

1.0 Introduction

1.1 Dual 8E, Metolachlor (86.5%), 2-chloro-N-(2-ethyl-6-methylphenyl)-N-(2-methoxy-1-methylethyl) acetamide; Aatrex, atrazine, 2-chloro-4-(ethylamino)-6-(isopropylamino)-S-triazine; Milogard, propazine, 2-chloro-4,6-bis (isopropylamino)-S-triazine; Igram, terbutryn, 2-(tert-Butylamino)-4-(ethylamino)-6-(methylthio)-S-triazine; Bicep 4.5L, atrazine (20.8%) + metolachlor (27.5%).

1.2 The applicant is seeking a one-year experimental permit for the following Dual 8E tank mixtures: (1) Dual 8E + Aatrex 80W, 4L(4LC), or Nine-O, (2) Dual 8E + Milogard 80W or 4L, and (3) Dual 8E + Igram 80W. This program involves treatment of grain sorghum with 1600 lbs. metolachlor ai/A, 209.75 lbs atrazine ai/A, 120 lbs. propazine ai/A, and 88 lbs. terbutryn ai/A on 870 acres in 13 states. The second EUP program involves treatment of 50 acres of sorghum grain with 28.87 lbs. metolachlor ai/A and 17.47 lbs. atrazine ai/A in 13 states.

2.0 Directions for Use

Dual 8E:

Application: Apply Dual 8E alone or in tank mixtures with Aatrex, Milogard, or Igram either preplant incorporated or preemergence. Preplant Incorporated: Apply to the soil and incorporate into the top 2 inches 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 can reasonably be expected. If sorghum is to be planted on beds, apply and incorporate after bed formation. Preemergence: Apply to the soil surface at planting, or after planting but before weeds or sorghum emerge.

Herbicide(s)	Rate per Acre	Teaspoons added per pint of fluid fertilizer*
Dual 8E	2.5 pts.	1.25 tsp.
Aatrex 80W + Dual 8E	2 lbs. + 2 pts.	2.75 tsp. + 1 tsp.
Aatrex Nine-0™ + Dual 8E	1.8 lbs. + 2 pts.	2.5 tsp. + 1 tsp.
Aatrex 4L (or 4LC) + Dual 8E	3.2 pts. + 2 pts.	1.5 tsp. + 1 tsp.
Millogard 80W + Dual 8E	1.75 lbs. + 2 pts.	2.5 tsp. + 1 tsp.
Millogard 4L + Dual 8E	2.8 pts. + 2 pts.	1.5 tsp. + 1 tsp.
Igran 80W + Dual 8E	2.5 lbs. + 2 pts.	3.5 tsp. + 1 tsp.

*Assuming 25 gals. per acre. For changes in spray volume or herbicide rate, make appropriate changes in the ingredients of the compatibility test.

Apply Dual 8E alone or in the tank mixtures only when the sorghum seed has been pretreated with CGA-43089 at a rate of 2-2.4 ozs. active ingredient per 100 lbs. of seed.

Table 1: Dual 8E Alone

Soil texture	Broadcast rate per acre
COARSE	
Sand, loamy sand,	1.5 pts.
Sandy loam	1.5-2 pts.
MEDIUM	
Loam, silt, silt loam	2-2.25 pts.
FINE	
Silty Clay loam, sandy clay loam, clay loam, sandy clay, silty clay, clay	2-2.5 pts.

Rotational Crops: (1) If treated sorghum is lost, sorghum may be replanted immediately provided the seed is treated with CGA-43089. 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 band treatment of Dual 8E may be applied. (2) Plant only corn, sorghum, or soybeans within 18 months after application.

Table 2: Dual 8E + Aatrex

Soil texture	Broadcast rate per acre			
	Less than 1.5% organic matter		1.5% organic matter or greater	
	Dual 8E	AAtrex 80W*	Dual 8E	AAtrex 80W*
COARSE Sand, loamy sand, sandy loam	DO NOT USE		DO NOT USE	
MEDIUM Loam, silt, silt loam	DO NOT USE		1.5 pts.	1.5 lbs.
FINE Silty clay loam, sandy clay loam, clay loam, sandy clay, silty clay, clay	1.5 pts.	1.5 lbs.	2 pts.	2 lbs.

*When using AAtrex Nine-0, AAtrex 4L, or AAtrex 4LC, use equivalent rates. One lb. of AAtrex 80W equals 0.9 lb. of AAtrex Nine-0; and one lb. of AAtrex 80W equals 1.6 pts. of AAtrex 4L or 4LC.

Precaution: Applications on highly alkaline soils or on eroded areas where calcereous subsoils are exposed may result in crop injury.

Rotational Crops: (1) If sorghum treated with Dual 8E + AAtrex is lost, sorghum may be replanted immediately provided the seed is treated with CGA-43089. Do not make a second broadcast application of Dual 8E + AAtrex. If the original application was banded and the second crop is replanted in the untreated row middles, a second band treatment of the combination may be applied. (2) Plant only corn, sorghum, or soybeans within 18 months after application.

Table 3: Dual 8E + Milogard

Soil texture	Broadcast rate per acre	
	Dual 8E	Milogard 80W or Milogard 4L
COARSE Sand, loamy sand, sandy loam	1.25-1.5 pts.	1 lb. or 1.6 pts.
MEDIUM Loam, silt, silt loam	1.5-1.75 pts.	1.25-1.5 lbs. or 2-2.4 pts.
FINE Silty clay loam, sandy clay loam, clay loam, sandy clay, silty clay, Clay	1.75-2 pts.	1.5-1.75 lbs. or 2.4-2.8 pts.

