MONSANTO

Food · Health · Hope

MONSANTO COMPANY
600 13TH STREET, NW
SUITE 660
WASHINGTON, D.C. 20005
http://www.monsanto.com

April 19, 2001

Hand Delivered

Document Processing Center
Office of Pesticide Programs
U.S. Environmental Protection Agency
Room 266A, Crystal Mall 2,
1921 Jefferson Davis Highway
Arlington, VA 22202-4501

Attention: Mr. Dan Rosenblatt
Product Manager (Team 25)

Subject: Outrider® Herbicide (EPA Reg. No. 524-500). Submission of Final Printed Supplemental Label.

Dear Mr. Rosenblatt:

Monsanto is submitting five (5) copies of the Outrider® Herbicide supplemental label (print plate no. 71014Z1-10) which incorporates the recently approved use rate increase and tall fescue directions for use. The supplemental label text is the same as the text approved in the 22 February 2001 stamped label pamphlet.

Should you have any questions, please contact Ms. Marsha Gray at our Washington office (202) 783-2460 or me directly at (314) 694-8785.

Sincerely,

Rhonda M Mannion

Rhonda M. Mannion
Registration Manager

cc: M. Gray
V. Walters

Enclosure

Please read instructions on reverse before completing form.

Form Approved. OMB No. 2070-0060. Approval expires 2-28-95

EPA

United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☐ Amendment
☑ Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 524-500	2. EPA Product Manager Mr. Dan Rosenblatt	3. Proposed Classification ☑ None ☐ Restricted
4. Company/Product (Name) Outrider Herbicide	PM# 25	
5. Name and Address of Applicant *(Include ZIP Code)* Monsanto Company 600 13th Street N.W., Suite 660 Washington, DC 20005 ☐ *Check if this is a new address*	6. **Expedited Reveiw.** In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

☐ Amendment - Explain below.
☐ Resubmission in response to Agency letter dated _____
☐ Notification - Explain below.
☐ Final printed labels in repsonse to Agency letter dated _____
☐ "Me Too" Application.
☑ Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)
Submission of final printed supplemental label.

Section - III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Metal ☐ Plastic ☐ Glass ☐ Paper ☐ Other (Specify) _____
**** Certification must be submitted***	If "Yes" Unit Packaging wgt. / No. per container	If "Yes" Package wgt / No. per container	

3. Location of Net Contents Information	4. Size(s) Retail Container	5. Location of Label Directions
☐ Label ☐ Container		☐

6. Manner in Which Label is Affixed to Product ☐ Lithograph ☐ Paper glued ☐ Stenciled ☐ Other _____

Section - IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Dr. Marsha Gray	Registration Manager	(202) 783-2460

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowlingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

6. Date Application Received (Stamped)

2. Signature Rhonda M Mannion	3. Title Registration Manager
4. Typed Name Rhonda M. Mannion	5. Date 19 April 2001

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR OUTRIDER® HERBICIDE BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING. FOLLOW ALL APPLICATION DIRECTIONS, RESTRICTIONS AND PRECAUTIONS ON THE EPA REGISTERED LABEL.

"Label" as used in this supplemental labeling refers to the label pamphlet for Outrider herbicide and this supplemental.

OUTRIDER®

Herbicide by Monsanto

EPA Reg. No. 524-500

Outrider is a registered trademark of Monsanto Company.

RATE INCREASE AND SELECTIVE CONTROL OF JOHNSONGRASS IN TALL FESCUE.

Keep out of reach of children.

CAUTION!

In case of an emergency involving this product or for user safety information on this product, Call Collect, day or night (314) 694-4000.

DIRECTIONS FOR USE

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

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

See "GENERAL INFORMATION" and "MIXING INSTRUCTIONS" and "APPLICATION EQUIPMENT AND INSTRUCTIONS" sections of the label pamphlet for Outrider® herbicide for essential product performance information.

Note: Applications of this product should not contact leaves of desirable plants since foliar injury, discoloration, or death may result.

Environmental Hazards

This chemical demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

This pesticide is highly toxic to non-target plants. Do not apply to non-target areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to plants in neighboring areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

The use of any pesticide in a manner that may kill or otherwise harm an endangered species or adversely modify their habitat is a violation of Federal Laws.

RECOMMENDATIONS

Outrider herbicide may be used to control or partially control johnsongrass and other weeds in bermudagrass, bahiagrass, and tall fescue on roadsides and other labeled noncrop sites.

NONCROP SITES AND BERMUDAGRASS AND BAHIAGRASS

Application Information

Outrider herbicide may be used at rates of 0.75 to 2.0 ounces per acre. Do not exceed 2.0 ounces of this product per acre per year.

TALL FESCUE

Application Information

Ground Broadcast

Apply Outrider herbicide at 0.75 to 1.0 ounce per acre. Do not exceed 1.0 ounce of this product per acre per year.

Use the higher recommended rate for control of large established weeds or when weed growth is heavy or dense. Best results are obtained when weeds are actively growing and

are not disturbed by mowing or other factors for 14 days prior to, or 14 days after application.

Addition of a nonionic surfactant at 0.5 percent by volume (2 quarts per 100 gallons of spray solution) is required. Use only nonionic surfactants containing at least 90 percent active ingredient.

Hand-Held and High-Volume Equipment

Add 1.0 ounce of Outrider herbicide per 100 gallons of water. Add 2 quarts of a nonionic surfactant per 100 gallons of spray solution. Use only nonionic surfactants containing at least 90 percent active ingredient.

Timing

Applications should be made to actively growing johnsongrass in early boot to full seadhead stage. Symptom development will be more rapid in less mature johnsongrass.

Use this product only in well-established tall fescue. Use of labeled rates can result in transient growth reduction and discoloration of tall fescue but these cause no long-term detrimental effects.

Read the "LIMIT OF WARRANTY AND LIABILITY" in the label pamphlet for Outrider herbicide before using. These terms apply to this supplemental labeling and if these terms are not acceptable, return the product unopened at once.

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ST. LOUIS, MISSOURI 63167

71014Z1-10 2/22/2001

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

FEB 22 2001

Ms. Rhonda M. Mannion
Monsanto Company
600 13th Street, NW, Suite 660
Washington, DC 20005

Dear Ms. Mannion:

Subject: Outrider Herbicide (Add Use in Tall Fescue & Increase Rate for Noncrop Sites)
EPA Registration No. 524-500
Your Application Dated November 21, 2000

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act as amended is acceptable. The amended labeling supercedes all previously accepted ones. A stamped copy of labeling is enclosed for your records.

