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259910
RECORD NO.

125401
SHAUGHNESSEY NO

REVIEW NO.

EEB REVIEW

DATE: IN 03/07/90 OUT 3/26/90

FILE OR REG. NO. 90-DE-02

PETITION OR EXP. NO.

DATE OF SUBMISSION 02/15/90

DATE RECEIVED BY EFED 03/05/90

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EEB ESTIMATED COMPLETION DATE 03/17/90

RD ACTION CODE/TYPE OF REVIEW 510

TYPE PRODUCT(S) Herbicide

DATA ACCESSION NO(S)

PRODUCT MANAGER, NO. Cool (41)

PRODUCT NAME(S) Command

COMPANY NAME DE Dept.Agri

SUBMISSION PURPOSE Sec.18 - control annual weeds in cucumbers

SHAUGHNESSEY NO.	CHEMICAL	% A.I.
125401	Clomazone	47.1

ECOLOGICAL EFFECTS BRANCH REVIEW
SECTION 18

Command

100 Section 18 Application

100.1 Nature and Scope of Emergency

The State of Delaware requests a specific exemption to use Command on cucumbers. The crisis occurred because of the cancellation of dinoseb and the ineffectiveness of other herbicides.

100.2 Formulation Information

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

100.3 Application Methods, Directions, Rates

Use rate would be 0.15 to 0.2 lb ai/acre preemergence and 0.2 to 0.25 lb ai/a preplant incorporated. One application per year May 20 through August 30, 1990 to approximately 2000 acres in unspecified counties.

100.4 Target Organism

Common lambsquarters, jimsonweed, purslane, common ragweed, Pennsylvania smartweed, velvetleaf, crabgrass (large, smooth), panicum (Texas, fall), foxtail (giant, green, yellow robust), field sandbur, barnyardgrass, and spurred anoda.

100.5 Precautionary Labeling

From EPA Reg. No. 179-3053.

"Do not apply directly to water or wetlands. Do not apply when weather conditions favor drift from area treated. Do not apply were runoff is likely to occur. Do not contaminate water by cleaning of equipment or disposal of wastes. Apply this product only as specified on this label."

"Off-site movement of spray drift or vapors of COMMAND 4EC herbicide can cause foliar whitening or yellowing of some plants. Prior to making applications, read and strictly follow all precautions and application instructions on this label."

From the Delaware submission.

"Recommendations for use of this product are based on tests believed to be reliable; however, not all cultivars of all commodities have been tested.

"Temporary whitening and /or yellowing of the treated crops may occur. The crop should grow through this with no adverse impacts.

"Do not apply COMMAND 4EC herbicide preemergence to fields that are within 1,500 feet of the areas listed below:

Residences
Towns and subdivisions
Commercial vegetative production (except sweet corn)
Commercial fruit production
Commercial nurseries
Commercial greenhouse
Small grain fields

"Caution must be taken to minimize spray drift as off-site movement can cause temporary foliar whitening or yellowing of plants. Consult the COMMAND herbicide 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 spray within 1,500 feet be avoided.

101 Hazard Assessment

101.1 Discussion

The state of Delaware is requesting an emergency exemption for use of Command for weed control in cucumbers (pickling and slicing). One application will be allowed. Use rate would be 0.15 to 0.2 lb ai/acre preemergence and 0.2 to 0.25 lb ai/a preplant incorporated, applied May 20 through August 30, 1990 to approximately 2000 acres.

101.2 Likelihood of Adverse Effects on Nontarget Organisms

Terrestrial Organisms

Data from previous reviews indicate that clomazone is practically nontoxic to birds on both an acute oral basis and a dietary basis (bobwhite quail and mallard LD50's >2510

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mg/kg, LC50's >5620 ppm). The available data on rats suggest that the chemical also has a low mammalian toxicity. Maximum residues, based on the nomograph of Kenaga and Hoerger (1972), were calculated to be as follows:

Substrate	Residue (ppm)
Short range grass	60.00
Long grass	27.50
Leaves and leafy crops	31.25
Forage	14.50
Pod containing seeds	3.00
Fruit	1.75

These levels are below calculated or laboratory determined toxicity values for mammals and birds.

No data are available on the effects of clomazone on pollinators, but in view of the low exposure potential, Command would not be expected to impact honey bees.

Aquatic Organisms

Clomazone is slightly toxic to freshwater fish, with LC50's of 19 mg/l for rainbow trout and 34 mg/l for bluegill sunfish. A daphnid study indicated that clomazone is moderately toxic to aquatic invertebrates (LC50 = 5.2 mg/l). The MATC for Daphnia magna was determined to be between 2.2 and 4.38 mg/l. Estimated environmental concentration (EEC) should be 7.63 ppb 1/ in a pond six feet deep following 5% runoff from 10 acres receiving an application of 0.25 lb ai/A. This value is less than the lowest aquatic LC50 and dose not exceed the 1/10 LC50 trigger for restricted use classification using the most sensitive test species. On the basis of these figures, the proposed use of clomazone will not result in hazard to aquatic organisms.

1/ 0.25 lb x 10 acres x 5% x 61 ppb = 7.63 ppb

Nontarget Plants

Nontarget plant data are unavailable for clomazone.

The potential exists for herbicides to move from the site of application through drift, volatilization, and runoff. Command will be applied by ground equipment only and drift during application is considered to be negligible under this condition. The herbicide is considered to be volatile (vapor pressure 1.44 x 10-4 mm Hg @ 25C) and soluble (water solubility 1100 ppm), without incorporation it is probable that off-target movement will occur resulting in nontarget

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plant damage. The Agency record on Command contains numerous reported incidents of adverse effects on nontarget plants when the herbicide is not incorporated. Requiring incorporation for this use should reduce the hazard to nontarget plants.

101.3 Endangered Species Considerations

On the basis of information in its endangered/threatened species files, EEB has determined that 2 birds, 1 mammal, 2 plants, 1 fish, and 3 reptiles have been identified in Delaware (bald eagle, piping plover, Delmarva peninsula fox squirrel, swamp pink, small whorled pogonia, shortnose sturgeon, hawksbill sea turtle, Kemps (Atlantic) Ridley sea turtle, and loggerhead turtle).

Hazard to birds, mammals, fish, and reptiles from exposure is considered to be minimal based on the low order of toxicity and relatively low application rate.

The endangered small whorled pogonia, Isotria medeoloides, is associated with a variety of forest types but is most often found in open areas of deciduous forests. The swamp pink, Helonias bullata, is associated with freshwater wetlands including spring seepages, swamps, bogs, meadows, and margins of meandering streams. Consequently, the probability of exposure from this use pattern is unlikely.

101.4 Adequacy of Toxicity Data

The existing data base is adequate to assess the hazard to nontarget organisms, other than plants, for this Section 18. Data are outstanding for seed germination/seedling emergence, vegetative vigor, and aquatic plant growth.

101.5 Adequacy of Labeling

No label was submitted with this request. EPA Reg. No. 279-3053 was cited.

103 Conclusions

EEB has reviewed the proposed emergency exemption for the use of Command in Delaware for weed control in cucumbers.

Mammals, birds, aquatic organisms, and honey bees are not expected to be adversely affected by this exemption. However, the potential exists for preemergence use to adversely effect

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nontarget plants. Restricting use to preplant incorporation should reduce the hazard to nontarget plants.

Endangered/threatened species in Delaware are not expected to be impacted.

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