Precaution: Applications on highly alkaline soils or on eroded areas where calcerous subsoils are exposed may result in crop injury.

Rotational Crops: (1) If sorghum treated with Dual 8E + Milogard is lost, sorghum may be replanted immediately provided the seed is treated with CGA-43089. Do not make a second broadcast application of Dual 8E + Milogard. If the original application was banded and the second crop is replanted in the untreated row middles, a second band treatment of the combination may be applied. (2) Plant only corn, sorghum, or soybeans within 18 months after application.

Table 4: Dual 8E + Igran 80W

Soil texture	Broadcast rate per acre	
	Dual 8E	Igran 80W
COARSE		
Sand, loamy sand, sandy loam	1.25 pts. 1.25-1.5 pts.	1.5 lbs. 1.5-2 lbs.
MEDIUM		
Loam, silt silt loam	1.5-1.75 pts.	2-2.2 lbs.
FINE		
Silty clay loam, sandy clay loam, clay loam, sany clay, silty clay, clay	2 pts.	2.5 lbs.

Rotational Crops: (1) If sorghum treated with Dual 8E + Igran 80W is lost, sorghum may be replanted immediately provided the seed is treated with CGA-43089. Do not make a second broadcast application of Dual 8E + Igran 80W. If the original application was banded and the second crop is replanted in the untreated row middles, a second band treatment of the combination may be applied. (2) Plant only corn, sorghum, or soybeans within 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 supplied. Triple rinse (or equivalent) and dispose of in an approved landfill or bury in a safe place.

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.

Bicep 4.5L: This product may be applied in water or in fluid fertilizer with conventional ground sprayers in a minimum of 15 gals. of spray mixture per acre. Bicep 4.5L may also be mixed in water and applied by aircraft in a minimum of 2 gals. of spray mixture per acre.

Apply Bicep 4.5L only when the sorghum seed has been pretreated with CGA-43089 at 2-2.4 ozs. active ingredient per 100 lbs. of seed.

Application: Apply Bicep 4.5L either preplant incorporated or pre-emergence. **Preplant Incorporated:** Apply to the soil and incorporate into the top 2 inches 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 can reasonably be expected. If sorghum is to be planted on beds, apply and incorporate after bed formation. **Preemergence:** Apply to the soil surface at planting, or after planting but before weeds or sorghum emerge.

Broadcast rate per acre		
Soil texture	Less than 1.5% organic matter	1.5% organic matter or greater
COARSE Sand, loamy sand, Sandy loam	DO NOT USE	DO NOT USE
MEDIUM Loam, silt, silt loam	DO NOT USE	2.4 qts.
FINE Silty clay loam, sandy clay loam, clay loam, sandy clay, silty clay, clay	2.4 qts.	3.2 qts.

Precaution: Application on highly alkaline soils or on eroded areas where calcareous subsoils are exposed may result in crop injury.

Rotational Crops: (1) Sorghum may be replanted immediately provided the seed is treated with CGA-43089. Do not make a second broadcast application of Bicep 4.5L. If the original application was banded and sorghum is replanted in the untreated row middles, a second band treatment of the combination may be applied. (2) Plant only corn or sorghum within 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 an approved landfill or bury in a safe place. Consult federal, state, or local disposal authorities for approved alternative procedures.

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.

3.0 Discussion of Data

No new environmental chemistry data submitted.

4.0 Conclusions

Previously submitted data on Metolachlor, atrazine, propazine, and terbutryn adequately define the environmental chemistry hazard of the proposed uses under an EUP only but not necessarily for registration.

5.0 Recommendations

We concur with the proposed use under the EUP for Dual alone and in combination with atrazine, propazine, terbutryn and for Bicep 4.5L.

R E Ney 2/28/78

K Sampson 2/28/78

Ronald E. Ney, Jr.

1/10/78

Karen Sampson

1/9/78

EC, EEE

108801

1-10-78

FREE FRANCH REVIEW

DATE: IN _____ OUT _____ IN 12/20/77 OUT 1/10/78 IN _____ OUT _____
FISH & WILDLIFE ENVIRONMENTAL CHEMISTRY EFFICACY

FILE OR REG. NO. 100 EUP-60, 61

PETITION OR EXP. PERMIT NO. 862019

DATE DIV. RECEIVED _____

DATE OF SUBMISSION _____

DATE SUBMISSION ACCEPTED _____

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

PRODUCT MGR. NO. SRS-Zink

PRODUCT NAME(S) Dual 8E Herbicide; Bicap 4.5L

COMPANY NAME Ciba-Geigy

SUBMISSION PURPOSE EUP for sorghum

CHEMICAL & FORMULATION 108801 Metolachlor (2-chloro-N-(2-ethyl-6-methylphenyl)-N-(2-methoxy-1-methylethyl)acetamide) - 86.5%
108801 (Dual 8E) 2-chloro-N-(2-ethyl-6-methylphenyl)-N-(2-methoxy-1-methylethyl)acetamide - 27.5%
080803 and 2-chloro-4-ethylamino-6-isopropylamino-S-triazine - 20.8% (Bicap 4.5L)