Sincerely,

Vickie K Walker for
Dan Rosenblatt
Acting Product Manager 25
Herbicide Branch
Registration Division (7505C)

ACCEPTED

FEB 22 2001

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No 524-500

OUTRIDER™

Herbicide by Monsanto

Outrider herbicide is a selective herbicide for control of annual and perennial grass and broadleaf weeds in noncrop areas.

Complete Directions For Use

Outrider is a trademark of Monsanto Company.

EPA Reg. No. 524-500

2000-1

Read the entire label before using this product.

Use only according to label instructions.

Not all products recommended on this label are registered for use in California. Check the registration status of each product in California before using.

Read the "LIMIT OF WARRANTY AND LIABILITY" before buying or using. If terms are not acceptable, return at once unopened.

THIS IS AN END-USE PRODUCT. MONSANTO DOES NOT INTEND AND HAS NOT REGISTERED IT FOR REFORMULATION. SEE INDIVIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS.

ACTIVE INGREDIENT:

Sulfosulfuron,	75.0%
OTHER INGREDIENTS:	25.0%
	100.0%

This product is protected by U.S. Patent Nos. 5,017,212 and 5,534,482. No license granted under any non U.S. Patent(s).

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Keep out of reach of children.

CAUTION!

CAUSES EYE IRRITATION.

Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling

FIRST AID	
IF IN EYES	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. • Call a poison control center or doctor for treatment advice.
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also call collect, day or night, (314) 694-4000 for emergency medical treatment information.	

Environmental Hazards

This chemical demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

This pesticide is highly toxic to non-target plants. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to plants in neighboring areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

The use of any pesticide in a manner that may kill or otherwise harm an endangered species or adversely modify their habitat is a violation of Federal Laws.

DIRECTIONS FOR USE

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

FOR PRODUCT INFORMATION OR ASSISTANCE IN USING THIS PRODUCT,
CALL TOLL FREE, 1-800-332-3111.

Storage and Disposal

Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

STORAGE: Store under cool, dry conditions (below 120°F). Do not store under moist conditions.

DISPOSAL: Wastes resulting from the use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, state or local procedures.

See individual container label for disposal information.

APPLICATION EQUIPMENT AND INSTRUCTIONS

Ground Broadcast Equipment

Apply Outrider™ herbicide uniformly with properly calibrated ground equipment in 10 to 50 gallons of water per acre. Select spray volumes that ensure thorough and uniform weed coverage. Use equipment which is capable of continuous agitation. Choose nozzles which provide optimum spray distribution and uniform coverage at the appropriate spray pressure. Avoid streaking, skips, overlaps, and spray drift during applications.

Hand-Held and High-Volume Equipment

Use hand-held spray guns, backpacks, or other similar sprayers to apply this product. Apply to foliage of vegetation to be controlled. For applications made on a spray-to-wet basis, spray coverage should be uniform and complete. Do not spray to the point of runoff. Use coarse sprays only.

Do not apply product through any type of irrigation system.

IMPORTANT: Do not allow this product to contact roots or foliage of desirable vegetation, areas where roots of desirable vegetation may extend, or areas where this product may be washed or moved into contact with roots of desirable vegetation.

Desirable plants may be injured if planted into treated areas.

Do not use on food or feed crops.

Equipment cleaning

Clean application equipment after using this product by thoroughly flushing with water.

Injection Systems

This product may be used in ground injection spray systems. It may be diluted prior to injecting into the spray stream. Do not mix this product with the undiluted concentrate of other products when using injections systems, unless specifically recommended.

ATTENTION

AVOID DRIFT. Care must be used when applying this product to prevent injury to desirable plants and crops. Do not allow the herbicide solution to mist, drift, or splash onto desirable vegetation or soil areas where sensitive crops will be planted since minute quantities of this product can cause severe damage or destruction to plants on which treatment was not intended. The likelihood of injury occurring from the use of this product increases when winds are gusty, as wind velocity increases, when wind direction is constantly changing or when there are other meteorological conditions that favor spray drift. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely to drift. AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE. Drift control agent additives should be used for ground broadcast applications. When a drift control additive is used, read and carefully observe the precautionary statements and all other information appearing on the additive label.

MIXING INSTRUCTIONS

Thoroughly clean equipment prior to mixing spray solution.

Fill the spray tank to about three-fourths of the desired volume. Add the recommended amount of this product. Complete the filling process while maintaining agitation. Use caution to avoid siphoning back into the carrier source. Use approved anti-back-siphoning devices where required by state or local regulations. Add nonionic surfactant near the end of the filling process where required.

For tank mixtures, add individual formulations to the spray tank in the following sequence: water, water soluble bags, dry flowables, emulsifiable concentrates, drift control additive, water soluble liquids followed by a nonionic surfactant. Tank mixtures of this product with Roundup Pro® herbicide do not require addition of surfactant.

GENERAL INFORMATION

Outrider herbicide is a preemergent and postemergent, systemic herbicide for control of many annual and perennial broadleaf and grass weeds on noncrop sites where unimproved bermudagrass, bahiagrass and tall fescue are present. It is formulated as a water dispersible granule (WDG).

NONCROP SITES

Outrider herbicide may be used for general weed control on noncrop sites including roadsides, utility rights-of-way, airports, fallow areas, ditch banks, dry ditches, dry canals, fencerows, industrial sites, lumberyards, manufacturing sites, petroleum tank farms and pumping installations, railroads, storage areas, utility substations, warehouse areas, and similar industrial and noncrop sites.

BERMUDAGRASS AND BAHIAGRASS

Outrider herbicide may be used to control or partially control many annual and perennial weeds for effective release of bermudagrass or bahiagrass on roadsides and other labeled noncrop sites.

Application Information

Ground Broadcast

Apply Outrider herbicide at 0.75 to 2.0 ounces per acre. Do not exceed 2.0 ounces of this product per acre per year.

Use the higher recommended rates of this product for control of large established weeds or when weed growth is heavy or dense. Best results are obtained when weeds are in the early stage of growth and are not disturbed by mowing or other factors for 12 days prior to, or 12 days after application.

Addition of a nonionic surfactant at 0.5 percent by volume (2 quarts per 100 gallons of spray solution) is required for postemergence applications unless tank mixed with Roundup Pro herbicide. Use only nonionic surfactants which contain at least 90 percent active ingredient. When this product is applied in a tank mixture with Roundup Pro herbicide, addition of a surfactant is not necessary.

