US EPA ARCHIVE DOCUMENT

108801

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EEE BRANCH REVIEW

DATE: IN 3-21-77 OUT 3-23-77 IN _____ OUT _____ IN _____ OUT _____

FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. 100-587

PETITION OR EXP. PERMIT NO. _____

DATE DIV. RECEIVED _____

DATE OF SUBMISSION _____

DATE SUBMISSION ACCEPTED _____

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

PRODUCT MGR. NO. H. Jacoby

PRODUCT NAME(S) Dual 6E

COMPANY NAME CIBA-GEIGY

SUBMISSION PURPOSE Registration on Corn

CHEMICAL & FORMULATION CGA 24705

Environmental Safety

100.0 Pesticidal Use

For weed control in corn grown for grain excluding popcorn.

100.1 Application Methods/Directions

Mixing Instructions

Dual 6E Alone: Dual 6E is an emulsifiable concentrate to be mixed with water or liquid fertilizer and applied as a spray. Fill the spray tank one-half to three-fourths full with water or liquid fertilizer, add the proper amount of Dual 6E, then add the rest of the water or liquid fertilizer. Provide sufficient agitation during mixing and application to maintain a uniform emulsion.

Tank Mixtures: For Dual 6E in tank mixtures with AAtrex 80W, AAtrex 4L or AAtrex 4LC, fill the spray tank one-half to three-fourths full with water or liquid fertilizer, add the AAtrex and allow it to become dispersed, then add the Dual 6E, and finally add the rest of the water or liquid fertilizer. Provide sufficient agitation during mixing and application to maintain a uniform suspension.

To determine compatibility of Dual 6E or Dual 6E + AAtrex in liquid fertilizer, pour the products into a small container of liquid fertilizer in approximate proportion to be mixed in spray tank. Stir or shake thoroughly. Let stand 5 minutes. If the mixture remains mixed, or can be remixed readily, it is compatible and can be used.

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

Calculate the amount of herbicide needed for band treatment by the formula:

$$\frac{\text{Band width in inches}}{\text{row width in inches}} \times \text{broadcast rate per acre} = \text{amount needed per acre of field}$$

Dual 6E Applied Alone

Dual 6E applied alone controls these weeds:

barnyardgrass (watergrass)	*goosegrass	yellow nutsedge
crabgrass	green foxtail	*carpetweed
fall panicum	signalgrass (brachiaria)	pigweed
*foxtail millet	witchgrass	Purslane
giant foxtail	yellow foxtail	

Weeds Partially Controlled

*cupgrass	lambsquarters	smartweed

Table 1: 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		
MEDIUM: Loam, silt loam, silt	2 2/3-3 1/3 pts.	2 2/3-3 1/3 pts.
FINE: Silty clay loam, sandy clay loam, silty clay, sandy clay, clay loam, clay	2 2/3-3 1/3 pts.	3 1/3-4 pts.
muck or peat soils	DO NOT USE	

Tank Mixture of Dual 6E Plus AAtrex 80W, AAtrex 4L or AAtrex 4LC

Dual 6E + AAtrex controls several weeds not controlled by Dual 6E alone. Use this tank mixture for control of these annual grasses and broadleaf weeds:

barnyardgrass (watergrass)	green foxtail	cocklebur
crabgrass	*signalgrass (Brachiaria)	lambsquarters
cupgrass	witchgrass	pigweed
fall panicum	yellow foxtail	purslane
giant foxtail	yellow nutsedge	ragweed
*goosegrass	*carpetweed	smartweed
		velvetleaf

