US EPA ARCHIVE DOCUMENT

We understand that the agency can move forward and register Dual 8E with general classification provided CIBA-GEIGY will agree to a provision that the label would be revised to restricted classification, and the precautionary labeling modified as appropriate if data from chronic bird and fish studies scheduled for submission in November, 1978, shows that this is necessary. CIBA-GEIGY hereby agrees to this provision.

CIBA-GEIGY is very pleased with the attention given to our request for registration of Dual 8E herbicide by the Registration Division. We look forward to EPA acceptance of the final printed label.

Sincerely,

Jack Norton

Jack A. Norton, Ph.D.
Regulatory Specialist

JAN:19:4-6

Enclosure

cc: R. L. Feulner

Dual®

8E

Herbicide

For weed control in corn grown for grain excluding popcorn

Active Ingredient:

Metolachlor: 2-chloro-*N*-(2-ethyl-6-methylphenyl)-*N*-(2-methoxy-1-methylethyl)	86.4%
Inert Ingredients:	13.6%
Total:	100.0%

2½ Gallons
U.S. Standard Measure

Dual 8E contains 8 lbs. active ingredient per gal.

Keep Out of Reach of Children.

WARNING:

See additional precautionary statements inside booklet.

EPA Reg. No. 100-597

Dual® trademark of CIBA-GEIGY for metolachlor U. S. Patent No. 3,937,730

See directions for use inside booklet.

Agricultural Division
CIBA-GEIGY Corporation
Greensboro, NC 27409
CGA 49L7 **068**

ACCEPTED
August 30, 1978
100-597
UNDER THE FEDERAL INSECTICIDE
FUNGICIDE AND RODENTICIDE ACT
FOR ECONOMIC PURPOSES
REG. UNDER NO.

CIBA-GEIGY

DIRECTIONS FOR USE AND CONDITIONS OF SALE AND WARRANTY

IMPORTANT: Read the entire **Directions for Use** and the **Conditions of Sale and Warranty** before using this product.

Conditions of Sale and Warranty

The **Directions for Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application all of which are beyond the control of CIBA-GEIGY or the Seller. All such risks shall be assumed by the Buyer.

CIBA-GEIGY warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions for Use** subject to the inherent risks referred to above. **CIBA-GEIGY makes no other express or implied warranty of Fitness or Merchantability or any other express or implied warranty. In no case shall CIBA-GEIGY or the Seller be liable for consequential, special, or indirect damages resulting from the use or handling of this product.** CIBA-GEIGY and the Seller offer this product, and the Buyer and user accept it, subject to the foregoing **Conditions of Sale and Warranty**, which may be varied only by agreement in writing signed by a duly authorized representative of CIBA-GEIGY.

Directions for Use

General Classification
It is a violation of federal law to use this product in a manner inconsistent with its labeling.

General Information

Dual 8E is a selective herbicide recommended as a preplant incorporated or preemergence surface-applied treatment for control of most annual grasses and certain broadleaf weeds. Dual 8E may be tank mixed with AAtrex® 80W, AAtrex 4L, AAtrex 4LC, or AAtrex Nine-O®, and applied preplant incorporated or preemergence for broad spectrum weed control in corn. Dual 8E alone or the tank mixtures with AAtrex may be applied in water or liquid fertilizer with conventional ground sprayers.

Observe all cautions and limitations on labeling of all products used in tank mixtures.

Within a rate range for a specific soil category in the rate tables, use the lower rate on soil relatively coarse textured or low in organic matter; use the higher rate on soil relatively fine textured or high in organic matter.

Extremely dry weather following preemergence application of Dual 8E or a tank mixture may reduce effectiveness. Follow with shallow cultivation if weeds develop.

Precaution: Under high moisture conditions on coarse textured soil, while corn is germinating and becoming established, some temporary injury or stunting may occur following the use of Dual 8E alone or in tank mixtures with AAtrex. The crop will normally outgrow this effect.

Note (Dual 8E Alone and Tank Mixtures): Use only on corn grown for grain. Do not use on sweet corn or popcorn. Do not graze or feed forage and fodder to livestock or use for silage. Do not use in Wisconsin.

Mixing Instructions
Dual 8E Alone: Dual 8E 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 8E, 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 8E in tank mixtures with AAtrex 80W, AAtrex 4L, AAtrex 4LC, or AAtrex Nine-O, 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 8E, 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 the compatibility of Dual 8E or Dual 8E + AAtrex in liquid fertilizer, pour the products into a small container of liquid fertilizer in the proportions shown below.