Hand-Held and High-Volume Equipment

Add 1.0 ounce of Outrider herbicide per 100 gallons of water. Add 2 quarts of a nonionic surfactant per 100 gallons of spray solution. Use only nonionic surfactants containing at least 90 percent active ingredient.

Tank Mixtures

Tank mixtures of this product may be used to increase the spectrum of vegetation controlled. When tank mixing, read and carefully observe the label directions, precautionary statements and all information on the labels of all products used.

Any recommended rate of this product may be tank mixed with the following products. Refer to these product labels for approved noncrop sites and application rates. Always apply tank mixtures according to the most restrictive label of the products used. Products recommended as tank mixes with Outrider herbicide for bermudagrass or bahiagrass release are restricted to those specified in the "RELEASE OF BERMUDAGRASS OR BAHIAGRASS" section.

BANVEL™	PLATEAU™
CAMPAIGN®	ROUNDUP PRO®
DIURON	TELAR™
ESCORT™	TRANSLINE™
GARLON™ 3A	VANQUISH™
KARMEX™ DF	2,4-D
MSMA	
OUST™	

NOTE: Tank mixtures with broadleaf herbicides formulated as amines (including 2,4-D and others) may decrease the effectiveness of Outrider herbicide.

RELEASE OF BERMUDAGRASS OR BAHIAGRASS

Dormant Applications

This product may be used to control or partially control many winter annual weeds for effective release of dormant bermudagrass or bahiagrass when treated after grass is dormant and prior to spring green-up.

Apply any labeled rate of this product alone or in a tank mixture with 8 to 64 fluid ounces of Roundup Pro herbicide or with 16 to 64 fluid ounces of Campaign herbicide per acre. In dormant bermudagrass only, up to 1 ounce per acre of Escort may be added to Outrider herbicide or tank mixtures of Outrider herbicide and Roundup Pro herbicide to increase the spectrum of broadleaf weeds controlled. Addition of Escort may delay green-up of bermudagrass. Tank mixtures of this product with Escort in highly maintained turfgrass areas will result in unacceptable turf injury.

In the state of Texas, applications of Outrider herbicide applied before September 30 will not delay green-up of bermudagrass the following spring, however some temporary discoloration of desirable spring germinating wildflowers may occur.

Actively Growing Bermudagrass Release

This product may be used to control or partially control johnsongrass and other weeds for effective release of actively growing bermudagrass. Use only on well-established bermudagrass. Apply any labeled rate of this product alone or in a tank mixture with 8 to 32 fluid ounces of Roundup Pro herbicide per acre. Use the higher rates of each product to control perennial weeds or annual weeds greater than 6 inches in height.

Up to 0.5 ounce per acre of Oust, up to 1 ounce per acre of Escort, or up to 0.5 ounce per acre of Telar may be added to Outrider herbicide or tank mixtures of Outrider herbicide and Roundup Pro herbicide. Tank mixtures of this product with Oust, Escort or Telar in highly maintained turfgrass areas will result in unacceptable turf injury.

Actively Growing Bahiagrass Release

This product may be used to control or partially control johnsongrass and other weeds for effective release of actively growing bahiagrass. Use only on well established bahiagrass. Apply any labeled rate of this product alone or in a tank mixture with 4 to 12 ounces of Roundup Pro herbicide per acre. Use the higher rates of each product to control perennial weeds or annual weeds greater than 6 inches in height.

IMPORTANT: Established bermudagrass and bahiagrass are tolerant to Outrider herbicide applications. Tank mixtures of other products with Outrider herbicide may increase grass injury.

Where bermudagrass or bahiagrass are desirable ground cover use tank mixtures only when some temporary injury or discoloration can be tolerated.

TALL FESCUE

Outrider herbicide may be used to control or partially control johnsongrass and other weeds in tall fescue on roadsides and other labeled noncrop sites.

Application Information

Ground Broadcast

Apply Outrider herbicide at 0.75 to 1.0 ounce per acre. Do not exceed 1.0 ounce of this product per acre per year.

Use the higher recommended rate for control of large established weeds or when weed growth is heavy or dense. Best results are obtained when weeds are actively growing and are not disturbed by mowing or other factors for 14 days prior to, or 14 days after application.

Addition of a nonionic surfactant at 0.5 percent by volume (2 quarts per 100 gallons of spray solution) is required. Use only nonionic surfactants containing at least 90 percent active ingredient.

Hand-Held and High-Volume Equipment

Add 1.0 ounce of Outrider herbicide per 100 gallons of water. Add 2 quarts of a nonionic surfactant per 100 gallons of spray solution. Use only nonionic surfactants containing at least 90 percent active ingredient.

Timing

Applications should be made to actively growing johnsongrass in early boot to full seedhead stage. Symptom development will be more rapid in less mature johnsongrass.

Use this product only in well-established tall fescue. Use of labeled rates can result in transient growth reduction and discoloration of tall fescue but these cause no long-term detrimental effects.

WEEDS CONTROLLED

Barley, volunteer
Hordeum vulgare
Bedstraw, catchweed
Galium aparine
Bluegrass, roughstalk
Poa tirvialis
Bluegrass, bulbous
Poa bulbosa
Brome, downy
Bromus tectorum
Brome, ripgut
Bromus rigidus
Buttercup
Ranunculus arvensis
Chamomile, mayweed
Anthemus cotula
Cheat
Bromus secalinus
Chess, hairy
Bromus commutatus
Chickweed, common
Stellaria media
Horseweed
Conyza canadiensis

Fiddleneck, tarweed
Amsinckia lycopsoides
Flixweed
Descurainia sophia
Johnsongrass
Sorghum halepense
Ladysthumb
Polygonum persicaria
Mustard, tumble
Sisymbrium altissimum
Mustard, wild
Sinapis arvensis
Pennycress, field
Thlaspi arvense
Purple Nutsedge
Cyperus rotundus
Quackgrass
Elytrigia repens
Ragweed, common
Ambrosia artemisiifolia
Shepherd's-purse
Capsella bursa-pastoris
Sunflower, common
Helianthus annuus
Tansymustard, pinnate
Descurainia pinnata
Vetch, sand
Vicia acutifolia
Yellow Nutsedge
Cyperus esculentus

LIMIT OF WARRANTY AND LIABILITY

Monsanto Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label pamphlet ("Directions") when used in accordance with those Directions under the conditions described therein. NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

Buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE

THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirements and with express written permission from this Company.

