

PM 25 62719-112

15 1/20

AUG 15 1990

Dr. Merlyn L. Jones
DowElanco
2001 West Main Street
P.O. Box 708
Greenfield, IN 46140

Dear Dr. Jones:

Subject: Surflan As
EPA Registration No. 62719-112
Your Submission Dated June 25, 1990

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

Sincerely yours,

Robert J. Taylor
Product Manager (25)
Fungicide-Herbicide Branch
Registration Division (H7505C)

Enclosure

55473:1:A-4:Allen:L25-14:267810:KENCO:08/13/90:09/13/90:CL:VO:EK:DD

CONCURRENCES

SYMBOL							
SURNAME							
DATE							

2/20

DowElanco ID5500

SURFLAN A.S.

Herbicide

Net Contents - 2.5 Gallons

A preemergence surface-applied herbicide for the control of most annual grasses and certain broadleaf weeds.

Active Ingredient:

oryzalin* (3,5-dinitro-N ⁴ ,N ⁴ -dipropylsulfanilamide).....	40.4%
Inert Ingredients.....	59.6%

Contains four pounds of active ingredient per gallon.

*Surflan(R) - (oryzalin, DowElanco)

Keep Out of Reach of Children.

CAUTION

See back of container for additional precautionary statements.

FN 7153

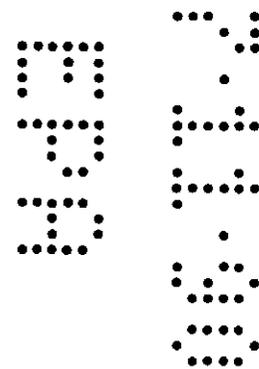
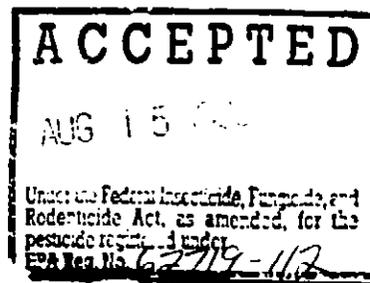
EPA Reg. No. 62719-112

EPA Est. No. 00000-XX-00

DowElanco

4040 Vincennes Circle, Suite 601

Indianapolis, IN 46268-3030, U.S.A.



Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION

Causes eye irritation. Harmful if swallowed, inhaled or absorbed through the skin. Avoid contact with skin, eyes or clothing. Avoid breathing vapor or spray mist. Surfban A.S. may cause skin sensitization reactions in certain individuals. Mixer/loader/applicators must wear eye protection and protective clothing such as coveralls, a long-sleeved shirt shoes, and impermeable gloves when handling this product. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

First Aid

If in eyes: Flush with plenty of water. Get medical attention if irritation develops.

If on skin: Wash with plenty of soap and water. Get medical attention if irritation develops.

If swallowed: Do not induce vomiting. Call a physician or Poison Control Center. If available, administer activated charcoal (6-8 heaping teaspoonfuls) with a large quantity of water. Do not give anything by mouth to an unconscious person. Immediately transport to a medical care facility and see a physician.

If inhaled: Remove individual to fresh air. Get medical attention if breathing difficulty occurs. If not breathing, give artificial respiration, preferably cardiopulmonary resuscitation and get medical attention immediately.

Environmental Hazards

Do not apply directly to water or wetlands. Do not contaminate water when disposing of equipment washwaters. Cover or incorporate spills.

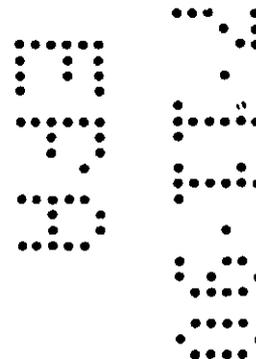
Directions for Use

Read All Directions Carefully Before Applying.

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

See Attached Literature for Complete Directions for Use.

Shake Well Before Using



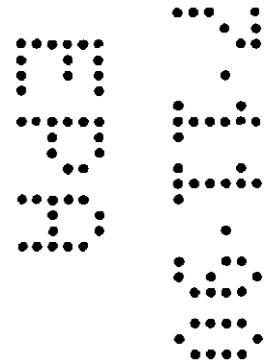
4/1

Storage and Disposal

Storage: Store in original container only. In case of leak or spill, use absorbent materials to contain liquids and dispose as waste.

