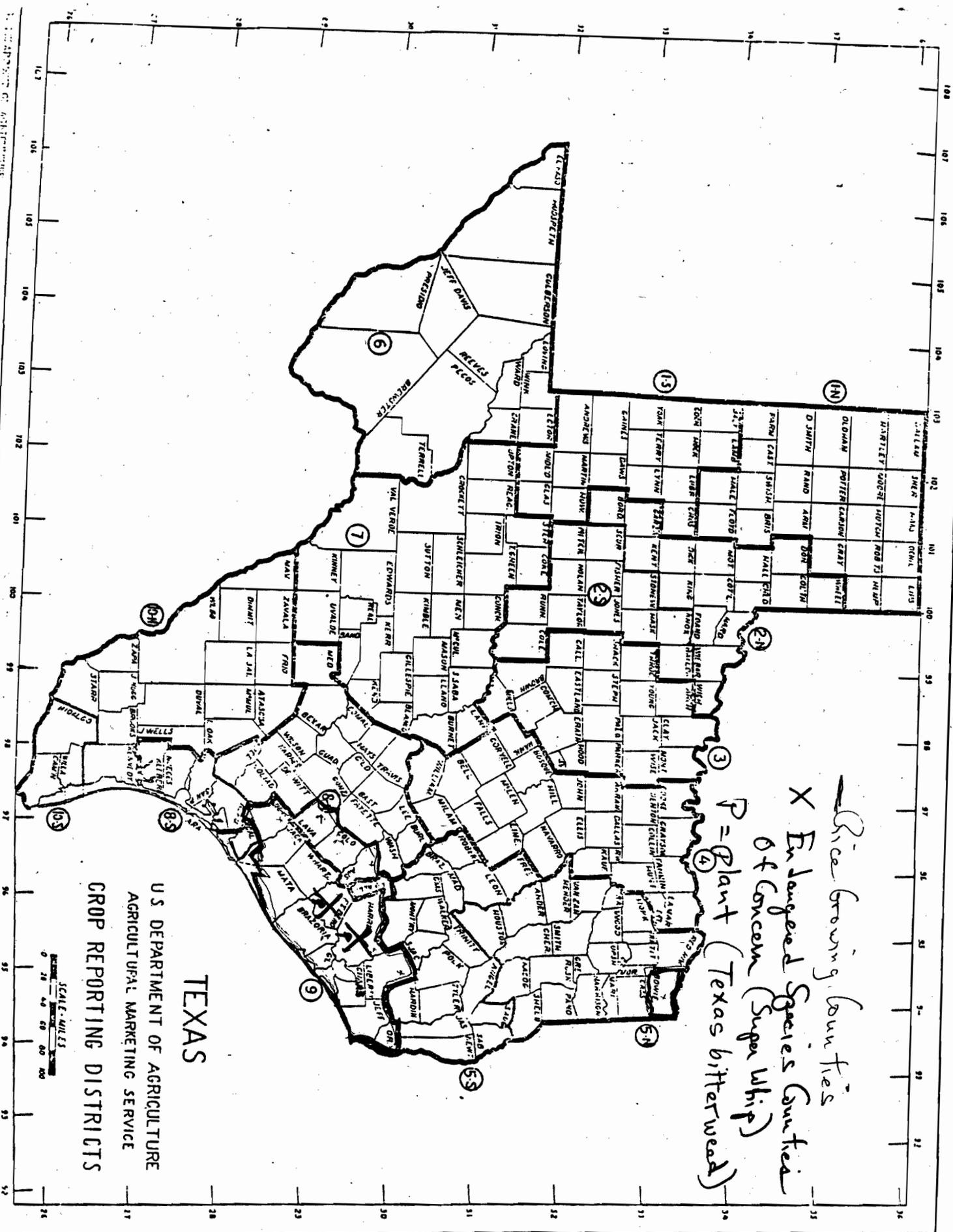
LOUISIANA



— Rice Growing Counties
 X Endangered Species Counties
 of Common (Super Whip)
 C = Chin (Louisiana pearlshell
 mussel)