Upon opening and using this product, buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement. If terms are not acceptable, return at once unopened.

Roundup Pro and Campaign are registered trademarks of Monsanto Company.
Escort, Karmex, Oust, and Telar are trademarks of E.I. duPont de Nemours and Company.
Garlon and Transline are trademarks of Dow AgroSciences.
Banvel and Plateau are trademarks of BASF Corporation.
Vanquish is a trademark of Novartis Crop Protection.

EPA Reg. No. 524-500

In case of an emergency involving this product,
Call Collect, day or night, (314) 694-4000.

©2000 MONSANTO COMPANY
ST. LOUIS, MISSOURI, 63167 U.S.A.

Formulated in the United States Using Active Ingredient Made in Japan.

[illegible] RECORD	G 524-500		DATE RECEIVED MO DAY YR 11 28 00
3. [illegible] PUBLICATION NECESSARY ☐ YES ☐ NO	4. PETITION NO.		5. RECEIVED PM TEAM MO DAY YR
6. METHOD OF SUPPORT ☐ [illegible] ☐ [illegible] ☐ [illegible]	7. PRODUCT MANAGER	NO.	8. PROJECTED RETURN MO DAY YR
9. DATE PULLED 2/1/01	10. DATE PUBLISHED	11. ACTION TYPE add Tall fescue, increase rates & other editorial changes 300	CODE 12. OUTGOING DATE MO DAY YR

REV SEQ	REVIEW TYPE CODE	REVIEW TYPE	REVIEWER CODE (Initials)	SIGNATURE OF REVIEWER	COMMENT CODE	DATE REVIEW COMPLETED MO	DAY	YR
	A	REVIEWABILITY TEAM						
	B	PRODUCT MANAGER TEAM EFFICACY REVIEW						
	C	PRODUCT MANAGER TEAM HUMAN SAFETY REVIEW						
	D	PRODUCT MANAGER TEAM ENVIRONMENTAL SAFETY REVIEW						
	E	PRODUCT MANAGER TEAM RESUBMISSION REVIEW						
	F	PRODUCT MANAGER		UKW	NAC	02	01	01
	G	INTERAGENCY REFERRAL						
	H	COST-BENEFIT REVIEW						
	I	PUBLIC COMMENTS REVIEW						
	J	EEE BRANCH INSECTICIDE EFFICACY						
	K	EEE BRANCH HERBICIDE EFFICACY						
	L	EEE BRANCH FUNGICIDE EFFICACY						
	M	EEE BRANCH RODENTICIDE EFFICACY						
	N	EEE BRANCH DISINFECTANT EFFICACY						
	O	CHEMISTRY BRANCH RESIDUE CHEMISTRY						
	P	EEE BRANCH ENVIRONMENTAL CHEMISTRY						
	Q	TOXICOLOGY BRANCH HUMAN SAFETY						
	R	EEE BRANCH ENVIRONMENTAL SAFETY						
	S							
	T							

PRODUCT MANAGER SIGNATURE	TYPE OF RESPONSE	CODE

EPA Form 6570-13 (3-79)

ead instructions on reverse before completing form.

Form Approved. OMB No. 2070-0060. Approval expires 2-28-95

B

EPA

United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☑ Amendment
☐ Other

OPP Identifier Number
276510

Application for Pesticide - Section I

1. Company/Product Number 524-500	2. EPA Product Manager Mr. Jim Tompkins	3. Proposed Classification ☑ None ☐ Restricted
4. Company/Product (Name) Outrider Herbicide	PM# 25	
5. Name and Address of Applicant *(Include ZIP Code)* Monsanto Company 600 13th Street N.W., Suite 660 Washington, DC 20005 ☐ *Check if this is a new address*	6. **Expedited Reveiw.** In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. 12/5/2000 Product Name	

Section - II

☑ Amendment - Explain below.
☐ Resubmission in response to Agency letter dated _____
☐ Notification - Explain below.
☐ Final printed labels in repsonse to Agency letter dated _____
☐ "Me Too" Application.
☐ Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)
Submission of revised Outrider herbicide label.

Section - III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Metal ☐ Plastic ☐ Glass ☐ Paper ☐ Other (Specify) _____
Certification must be submitted	If "Yes" Unit Packaging wgt. / No. per container	If "Yes" Package wgt / No. per container	

3. Location of Net Contents Information	4. Size(s) Retail Container	5. Location of Label Directions
☐ Label ☐ Container		☐

6. Manner in Which Label is Affixed to Product ☐ Lithograph ☐ Paper glued ☐ Stenciled ☐ Other _____

Section - IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Mr. Marsha Gray	Registration Manager	(202) 783-2460

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowlingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

6. Date Application Received
(Stamped)

2. Signature	3. Title	
Rhonda M Mannion	Registration Manager	
4. Typed Name	**5. Date**	
Rhonda M. Mannion	21 November 2000	

A B

MONSANTO

Food · Health · Hope™

MONSANTO COMPANY
600 13TH STREET, N.W.
SUITE 660
WASHINGTON, D.C. 20005
TEL: (202) 783-2460
FAX: (202) 783-2468

November 21, 2000

Hand Delivered

Document Processing Center (AMEND)
Office of Pesticide Programs
U.S. Environmental Protection Agency
Room 266A, Crystal Mall 2,
1921 Jefferson Davis Highway
Arlington, VA 22202-4501

Attention: Mr. Jim Tompkins
Product Manager (Team 25)

Subject: Outrider® Herbicide (EPA Reg. No. 524-500). Submission of Revised Label Incorporating Tall Fescue Use, Improved Directions for Use, Increased Use Rates, and Revised First Aid Statement per PR Notice 2000-3.

Dear Mr. Tompkins:

Monsanto is herein submitting a revised Outrider herbicide label (Reg. No. 524-500) for Agency approval. Two major changes are being made to the current label; the addition of a non-crop use and an increase in the maximum use rate for non-crop uses. Other minor modifications are also being made at this time and include revision of the first aid statement to be compliant with PR Notice 2000-3 and clarification of use instructions for hand-held and high-volume equipment applications.