Pesticide Disposal: Do not contaminate water, food or feed by storage or disposal. Wastes resulting from use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.



9/10

DowElanco 1D 5500

SURFLAN A.S.

Herbicide

A preemergence surface-applied herbicide for control of most annual grasses and certain broadleaf weeds.

Active Ingredient:

oryzalin* (3,5-dinitro-N ⁴ ,N ⁴ -dipropylsulfanilamide).....	40.4%
Inert Ingredients.....	59.6%

Contains four pounds active ingredient per gallon.

*Surflan(R) - (oryzalin, DowElanco)

FN 7153

EPA Reg. NO. 62719-112

DowElanco
4040 Vincennes Circle, Suite 601
Indianapolis, IN 46268-3030, U.S.A.

Table of Contents

Precautionary Statements.....	3
Directions for Use.....	3
Storage and Disposal.....	4
Surflan General Information.....	4
General Use Precautions.....	4
Soil Preparation.....	4
Surflan Activation and Cultivation.....	5
Mixing Instructions.....	5
Testing for Compatibility in Liquid Fertilizers.....	6
Application Methods	
Ground Broadcast Application.....	7
Band Application.....	8
Chemigation.....	8
Weeds and Grasses Controlled in Fruit and Nut Crops and Vineyards.....	10
Approved Crops:	
Fruit and Nut Crops and Vineyards (Nonbearing and bearing)	
Surflan Alone.....	12
Broadcast Application Rates.....	13
Chemigation.....	13
Fruit and Nut Crops and Vineyards - Tank Mix	
Recommendations.....	13
Surflan/Casoron(R).....	14
Surflan/Goal(R)/Gramoxone(R) Super.....	14
Surflan/Gramoxone Super.....	14
Surflan/Hyvar(R) X.....	14
Surflan/Karmex(R) (diuron).....	14
Surflan/Krovar(R) I.....	14
Surflan/Krovar(R) II.....	14
Surflan/Princep(R) (simazine).....	14
Surflan/Roundup(R).....	14
Surflan/Sinbar(R).....	14
Surflan/Solicam(R).....	14
Surflan Tank Mix Reference Table.....	15
Surflan Performance Guarantee.....	16
Disclaimer of Warranties.....	16
Limitation of Damages.....	16

Casoron(R) - (dichlobenil, Uniroyal)
 Goal(R) - (oxyfluorfen, Rhom and Haas)
 Gramoxone(R) Super - (Paraquat, ICI)
 Hyvar(R) X - (bromacil, duPont)
 Karmex(R) - (diuron, duPont)
 Krovar(R) I and II - (bromacil/diuron, duPont)
 Princep(R) - (simazine, Ciba-Geigy)
 Roundup(R) - (glyphosate, Monsanto)
 Sinbar(R) - (terbacil, duPont)
 Solicam(R) - (norflurason, Sandoz)

Precautionary Statements

Keep Out of Reach of Children

Hazards to Humans and Domestic Animals

CAUTION

Causes eye irritation. Harmful if swallowed, inhaled or absorbed through the skin. Avoid contact with skin, eyes or clothing. Avoid breathing vapor or spray mist. Surflan A.S. may cause skin sensitization reactions in certain individuals. Mixer/loader/applicators must wear eye protection and protective clothing such as coveralls, a long-sleeved shirt, shoes, and impermeable gloves when handling this product. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

First Aid

If in eyes: Flush with plenty of water. Get medical attention if irritation develops.

If on skin: Wash with plenty of soap and water. Get medical attention if irritation develops.

If swallowed: Do not induce vomiting. Call a physician or Poison Control Center. If available, administer activated charcoal (6-8 heaping teaspoonfuls) with a large quantity of water. Do not give anything by mouth to an unconscious person. Immediately transport to a medical care facility and see a physician.

If inhaled: Remove individual to fresh air. Get medical attention if breathing difficulty occurs. If not breathing, give artificial respiration, preferably cardiopulmonary resuscitation and get medical attention immediately.

