

US EPA ARCHIVE DOCUMENT

4/7/82

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: April 6, 1982  
SUBJECT: EPA Registration Number 241-262  
Avenge S Wild Oat Herbicide

003146

FROM: Deloris P. Graham *4/7/82*  
FHB/TSS *E 4/7/82*  
TO: Richard Mountfort  
Product Manager (23)

Applicant: American Cyanamid Company  
Agricultural Research Division  
P.O. Box 400  
Princeton, NJ 08504

Active Ingredients:

Difenzoquat methyl sulfate (1,2-dimethyl  
-3,5-diphenyl-1H-pyrazolium methyl sulfate)..... 62.5%  
Inert Ingredients..... 37.5%

Background: Submitted Acute Dermal Sensitization Study as requested by the Agency in a letter dated January 1981. Study conducted by Baltech Scientific Services. Data under accession number 246992. Cite-all method of support.

Recommendation:

- (1) FHB-TSS finds these data acceptable to support conditional registration of this product.

Label:

- (1) Precautionary statements must precede directions for use.
- (2) The precautionary statements must be revised to include the statement "May cause allergic skin reaction over prolonged use."

Review:

- (1) Dermal Sensitization Study: Baltech Scientific Services; RT #871585; January 11, 1982.

Procedure: The test material was applied to one area on each animal by placing 0.5 ml of the test material on a webril pad and placing the pad on the test site. The positive control, dinitrochlorobenzene, was administered in the same manner as the test material. The positive control was administered at a concentration of 0.05% in sterical 0.9% saline, with a dosage volume of 0.5 ml. Ten guinea pigs per group were used. Animals received three applications per wash for three weeks for a

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total of nine applications. Two weeks after the ninth application a challenge dose at a volume of 0.5 ml was administered to both groups. Observations were made for erythema and edema at 24 and 48 hours following each application.

Results: The average response elicited by the challenge application was greater than the average response from the sensitizing applications in all ten guinea pigs of the test group.

Study Classification: Core Guideline Data

Toxicity Category: Weak skin sensitizer.

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# AVENGE S

wild oat herbicide



## FOR USE IN BARLEY AND WHEAT

### Active Ingredients:

Difenzoquat methyl sulfate (1,2-dimethyl-3,5-diphenyl-1H-pyrazolium methyl sulfate)	62.5
Inert Ingredients	37.5

(1 pound of AVENGE S contains 6.88 oz. difenzoquat cation)

EPA Reg. No. 241-262

EPA Est. No. 241-CT-1



**KEEP OUT OF REACH OF CHILDREN  
DANGER!**

### FIRST AID

*In case of contact*, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

*If Swallowed*—Drink one or two glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person. Get medical attention.

See Back Panel For Additional Precautionary Statements

### PELIGRO

**AL USUARIO:** Si usted no lee inglés, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

**(TO THE USER:** If you cannot read English, do not use this product until the label has been fully explained to you.)

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

Manufactured By  
**AMERICAN CYANAMID COMPANY**  
AGRICULTURAL DIVISION, WAYNE, NJ 07470

Net Contents: 13.6 lbs.  
6.17 KG

22950-02

D40

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GENERAL INFORMATION

AVENGE is a selective herbicide for the postemergence control of a wide range of weeds in corn, sorghum, and soybean crops. It is effective against weeds such as barnyard grass, crabgrass, and pigweed. AVENGE is available in two formulations: a 2.4-D amine salt and a 2.4-D amine ester. AVENGE alone or in combination with MCPA or bromoxynil can be used for the control of weeds in corn, sorghum, and soybean crops. AVENGE is also effective against weeds in alfalfa and clover crops. AVENGE is a selective herbicide for the postemergence control of a wide range of weeds in corn, sorghum, and soybean crops. It is effective against weeds such as barnyard grass, crabgrass, and pigweed. AVENGE is available in two formulations: a 2.4-D amine salt and a 2.4-D amine ester. AVENGE alone or in combination with MCPA or bromoxynil can be used for the control of weeds in corn, sorghum, and soybean crops. AVENGE is also effective against weeds in alfalfa and clover crops.