Outrider herbicide has been evaluated on tall fescue and found to effectively control johnsongrass and other listed weeds on roadsides and other non-crop sites, and the corresponding directions for use have been added to the Outrider herbicide label. Additional use instructions have also been included for hand-held and high-volume equipment instructing the user to prepare a spray solution of 1 ounce Outrider herbicide in 100 gallons of water. Since hand-held and high-volume equipment applications are on a spray-to-wet basis (equivalent to approximately 100 gallons of spray solution per acre), these uses equate to 1 ounce Outrider herbicide per acre which is within the currently approved maximum use rate for Outrider herbicide.

An increase in the maximum use rate is also being sought. In a memo dated 5 October 2000, EFED concluded that additional soil dissipation data at 2 ounces Outrider herbicide per acre are not required to supplement the existing risk assessment. EFED did, however, (attached)

express that the increased use rate heightened those concerns which have previously been raised by EFED during the initial review of sulfosulfuron (memo dated 30 October 1998). The Agency determined that Monsanto's responses to EFEDs concerns were sufficient and subsequently approved both the Maverick (crop use) and Outrider (non-crop) labels on 19 May 1999.

Furthermore, Monsanto has never received any reports of off-site movement of Outrider herbicide that resulted in phytotoxicity to non-target terrestrial or aquatic species. Monsanto believes that increasing the use rate for Outrider herbicide will not result in any additional effects to non-target species in the environment and asks the Agency to approve this increased use rate for Outrider herbicide.

Finally, since the registration of sulfosulfuron in May 1999, Monsanto has developed analytical methodology capable of quantitating sulfosulfuron at phytotoxic concentrations in the environment (soil and water). Currently, these methods are undergoing extensive validation in our laboratories, final reports will be submitted to the Agency by mid 2001. This methodology will allow for the detection and quantification of sulfosulfuron in the environment in the event that Outrider herbicide is suspected of causing non-target phytotoxicity, and will allow Monsanto to address the environmental situation as well as characterize the risk and institute necessary preventative measures.

The following documents are enclosed with this letter:

- Application for Pesticide - Amendment (form 8570-1)
- Five (5) copies of the revised Outrider herbicide label
- One (1) copy of the revised Outrider herbicide label indicating revisions to current final printed label (print plate no. 17014X1-2/53)

Should you require any additional information or have any questions regarding this submission, please contact Ms. Marsha Gray at our Washington office (202) 783-2460, or me directly at (314) 694-8785 or rmmann@monsanto.com.

Sincerely,

Rhonda M. Mannion

Rhonda M. Mannion
Registration Manager

cc: M. Gray
V. Walters
D. Suttner (no attachments)
D. Fee-White (no attachments)
R. Mannion (no attachments
File copy

Attachments

show changes

OUTRIDER™

Herbicide by Monsanto

Outrider herbicide is a selective herbicide for control of annual and perennial grass and broadleaf weeds in noncrop areas.

Complete Directions For Use

Outrider is a trademark of Monsanto Company.

EPA Reg. No. 524-500

~~1999~~2000-1 ~~17014X1-2/53~~

Read the entire label before using this product.

Use only according to label instructions.

Not all products recommended on this label are registered for use in California. Check the registration status of each product in California before using.

Read the "LIMIT OF WARRANTY AND LIABILITY" before buying or using. If terms are not acceptable, return at once unopened.

THIS IS AN END-USE PRODUCT. MONSANTO DOES NOT INTEND AND HAS NOT REGISTERED IT FOR REFORMULATION. SEE INDIVIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS.

ACTIVE INGREDIENT:

Sulfosulfuron, ~~1-(2-ethylsulfonylimidazo[1,2-a]pyridin-3-ylsulfonyl)-3-(4,6-dimethoxypyrimidin-2-yl)urea~~	75.0%
~~INERT~~ OTHER INGREDIENTS:	25.0%
	100.0%

This product is protected by U.S. Patent Nos. 5,017,212 and 5,534,482. No license granted under any non U.S. Patent(s).

ACCEPTED
FEB 22 2001
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 524-500

PRECAUTIONARY STATEMENTS
Hazards to Humans and Domestic Animals

Keep out of reach of children.

CAUTION!

CAUSES EYE IRRITATION.

Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

~~**FIRST AID: IF IN EYES,** flush with plenty of water. Call a physician if irritation persists.~~

FIRST AID	
IF IN EYES	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. • Call a poison control center or doctor for treatment advice.
HOT LINE NUMBER	

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also call collect, day or night, (314) 694-4000 for emergency medical treatment information.

~~IN CASE OF AN EMERGENCY INVOLVING THIS PRODUCT, OR FOR MEDICAL ASSISTANCE, CALL COLLECT, DAY OR NIGHT, (314) 694-4000.~~

Environmental Hazards

This chemical demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

This pesticide is highly toxic to non-target plants. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to plants in neighboring areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

The use of any pesticide in a manner that may kill or otherwise harm an endangered species or adversely modify their habitat is a violation of Federal Laws.

DIRECTIONS FOR USE

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

FOR PRODUCT INFORMATION OR ASSISTANCE IN USING THIS PRODUCT, CALL TOLL FREE, 1-800-332-3111.

Storage and Disposal

Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

STORAGE: Store under cool, dry conditions (below 120°F). Do not store under moist conditions.

DISPOSAL: Wastes resulting from the use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, state or local procedures.

See individual container label for disposal information.

APPLICATION EQUIPMENT AND INSTRUCTIONS

Ground Broadcast Equipment

Apply Outrider™ herbicide uniformly with properly calibrated ground equipment in 10 to 540 gallons of water per acre. Select spray volumes that ensure thorough and uniform weed coverage. Use equipment which is capable of continuous agitation. Choose nozzles which provide optimum spray distribution and uniform coverage at the appropriate spray pressure. Avoid streaking, skips, overlaps, and spray drift during applications.

Hand-Held and High-Volume Equipment

Use ~~H~~hand-held spray guns, backpacks, or other similar sprayers ~~may be used~~ to apply this product. Apply to foliage of vegetation to be controlled. For applications made on a spray-to-wet basis, spray coverage should be uniform and complete. Do not spray to the point of runoff. Use coarse sprays only.

Do not apply product through any type of irrigation system.

IMPORTANT: Do not allow this product to contact roots or foliage of desirable vegetation, areas where roots of desirable vegetation may extend, or areas where this product may be washed or moved into contact with roots of desirable vegetation.

Desirable plants may be injured if planted into treated areas.

Do not use on food or feed crops.

Equipment cleaning

Clean application equipment after using this product by thoroughly flushing with water.

Injection Systems

This product may be used in ground injection spray systems. It may be diluted prior to injecting into the spray stream. Do not mix this product with the undiluted concentrate of other products when using injections systems, unless specifically recommended.