Environmental Hazards

Do not apply directly to water or wetlands. Do not contaminate water when disposing of equipment washwaters. Cover or incorporate spills.

Directions for Use

Read All Directions Carefully Before Applying.

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

Shake Well Before Using

81

Storage and Disposal

Storage: Store in original container only. In case of leak or spill, use absorbent materials to contain liquids and dispose as waste.

Pesticide Disposal: Do not contaminate water, food or feed by storage or disposal. Wastes resulting from use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

SURFLAN GENERAL INFORMATION

Surflan A.S. is a preemergence, surface applied herbicide for the control of most annual grasses and certain broadleaf weeds. Surflan controls susceptible annual weeds by disrupting plant growth processes during germination. Surflan may be applied in liquid sprays of water or liquid fertilizer. Surflan may be tank-mixed with other herbicides to control existing vegetation or improve the spectrum of weeds controlled. Surflan alone does not control established weeds.

GENERAL USE PRECAUTIONS

Do not graze or feed forage from treated fields or orchards to livestock.
Do not over-apply Surflan. Over application may result in crop injury or soil residue.
Do not plant any root crop for 12 months following a Surflan application.
Do not use Surflan on soils containing more than 5% organic matter.
Apply Surflan directly to the soil surface in orchards or vineyards.
Carefully follow label directions to avoid poor weed control or crop injury.

Chemigation: See instructions for chemigation in the "APPLICATION METHODS" section of this label.

SOIL PREPARATION

Optimum herbicidal activity occurs when Surflan is applied to the soil surface. Prior to application, existing unwanted vegetation should be destroyed by tillage or use of contact or translocated herbicides. Crop or weed residues, prunings and trash should be thoroughly mixed into the soil by tillage equipment or removed before treatment. Soil should be in good tilth and free of clods at the time of application.

9/1

SURFLAN ACTIVATION AND CULTIVATION

A single 1/2 to 1 inch rainfall or sprinkler irrigation is required to activate Surflan and move the herbicide into the zone of weed germination. Rainfall or irrigation of 1 inch or more is needed to activate Surflan on fine-textured, high organic matter soils. If weeds begin to emerge, a shallow cultivation to a depth of 1 to 2 inches will destroy existing weeds and place Surflan in the zone of weed seed germination.

MIXING INSTRUCTIONS

Surflan Alone

Surflan may be applied in water and most liquid fertilizer materials. Prior to mixing Surflan A.S. in liquid fertilizer, refer to the label section entitled "TESTING FOR TANK MIX COMPATIBILITY IN LIQUID FERTILIZERS" for test procedures to determine compatibility with the fertilizer product to be used. The combination of Surflan with solution and suspension-type fertilizers provides annual weed control equal to Surflan applied in water. Individual state regulations relating to liquid fertilizer mixing, registration, labeling and application are the responsibility of the individual and/or company offering the fertilizer and chemical mixture for sale.

Start with a clean spray tank. Fill the sprayer to 1/3 to 1/2 of the required spray volume. Start agitation. Shake the container well and add the correct amount of Surflan, continue agitation and fill spray tank to required spray volume. Maintain continuous agitation from mixing through application.

Precaution: Do not allow the mixture to siphon back into the water source.

Surflan Tank-Mix Combinations

Surflan A.S. may be tank mixed with other products and applied with water or most liquid fertilizer materials. Prior to mixing Surflan and another product in liquid fertilizer, refer to the tank mix product manufacturer's label to determine if application in liquid fertilizer is recommended. Also refer to the section in this label entitled "TESTING FOR COMPATIBILITY IN LIQUID FERTILIZERS" for testing procedures to determine tank-mix compatibility with the liquid fertilizer product to be used. The combination of Surflan with solution and suspension-type fertilizers provides annual weed control equal to Surflan applied in water. Individual state regulations relating to liquid fertilizer mixing, registration, labeling and application are the responsibility of the individual and/or company offering the fertilizer and chemical mixture for sale. Read and follow all label instructions for each material to be added to the spray tank.

