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EEE BRANCH REVIEW

Ontoal File

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DATE: IN \_\_\_\_\_ OUT \_\_\_\_\_ IN \_\_\_\_\_ OUT \_\_\_\_\_ IN 10-06078 OUT 10-16-78  
FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR (REG. NO.) 241-243

PETITION OR EXP. PERMIT NO. \_\_\_\_\_

DATE DIV. RECEIVED 8-02-78 (TK MX), 8-27-78 (overlay)

DATE OF SUBMISSION 8-22-78 (TK MX), 8-21-78 (overlay)

DATE SUBMISSION ACCEPTED \_\_\_\_\_

TYPE PRODUCTS(S): I, D, H, F, N, R, S Herbicide

DATA ACCESSION NO(S) Tk-Mx-235085, overlay -235168, 235169, 235170

PRODUCT MGR. NO. 25 Robert Taylor

PRODUCT NAME(S) Prowl Herbicide

COMPANY NAME American Cyanamid Co.

SUBMISSION PURPOSE <sup>108501 / 035503</sup>  
Add Prowl/Cotoran 80WP Preemergence Tank Mix and Prowl

PPI Cotoran 80WP Preemergence overlay to Prowl Cotton label.

CHEMICAL & FORMULATION pendimethalin (N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamide-(43.8%) (4#ai/gallon)

## 200.0 Introduction:

American Cyanamid Co. is requesting registration of a Prowl/Cotoran 80WP tank mix applied postplant preemergence to the cotton and weeds and registration of Prowl applied PPI (preplant incorporated) followed by Cotoran 80WP applied Pre (pre-emergence) as an overlay treatment for weed control in cotton.

## 200.1 Uses:

Refer to attached use sheets.

## 200.2 Background information:

Prowl herbicide (Reg. No. 241-243) is presently registered for PPI weed control in cotton. Cotoran 80WP herbicide (Reg. No. 100-549) is presently registered for PPI (Az., Ca. & N.M. only), preemergence and/or postemergence use in cotton. Both Prowl alone and Cotoran alone are registered for use in combination with fluid fertilizers.

Prowl herbicide is not presently registered for preemergence use in cotton (as is claimed on the proposed Prowl/Cotoran tank mix label).

Prowl is presently registered for preemergence use alone in field corn and tank mix preemergence use in soybeans. The preemergence Prowl rates recommended for use in the proposed Prowl/Cotoran tank mix are slightly ~~different from the presently registered preemergence Prowl alone rates~~ recommended on the field corn label.

## 201.0 Data summary:

### 201.1.1 Brief description of data submitted:

Efficacy, crop injury yield, tank mix compatibility and rainfall data were submitted in support of proposed Prowl/Cotoran 80WP tank mix and the Prowl-Cotoran 80WP overlay treatments.

#### A. Prowl/Cotoran 80WP tank mix applied postplant preemergence to cotton and weeds:

1. Efficacy data submitted indicated acceptable control of those weed species claimed from use of the minimum proposed preemergence tank mix rates. Efficacy data submitted support the statement that the tank mix is most effective when "adequate" moisture (rainfall or overhead irrigation) is received within 7 days after treatment.

2. Minimal crop injury was noted in certain tests, however, this initial injury did not adversely affect yields. It was interesting to note that in 4 out of 5 tests which compared the tank mix with Cotoran alone, the Cotoran alone plots significantly outyielded the tank mix plots. However, the tank mix plots consistently outyielded the Prowl alone plots. The higher yields in the Cotoran alone plots do not seem to be a function of crop injury, test location, rainfall, or cotton variety but instead a function of total weed control obtained and reinfestation levels following treatment. There is a possibility of slight tank mix antagonism resulting in reduced control of common cocklebur, morningglory spp. and Penn. smartweed as compared to Cotoran 80WP alone.

3. No fluid fertilizers were used in any of the field data submitted. No apparent mixing problems were noted from combining the tank mix with water diluent. The tank mix fluid fertilizer combination tested resulted in information of an oily ring which required continuous tank agitation. Continuous agitation is presently recommended on the Prowl label.

B. Prowl PPI followed by Cotoran 80WP preemergence overlay on cotton:

1. Efficacy data submitted will support control of those weeds listed on the Prowl PPI and Cotoran 80WP preemergence labels. No antagonistic or synergistic effects were noted from use of the proposed overlay throughout the cotton belt.

2. Slight cotton injury (maximum of 12% at 70 days after treatment) was noted in certain tests, however, this initial injury did not significantly reduce yields. In most cases yields were comparable to or greater than those obtained with a standard Treflan PPI- Cotoran 80WP pre-treatment. Data were submitted from the states of MS., SC., NC., AZ., AR., La., TN., AL., MO. and NM., with no significant yield reductions of the following varieties: Stoneville 123, McNair 511, Coker 310, DPL-16, DPL-15, Dixie King III, Stoneville 7A, Rex Smoothleaf, DPL-45, Hancock, McNair, 61, Ne Rex, Coker 102 and Stripper.