ATTENTION

AVOID DRIFT. Care must be used when applying this product to prevent injury to desirable plants and crops. Do not allow the herbicide solution to mist, drift, or splash onto desirable vegetation or soil areas where sensitive crops will be planted since minute quantities of this product can cause severe damage or destruction to plants on which treatment was not intended. The likelihood of injury occurring from the use of this product increases when winds are gusty, as wind velocity increases, when wind direction is constantly changing or when there are other meteorological conditions that favor spray drift. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely to drift. AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE. Drift control agent additives should be used for ground broadcast applications. When a drift control additive is used, read and carefully observe the precautionary statements and all other information appearing on the additive label.

MIXING INSTRUCTIONS

Thoroughly clean equipment prior to mixing spray solution.

Fill the spray tank to about three-fourths of the desired volume. Add the recommended amount of this product. Complete the filling process while maintaining agitation. Use caution to avoid siphoning back into the carrier source. Use approved anti-back-siphoning devices where required by state or local regulations. Add nonionic surfactant near the end of the filling process where required.

For tank mixtures, add individual formulations to the spray tank in the following sequence: water, water soluble bags, dry flowables, emulsifiable concentrates, drift control additive, water soluble liquids followed by a nonionic surfactant. Tank mixtures of this product with Roundup Pro® herbicide do not require addition of surfactant.

GENERAL INFORMATION

Outrider herbicide is a preemergent and postemergent, systemic herbicide for control of many annual and perennial broadleaf and grass weeds on noncrop sites ~~including~~where unimproved bermudagrass, ~~and~~ bahiagrass and tall fescue are present. It is formulated as a water dispersible granule (WDG).

NONCROP SITES

Outrider herbicide may be used for general weed control on noncrop sites including roadsides, utility rights-of-way, airports, fallow areas, ditch banks, dry ditches, dry canals, fencerows, industrial sites, lumberyards, manufacturing sites, petroleum tank farms and pumping installations, railroads, storage areas, utility substations, warehouse areas, and similar industrial and noncrop sites.

BERMUDAGRASS AND BAHIAGRASS

Outrider herbicide may be used to control or partially control many annual and perennial weeds for effective release of bermudagrass or bahiagrass on roadsides and other labeled noncrop sites.

Application Information

Ground Broadcast

Apply Outrider herbicide at 0.75 to ~~1.33~~2.0 ounces per acre. Do not exceed ~~1.33~~2.0 ounces of this product per acre per year.

Use the higher recommended rates of this product for control of large established weeds or when weed growth is heavy or dense. Best results are obtained when weeds are in the early stage of growth and are not disturbed by mowing or other factors for 12 days prior to, or 12 days after application.

Addition of a nonionic surfactant at 0.5 percent by volume (2 quarts per 100 gallons of spray solution) is required for postemergence applications unless tank mixed with Roundup Pro herbicide. Use only

nonionic surfactants which contain at least ~~8~~90 percent active ingredient. When this product is applied in a tank mixture with Roundup Pro herbicide, addition of a surfactant is not necessary.

Hand-Held and High-Volume Equipment

Add 1.0 ounce of Outrider herbicide per 100 gallons of water. Add 2 quarts of a nonionic surfactant per 100 gallons of spray solution. Use only nonionic surfactants containing at least 90 percent active ingredient.

Tank Mixtures

Tank mixtures of this product may be used to increase the spectrum of vegetation controlled. When tank mixing, read and carefully observe the label directions, precautionary statements and all information on the labels of all products used.

Any recommended rate of this product may be tank mixed with the following products. Refer to these product labels for approved noncrop sites and application rates. Always apply tank mixtures according to the most restrictive label of the products used. Products recommended as tank mixes with Outrider herbicide for bermudagrass or bahiagrass release are restricted to those specified in the "RELEASE OF BERMUDAGRASS OR BAHIAGRASS" section.

BANVEL™	PLATEAU™
CAMPAIGN®	ROUNDUP PRO®
DIURON	TELAR™
ESCORT™	TRANSLINE™
GARLON™ 3A	VANQUISH™
KARMEX™ DF	2,4-D
MSMA	
OUST™	

NOTE: Tank mixtures with broadleaf herbicides formulated as amines (including 2,4-D and others) may decrease the effectiveness of Outrider herbicide.

RELEASE OF BERMUDAGRASS OR BAHIAGRASS

Dormant Applications

This product may be used to control or partially control many winter annual weeds for effective release of dormant bermudagrass or bahiagrass when treated after grass is dormant and prior to spring green-up.

Apply any labeled rate of this product alone or in a tank mixture with 8 to 64 fluid ounces of Roundup Pro herbicide or with 16 to 64 fluid ounces of Campaign herbicide per acre. In dormant bermudagrass only, up to 1 ounce per acre of Escort may be added to Outrider herbicide or tank mixtures of Outrider herbicide and Roundup Pro herbicide to increase the spectrum of broadleaf weeds controlled. Addition of Escort may delay green-up of bermudagrass. ~~DO NOT apply t~~Tank mixtures of this product with Escort in highly maintained turfgrass areas will result in unacceptable turf injury.

In the state of Texas, applications of Outrider herbicide applied before September 30 will not delay green-up of bermudagrass the following spring, however some temporary discoloration of desirable spring germinating wildflowers may occur.

Actively Growing Bermudagrass Release

This product may be used to control or partially control johnsongrass and other weeds for effective release of actively growing bermudagrass. Use only on well-established bermudagrass. Apply any labeled rate of this product alone or in a tank mixture with 8 to 32 fluid ounces of Roundup Pro herbicide per acre. Use the higher rates of each product to control perennial weeds or annual weeds greater than 6 inches in height.

Up to 0.5 ounce per acre of Oust, up to 1 ounce per acre of Escort, or up to 0.5 ounce per acre of Telar may be added to Outrider herbicide or tank mixtures of Outrider herbicide and Roundup Pro herbicide. ~~DO NOT apply t~~Tank mixtures of this product with Oust, Escort or Telar in highly maintained turfgrass areas will result in unacceptable turf injury.

Actively Growing Bahiagrass Release

This product may be used to control or partially control johnsongrass and other weeds for effective release of actively growing bahiagrass. Use only on well established bahiagrass. Apply any labeled rate of this product alone or in a tank mixture with 4 to 12 ounces of Roundup Pro herbicide per acre. Use the higher rates of each product to control perennial weeds or annual weeds greater than 6 inches in height.