Vigorous continuous agitation is required for all tank mixes. Sparger pipe agitators generally provide the best agitation in spray tanks. To prevent foaming, keep the end of the fill pipe below the surface of the water in the spray tank during filling to prevent air from being stirred or splashed into the mixture.

Mixing Order:

Fill the spray tank to 3/4 of the total spray volume required. Start agitation. Add different formulation types in the order indicated below, allowing time for complete mixing and dispersion after addition of each product. Allow extra mixing and dispersion time for dry flowable products.

Add different formulation types in the following order: dry flowables (DF); wettable powders (WP); Surflan A.S. and other aqueous suspensions (S), flowables (F) and liquids (L); solutions (S); and emulsifiable concentrates (EC).

Finish filling spray tank. Maintain continuous agitation during mixing, final filling and throughout application. If spraying and agitation must be stopped before the spray tank is empty, the materials may settle to the bottom. Settled materials must be resuspended before spraying is resumed. A sparger agitator is particularly useful for this purpose. Settled materials may be more difficult to resuspend than when originally mixed.

Premixing:

When tank mixing, initial mixing and dispersion of certain dry flowable or wettable powder products may be improved by premixing with water (slurrying). Where recommended, follow product label instructions for each material. Adding the slurried material to the spray tank through a 20 to 35 mesh wetting screen will help assure good initial dispersion. Line screens in the tank should be no finer than 50 mesh (100 mesh is finer than 50 mesh).

**TESTING FOR COMPATIBILITY
IN LIQUID FERTILIZERS**

Surflan alone or in combination with other product formulations may not combine properly with some liquid fertilizer materials. Small quantities of such mixtures should always be tested before full-scale mixing. Follow the procedure that follows to determine if a compatibility agent is needed or which available agent performs best in the mixture being applied. Nine compatibility agents listed at the end of this section have been thoroughly tested. Other surfactant materials available may not be formulated for use with liquid fertilizers.

Testing Procedure:

1. Add 1 pint of liquid fertilizer to a 1 quart glass jar.
2. Add 1 to 4 teaspoonfuls (depending on application rate) of the products to be tank mixed in the liquid fertilizer. Add materials in the order recommended in the "MIXING INSTRUCTIONS" section of this label. Mix until evenly dispersed after addition of each formulation. If dry flowable or wettable powder formulations do not disperse well it may be necessary to slurry the materials in a small amount of water before addition to the liquid fertilizer.
3. Observe the jar for about 10 minutes. If materials rise to the surface and form a thick layer (oil curds) which will not disperse again when agitated, a compatibility agent is needed. If the mixture is easily dispersed to its original state with slight agitation, no compatibility agent is needed, however, good agitation must be provided to maintain dispersion in the spray tank from mixing through application.
4. If the need for a compatibility agent is demonstrated in step 3, it may be tested as follows: Using a clean clear plastic or glass container, start at step 1, above. Add 1/2

teaspoonful of the compatibility agent to the liquid fertilizer, mix well, and then repeat steps 2 and 3.

An effective compatibility agent will cause the mixture to remain uniformly mixed with little or no separation or oil rising to the surface for 1/2 hour or longer. If slight separation occurs, 2 to 3 inversions of container should provide a uniform mixture. If oily curds form which will not disperse, try adding additional compatibility agent or test the effectiveness of an alternative compatibility agent using the procedure above. A clean jar should be used for each test.

Compatibility Agents:

The phosphate ester-type surfactants listed below are designed for use with liquid fertilizers and can be mixed at rates as low as 1 1/2 to 2 pints per ton of liquid fertilizer. They usually do not work well as compatibility agent for tank mixes in plain water. Add the compatibility agent just before adding herbicides. Read and follow label directions for the compatibility agent.

