



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

PM 23

241-266

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MAY 08 1996

Ms. Desiree L. Little
American Cyanamid Company
Agricultural Research Division
P.O. Box 400
Princeton, NJ 08543-040

Dear Ms. Little:

SUBJECT: Avenge Wild Oat Herbicide
Registration No. 241-266
Revised Basic & New Alternate CSFs
Your Submission of 10/25/95

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, is acceptable with the following provisions:

- 1. The Note to Physician should be relocated so that it appears within and at the end of the Statement of Practical Treatment block.

A stamped copy is enclosed for your records. Please submit one (1) final printed copy of the referenced label, incorporating the above change, before releasing the product for shipment.

The confidential statements of formula (CSF) dated 09-27-96 for a revised basic and new alternate formulation agrees with the label claim in compliance with PR Notice 91-2 and is acceptable. The confidential statement of formula has been added to your file as part of the record.

Sincerely yours,

Joanne I. Miller
Product Manager (23)
Fungicide-Herbicide Branch
Registration Division (7505)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

CONCURRENCES

Table with 8 columns and 3 rows. Headers: SYMBOL, SURNAME, DATE. Values: 7505C, MCOOKE, May 1, 1996.

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ACCEPTED  
with COMMENTS  
In EPA Letter Dated  
MAY 08 1996

AVENGE®  
Wild Oat Herbicide

FOR USE IN BARLEY AND WHEAT

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.  
241-266

ACTIVE INGREDIENT:		
difenzoquat methyl sulfate.....		31.2%
INERT INGREDIENTS.....		68.8%
TOTAL.....		100.0%

(1 gallon contains 2 lbs. of difenzoquat cation)

EPA Reg. No. 241-266

EPA Est. No.

KEEP OUT OF REACH OF CHILDREN

DANGER/PELIGRO!

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.  
(If you do not understand this label, find someone to explain it to you in detail.)

STATEMENT OF PRACTICAL TREATMENT

- If in eyes: Hold eyelids open and flush with a steady, gentle stream of water for 15 minutes. Get medical attention.
- If swallowed: Call a doctor or get medical attention. Do not induce vomiting. Drink promptly a large quantity of milk, egg white, gelatin solution, or if these are not available, large quantities of water. Avoid alcohol.
- If on skin: Wash with plenty of soap and water. Get medical attention.
- If Inhaled: Remove victim to fresh air. If not breathing, give artificial respiration preferably mouth-to-mouth. Get medical attention.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

See Inside For Additional Precautionary Statements.  
See Directions For Use Inside

In case of an emergency endangering life or property involving this product,  
call collect, day or night, Area Code 201-835-3100.

(Company Logo)

Net Contents:

American Cyanamid Company  
Agricultural Products Division  
Crop Protection Chemicals Department  
Wayne, NJ 07470 ©1995

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## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

#### DANGER!

Corrosive: causes irreversible eye damage. May be fatal if swallowed or absorbed through the skin. **DO NOT** get in eyes, on skin, or on clothing.

#### Personal Protective Equipment (PPE):

##### Applicators and other handlers must wear:

- o coveralls over short-sleeved shirt and short pants
- o waterproof gloves
- o shoes plus socks
- o protective eyewear
- o dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C).

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. **DO NOT** reuse them. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

#### User Safety Recommendations:

##### Users should:

- o Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- o Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- o Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

## ENVIRONMENTAL HAZARDS

**DO NOT** apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. **DO NOT** apply when weather conditions favor run-off and/or drift from target area. **DO NOT** contaminate water when disposing of equipment washwaters.

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. **DO NOT** apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

**DO NOT** apply this product through any type of irrigation system.

This label must be in the possession of the user at the time of pesticide application.

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### AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

**DO NOT** enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plant, soil, or water, is:

- o coveralls over short-sleeved shirt and short pants
- o waterproof gloves
- o shoes plus socks
- o protective eyewear.

### STORAGE AND DISPOSAL

Keep from freezing. AVENGE should be stored at temperatures at or above 40°F (5°C). Ice will form in the container at 15° F (-10° C). If ice occurs place container at room temperature until ice melts. Stability of AVENGE is not affected by freezing and thawing.

**DO NOT** contaminate water, food, or feed by storage or disposal. Open dumping is prohibited. **DO NOT** reuse empty container.

**PESTICIDE DISPOSAL:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the hazardous waste representative at the nearest EPA Regional Office for guidance.

**CONTAINER DISPOSAL FOR 2.5 GALLONS:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke. Consult federal, state or local authorities for approved alternative disposal procedures.