IMPORTANT: Established bermudagrass and bahiagrass are tolerant to Outrider herbicide applications. Tank mixtures of other products with Outrider herbicide may increase grass injury. Where bermudagrass or bahiagrass are desirable ground cover use tank mixtures only when some temporary injury or discoloration can be tolerated.

TALL FESCUE

Outrider herbicide may be used to control or partially control johnsongrass and other weeds in tall fescue on roadsides and other labeled noncrop sites.

Application Information

Ground Broadcast

Apply Outrider herbicide at 0.75 to 1.0 ounce per acre. Do not exceed 1.0 ounce of this product per acre per year.

Use the higher recommended rate for control of large established weeds or when weed growth is heavy or dense. Best results are obtained when weeds are actively growing and are not disturbed by mowing or other factors for 14 days prior to, or 14 days after application.

Addition of a nonionic surfactant at 0.5 percent by volume (2 quarts per 100 gallons of spray solution) is required. Use only nonionic surfactants containing at least 90 percent active ingredient.

Hand-Held and High-Volume Equipment

Add 1.0 ounce of Outrider herbicide per 100 gallons of water. Add 2 quarts of a nonionic surfactant per 100 gallons of spray solution. Use only nonionic surfactants containing at least 90 percent active ingredient.

Timing

Applications should be made to actively growing johnsongrass in early boot to full seedhead stage. Symptom development will be more rapid in less mature johnsongrass.

Use this product only in well-established tall fescue. Use of labeled rates can result in transient growth reduction and discoloration of tall fescue but these cause no long-term detrimental effects.

WEEDS CONTROLLED

Barley, volunteer
Hordeum vulgare
Bedstraw, catchweed
Galium aparine
Bluegrass, roughstalk
Poa tirvialis
Bluegrass, bulbous
Poa bulbosa
Brome, downy
Bromus tectorum
Brome, ripgut
Bromus rigidus
Buttercup
Ranunculus arvensis
Chamomile, mayweed
Anthemus cotula
Cheat

Bromus secalinus
Chess, hairy
Bromus commutatus
Chickweed, common
Stellaria media
Horseweed
Conyza canadiensis
Fiddleneck, tarweed
Amsinckia lycopsoides
Flixweed
Descurainia sophia
Johnsongrass
Sorghum halepense
Ladysthumb
Polygonum persicaria
Mustard, tumble
Sisymbrium altissimum
Mustard, wild
Sinapis arvensis
Pennycress, field
Thlaspi arvense
Purple Nutsedge
Cyperus rotundus
Quackgrass
Elytrigia repens
Ragweed, common
Ambrosia artemisiifolia
Shepherd's-purse
Capsella bursa-pastoris
Sunflower, common
Helianthus annuus
Tansymustard, pinnate
Descurainia pinnata
Vetch, sand
Vicia acutifolia
Yellow Nutsedge
Cyperus esculentus

LIMIT OF WARRANTY AND LIABILITY

Monsanto Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label pamphlet ("Directions") when used in accordance with those Directions under the conditions described therein. NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

Buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not

explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

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Escort, Karmex, Oust, and Telar are trademarks of E.I. duPont de Nemours and Company.
Garlon and Transline are trademarks of Dow AgroSciences.
Banvel and Plateau ~~is~~are ~~a~~ trademarks of BASF Corporation.
Vanquish is a trademark of Novartis Crop Protection.
~~Plateau is a trademark of American Cyanamid Company.~~

EPA Reg. No. 524-500

In case of an emergency involving this product,
Call Collect, day or night, (314) 694-4000.

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ST. LOUIS, MISSOURI, 63167 U.S.A.

Formulated in the United States Using Active Ingredient Made in Japan.

~~71014X1-2/53~~

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 30 1999

file in 524-500

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Evaluation of Public Interest Documentation for the Conditional Registration of Sulfosulfuron in Spring and Winter Wheat

FROM: Virginia Dietrich, Biologist Virginia Dietrich
Herbicide and Insecticide Branch
Biological and Economic Analysis Division (7503W)

TO: Vickie Walters/Jim Tompkins
Herbicide Branch
Registration Division (7505C)

Following is my review of the information submitted by Monsanto Company to support their request for a conditional registration of sulfosulfuron on winter and spring wheat. A summary of the registrant's claims and my analysis of those claims follows in this document.

Summary of Findings

1. Sulfosulfuron controls a broad spectrum of broadleaf and grass weeds, including the difficult-to-control grasses of the *Bromus* species which include downy brome and Japanese brome.

2. Sulfosulfuron is safe to all varieties of wheat at all stages of growth under normal growing conditions.

3. Sulfosulfuron appears to be an attractive alternative for growers now using metribuzin for *Bromus sp.* control. Sulfosulfuron exceeds metribuzin in consistency of control and crop safety when used for control of *Bromus sp.*

4. Sulfosulfuron can be tank-mixed with other herbicides to provide two modes of action for weed control.

5. Sulfosulfuron has both soil and foliar activity depending on the weed species. It can control emerged weeds at the time of application as well as provide residual control of

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weeds emerging after application. This allows for flexibility in applying sulfosulfuron.

6. Sulfosulfuron does not have any labeled grazing restrictions. This provides flexibility to growers wishing to overwinter cattle on winter wheat.

7. Sulfosulfuron can be used in all wheat production systems (conventional tillage, conservation tillage, and no-tillage) but is especially valuable in reduced tillage systems since tillage has been one of the most effective methods of controlling *Bromus sp.*

General Information About Sulfosulfuron

- Sulfosulfuron is a member of the sulfonyl ureas structural class of herbicides. Sulfosulfuron is a preemergence herbicide that can be applied either to the soil or to the growing wheat crop. Sulfosulfuron controls a broad spectrum of broadleaf and grass weeds. Sulfosulfuron will be formulated as a water-soluble granule with 75% active ingredient in the product Maverick™. Monsanto Company is the registrant.

- Sulfosulfuron application may be made either preemergence or postemergence to winter wheat and only postemergence to spring wheat at rates of 2/3 ounce of product per acre. It can be applied by ground or by air.

- Sulfosulfuron inhibits acetolactate synthase (ALS), a key enzyme in the biosynthesis of the branched chain amino acids. Plant death results from events occurring in response to ALS inhibition, but the actual sequence of phytotoxic processes is unclear. There are several other sulfonyl urea herbicides registered; chlorsulfuron and chlorimuron-ethyl, are just two examples.