1. Sponto 168D (Witco Chemicals Co., Chicago, IL)
2. Compat (Farm Chemicals, Inc., Aberdeen, NC)
Not for use in California.
3. Unite (Hopkins Ag Chemical, Madison, WI)
4. T-Mutz 734-2 (Thompson-Hayward Chemical Co., Kansas City, KS)
Not for use in California.
5. Rigo Compatibility Agent (Rigo Company, Buckner, KY)
Not for use in California.
6. Amoco Spray Mate(TM) (Amoco Oil Co., Chicago, IL)
Not for use in California
7. Kem-Link (Universal Coop, Minneapolis, MN)
Not for use in California
8. Blendex(TM) (Helena Chemical Co., Cayce-West, Columbia, SC)
Not for use in California.
9. Spray-Aide(TM) (Miller Chemical and Fertilizer Corp., Hanover, PA)

APPLICATION METHODS

Ground Broadcast Application

Apply Sulfan in a total spray volume of 20 to 40 gallons per acre (broadcast basis), using any properly calibrated low pressure herbicide sprayer that will apply the spray uniformly. Use herbicide nozzle tips and screens no finer than 50 mesh for nozzle and in-line strainers. As the amount of spray volume per acre decreases, the importance of accurate calibration and uniform application increases. Check the sprayer daily to insure proper calibration and uniform application. Avoid boom overlaps that will increase rates above those recommended.

12/

Band Application

For band application, use the following formula to calculate the required amount of product per acre.

$$\frac{\text{Band Width (inches)}}{\text{Row Width (inches)}} \times \text{Broadcast rate per acre} = \text{Amount required per acre}$$

Chemigation

Surflan A.S. may be applied through properly equipped chemigation systems for weed control in fruit and nut orchards or vineyards. Read and follow all label instructions outlined below concerning chemigation before applying Surflan A.S. by this method.

General Chemigation Use Precautions:

Apply this product only through solid set or hand move systems designed to distribute sprinkler irrigation beneath the tree canopy. Solid set systems utilizing tall risers for overhead application are excluded, except for dormant season applications of Surflan A.S. Do not apply this product through any other type of irrigation system.

Do not apply Surflan Dry Flowable or Surflan 75W through any type of irrigation system.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

If you have questions about calibration you should contact State Extension specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Sprinkler Chemigation Directions:

The following directions must be followed for all recommended sprinkler irrigation systems (solid set and hand move systems):

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back-flow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

181

5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point that pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Do not apply when wind speed favors drift beyond the area intended for treatment.
8. Surflan A.S. should be injected continuously throughout the chemigation period. The chemigation metering pump should be checked periodically during application to insure proper operation.
9. The injection metering pump must be calibrated as specified by the manufacturer.
10. During chemigation, maintain agitation in supply tank at all times.
11. Surflan A.S. may cause some staining of plastic hoses and tanks.
12. Apply Surflan A.S. in sprinkler irrigation equal to 1/2 to 1 inch of water.

Chemigation System Calibration:

Sample calculation for use of Surflan A.S. in a chemigation system:

- Assume, in this example, 35 acres are to be covered by a chemigation treatment.
- Product required, assuming 1 quart per acre is 35 quarts (8.75 gallons).
- Prepare a mixture containing 1 part water and 1 part Surflan A.S. by adding 8.75 gallons of product to the supply tank containing an equal amount of water (total volume = 17.5 gallons).
- Adjust the injection system to deliver 17.5 gallons during the time required to apply 1 inch of water to 35 acres
- If the irrigation system requires 5 hours to apply 1 inch of water to 35 acres, the injection rate is 3.5 gallons per hour and is calculated as follows:

$$17.5 \text{ gallons} / 5 \text{ hours} = 3.5 \text{ gallons per hour}$$
$$[3.5 \text{ gallons} = 448 \text{ fluid ounces (fl.oz.)}]$$

Proper calibration requires the injection pump to be adjusted to deliver 7.47 fl oz. per minute and is calculated as follows:

$$448 \text{ fl.oz. per hr.} / 60 \text{ min. per hr.} = 7.47 \text{ fl.oz. per min.}$$

Chemigation Mixing Directions:

The injection mixture (skurry) with minimum volume may be prepared by adding the required amount of Surflan A.S. to an equal amount of water in the injection tank (ratio Surflan A.S. to water = 1:1). Meter the mixture into the irrigation system during the entire irrigation period. Additional dilution of Surflan A.S. may be necessary for accurate

17/2

calibration of equipment designed to deliver a larger injection volume per hour. Maintain supply tank agitation throughout the irrigation period.

Undiluted Surflan A.S. should not be injected into chemigation systems.