Table 2: Dual 6E + AAtrex

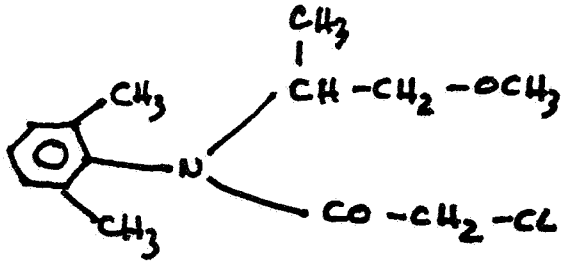
	Broadcast rate per acre			
	Less than 3% organic matter		3 organic matter or greater	
Soil texture	Dual 6E	AAtrex 80W, AAtrex 4L or AAtrex 4LC	Dual 6E	AAtrex 80W, AAtrex 4L or AAtrex 4LC
COARSE: sand, loamy sand, sandy loam	1 2/3 pts.	1.25 lbs. or 2 pts.	2 pts.	1.5 lbs. or 2.4 pts.
MEDIUM: Loam, silt loam, silt	2 pts.	1.5 lbs. or 2.4 pts.	2 2/3 pts.	2 lbs. or 3.2 pts.
FINE: Silty clay loam, sandy clay loam, silty clay, sandy clay, clay loam, clay	2 2/3 pts.	2 lbs. or 3.2 pts.	2 2/3-3 1/3 pts.	2.0-2.5 lbs.** or 3.2-4.0 pts.**
muck or peat soils	DO NOT USE			

101.0 Chemical & Physical Properties

101.1 Chemical Name: Z-chloro-N-(2-ethyl-6-methyl phenyl)-N-(2-methyl-1-methyl ethyl) acetamide

101.2 Common Name: Dual, CGA 24705

101.3 Structural Formula



101.4 Molecular Weight: 283.80

101.5 A white to tan odorless liquid

101.6 Solubilities

Water: 530 ppm at 20°
Organic Solvents: Miscible with xylene, toluene, dimethyl formamide, methyl cellusolve, butyl cellusolve, ethylene dichloride, and cyclohoxanone; insoluble in ethylene glycol and propylene glycol.

102.0 Behaviour in the Environment

See pesticide petition 5F1606

103.0 Toxicological Properties

See previous review by G. Gavin 12-15-76

104.0 Hazard Assessments

104.1 Adequacy of Toxicity data

See previous review by G. Gavin 12-15-76

104.2 Additional Data Required

Chronic fish study as per N. Cooks request 8/12/75

104.3 Classifications

Maximum use rate recommends 4 pints per acre. at 8.7 lbs/gallon this rate is equivalent to 4.3 lbs/acre. The product is 6 lbs a.i./gallon (68.5% a.i.) so for all practical purposes the maximum application rate can also be considered 3 lb a.i./acre active ingredient/ACP.

Proposed rates	Expected residue Leafy Crops (corn)	Wildlife LC_{50} Date
(1.5 lbs) 2 pts/Acre	180 ppm	A. Avian subacute dietary
(1.7 lbs) 2-2/3 pts/Acre	215 ppm	1 mallard > 10,000 ppm
(2.4 lbs) 3-1/3 pts/Acre	300 ppm	2 Bobwhite > 10,000 ppm
(3 lbs) 4 pts/Acre	375 ppm	B. Mammalian
		RAT
		Acute Oral
		LD_{50}= 2780 mg/kg
		Converted to
		LC_{50}= 55,720 ppm

not appropriate cal. as material is not applied to emerged corn.

Mammalion	<1/5 LC_{50} or <1/5 55720 ppm= <11,144 ppm	Maximum expected residues from highest application rate is 375 ppm
Avian	<1/5 LC_{50} or <1/5 10,000 ppm=<2,000ppm	

The Environmental Safety review staff recommends for all application rates of Dual, a General classification

105.0 Conclusions

A. The Environmental Safety Review Staff:

Objects to the registration of Dual for the following reason:

In accordance with N. Cooks EPA's letter of August 12, 1975, a chronic fish ~~study~~ was required for this product. The Environmental Safety Staff as yet has not been informed of any initiation of such a study.

The lack of data from this study precludes an adequate hazard assessment. N/C.

Gerald L. Gavin Jr.
Environmental Safety Review
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