- The registrant presented data on weed control obtained with different rates of sulfosulfuron for various species of weeds. Under moderate weed pressure nearly all control was greater than 80% for each of the rates (0.25, 0.37 and 0.50 oz ai/A), and control was mostly greater than 90% for the highest rate (0.50 oz ai/A) for each of the weeds evaluated. Under heavy *Bromus sp.* infestation, control by sulfosulfuron dropped by about 20% or more but was significantly better than the control provided by treatments containing metribuzin.

Each bolded section that follows represents an area that the registrant makes some specific claims about sulfosulfuron. My analysis of the registrant's basic claim follows under each general heading.

1. Consistent Control of *Bromus sp.* At Low Use Rates of Sulfosulfuron

Sulfosulfuron fills a niche need in weed control for the control of *Bromus sp.* in winter and spring wheat. *Bromus sp.* is a serious problem in wheat since an infestation causes yield losses, dockage and lodging. There are no highly selective herbicides available for control of this pest. Conventional tillage (moldboard plowing) has traditionally been used as the most effective

method of control for *Bromus sp.* However, moldboard plowing is an undesirable method of control since it contributes significantly to soil erosion, especially in the areas of the Pacific Northwest that are highly susceptible to soil erosion due to their topography. For example, the Palouse region of eastern Washington State and northwestern Idaho with steeply rolling hills, is rated as one of the top four most water-erosion-prone agricultural areas in the United States. This geographical area also happens to be a major wheat growing area.

The registrant submitted summary data from various efficacy studies in wheat where sulfosulfuron was used alone post-emergence at several rates (.016, .023 and .031 lb ai/A) and compared to the industry standard, metribuzin (at .375 lb ai/A) and metribuzin in combination with other sulfonyl ureas (metribuzin at .14 lb ai/A and Finesse at .016 lb ai/A) were used post-emergence. For early post emergence application timing, sulfosulfuron treatments were superior to metribuzin-containing treatments in measurements of yield and crop injury ratings. However, for late post-emergence treatments results were generally comparable in terms of visual ratings for control of downy bromegrass and for yield. In addition, many times the sulfosulfuron treatments performed significantly better in terms of crop injury ratings than the metribuzin-containing treatments.

In addition to controlling *Bromus sp.* in wheat, sulfosulfuron controls the weed Johnsongrass in roadsides. Sulfosulfuron is also effective in controlling quackgrass, wild oats and winter annual broadleaf weeds, such a pinnate tansymustard, bushy wallflower, tumble mustard, and field pennycress. Summary data submitted show good to excellent control of these other weeds.

None of the other herbicides registered for control of *Bromus sp.* provide control as consistent and effective as sulfosulfuron. Performance of diclofop-methyl is poor, it must be soil-incorporated and control is inconsistent in dry weather. Finesse herbicide (a combination of chlorsulfuron and metsulfuron-methyl) provides only suppression of light to moderate *Bromus sp.* infestations. Triasulfuron also only provides suppression (less than 60% control), can only be used on acid soils (many of the soils in the west are alkaline) and has numerous rotational crop restrictions. Two new experimental compounds from Bayer, MKH 6561 and MKH 6562, have short residual activity which causes inconsistent control and limited broadleaf activity. Metribuzin, the most attractive alternative, has greater potential for crop injury than sulfosulfuron, a more narrow window of time for application, and restrictions for certain wheat varieties and geographical areas.

2. Crop Safety

Sulfosulfuron generally performs better than metribuzin, the next best alternative, for control of *Bromus sp.*. Unlike metribuzin which has numerous varietal restrictions, sulfosulfuron is safe to use on all varieties of wheat at all stages of wheat growth. Crop injury can occur but only if climatic conditions reduce the metabolism rate of the wheat crop to a level where it is susceptible to sulfosulfuron such as with an abrupt change in temperature soon after application. Such conditions are rare, but do occur with late fall applications.

3. Residual Activity/Season Long Control

Sulfosulfuron has both foliar and soil activity depending on the weed species meaning that it can control existing weeds as well as those weeds that germinate following application. This is especially useful for control of cheat grass and downy brome as an early fall application can reduce the competitiveness of these weeds and reduce the potential for crop injury from late fall applications.

4. Utilization in All Tillage Systems

Sulfosulfuron may be used in any tillage system but is especially useful in reduced tillage wheat which conserves resources such as moisture, soil, time and labor.

5. Application Flexibility

Sulfosulfuron has a wide window for application; it can be applied from any time before emergence to when the wheat reaches the jointing stage. It can be applied using ground or air equipment.

6. Tank-mix Flexibility

The applicant states that "Maverick (sulfosulfuron) can be tank mixed with other herbicides and with liquid fertilizers. Effective tank mixes include 2,4-D amine, 2,4-D LV Ester, Banvel, Bronate, Buctril, MCPA and Sencor to increase the spectrum of broadleaf weeds controlled and provide two modes of (action). Maverick can also be tank mixed with liquid fertilizers, which reduces the number of trips across the field."

7. Grazing Flexibility

Sulfosulfuron has no grazing restrictions which provides flexibility for grazing treated winter wheat. The long residual life of sulfosulfuron also means that winter wheat can be planted early in the fall without having to wait for the first flush of *Bromus sp.* and subsequent tilling or treatment with non-selective herbicides. The early planting allows for larger, more competitive wheat plants to enter the late fall and winter months. This benefits grazing and reduces soil erosion.

8. CRP Conversion

The applicant states that " Nearly seven million wheat acres are set to expire in the Conservation Reserve Program (CRP) set-aside program over the next seven years. In converting CRP acres back to production, controlling the *Bromus sp.* before planting winter wheat is considered essential." Sulfosulfuron would allow this land to be put back into production using conservation tillage techniques.

Conclusion

The use of this pesticide meets the criteria for a public interest finding based on the following:

1) An emergency exemption under section 18 of the Federal Insecticide, Fungicide, and Rodenticide Act has been issued for this use due to lack of a registered alternative so public interest can be assumed. In addition the following criteria have been met:

2) There is a need for sulfosulfuron that is not being met by currently registered pesticides. *Bromus sp.* weeds are not adequately controlled by currently registered pesticides especially under reduced tillage cropping systems.

3) Sulfosulfuron provides more consistent control of *Bromus sp.* with less potential for crop injury and greater flexibility in application timing than other herbicides currently registered for this use.