If broadleaf weeds must be controlled, these crops, AVENGE may be tank-mixed with MCPA or bromoxynil. MCPA is a herbicide of the 2,4-D amine ester. AVENGE alone or in combination with MCPA or bromoxynil can be used for the control of weeds in corn, sorghum, and soybean crops. AVENGE is also effective against weeds in alfalfa and clover crops.

Maximum control of weed pests 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 stress conditions for plant growth such as cold wet or hot dry weather or low soil fertility, AVENGE alone can produce seedling or slight top burn in barley or wheat. However, crop recovery is rapid when good growth conditions return. Slight reduction of yield may result under conditions described above.

Observe all cautions and warnings 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.

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. 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 tagging unit be attached to the aircraft to ensure uniform aerial application and to avoid overlapping and possible crop injury.

DIRECTIONS FOR USE

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

WHERE TO USE AVENGE: AVENGE and AVENGE tank-mix combinations listed below may be applied to:

- Barley and Fall-seeded Wheat varieties: All varieties grown throughout the United States, except the Mexican durum wheat varieties: Crane, Jon, Mexcan and Moccio.
Spring-seeded Wheat (Western States): All varieties grown in Idaho, Oregon and Washington except Borah.
Spring-seeded Wheat: Use only on spring-seeded wheat varieties: Butte, Era, Fortune, 64 and Oat grown in Minnesota, North Dakota, South Dakota, Montana and Wyoming.
Spring-seeded Durum Wheat: All varieties grown in Minnesota, Montana, North Dakota and South Dakota, except Lakota and Wascana.

WHEN TO USE AVENGE

AVENGE or AVENGE tank-mix combinations are to be applied when the majority of wild oat plants are in the 3- to 5-leaf stage of growth. The 3-leaf growth stage of wild oats occurs usually about 8 days following wild oat emergence under normal growing conditions. 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 7-leaf 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-leaf stage for proper timing of AVENGE application. Density of wild oats per square foot should also be determined to select the correct AVENGE application rate. Slight reduction of yield may result under stress conditions.

MIXING INSTRUCTIONS

HOW TO MIX AVENGE ALONE

- 1. Fill tank one-third full with clean water and start agitation.
2. When using AVENGE alone, add AVENGE 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 completed.

HOW TO MIX AVENGE PLUS BROADLEAF HERBICIDES

- 1. Fill tank one-third 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 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.

Table with 3 columns: Wild Oat Population (plants per square ft.), AVENGE Recommendation Table (Pounds Per Acre), and Acres Treated by one 13.5 lb. bag. Rows include Low (1-10), Moderate (11-25), and High (more than 25).

NOTE: For spray volumes in excess of 10 gallons of spray per acre (gpa), the addition of surfactant is required. Use Triton® X-100 or Triton X-77 spreader or Surfonic® N-95 or Tergitol® NPX at 0.6 fluid ounce for each gallon of spray in excess of 10 gpa. Example: For a 15 gpa spray, add 3 fluid ounces of surfactant (0.6 ounce for each gallon of water over 10 gpa) to each 15 gallons of water.

- 1. Under severe conditions of plant growth, apply AVENGE alone at the rate of 2.25 pounds per acre for all levels of wild oat plants per square foot.
2. Triton is a registered trademark of Rohm and Haas Company.
3. X-77 is a registered trademark of Kalo Laboratories, Chevron Chemical Company.
4. Surfonic is a registered trademark of Jefferson Chemical Company, Inc.
5. Tergitol is a registered trademark of Union Carbide Corporation.

HOW TO USE AVENGE ALONE

If vegetation is growing vigorously, select the proper application rate from the AVENGE Recommendation Table that corresponds to the population of wild oat plants per square foot in the field to be treated. Apply AVENGE 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 apply when wind velocity favors drift from target area.

