US EPA ARCHIVE DOCUMENT

108801

(8)

EEE BRANCH REVIEW

DATE: IN 2-8-7 OUT 7/27/77 IN _____ OUT _____ IN _____ OUT _____

FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. 100-583

PETITION OR EXP. PERMIT NO. _____

DATE DIV. RECEIVED _____

DATE OF SUBMISSION _____

DATE SUBMISSION ACCEPTED _____

TYPE PRODUCT(S): I, D, H, F, N, R, S Herbicides-Soybeans

PRODUCT MGR. NO. Jacaby

PRODUCT NAME(S) DUAL 6E

COMPANY NAME CIBA-GEIGY LTD.

SUBMISSION PURPOSE Registration

CHEMICAL & FORMULATION 2-chloro-N-(2-ethyl-6-methylpenyl-N-(2,methoxy-1-methylethyl)acetamide.....68.5%
Inert.....31.5%

100.0 Pesticidal Use

Dual 6E is a selective herbicide recommended as a preplant incorporated or preemergence surface applied treatment for the control of most annual grasses and certain broadleaf weeds. Dual 6E may be tank mixed with Sencor 50 WP, Lexone or Lorox for broad spectrum preemergence weed control in soybeans.

100.1 Application Methods/Rates

Tank Mixtures: If Dual 6E is applied in tank mixtures with Sencor 50 WP, Lexone or Lorox, mix the proper amount of wettable powder in a clean pail to form a slurry. Fill the spray tank one-half to three-fourths full with water, add the slurry and allow to become dispersed, then add the Dual 6E, and finally the rest of the water. Provide sufficient agitation during mixing and application to obtain and maintain a uniform suspension.

Apply Dual 6E alone or in the tank mixtures listed in this label in a minimum of 15 gals. of spray mixture per acre with ground equipment, or 5 gals. by aircraft.

Dual 6E applied alone controls these weeds:

barnyardgrass	*foxtail millet	*carpetweed
*brachiaria	foxtails (giant, green,yellow)	*Florida pusley
crabgrass	*goosegrass	pigweed
fall panicum	*witchgrass	
	yellow nutsedge	

*All weeds with an asterisk (*) are controlled preemergence only. All other weeds are controlled preemergence or preplant incorporated.

Apply Dual 6E either preplant incorporated or preemergence using the appropriate rate from Table. Preplant Incorporated: Apply Dual 6E to the soil and incorporate 2-3 inches before planting. Preemergence: Apply Dual 6E to the prepared seedbed during planting (behind planter) or after planting, but before weeds and soybeans emerge.

Rotational Crops: 1) If replanting is necessary, soybeans or corn may be replanted immediately. Do not make a second broadcast application of Dual 6E. If the original application was banded and the second crop is replanted in the untreated row middles, a second band treatment may be applied. 2) Small grains may be planted in the fall following treatment and any crop may be planted the following spring.

Dual 6E Alone

Soil Texture	Broadcast rate per acre: Less than 3% organic matter	Broadcast rate per acre: 3% organic matter or greater
COARSE: Sand, loamy sand, sandy loam	2-2 2/3 pts. 1.5-2.00 lbs a.i./acre	2 2/3 pts. 2.00 lb a.i./acre
MEDIUM: Loam, silt loam, silt	2 2/3-3 1/3 pts. 2-2.5 lb a.i./acre	2 2/3-3 1/3 pts. 2-2.5 lb a.i./acre
FINE: Silty clay loam, sandy clay loam, silty clay, sandy clay, clay loam, clay	2-2/3-3 1/3 pts. 2-2.5 lb a.i./acre	3 1/3-4 pts. 2.5-3 lbs a.i./acre

*Gallon has 6 lbs a.i. (Gallon = 8.759 lbs) so 1 pint = .74999 lb. a.i.

The application rates of Dual 6E in conjunction with Sencor 50WP, Lexone or Lorox remain the same per acre with soil type as it is when applied individually.