201.1.2 Data Summaries:

Refer to F.H.B files for data summaries and proposed labels.

202.0 Conclusions:

202.1 Claims supported by the data submitted:

A. Prowl/Cotoran 80WP tank mix:

1. Efficacy data submitted from use of the minimum proposed tank mix rates (as based on soil texture and geographic location) will support preemergence control of barnyardgrass, crabgrass spp.) goosegrass, broadleaf signalgrass, Johnsongrass (from seed), panicum spp.), pigweed spp., common lambsquarters, common purslane, carpetweed, annual spurges, kochia, prickly sida, Florida pusley, and jimsonweed and reduced competition from common cocklebur and annual morningglories. Efficacy data support the label statement that the tank mix is most effective when "adequate" rainfall or overhead irrigation is received within 7 days after treatment.

2. Crop injury and yield data submitted will support use of the maximum proposed tank mix rates (as based on soil texture and geographic location) on the major cotton varieties grown throughout the label designated states.

3. Compatibility data submitted will support use of the Prowl/Cotoran 80WP tank mix in water or fluid fertilizer diluent. Continuous agitation is required throughout the tank filling and spraying operations when mixed with fluid fertilizer. ~~References to the Prowl label concerning mixing, spraying and~~ fluid fertilizer compatibility determinations are adequate.

B. Prowl PPI-Cotoran 80WP preemergence overlay:

1. Efficacy data submitted will support control of those weeds listed on the Prowl PPI cotton label and those weeds listed on the Cotoran 80WP preemergence cotton label when applied as directed by each label. No antagonistic or synergistic effects were noted.

2. Crop injury and yield data submitted from use of the maximum Prowl PPI rates followed by the maximum recommended Cotoran 80WP preemergence rates are acceptable in support of registration.

203.0 Label comments to be resolved prior to registration:

A. Prowl/Cotoran 80WP tank mix:

1. In the weed list revise:
  - a. "lambsquarters" to read common lambsquarters
  - b. "purslane" to read common purslane
  - c. "signalgrass" to read broadleaf signalgrass to conform with WSSA terminology.

2. In the use directions under "soil texture" include sandy clay and silty clay soils.

3. In the sentence concerning the need for "adequate" rainfall or overhead irrigation within 7 days after treatment, "adequate" must be defined by providing on the label a minimum amount of moisture (rainfall and/or irrigation) required within 7 days after treatment. The amount of total moisture required for effective weed control may vary with the soil texture and intensity of rainfall.

Is a light cultivation recommended if no moisture is provided within 7 days after treatment? This point is unclear on the label.

4. Under "For Use in Cotton", 1st paragraph, revise "Prowl plus Cotoran" to read Prowl plus Cotoran 80WP.

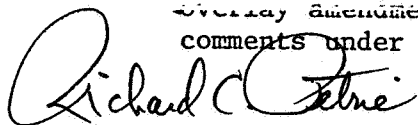
B. Prowl PPI-Cotoran 80WP preemergence overlay:

1. In the 1st paragraph revise "Cotoran" to read Cotoran 80WP.

2. In the last paragraph, revise the first sentence to read "When..., Prowl preplant incorporated followed by cotoran preemergence will control certain additional broadleaf weeds."

Comment:

The proposed Prowl/Cotoran 80WP label and Prowl-Cotoran 80WP overlay amendments will be acceptable after resolution of those label comments under 203.0 above.



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Technical Support Section  
Room 307

FORMULATION: \*Pendimethalin (N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine)-43.8%

