Reg # 62719-153

page 1

PM-25

printed December 5, 1994

(Base Label which remains on container after booklet is removed.)

(logo) DowElanco

# Surflan\* 85DF

A selective preemergence surface-applied herbicide for control of annual grasses and many broadleaf weeds in: Christmas tree

- Landscape ornamentals
- Container grown ornamentals - Field grown ornamentals

greenhouse benches

- Drainage areas under
- plantations Noncropland
- Non-bearing
  - trees and vines
    - · Industrial sites

 Established warm season turf (Including Bahiagrass, Bermudagrass,

Buffalograss, Centipedegrass, St. Augustinegrass, Tall Fescue and Zoyslagrass)

Active Incredient:

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Ground covers

Ornamental bulbs

oryzalin: 3,5-dinitro-N <sup>4</sup> , N <sup>4</sup> -dipropylsulfanilamide	
Inert Ingredients	
Total	
Costains 0.85 nounds of active ingradient per pound of product	

ontains 0.85 pounds of active ingredient per pound of produ

Precautionary Statements

Hazards to Humans and Domestic Animals

Keep Out of Reach of Children

# CAUTION

Causes Eye Irritation - Harmful If Swallowed, Inhaled Or Absorbed Through The Skin

Avoid breathing spray mist and contact with skin, eyes or clothing.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

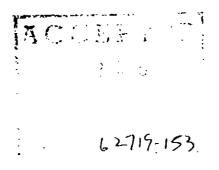
- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Protective eyewear

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

#### User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.



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#### First Ald

If in eyes: Flush with plenty of 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.

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

#### Environmental Hazards

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Cover or incorporate spills.

#### Directions for Use

It is a violation of federal law to use this product in a manner inconsistent with its labeling. Read all Directions for Use carefully before applying.

# STORAGE AND DISPOSAL

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

**Container Disposal:** Empty bag into application equipment. Then dispose of empty bag in a sanitary lanckill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

#### Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Refer to label booklet for additional precautionary information including Personal Protective Equipment (PPE) and User Safety Recommendations, and Directions for Use.

Notice: Read the entire label. Use only according to label directions. Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Permedies" inside label booklet.

In case of emergency endangering health or the environment involving this product, call collect 517-636-4400. Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

EPA Reg. No. 62719-153

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# Specialty Herbicide

EPA Est. \_\_\_\_\_

Net Weight \_\_ ib

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[Laminated Booklet - Surflan AS (Specialty)] [Front Cover of Booklet]

(logo) DowElanco

# Surflan\* 85DF

A selective preemergence surface-applied herbicide for control of annual grasses and many broadleaf weeds in:

- Landscape ornamentals
- Christmas tree
- Container grown ornamentals
- Field grown ornamentals
- Drainage areas under greenhouse benches

Ornamental bulbs

- plantations
- Noncropland
- Non-bearing trees and vines
- Industrial sites
- season turf (Including Bahlagrass, Bermudagrass, Butfalograss, Centipedegrass. St. Augustinegrass, 'rail Fescue and Zoyslagrass)

Established warm

Active Ingredient:

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Ground covers

oryzalin: 3,5-dinitro-N <sup>4</sup> ,N <sup>4</sup> -dipropylsultanilamide	
Inert Ingredients	
Total	
Contains 0.85 pounds of active ingredient per pound of product.	-

# Keep Gut of Reach of Children

# CAUTION

# Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Refer to label booklet for additional precautionary information including Personal Protective Equipment (PPE) and User Safety Recommendations, and Directions for Use.

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EPA Reg. No. 62719-153

EPA Est. \_\_\_\_

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# **Specialty Herbicide**

Net Weight 1b

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## **Precautionary Statements**

Hazards to Humans and Domestic Animals

Keep Out of Reach of Children

Causes Eye Irritation - Harmful if Swallowed, inhaled Or Absorbed Through The Skin

Avoid breathing spray mist and contact with skin, eyes or clothing.

# Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves -
- Shoes plus socks
- Protective eyewear

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

#### User Safety Recommendations

Users should:

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Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

#### First Ald

If In eyes: Flush with plenty of 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 cardicpulmonary resuscitation and get medical attention immediately.