101.0 Chemical and Physical Properties

101.1 Chemical Name:

2-chloro-N-(2-ethyl-6-methyl phenyl)-N-[2-methyl-1-methylethyl) acetamide.

101.2 Common Name:

CBA-24705
DUAL
METOLACHLOR

102.0 Behavior in the Environment.

For a summary of available Environmental Chemistry data see previous review 100-EUP-38 (Norman J. Cook 1/24/76).

103.0 Toxicological Properties

For a summary of available toxicological values for birds, fish and aquatic invertebrates see previous review 100 LIT (Gerlad L. Gavin Jr. 12/15/76).

104.0 Hazard Assessment

104.1 Discussion

Dual 6E applied aerially after planting, i.e. preemergence will provide the highest available residues to avian species. This is also a time when birds will utilize bare fields picking seed, soil arthropods, etc. The maximum expected residue at 4 pts Dual 6E (3 lbs a.i./acre) would be 66.1 ppm in top 1 inch of soil or 31.23 mg/sg ft on surface if no incorporation occurs.

104.1.1 Adequacy of Toxicity Data:

The data supplied with 100 LIT was reviewed and was found acceptable. This data involved the six basic studies required for the product under formulation conditions.

104.1.2 Additional Data Required:

The past registrations of Dual 6E were for formulation and for use on CORN (100-587). These uses did not require additional data to address environmental hazard because of either lack of exposure or soil incorporation. a/ For soybeans Dual 6E will be applied aerially preemergence and will not be soil incorporated. At the time of application birds would be using these fallow fields and therefore an avian reproduction study will be required. Even if not aerially applied, preemergence not soil incorporated. a/ except for chronic fish study requested.

To support Registration.

104.1.3 Likelihood of Exposure to Non-Target Organisms:

Based upon the available data Dual 6E will pose a minimal acute hazard to mammals, birds, fish or aquatic invertebrates. The label addition of soybeans with or without aerial application

increases the likelihood of exposure to birds and mammals. At the time of preemergence spraying of these fields, birds are using the fallow fields, ingesting soil arthropods and seeds, etc. Due to the persistence of this product it is likely that chronic exposure to avian species will occur. The aerial application also increases the likelihood of aquatic contamination. Dual has shown tendency to leach readily, persist in water and bio-accummulate in body tissue all concerns previously mentioned concerning chronic exposure in fish still exist. It should also be noted that this is further support for avian reproduction studies because of the nature of food chains with fish eating birds being the final recipient of the residues. Because many species of fish eating birds, i.e. eagles, ospreys, brown pelicans to name a few, have suffered severe reproductive impairment in the past it is essential that these species not be further impaired.

*We note a letter of May 20, 1977 where Ciba-Geigy has agreed to exclude the aerial application from the label. We still feel however that exposure problems exist from the preemergence spray, and that avian reproduction study requests are triggered by the products persistent nature and its ability to bioaccumulate in animal tissue, and its ability to leach into adjacent aquatic systems.

105.0 Conclusions

The Environmental Safety Staff does not object to the addition of soybeans to the label for Dual 6E. We note that the registrant has agreed to remove the aerial application from the label until phytotoxicant drift data onto nontarget areas are available (letter May 20, 1977, to Henry Jacoby, Ph.D from Jack A. Norton. Regulatory Specialist, Ciba-Geigy Corporation) and until the data from the chronic fish bioassay is available for review by this staff.

The registrant should be informed that an avian reproduction study will be required to support the continued registration of this product because of the indication of a desire to add aerial application to the label the products persistence and its ability to bioaccumulate in fish tissue. The avian reproduction study will be required for bobwhite quail and mallard duck. The environmental safety staff feels that the same conditions of granting the original registration regarding the chronic fish study can apply to the avian reproduction study.

The Environmental Safety Staff suggests that the registrant contact us for determination of appropriate residue levels that should be tested in the avian reproduction study.

Thomas F O'Brien

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Fish and Wildlife Section
EEEB-RD-WH567