**CONTAINER DISPOSAL FOR FIELD KEG, MINI-BULK AND BULK:** Return empty container for reuse.

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### GENERAL INFORMATION

AVENGE is a selective herbicide for the postemergence control of wild oats in barley and wheat. See the section DIRECTIONS FOR USE for varietal restrictions.

If broadleaf weeds must also be controlled in these crops, AVENGE may be tank mixed with certain broadleaf herbicides which are listed under the HOW TO USE AVENGE PLUS BROADLEAF HERBICIDES section. AVENGE alone or in combination can be applied postemergence by ground equipment or aircraft.

Maximum control of wild oats in barley and wheat with AVENGE alone, or in combination, is obtained when temperature, moisture, fertility and cultural practices provide favorable conditions for plant growth. When applied under poor conditions for plant growth such as cold/wet or hot/dry weather or low soil fertility, AVENGE can produce yellowing or slight tip burn of barley or wheat. However, recovery is rapid when good growth conditions return. A slight reduction of yield may result under conditions described above.

Observe all cautions and limitations on this label and the labels of products used in tank mixtures with AVENGE. The use of AVENGE not consistent with this label can result in injury to crops, animals or persons. Keep containers closed to avoid spills and contamination.

Following the use of this product and chemically related products with the same mode of action, naturally occurring biotypes\* of some of the weeds listed on this label cannot be effectively controlled by this and related products. This product should be tank-mixed or applied sequentially with an appropriate registered herbicide having a different mode of action to ensure control of resistant biotypes.

\*A weed biotype is a naturally occurring individual within a given species that has a slightly different, but distinct genetic makeup from other individuals.

See your local Cyanamid representative for additional information.

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WHERE TO USE AVENGE: AVENGE alone or in combination can be applied to:

BARLEY: All Varieties

WHEAT: SEE TABLE BELOW

WHEAT TYPE	YES		NO
Fall and Winter Seeded	All	EXCEPT	Borah, WS 1809, WS 1877, WS 1859, Klasic, Probrand 771, Tadinia, and Mexican durums
Soft-White Spring Seeded	All		
Spring Seeded durums	All	EXCEPT	Edmore, Fjord, Kyle, Laker, Lakota, Lloyd, Regal, Renville Vic, Wakooma, Wascona, Westbred 803, and Westbred 881
Hard Red Spring Seeded	Amidon, Apex, Baart, Benito, Bronze Chief, Buckshot, Butte, Butte 86, Canuck, Centa, Chester, Columbus, Copper, Coteau, Courtney, Era, Erik, Federation, Fjeld, Fortuna, Germain 444, Glenlea, Glennman, HY320, Katepwa, Kitt, Kodiak, Leader, Lief, McKay, Marberg, Marshall, Minnpro, Newana, Neepawa, NK(PB) 751, Norak, Norana, Olaf, Oslo, Pioneer 2369, Pioneer 2385, Pondera, Probrand 711, Probrand 751, Prodax, Rambo, Selkirk, Solar, Stoa, Success, Telemark, Vance, Victory, W 2502, Walera, Wheaton and Yecoro rojo		DO NOT apply to varieties of hard red spring wheat not listed

WHEN TO USE AVENGE: AVENGE or AVENGE/broadleaf tank mix combinations are to be applied when the majority of wild oat plants are in the 3- to 5-true leaf stage of growth (tillering). The timing of AVENGE application to wild oats frequently coincides with barley in the 2- to 7-leaf stage, spring-seeded wheat in the 5- to 6-leaf stage, and fall-seeded wheat in the 4-leaf to tillered stage of growth. To achieve maximum control, the growth stage of wild oats in each field to be treated should be examined frequently to determine the 3- to 5-true leaf stage (tillering) for proper timing of AVENGE application. Density of wild oats per square foot should also be determined to select the correct AVENGE application rate.

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### WILD OAT STAGES

(artwork)

(artwork)

(artwork)

3-true leaf stage

4-true leaf stage

5-true leaf stage

### EQUIPMENT APPLICATION INSTRUCTIONS

The spray equipment must be clean and properly calibrated before treatments are applied. For best results, use flat fan nozzles, at pressures of 20 to 40 psi to achieve uniform spray distribution and minimize drift. **DO NOT** use flood jet nozzles. Keep the by-pass line on or near the bottom of the tank to minimize foaming. In ground applications, check nozzles for even distribution of spray droplets. In aerial applications, it is recommended that a flagman be located at each end of the field, or an automatic mechanical flagging unit be attached to the aircraft to ensure uniform aerial application and to avoid overlapping and possible crop injury.