WEEDS AND GRASSES CONTROLLED IN FRUIT AND NUT CROPS AND VINEYARDS

Annual Grasses

<u>Common Name</u>	<u>Scientific Name</u>
Barley, little	Hordeum pusillum
Barnyardgrass (Watergrass)	Echinochloa crus-galli
Bluegrass, annual (Poa)	Poa annua
Brachiaria (Signalgrass)	Brachiaria spp.
Browntop panicum	Panicum fasciculatum
Crabgrass	Digitaria spp.
(Large crabgrass)	
(Smooth crabgrass)	
Crowfootgrass	Dactyloctenium aegyptium
Cupgrass	Eriochloa gracilis
Downy brome	Bromus tectorum
Fall panicum	Panicum dichotomiflorum
(Spreading panicgrass)	
Foxtails	Setaria spp.
(Bottlegrass)	
(Bristlegrass)	
(Giant foxtail)	
(Green foxtail)	
(Pigeongrass)	
(Robust foxtail)	
(Yellow foxtail)	
Goosegrass	Eleusine indica
(Silver crabgrass)	
(Wiregrass)	
(Yardgrass)	
Guineagrass	Panicum maximum
Johnsongrass (Seedling only)	Sorghum halepense
Junglerice	Echinochloa colonum
Lovegrass, Mexican	Eragrostis mexicana
Lovegrass, orcutt	Eragrostis orcuttiana
Oat, wild	Avena fatua
Ryegrass, annual (Italian)	Lolium multiflorum
Sandbur, field	Cenchrus incertus
Sprangletop, red	Leptochloa filiformis
Texas panicum	Panicum texanum
(Buffalograss)	
(Coloradograss)	
Witchgrass	Panicum capillare

15
70

Annual Broadleaf Weeds

<u>Common Name</u>	<u>Scientific Name</u>
Carpetweed	Mollugo verticillata
Chickweed	Stellaria media
Cudweed	Gnaphalium chilense
Fiddleneck, coast	Amsinckia intermedia
Florida pusley (Florida purslane) (Mexican clover) (Pusley)	Richardia scabra
Henbit	Lamium amplexicaule
Knotweed, prostrate	Polygonum aviculare
Lambsquarters	Chenopodium album
Pigweeds (Carelessweed) (Prostrate pigweed) (Redroot pigweed) (Rough pigweed) (Smooth pigweed) (Spiny pigweed) (Tumble pigweed)	Amaranthus spp.
Puncturevine	Trihulus terrestris
Purslane, common	Portulaca oleracea
Rockpurslane, redmaids	Calandrinia caulescens
Shepherdspurse	Capsella bursa-pastoris

Surflan provides partial control or suppression of:

<u>Common Name</u>	<u>Scientific Name</u>
Filaree, redstem	Erodium cicutarium
Filaree, whitestem	Erodium moschatum
Groundsel, common	Senecio vulgaris
Ladysthumb	Polygonum persicaria
Lettuce, prickly	Lactuca serriola
Mallow, common	Malva neglecta
Milkweed, climbing	Sarcostemma cynanchoides
Morningglory, annual	Ipomoea spp.
Mustard, black	Brassica nigra
Mustard, wild	Sinapis arvensis
Nightshade, black	Solanum nigrum
Prickly sida (teaweed)	Sida spinosa
Ragweed, common	Ambrosia artemisiifolia
Ragweed, giant	Ambrosia trifida
Rocket, London	Sisymbrium irio
Smartweed, annual	Polygonum spp.
Sowthistle, annual	Sonchus oleraceus
Spurge, prostrate	Euphorbia humistrata
Spurge spotted	Euphorbia maculata
Velvetleaf	Abutilon theophrasti

6/20

APPROVED CROPS

FRUIT AND NUT CROPS AND VINEYARDS (Nonbearing and Bearing)

Surflan Alone

Apply Surflan A.S. to fruit and nut crops and vineyards as a preemergence treatment to control annual grasses and broadleaf weeds listed in the "GENERAL INFORMATION" section of this label. Surflan is approved for use on the following crops:

