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125401
SHAUGHNESSEY NO.

EEB REVIEW

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PETITION OR EXP. NO. _____

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TYPE PRODUCT Herbicide

DATA ACCESSION NOS. _____

PRODUCT MANAGER NO. D. Stubbs (41)

PRODUCT NAME(S) Command 4EC

COMPANY NAME Mississippi Dept. of Agriculture and Commerce

SUBMISSION PURPOSE Proposed Section 18 for use on
sweet potatoes

SHAUGHNESSEY NO.	CHEMICAL & FORMULATION	%AI
<u>125401</u>	<u>Command herbicide</u>	<u>47.1%</u>
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EEB BRANCH REVIEW

Command Herbicide (Clomazone)

100 Submission Purpose and Label Information

100.1 Submission Purpose and Pesticide Use

The State of Mississippi is requesting an emergency exemption (Section 18) for the use of Command herbicide to control broadleaf weeds and grasses in sweet potatoes. No new data were submitted with this request.

100.2 Formulation Information

Command 4EC

ACTIVE INGREDIENT:

2-(2-Chlorophenyl) methyl-4,4-dimethyl-3-isoxazolidinone	47.1%
INERT INGREDIENTS	52.9%

This product contains 4 lb ai per gallon.

100.3 Application Methods, Directions, Rates

A. Timing and Method of Application

Application is to be made with ground equipment. Command 4EC should be applied at the rate of 2 to 2 1/2 pints (1.0 to 1.25 lb ai) per acre in 10 to 40 gallons of water. All restrictions and precautions on the EPA registered label must be strictly adhered to.

Command will be applied preemergence (not soil incorporated) under this exemption.

100.4 Target Organisms

The following annual grasses and broadleaf weeds are listed in the submission package:

Crabgrass, broadleaf signalgrass, barnyardgrass, johnsongrass, cocklebur, pigweed, morningglory, prickly sida, sicklepod, smartweed, and spotted spurge.

100.5 Precautionary Labeling (from Command label)

APPLICATION PRECAUTIONS

Do not apply Command 4EC herbicide preemergence to fields that are within 1500 feet of the areas listed below:

Residences

Towns and subdivisions

Commercial vegetable production (except sweet corn)

Commercial fruit production

Commercial nurseries

Commercial greenhouses

Small grain fields

Caution must be taken to minimize spray drift as off-site movement can cause temporary whitening or yellowing of plants. Consult the label for information on the reduction of drift. Prior to making applications, it is recommended that adjacent properties be checked and if susceptible and desirable plant species are present, that preemergence spraying within 1500 feet be avoided.

101 Hazard Assessment

101.1 Discussion

The state of Mississippi is requesting an emergency exemption for the use of Command herbicide to control annual grasses and broadleaf weeds in sweet potatoes. Proposed maximum application rate is 2.5 pt (1.25 lb ai) per acre, with one application allowed. Exemption period is not specified. This request is for use on 5000 acres of sweet potatoes.

Command herbicide is currently registered for use on soybeans, which are grown on approximately 3.5 million acres in Mississippi. (1982 Census of Agriculture).

101.2 Likelihood of Adverse Effects on Nontarget Organisms

Terrestrial

Data from previous EEB reviews indicate that Command is practically nontoxic to birds on both an acute oral basis and a dietary basis (bobwhite quail and mallard LD50's > 2510 mg/kg, LC50's > 5620 ppm). The available data on rats suggest that the chemical also has a low mammalian toxicity. Thus, significant acute hazards to nontarget terrestrial organisms are not anticipated from use under the proposed exemption.

Data from hydrolysis, photolysis, and soil metabolism studies indicate that Command herbicide may persist in the environment. However, chronic hazards to avian and mammalian species are unlikely, as the probability of exposure is low, acreage to be treated is limited, and the herbicide will only be applied once per season.

No data are available on effects on pollinators, but in view of the low exposure potential of the proposed use, Command would not be

expected to impact honey bees.

Aquatic

Data from previous EEB reviews indicate that Command is slightly toxic to freshwater fish, with reported LC50's of 19 mg/L for rainbow trout and 34 mg/L for bluegill sunfish. A daphnid study indicated that Command is moderately toxic to aquatic invertebrates (LC50 = 5.2 mg/L). And the MATC for Command technical to Daphnia was determined to be between 2.20 and 4.38 mg/L.

The Exposure Assessment Branch determined the aquatic EEC for the soybean use to be 0.05 ppm, based on one application at 1.0 lb ai per acre. For the purposes of this review, EEB will assume a similar scenario for the proposed use. At the maximum rate (1.25 lb ai per acre), calculated aquatic EEC would be 0.0625 ppm. Based on these figures, EEB has determined that no acute hazards to populations of freshwater aquatic organisms are anticipated from use under the proposed exemption.

As noted above, environmental fate data indicate a potential for Command to persist in the environment. Under the conditions of the proposed Sec. 18, however, (single application, limited acreage), hazard to aquatic organisms is not expected.

Nontarget Plants

The Agency record on Command herbicide contains numerous reported incidents of adverse effects on nontarget plants. This potential to impact nontarget plants is reflected in the number of prominent warnings and precautions on the product label.

Data from a number of tests are required prior to registration of this product for any new agricultural use. See EEB review by Vaughan (EUP, field corn, Oct 31, 1988) for a listing of the data requirements. EEB will defer development of a final hazard assessment on nontarget plants, pending receipt of data from these tests. However, it may be concluded that application as proposed (without soil incorporation) does represent a potential hazard to nontarget plants.

101.3 Endangered Species Considerations

On the basis of the above discussion, the only endangered organisms of concern would be plants. Information on file indicates that two endangered plant species are listed for Mississippi: pondberry and Price's potato-bean. The habitats of these plants are such that they will not be exposed to pesticide application in sweet potatoes. Thus, hazard to endangered species of plants is not anticipated under the proposed exemption.

101.4 Adequacy of Toxicity Data

Available data are sufficient to assess hazard under the proposed Section 18. Note that there are still a number of outstanding data gaps for data required to support a full registration on any agricultural crop.

103 Conclusions

EEB has reviewed the proposed emergency exemption for Command herbicide on sweet potatoes in Mississippi. Based on the substantial volume of ecological effects data submitted by the registrant, EEB concludes that the proposed use presents minimal hazard to nontarget organisms other than plants. EEB is unable to complete a risk assessment for plants because data from nontarget plant studies and drift studies are lacking. It should be noted, however, that use as proposed (without soil incorporation) does represent a potential hazard to nontarget plants.

Use under the proposed exemption will not present a hazard to any endangered species in Mississippi.

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