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

#### Environmental Hazarda

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Cover or incorporate spills.

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# Directions for Use

It is a violation of federal law to use this product in a manner inconsistent with its labeling. Read All Directions for Use carefully before applying.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

#### Agricultural Use Requirements

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

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

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

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- Waterproof gloves
  Shoes plus socks
- Protective evewear

# STORAGE AND DISPOSAL

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

**Container Disposal:** Empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

# General Information

Surflan\* 85DF herbicide is a preemergence surface-applied herbicide for the control of annual grasses and many broadleaf weeds in ornamental plantings, bulbs, ground covers, astablished warm-season turfgrass, Christmas tree plantations, non-bearing trees and vines, non-cropland and industrial sites.

#### Shake Well Before Using.

#### General Use Precautions

Surflan 85DF will not control emerged weeds. Poor weed control may result if directions are not followed. Over-application may result in crop injury or excessive soil residue.

Surflan 85DF is orange in color and may cause temporary discoloration of sprayed surfaces. If this discoloration is undesirable, it may be altered by using a commercially available colorant such as Blazon or removed by spraying surface with water or washing with an industrial cleaner immediately after application. Surflan 85DF may also be applied with mulch colorants, such as Mulch Magic or Nu-Mulch.

Users who wish to use Surflan 85DF on plant species not recommended on this label may determine the suitability for such uses by treating a small number of such plants at a recommended rate. Prior to treatment of larger areas, the treated plants should be observed for any sign of herbicidal injury for 30 to

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60 days to determine if the treatment is non-injurious to the target plant species. The user assumes responsibility for any plant damage or other liability resulting from use of Surflan 85DF on plant species not recommended on this label.

Chemigation: Do not apply this product through any type of irrigation system.

#### Soil Preparation

Surflan 85DF will not control emerged weeds. Therefore, areas to be treated should be free of emerged weeds. Weed residues, prunings and trash should be thoroughly mixed into the soil or removed prior to treatment. In field applications, the soil should be in good tilth and free of clods at the time of application.

#### Mixing Directions

#### Surflan 85DF Alone

Make sure spray tank is clean. Fill spray tank 1/4 full with clean water. Start agitation. Vigorous, continuous agitation throughout the spray tank is required with 85DF formulations. Add the correct amount of Surflan 85DF to the spray tank in a controlled manner to aid in mixing and dispersion and to prevent clogging of screens and outlet ports. Maintain continuous agitation from mixing through application.

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

#### Surflan 85DF Tank Mix Combinations

Vigorous continuous agitation is required for all tank mixes of Surflan 85DF. Sprayer 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 tank 1/4 full with clean water, start agitation and add the correct amount of Surflan 85DF as described above. Fill the spray tank to about 90 percent of final spray volume. Add other formulations in the order indicated below, allowing time for complete mixing and dispersion after addition of each product. Allow extra mixing and dispersion time for 85DF products.

Add different formulation types in the following order: dry flowables (DF); wettable powders (WP); flowables (F), liquids (L) or aqueous suspensions (AS); solutions (S); and emulsifiable concentrates (EC). 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 completely resuspended before spraying is continued. A sprayer 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 85DF 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 or 35 mesh wetting screen will help assure good initial dispersion. Line screens in the tank should be no finer than 50 mesh).

# Application Methods

#### Ground Application

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Apply Surflan 85DF as a directed spray to the soil surface or over top of plants using a vehicle-mounted, pull-type, or backpack sprayer. Apply the appropriate rate of Surflan 85DF as outlined in "Approved Uses" section of this label. In all cases, use sufficient water volume to obtain uniform coverage and deliver the desired rate of Surflan 85DF to the treated area. The volume of water used is not critical, as long as the desired rate of Surflan 85DF is delivered uniformly across the area treated. When calibrating, determine the volume of water delivered by the sprayer to a given area (1,000 sq ft, acre, etc.). Then mix the desired rate of Surflan 85DF in the amount of water required to cover the entire area to be treated. Use only a properly calibrated, low-pressure herbicide sprayer that will apply the spray uniformly. Use herbicide tips with screens no finer than 50 mesh in nozzles and in-line strainers. As the amount of water used (spray volume) decreases, the importance of accurate calibration and uniform application increases. Check the

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sprayer daily to ensure proper calibration and uniform application. Maintain continuous agitation from mixing through application. Avoid spray pattern skips and overlaps that may result in incomplete coverage or over-application.