Herbicide(s)	Rate/A	Amount to be added per pint of liquid fertilizer (Assuming a volume of 25 gals./A)		
		Level teaspoons		Milliliters
Dual 8E	3 pts.	1.5	or	7.5
AAtrex 80W + Dual 8E	2.5 lbs. + 2½ pts.	3.5 + 1.25	or	17.5 + 6.3
AAtrex 4L or 4LC + Dual 8E	4 pts. + 2½ pts.	2 + 1.25	or	9.5 + 6.3
AAtrex Nine-O + Dual 8E	2.25 lbs. + 2½ pts.	2 + 1.25	or	11 + 6.3

After thorough mixing, let stand for a herbicide combination remains mixed, or can be remixed readily, the mixture is compatible and can be sprayed.

Apply Dual 8E alone or in the tank mixtures in a minimum of 15 gals. of spray mixture per acre.

Sprayer Equipment: Use conventional spray equipment equipped with nozzles that provide accurate and uniform application. If Dual 8E is applied in tank mixtures with AAtrex 80W, AAtrex 4L, AAtrex 4LC, or AAtrex Nine-O, screens and strainers should be no finer than 50-mesh. Rinse sprayer thoroughly with clean water immediately after use.

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

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

Dual 8E Applied Alone

Dual 8E applied alone controls these weeds:

barnyardgrass (watergrass)
crabgrass
fall panicum
*foxtail millet
giant foxtail
green foxtail
**signalgrass (Brachiaria)
witchgrass
yellow foxtail
yellow nutsedge
pigweed
**common purslane

*Foxtail millet controlled with preemergence applications only.

**Signalgrass (Brachiaria) and common purslane controlled with preplant incorporated applications only. All other weeds are controlled with either preplant incorporated or preemergence applications.

Dual 8E applied alone partially controls these weeds:

lambsquarters
smartweed

Apply Dual 8E either preplant incorporated or preemergence using the appropriate rate from Table 1. *Preplant Incorporated:* Apply Dual 8E to the soil and incorporate into the top 2 inches of soil before planting using a disk, harrow, rolling cultivator, or similar implement. Use a preplant incorporated application if furrow irrigation is used or when a period of dry weather after application is expected. If corn is planted on beds, apply and incorporate Dual 8E after bed formation. *Preemergence:* Apply Dual 8E during planting (behind the planter), or after planting but before weeds or corn emerge.

Table 1: Dual 8E Alone

Soil texture	Broadcast rate per acre	
	Less than 3% organic matter	3% organic matter or greater
COARSE: Sand, loamy sand, sandy loam	1½-2 pts.	2 pts.
MEDIUM: Loam, silt loam, silt	2-2½ pts.	2-2½ pts.
FINE: Silty clay loam, sandy clay loam, silty clay, sandy clay, clay loam, clay	2-2½ pts.	2½-3 pts.
muck or peat soils	DO NOT USE	

Rotational Crops: 1) If treated corn is lost due to poor germination, hail, flood, insects, etc., corn may be replanted immediately. Do not make a second broadcast application of Dual 8E. If the original application was banded and the second crop is planted in the untreated row middles, a second banded treatment may be applied. 2) Small grains may be planted 4½ months following treatment. Corn, soybeans, root crops, and small grains may be planted the spring following treatment. Do not graze or feed forage or fodder from small grains or soybeans to livestock. All other rotational crops may

AAtrex 4LC, or AAtrex Nine-O.

Dual 8E + AAtrex controls several weeds not controlled by Dual 8E alone. Use this tank mixture for control of these annual grasses and broadleaf weeds:

barnyardgrass (watergrass)
crabgrass
fall panicum
giant foxtail
green foxtail
*witchgrass
yellow foxtail
yellow nutsedge
cocklebur
lambsquarters
pigweed
ragweed
smartweed
velvetleaf

*Witchgrass controlled with preemergence applications only. All other weeds are controlled with preplant incorporated or preemergence applications.

Apply Dual 8E + AAtrex preplant incorporated or preemergence using the appropriate rates from Table 2. *Preplant Incorporated:* Apply the tank mixture to the soil and incorporate into the top 2 inches of soil before planting using a disk, harrow, rolling cultivator, or similar implement. Use a preplant incorporated application if furrow irrigation is used or when a period of dry weather after application is expected. If corn is planted on beds, apply and incorporate the tank mixture after bed formation. *Preemergence:* Apply the tank mixture during planting (behind the planter) or after planting but before weeds or corn emerge.

Table 2: Dual 8E + AAtrex

Soil texture	Broadcast rate per acre			
	Less than 3% organic matter		3% organic matter or greater	
	Dual 8E	AAtrex 80W*	Dual 8E	AAtrex 80W*
COARSE: Sand, loamy sand, sandy loam	1¼ pts.	1.25 lbs.	1½ pts.	1.5 lbs.
MEDIUM: Loam, silt loam, silt	1½ pts.	1.5 lbs.	2 pts.	2 lbs.
FINE: Silty clay loam, sandy clay loam, silty clay, sandy clay, clay loam, clay	2 pts.	2 lbs.	2-2½ pts.	2-2.5 lbs.**
muck or peat soils	DO NOT USE			

*When using AAtrex 4L, AAtrex 4LC, or AAtrex Nine-O, use equivalent rates. One lb. of 80W equals 1.6 pts. 4L or 4LC. One lb. of 80W equals 0.9 lb. Nine-O.