HOW TO USE AVENGE PLUS BROADLEAF HERBICIDES

Select the proper AVENGE application rate as described in the AVENGE Recommendation Table. Do not apply AVENGE tank-mix combinations under stress conditions. In order to assure optimum broadleaf weed control, follow label recommendations of the broadleaf herbicides used with AVENGE. Follow the Mixing Instructions and use the herbicide as follows:

- AVENGE PLUS MCPA: Use MCPA formulations of amine or ester at the rate of 0.25 to 1.0 lb. acid equivalent per acre. Apply in 5 to 20 gallons per acre by ground equipment and 5 to 10 gallons per acre by aircraft.
AVENGE PLUS BROMOXNYL: Use bromoxynil at the rate of 0.375 to 0.5 lb. active ingredient per acre. Apply in 10 to 20 gallons per acre by ground equipment and 5 to 10 gallons per acre by aircraft.
AVENGE PLUS MCPA PLUS BROMOXNYL: Use MCPA at the rate of 0.25 to 0.5 lb. acid equivalent per acre plus bromoxynil at 0.25 to 0.5 lb. active ingredient per acre. Apply in 10 to 20 gallons per acre by ground equipment and 5 to 10 gallons per acre by aircraft.
AVENGE PLUS 2,4-D: Use 2,4-D formulations of amine or ester at the rate of 0.75 to 0.75 lb. acid equivalent per acre. Apply in 5 to 20 gallons of spray per acre by ground equipment and 5 to 10 gallons per acre by aircraft. Apply tank mix after barley and wheat are fully tillered, but before the boot stage. Do not apply during seedling stage, late seeding stage or after heading begins.
\*When applying more than 10 gallons of spray per acre, follow instructions relating to addition of surfactant as described under AVENGE Recommendation Table.
1. The amine and ester formulations of MCPA are sold under various brandnames. Consult manufacturer's label recommendation before use.
2. There are several brand names for bromoxynil, including Brominal, a registered trademark of Union Carbide Agricultural Product Company, Inc. and Bromox, a registered trademark of Rhone-Poulenc Chemical Company, Inc.
3. There are several brand names for MCPA - bromoxynil including Brominal Plus a registered trademark of Union Carbide Agricultural Product Company, Inc. and Bromox a registered trademark of Rhone-Poulenc Chemical Company, Inc.
4. The amine and ester formulations of 2,4-D are sold under various brand names. Consult manufacturer's label recommendation before use.

NOTE: DO NOT APPLY AVENGE IF RAIN IS PREDICTED WITHIN 6 HOURS. DO NOT APPLY AVENGE WHEN PLANTS ARE WET WITH DEW OR RAIN. DO NOT MAKE MORE THAN ONE APPLICATION OF AVENGE PER GROWING SEASON. DO NOT GRAZE TREATED FIELDS OR CUT TREATED FORAGE FOR SILAGE. BARLEY OR WHEAT CAN BE REPLANTED IF LOSS OF CROP OCCURS. ROTATION TO OTHER CROPS CAN BE MADE THE FOLLOWING YEAR. BARLEY AND WHEAT GRAIN AND STRAW FROM TREATED FIELDS CAN BE FED TO LIVESTOCK.

AVENGE - S PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS (AND DOMESTIC ANIMALS) DANGER! Corrosive: causes eye damage and skin irritation. Do not get in eyes, on skin or on clothing. Wear goggles or face shield and wear rubber gloves when handling. May be fatal if swallowed or absorbed through the skin. Do not breathe dust. Wash thoroughly after handling. ENVIRONMENTAL HAZARDS: Do not apply directly to lakes, streams and ponds. Do not apply when weather conditions favor run-off and drift from target area. Do not contaminate water by cleaning of equipment or disposal of wastes.

STORAGE AND DISPOSAL PROHIBITIONS: Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited. Do not reuse empty container. PESTICIDE DISPOSAL: Pesticide spray mixture or residue 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. CONTAINER DISPOSAL: Dispose of in an incinerator or landfill approved for pesticide containers, or bury in a safe place. GENERAL: Consult Federal, State or local disposal authorities for approved alternative procedures such as incineration.

DISCLAIMER: The label instructions for the use of this product reflect the opinion of experts based on field use practices. The instructions are given in good faith and should be followed carefully. However, it is impossible to eliminate all risks inherent in the use of this product. Disasters, such as fire, pest outbreaks, crop diseases, and other factors may result because of such factors as weather conditions, presence of other materials, or the use of application equipment not properly calibrated. American Cyanamid Company and its subsidiaries do not assume liability for any damages arising from a breach of this warranty, but will endeavor to correct damages resulting from such a breach. American Cyanamid Company makes no other express or implied warranty, including any warranty of merchantability or fitness for a particular purpose.

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