U. S. Department of Agriculture

Agricultural Marketing Service

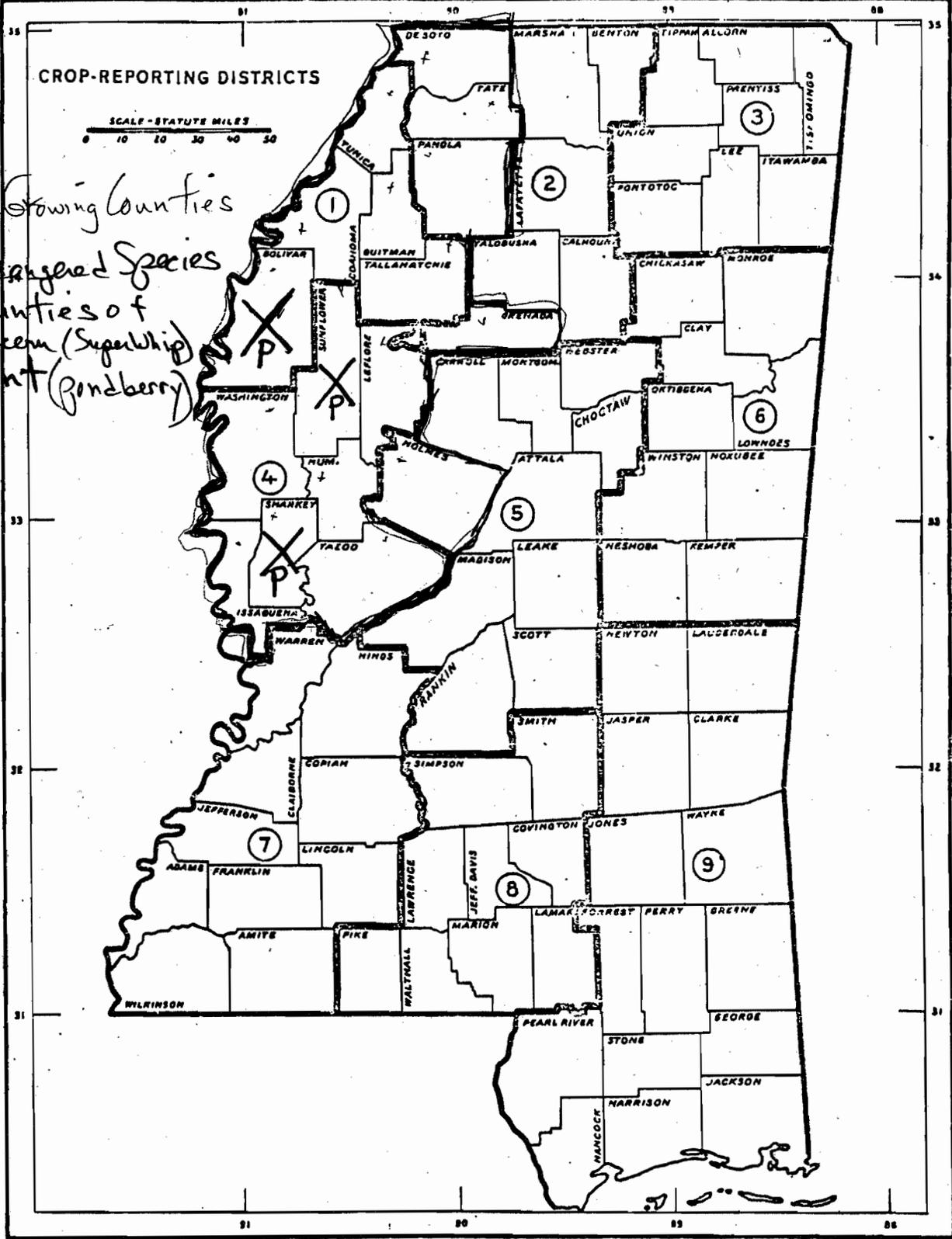


Rice growing counties
 X Enlarged Species Guafes
 of Concan (Super Whip)
 P = Plant (Texas bitterweed)