**For cocklebur, yellow nutsedge, and velvetleaf control on fine textured soil above 3% organic matter: Apply 2.5 lbs. of AAtrex 80W or 4 pts. of AAtrex 4L (4LC), or 2.25 lbs. of AAtrex Nine-O with 2-2½ pts. of Dual 8E per acre.

Rotational Crops: 1) If treated corn is lost due to poor germination, hail, flood, insects, etc., corn may be replanted immediately. Do not make a second broadcast application. If the original application was banded and the second crop is planted in the untreated row middles, a second banded treatment may be applied. 2) Following harvest, plow (moldboard or disk-plow) and thoroughly till soil in fall or spring to minimize possible injury to rotational spring-seeded crops, regardless of rate used. 3) Corn or soybeans may be planted the spring following treatment. Do not graze or feed forage or fodder from soybeans to livestock. Injury may occur to soybeans planted in north-central and northwest Iowa, south-central and southwest Minnesota, northeast Nebraska, and southeast South Dakota the year following application on soils

do not rotate with crops other than corn the next year, as crop injury may occur. 5) In the High Plains and Intermountain areas of the West where rainfall is sparse and erratic or where irrigation is required, use only when corn is to follow corn, or a crop of untreated corn is to precede other rotational crops. 6) Small grains may be planted 15 months following treatment. 7) All other crops may be planted 18 months after application.

Storage and Disposal

Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited. Do not reuse empty container. Pesticide, spray mixture, or rinsate that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticides or buried in a safe place away from water supplies. Triple rinse (or equivalent) and dispose of in incinerator or landfill approved for pesticide containers, or bury in a safe place. Consult federal, state, or local disposal authorities for approved alternative procedures such as limited open burning.

This product may be stored at temperatures down to 30 degrees below 0°F.

Precautionary Statements

Hazards to Humans and Domestic Animals

WARNING

The active ingredient, metolachlor, may cause skin sensitization reactions in certain individuals. Wear protective clothing while handling or using this product. Causes skin and eye irritation. Do not get in eyes, on skin, or on clothing. May be fatal if inhaled. Do not breathe spray mist.

Harmful if swallowed or absorbed through the skin. Wash thoroughly after handling. Avoid contamination of food.

First Aid: In case of contact, immediately flush eyes and/or skin with plenty of water for at least 15 minutes. Call a physician. Remove and wash contaminated clothing before reuse.

Environmental Hazards

Keep out of any body of water. Do not apply where runoff is likely to occur. Do not contaminate water by cleaning of equipment or disposal of wastes. Do not apply when weather conditions favor drift from areas treated.

AAtrex® trademark of CIBA-GEIGY for atrazine

Dual® trademark of CIBA-GEIGY for metolachlor
U.S. Patent No. 3,937,730

Nine-O® trademark of CIBA-GEIGY

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8E

Herbicide

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Dual 8E contains 8 lbs. active ingredient per gal.

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See additional precautionary statements inside booklet.

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See directions for use inside booklet.

Agricultural Division
CIBA-GEIGY Corporation
Greensboro, N C 27409
CGA 49L7 **068**

CIBA-GEIGY

Agricultural Division
CIBA-GEIGY Corporation
P. O. Box 11422
Greensboro, North Carolina 27409
Telephone 919 292 7100

CIBA-GEIGY

August 28, 1978

Registration Division
(TS-767)
Office of Pesticide Programs
Environmental Protection Agency
401 M Street, SW
Washington, DC 20460

Attn: Mr. George LaRocca
Acting Product Manager #23

Gentlemen:

SUBJECT: DUAL® 8E HERBICIDE - EPA REG. NO. 100-597
REQUEST FOR ACCEPTANCE OF FINISHED LABELING TO ALLOW USE ON CORN GROWN FOR GRAIN, EXCLUDING POPCORN.

We hereby request acceptance of the enclosed finished labeling for Dual 8E herbicide (5 copies of label enclosed) to allow use on corn grown for grain, excluding popcorn.

After EPA acceptance, uses for Dual 8E would be identical to present EPA registered usage for Dual 6E on an equal active ingredient basis. The amount of product used would be less with Dual 8E compared to Dual 6E. Other differences in labeling would be that Dual 8E carries a "Warning" signal word and appropriate precautionary labeling for that signal word, whereas Dual 6E carries "Danger" and the appropriate precautionary labeling for the signal word "Danger".

The general classification heading and the statement, "It is a violation of federal law to use this product in a manner inconsistent with its labeling". appear immediately below the major heading "Directions for Use" on the Dual 8E label, whereas Dual 6E has not been classified.