### AVENGE APPLICATION

**DO NOT** apply AVENGE when the flagleaf is exposed or crop injury may occur. **DO NOT** apply AVENGE if rain is predicted within 6 hours. **DO NOT** spray AVENGE when freezing temperatures are forecast or when plants are wet with dew or rain. **DO NOT** apply AVENGE or AVENGE tank mix combinations under severe conditions for plant growth such as drought, extreme temperature fluctuation, low soil fertility and plant disease.

Apply AVENGE alone and AVENGE plus broadleaf herbicide combinations in 5 to 20 gallons of water per acre by ground equipment or 3 to 10 gallons of water per acre by aircraft. **DO NOT** let spray drift onto adjacent crops.

For spray volumes in excess of 10 gallons of spray per acre (gpa), the addition of a surfactant is required. Use any non-ionic surfactant of at least 80% active ingredient cleared for application to growing crops. Consult Surfactant Addition Table for amount of surfactant required.

### SURFACTANT ADDITION TABLE

Gallons Per Acre	Surfactant Required Per 100 Gallons (pints)
10	0
15	2
20	4

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### HOW TO USE AVENGE ALONE

If wild oats are growing vigorously, select the proper application rate from the AVENGE Rate Recommendation Table (below) that corresponds to the population of wild oat plants per square foot in the field to be treated.

### ASSERT®/AVENGE® TANK MIX FOR WILD OAT CONTROL

AVENGE may be tank mixed with ASSERT® herbicide\* for the control of wild oats only. Consult the ASSERT label for use directions, application rates and timing, state restrictions, precautions, and ASSERT recropping/rotation limitations.

\* DO NOT tank mix AVENGE with any product not registered in specific states of intended use.

### HOW TO USE AVENGE PLUS BROADLEAF HERBICIDES

AVENGE may be tank mixed with the following broadleaf herbicides:

- |                        |                            |
|------------------------|----------------------------|
| 2,4-D amine or ester   | Express <sup>1</sup>       |
| Ally <sup>1</sup>      | Glean <sup>1</sup>         |
| bromoxynil             | Harmony <sup>1</sup>       |
| bromoxynil plus MCPA   | Harmony Extra <sup>1</sup> |
| Curtail <sup>2</sup>   | MCPA amine or ester        |
| Curtail M <sup>2</sup> |                            |

Select the proper AVENGE application rate as described in the AVENGE Rate Recommendation Table (below). In order to assure optimum broadleaf weed control follow label recommendations of your broadleaf herbicide. Be sure that application timings coincide with application timings for AVENGE. DO NOT apply AVENGE tank mix combinations when the crop flagleaf is exposed or crop injury may occur. DO NOT apply AVENGE tank mix combinations under stress conditions.

Follow the most restrictive precautions, directions, and recropping/rotation limitations that appear on combination partner product labels.

AVENGE Rate Recommendation Table

Wild Oat Population	Wild Oat Density Plants Per Square Foot	AVENGE Rate Per Acre (pints)
Low	1-10	2 1/2
Moderate	11-25	3
High	More than 25	4

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## MIXING INSTRUCTIONS

### HOW TO MIX AVENGE ALONE

1. Fill tank one-half to three-quarters full with clean water and start agitation.
2. When using AVENGE alone, add AVENGE and surfactant to the partially filled tank while agitating. When AVENGE is thoroughly mixed, fill remainder of tank with water while agitating.
3. Allow mixture to agitate and recycle for at least five minutes before spraying.
4. Agitation must be continued until spraying is complete.

### HOW TO MIX AVENGE PLUS BROADLEAF HERBICIDES

1. Fill tank one-half to three-quarters full with clean water and start agitation.
2. When using AVENGE with a broadleaf herbicide, add the broadleaf herbicide first to the partially filled tank while agitating.
3. When the broadleaf herbicide is thoroughly mixed, add the AVENGE and surfactant to the tank, then complete filling the tank with water while agitating.
4. Allow mixture to agitate and recycle for at least five minutes before spraying.
5. Agitation must be continued until spraying is completed.

### HOW TO MIX AVENGE PLUS ASSERT HERBICIDE

Follow mixing instructions on the ASSERT label.

**NOTE: DO NOT MAKE MORE THAN ONE APPLICATION OF AVENGE PER GROWING SEASON. DO NOT GRAZE TREATED FIELDS OR CUT TREATED FORAGE FOR SILAGE OR HAY. BARLEY OR WHEAT CAN BE REPLANTED IF LOSS OF CROP OCCURS. AFTER HARVEST, BARLEY AND WHEAT GRAIN AND STRAW FROM TREATED FIELDS CAN BE FED TO LIVESTOCK. ROTATION TO OTHER CROPS CAN BE MADE THE FOLLOWING YEAR, EXCEPT WHERE LIMITED BY TANK MIX PARTNER LABEL RESTRICTION.**