TEXAS
 U.S. DEPARTMENT OF AGRICULTURE
 AGRICULTURAL MARKETING SERVICE
 CROP REPORTING DISTRICTS



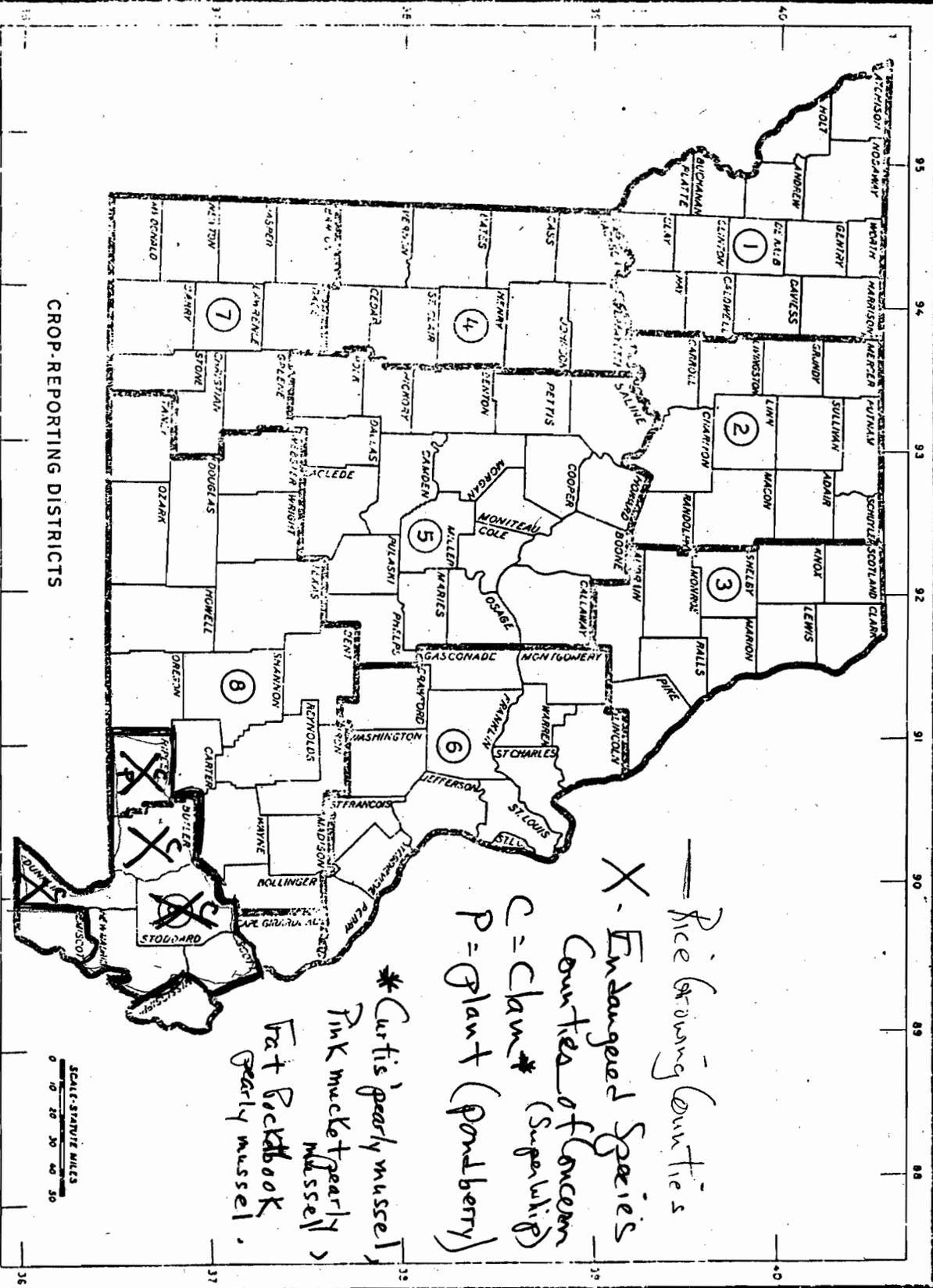
MISSISSIPPI



— Rice Growing Counties
 X - Endangered Species
 Counties of Concern (Super Whip)
 P = plant (pondberry)

MISSOURI

CROP-REPORTING DISTRICTS



Use this form for individual studies & to submit pesticide applications.