#### **Aerial Application**

Use a standard aerial herbicide boom sprayer. Aerial spray equipment should be calibrated to apply the proper amount of Surflan 85DF alone or in tank mix combinations in 2 to 10 gallons of spray mixture per acre. Nozzle screens and in-line strainers should be no finer than 50 mesh. Surflan 85DF mixes readily with water for concentrate aerial sprays; however, constant vigorous agitation that sweeps the contents from the bottom of the spray tank up into the main body of the liquid is required to maintain a uniform suspension until the spray tank is empty. Avoid spray pattern skips and overlaps that may result in incomplete coverage or over-application. Do not apply when wind conditions favor drift from the target area.

#### **Equipment Cleaning**

If a buildup of material occurs on the walls of the spray tank, it should be removed between fillings by washing with soap and water and rinsing thoroughly. Tanks, lines, screens and nozzles should be cleaned thoroughly after each use.

#### Activation and Cultivation

Surflan 85DF will remain stable on the soil surface up to 21 days following application. In the absence of timely rainfall, irrigation can be used to activate Surflan 85DF. A minimum of one-half (1/2) inch of rain or its equivalent in sprinkler irrigation is necessary to activate Surflan 85DF. If weeds begin to emerge due to lack of rainfall or irrigation, shallow cultivate 1 to 2 inches deep to destroy existing weeds or remove them by hand. Shallow cultivation to a depth of 1 to 2 inches will enhance herbicidal effectiveness. If Surflan 85DF is not activated by rainfall, irrigation or cultivation within 21 days of application or existing weeds have not been removed, erratic weed control may result.

Weeds Controlled	by Surflan 85DF
Annual Grasses:	
Common Name	<u>Scientific Name</u>
barley, little	Hordeum pusillum
barnyardgrass (watergrass)	Echinochloa crus-galli
bluegrass, annual	Poa annua
crabgrass, large	Digitaria sanguinalis
crabgrass, smooth	Digitaria ischaemum
crowlootgrass	Dactyloctenium aegyptium
cupgrass, southwestern	Eriochloa gracilis
foxtail, bristlegrass	Setaria magna
foxtail, giant	Setaria faberi
loxtail, green (pigeongrass)	Setaria viridis
foxtail, robust	Setaria robusta
foxtail, yellow	Setaria glauca
goosegrass (silver crabgrass)	Eleusine indica
Johnsongrass (seedling only)	Sorghum halepense
junglerice	Echinochloa colonum
lovegrass, Mexican	Eragrostis mexicana
lovegrass, orcutt	Eragrostis orcuttiana
oat, wild	Avena fatua
panicum, browntop	Panicum fasciculatum
panicum, fall (spreading panicçirass)	Panicum dichotomiflorum
panicum, Texas (buffalograss)	Panicum texanum

# Weeds Controlled by Surflan 85DF

(Coloradograss) ryegrass, Italian sandbur, field signalgrass (Brachiaria) sprangletop, red witchgrass

# Broadleaf Weeds:

Common Name bittercress carpetweed chickweed, common fiddleneck, coast filaree, redstem filaree, whitestem aroundsel, common henbit knotweed, prostratelambsquarters pigweed, prostrate pigweed, redroot pigweed, spring pigweed, tumble puncturevine purslane, common pusley, Florida (Florida purslane) (Mexican clover) (pusley) rocket, London rockpurslane, desert shepherdspurse spurge, prostrate woodsorrel, yelicw

Lolium multiflorum Cenchrus incertus Brachiaria spp. Leptochloa filiformis Panicum capillare