Almond	Grapefruit	Pear
Apple	Kiwi	Pecan
Apricot	Lemon	Pistachio
Avacado	Macadamia Nut	Plum
Cherry	Nectarine	Pomegranate
Fig	Olive	Prune
Filbert	Orange	Walnut, English
Grape	Peach	

Small Fruits:

Blackberry	Currant	Gooseberry
Blueberry(1)	Dewberry	Loganberry
Boysenberry	Elderberry	Raspberry

1. Do not apply Surflan to lowbush blueberries.

General Use Directions:

Existing vegetation should be destroyed by tillage or use of a contact or translocated herbicide alone or in tank-mix combination with Surflan. To insure tank mix compatibility of Surflan with contact or translocated herbicides, mix the products together in correct proportions in a small containers of water. After mixing, let stand for 5 minutes and check for compatibility. If the combination remains mixed or can be resuspended easily, the mixture is compatible.

Application Methods:

Surflan A.S. may be applied in liquid sprays of water or liquid fertilizer and by chemigation. Refer to the "GENERAL INFORMATION" section of this label for mixing directions and details on different application methods and use precautions before applying.

Activation:

A single 1/2 to 1 inch rainfall or sprinkler irrigation is required to activate Surflan and move the herbicide into the zone of weed seed germination. If weeds begin to emerge, a shallow cultivation 1 to 2 inches deep will destroy existing weeds and place Surflan in the zone of weed seed germination. Rainfall or sprinkler irrigation of 1 inch or more is required to activate Surflan on fine-textured or high organic matter soil.

17/0

Broadcast Application Rates per Acre:

Soil Texture	Length of Control	Surflan A.S. (quarts)
All Soil Textures	Short Term (2-4 months)	2
	Long Term (6-8 months)	4
	(8-12 months)	6

Precautions:

Poor weed control may result if directions are not carefully followed. Overapplication may result in crop injury or excessive soil residue. Apply spray directly to the soil surface of the orchard or vineyard.

Chemigation:

Surflan may be applied through properly equipped chemigation systems for weed control in fruit and nut orchards and vineyards. Refer to the section on "CHEMIGATION" in the "GENERAL INFORMATION" section of this label for use directions. Do not apply Surflan A.S. by chemigation unless these use directions are carefully followed.

Apply Surflan by chemigation prior to weed germination or immediately after existing weeds have been controlled. Control existing unwanted vegetation by tillage or with a contact or translocated herbicide. Use broadcast application rates recommended for Surflan alone. Apply in sprinkler irrigation equal to 1/2 to 1 inch of water. Use at least 1 inch of water on medium to fine textured or high organic matter soils.

**FRUIT AND NUT CROPS AND VINEYARDS
(Nonbearing and Bearing)**

Surflan Tank Mix Recommendations

The following products are compatible with Surflan A.S. when used in tank mix combination. Performance and risk of carryover from products used in combination with Surflan at recommended rates is the same as when each product is used separately.

Follow tank mixing instructions provided in the GENERAL INFORMATION section of this label when mixing Surflan A.S. with other products.

Users should always consult the manufacturer's label of products to be tank mixed with Surflan for specific information on use rates, additional weeds controlled, rotational crop restrictions or risk of carryover, special tank mix instructions, additional use directions, precautions and limitations before use.

81

Approved Surflan Tank Mix Combinations:

- Surflan/Casoron
- Surflan/Goal
- Surflan/Goal/Gramoxone Super
- Surflan/Gramoxone Super
- Surflan/Hyvar X
- Surflan/Karmex
- Surflan/Krovar I
- Surflan/Krovar II
- Surflan/Princep (s/mazine)
- Surflan/Roundup
- Surflan/Sinbar
- Surflan/Solicam

19/

Surflan Tank Mix Reference Table:

The following table lists approved crops for Surflan and products recommended for tank mixes with Surflan (* = Approved Crop). Refer to the table to determine if the herbicides recommended for tank mixing can be applied to your crop. For use on a given crop, an asterisk must be indicated for Surflan and the tank mix product.