 EPA Confidential Business Information - Does not contain National Security Information (E.O. 12065)	United States Environmental Protection Agency Office of Pesticide Programs Washington, DC 20460	Pack Number 49940 EFED	Date Received 12-27-89
	Data Review Record		

1. Product Name Super Slip Herbicide		Chemical Name Fenoxypropyl ethyl	
2. Identifying Number 8340-EWL-RP	3. Record Number 256320	4. Action Code 750	5. MFRID/Accession Number N/A
6. Study Guideline or Narrative Experimental Use Permit			

7. Reference No. 1	8. Date Rec'd (EPA) 12-6-89	9. Prod/Review Mgr/DCI J Miller	10. PM/RM Team No. 23	11. Date to HED/EFED/RD/BEAD 12-20-89	12. Proj Return Date 2-1-90	13. Date Returned to RD/SRRD
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Instructions
 Please review information submitted to support an EPA Experimental Use Permit under Section 5 of the Act. Use available data - or reviews - to determine if data are adequate to support issuing the proposed EPA EUP for this product.

This Section Applies to Review of Studies Only

14. Check Applicable Box <input type="checkbox"/> Adverse 6(a)(2) Data (405) <input type="checkbox"/> Special Review Data (870)	<input checked="" type="checkbox"/> Generic Data (Reregistration)(660) <input type="checkbox"/> Product Specific Data (Reregistration)(655)	15. No. of Individual Studies Submitted None (Other Data)
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16. Have any of the above studies (in whole or in part) been previously submitted for review? <input type="checkbox"/> Yes (Please identify the study(ies))	<input checked="" type="checkbox"/> No	17. Related Actions Other Request Document
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18. To	Type of Review	19. Reviews Also Sent to	20. Data Review Criteria
HED	Science Analysis & Coordination	<input type="checkbox"/> SAC <input type="checkbox"/> PC	A. Policy Note No. 31 <input type="checkbox"/> 1 = data which meet 6(a)(2) or meet 3(c)(2)(B) flagging criteria <input type="checkbox"/> 2 = data of particular concern from registration standard <input type="checkbox"/> 3 = data necessary to determine tiered testing requirements
	Toxicology/HFA	<input checked="" type="checkbox"/> TOX/HFA <input type="checkbox"/> PL	
	Toxicology/IR	<input type="checkbox"/> TOX/IR	
	Dietary Exposure	<input checked="" type="checkbox"/> DEB <input type="checkbox"/> EA	
EFED	Nondietary Exposure	<input type="checkbox"/> NDE <input type="checkbox"/> AC	
	Ecological Effects	<input type="checkbox"/> EEB <input type="checkbox"/> BA	
SRRD	Environmental Fate & Groundwater	<input type="checkbox"/> EFGWB	
	Special Review	<input type="checkbox"/> SR	
	Reregistration	<input type="checkbox"/> RER	
RD	Generic Chemical Support	<input type="checkbox"/> GSC	B. Section 18 <input type="checkbox"/> 1 = data in support of section 3 in lieu of section 18
	Insecticide-Rodenticide	<input type="checkbox"/> IR	
	Fungicide-Herbicide	<input type="checkbox"/> FH	
	Antimicrobial	<input type="checkbox"/> AM	
BEAD	Product Chemistry		
	Precautionary Labeling		
	Economic Analysis		
	Analytical Chemistry		C. Inert Ingredients <input type="checkbox"/> 1 = data in support of continued use of List 1 inert
	Biological Analysis		

<input checked="" type="checkbox"/> Confidential Statement of Formula (EPA Form 8570-4) Attached (Trade Secrets)	<input checked="" type="checkbox"/> Label Attached
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EPA Form 8570-17 (Rev. 11-88) Previous editions are obsolete.
 White - Data Coordinator
 Yellow - Data Review Section
 Pink - PM/RM/DCI
 Green - Return with completed review
 See attached

FENOXADROP

21W 4731-95

P.C. 128701

Page is not included in this copy.

Pages 15 through 17 are not included.

The material not included contains the following type of information:

- Identity of product inert ingredients.
- Identity of product impurities.
- Description of the product manufacturing process.
- Description of quality control procedures.
- Identity of the source of product ingredients.
- Sales or other commercial/financial information.
- A draft product label.
- The product confidential statement of formula.
- Information about a pending registration action.
- FIFRA registration data.
- The document is a duplicate of page(s) .
- The document is not responsive to the request.

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.