Reg. No. 241-243

| USE                          | TOLERANCE<br>P.P.M. | RATE               |                    | APPLICATION                             | LIMITATIONS AND REMARKS          |
|------------------------------|---------------------|--------------------|--------------------|-----------------------------------------|----------------------------------|
|                              |                     | ACTUAL<br>LBS/ACRE | FORMULATED IN      |                                         |                                  |
| Cotton                       |                     |                    |                    |                                         |                                  |
| Preemergence Control of      |                     | Refer to label for |                    | Amendment to Reg. No.                   | Maintain agitation at all        |
| barnyardgrass, crabgrass,    |                     | nitrogen solution  | Compat-241-243.    | Uniformly                               | times until spraying is          |
| goosegrass, signalgrass,     |                     | 1bilty table.      |                    | apply tank mix in 100                   | completed.                       |
| Johnsongrass, (from seed)    |                     |                    |                    | or more gallons of water                | Refer to Prowl leaflet to        |
| panicum spp., pigweed spp.,  |                     |                    |                    | or in 20 or more gallons                | specific mixing, spraying,       |
| common lambsquarters, common |                     |                    |                    | of nitrogen solution/                   | fluid fertilizer compatibility   |
| purslane, carpetweed, annual |                     |                    |                    | A by ground equipment                   | and preemergence use directions. |
| spurge, kochia, prickly      |                     |                    |                    | immediately after                       | The use of Cotoran 80WP as       |
| sida, Fla. pusley,           |                     |                    |                    | planting.                               | a preemergence treatment,        |
| jimsonweed                   |                     |                    |                    |                                         | following the use of a systemic  |
| Reduced competition from     |                     | 0.5-0.75           | 1.0-1.5 lbs. Prowl | Coarse Soils (S.L.S. SL)                | insecticide at planting, may     |
| cocklebur, annual morning-   |                     | +                  | +                  | in Ark., La., and Miss.                 | result in injury to cotton.      |
| glory.                       |                     | 0.8                | 1.0#Cotoran        |                                         | The tank mix is most effective   |
|                              |                     | 0.5-0.75           | 1.0-1.5 lbs Prowl  | Coarse soils (S.L.S. SL)                | when incorporated by rainfall    |
|                              |                     | +                  | +                  | Other States<br>in Ark., La., and Miss. | or overhead irrigation within    |
|                              |                     | 1.0                | 1.25#Cotoran       | except OK, TX, N/M,<br>AZ and CA.       | 7 days after treatment. If       |

FORNATELON (N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine) 43.8%

Reg. No. 241-243

| USE                                  | TOLERANCE<br>P.P.M.                    | RATE                        |           | APPLICATION                                                | LIMITATIONS AND REMARKS                                                                |
|--------------------------------------|----------------------------------------|-----------------------------|-----------|------------------------------------------------------------|----------------------------------------------------------------------------------------|
|                                      |                                        | ACTUAL<br>LBS/ACRE          | FORBIDDEN |                                                            |                                                                                        |
|                                      |                                        | 0.75-1.0                    | 1.5-2.0   | Prowl Medium Soils (SCL, L, S, S <sub>1</sub> ) All states | If cultivation is required before rain or irrigation,                                  |
|                                      |                                        | +                           | +         | except OK, TX, Nt., AZ., & CA.                             | use shallow tillage (rotary hoe or light harrow) and                                   |
|                                      |                                        | 1.0-1.6                     | 1.25-2.0  |                                                            | make certain crop seeds are below the tilled area.                                     |
|                                      |                                        |                             | Cotoran   |                                                            | Refer to the Prowl leaflet                                                             |
|                                      |                                        | 0.75-1.5                    | 1.5-3.0   | Fine Soils (CL, S <sub>1</sub> CL, C) All states except    | for directions regarding rates, mixing, spraying and application of Prowl PPL. Observe |
|                                      |                                        | +                           | +         | OK., TX., Nt., AZ and CA.                                  | all precautionary statements before using.                                             |
|                                      |                                        | 1.6-2.0                     | 2.0-2.5   |                                                            |                                                                                        |
|                                      |                                        |                             | Cotoran   |                                                            |                                                                                        |
| *Prowl Herbicide                     | Populations are expected. Use the 3gt. | Use high rate if heavy weed |           | Prowl PPI-Cotoran Pre                                      |                                                                                        |
| American Cyanamid Co. (4#/ai/gallon) | Growl rate on heavy clay soils.        |                             |           | Sequential. When applied as directed,                      | Refer to the Cotoran 80WP label for specific directions                                |

**FORMULATION:**  
\*pendimethalin(N-(1-ethylpropyl)-3,4-dimethyl-1,2,6-dinitrobenzenamide(43.8%)

Reg. No. 24:-243

| USE                  | TOLERANCE<br>P.P.M. | RATE               |             | APPLICATION                          | LITATIONS AND REMARKS        |
|----------------------|---------------------|--------------------|-------------|--------------------------------------|------------------------------|
|                      |                     | ACTUAL<br>LBS/ACRE | FORMULATION |                                      |                              |
|                      |                     |                    |             | In addition to those                 | regarding rates, mixing,     |
|                      |                     |                    |             | weeds controlled by                  | spraying and application     |
|                      |                     |                    |             | Prowl PPI plus Cotoran               | of Cotoran 80WP preemergence |
|                      |                     |                    |             | Pre. will control certain on cotton. |                              |
|                      |                     |                    |             | broadleaf weeds. Refer               |                              |
|                      |                     |                    |             | to the Prowl leaflet                 |                              |
|                      |                     |                    |             | and Cotoran label for                |                              |
|                      |                     |                    |             | specific weeds controlled            |                              |
|                      |                     |                    |             | by each herbicide                    |                              |
| *Prowl Herbicide     |                     |                    |             |                                      |                              |
| American Cyanamid Co |                     |                    |             |                                      |                              |
| 4#ai/gallon          |                     |                    |             |                                      |                              |