	Surflan	Casoron	Goal	Hyvar X	Karmex	Krovar I/II	Gramoxone Super	Princep	Roundup	Sinbar	Solicam
Almond	*	*	*	-	-	-	*	*	*	-	*
Apple	*	*	-	-	*	-	*	*	*	*	*
Apricot	*	-	*	-	-	-	*	-	-	-	*
Avacado	*	-	-	-	-	-	*	*	*	-	-
Cherry	*	*	-	-	-	-	*	*	*	-	*
Fig	*	-	-	-	-	-	*	-	-	-	-
Filbert	*	*	-	-	-	-	*	*	*	-	*
Grape	*	*	*	-	*	-	*	*	*	-	-
Grapefruit	*	-	-	*	*	*	*	*	*	*	*
Kiwi	*	-	-	-	-	-	-	-	-	-	-
Lemon	*	-	-	*	*	*	*	*	*	*	*
Macadamia Nut	*	-	-	-	*	-	-	*	-	-	-
Nectarine	*	*	*	-	-	-	*	-	-	-	*
Olive	*	-	-	-	*	-	*	*	-	-	-
Orange	*	-	-	*	*	*	*	*	*	*	*

	Surflan	Casoron	Goal	Hyvar X	Karmex	Krovar I/II	Gramoxone Super	Princep	Roundup	Sinbar	Solicam
Peach	*	*	*	-	*	-	*	*	-	*	*
Pear	*	*	-	-	*	-	*	*	*	-	*
Pecan	*	*	-	-	-	-	*	*	*	*	-
Pistachio	*	-	-	-	-	-	-	-	*	-	-
Plum	*	*	*	-	-	-	*	*	-	-	*
Pomegranate	*	-	-	-	-	-	-	-	-	-	-
Prune	*	-	*	-	-	-	*	-	-	-	*
Walnut, English	*	*	-	-	*	-	*	*	*	-	*
<u>Small Fruits</u>											
Blackberry	*	*	-	-	*	-	*	*	-	*	-
Blueberry	*	*	-	-	*	-	*	*	-	*	-
Boysenberry	*	-	-	-	*	-	*	*	-	*	-
Currants	*	-	-	-	-	-	-	-	-	-	-
Dewberry	*	-	-	-	*	-	*	-	-	*	-
Elderberry	*	-	-	-	-	-	-	-	-	-	-
Gooseberry	*	-	-	-	*	-	*	-	-	-	-
Loganberry	*	-	-	-	*	-	*	*	-	*	-
Raspberry	*	*	-	-	*	-	*	*	-	*	-

20/20

Surflan Performance Guarantee

(A Limited Warranty of Weed and Grass Control)

DowElanco warrants that Surflan will control the broadleaf weeds and grasses as indicated on its current label when used according to label directions. The performance guarantee will apply only if the following conditions are met:

1. The purchaser must notify DowElanco promptly if commercially acceptable weed control does not occur. Such notice must be given within 30 days after application of Surflan to an approved crop.
2. A DowElanco representative must be satisfied that the purchaser used Surflan according to label directions.
3. One-half inch or more of rainfall or sprinkler irrigation occurred prior to weed germination and seedling emergence.
4. The purchaser must provide a DowElanco representative with an invoice or other satisfactory record which shows the price and quantity of Surflan purchased.

DowElanco's liability will be limited to a refund of the purchase price of the Surflan actually applied to acreage on which commercially acceptable weed control was not obtained. This limited warranty is void outside the United States of America.

DISCLAIMER OF WARRANTIES

DowElanco makes no warranties concerning this product or its use, which extend beyond the description on the label. DowElanco also expressly disclaims all warranties, expressed or implied, in relation to any use of this product in combination or sequential use with any other product not specifically recommended in writing by DowElanco. All other warranties, express or implied, including but not limited to, any implied warranties of merchantability and fitness for a particular purpose, are disclaimed. All statements concerning this product apply only when used as directed. This disclaimer of warranties does not apply where prohibited by operation of law.

LIMITATION OF DAMAGES

The liability of DowElanco, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the return of the amount of the purchase price of this product and under no circumstances shall DowElanco be liable for special, indirect or consequential damages. If used in a combination or sequential use recommended by DowElanco, the liability of DowElanco shall in no manner extend to any damage, loss or injury not directly caused by the inclusion of the DowElanco Product in such combination or sequential use. This limitation of damages does not apply where prohibited by operation of law.