#### Scientific Name

Cardamine oligosperma Mollugo verticillata Stellaria media Amsinckia intermedia Erodium cicutarium Erodium moschalum Senecio vulgaris Lamium amplexicaule Polygonum aviculare Chenopodium album Amaranthus blitoides Amaranthus retroflexus Amaranthus hybridus Amaranthus albus Tribulus terrestris Portulaca oleracea Richardia scabra

Sisymbrium irio Calandrinia ciliata Capsella bursa-pastoris Euphorbia humistrata Oxalis stricta

# Weeds Suppressed by Surflan 85DF

Control of the following weeds may be erratic, ranging from poor to excellent, depending upon soil temperature, time of germination, depth of seed in the soil, and amount and timing of soil moisture:

#### Common Name

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horseweed ladysthumb lettuce, prickly mailow, common milkweed, climbing momingalory mustard, black mustard, wild nightshade, black lagweed, common smartweed sowthistle, annual spurge, spotted teawoed (prickly sida) velvetleaf wheat, volunteer

Scientific Name Conyza canadensis Polygonum persicaria Lactuca serriola Malva neglecta Sarcostemma cynanchoides Ipomoea spp. Brassica nigra Brassica kaber Solanum nigrum Ambrosia artemisiifolia Polygonum pensylvanicum Sonchus oleraceus Euphorbia maculata Sida spinosa Abution theophrasti Triticum spp.

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# Approved Uses

# Ornamental Plantings

#### Special Use Precautions:

Apply only to established plantings. Established plants are defined as those that have been transplanted into their growing location for a sufficient period of time to allow the soil to be firmly settled around the roots from packing and rainfall or irrigation.

To avoid possible injury, do not apply Surflan 85DF to:

- Either nursery seedbeds or forest or Christmas tree seedling transplant beds.
- Unrooted liners or cuttings that have been planted in pots for the first time.
- · Pots less than four inches wide.
- · Ground covers until they are established and well rooted.
- · Omamental plantings where there is likelihood of runoff onto lawn areas.
- Areas containing dichondra or cool season turigrass species.

Rooted liners should be removed from their original growing containers and placed in new containers at least two weeks prior to treatment or injury may occur.

On container grown ornamentals where weed seed germination continues for extended periods of time, do not make repeat applications of Surflan 85DF for at least 90 days or crop injury may occur.

For soils treated with Surlan 85DF during the previous season, plant only the ornamental species listed on this label or injury may occur.

Ice Plant: When establishing unrooted ice plant (*Mesembryanthemum crystallinum* and *Carpobrutus* edulis) on coarse soils in landscape plantings, use only the 2 quart per acre rate of Surflan 85DF or crop injury may occur. After the ice plant is well established, a second application may be made.

#### **Broadcast Application Rates**

Length of Control	Surflan 85DF	
	pounds/acre	oz/1200 sq ft
2 to 4 months	2.4	1
4 to 8 months	4.7	2

#### Handheid or Backpack Sprayer Application

Apply Surflan 85DF at a rate of 1 to 2 ounces per 1200 square feet. The amount of water used to apply Surflan 85DF is not critical, but should be sufficient for uniform treatment of the target area. Calibrate by determining the volume of water required to treat 1200 square feet. Use this calibration volume to determine the amount of water and Surflan 85DF needed to treat the target area (see following table). Note: Sprayer calibration (volume of spray needed to treat 1,000 square feet) will vary with each individual operator.

Length of Control	Application Rate (oz/1200 sq ft)	Quantity of Water Needed
2 to 4 months	1	The amount required by your
4 to 8 months	2	sprayer to cover 1200 sq ft of area.

Sample Calculation:

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Size of target area + 1200 x Application rate = Amount of Surflan 85DF required

Size of target area + 1200 x Calibration volume per 1200 sq ft = Amount of water required

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#### **Recommended Species Including Fruit Plant Nursery Liners**

Surflan 85DF is recommended for use on certain container- and field-grown established ornamental plants, trees and shrubs; established ground covers; field grown fruit free and shrub nursery liners; and in the production of ornamental bulbs (See "Ornamental Bulbs" for special use directions),

Do not apply Surflan 85DF to the following plant species when container grown or field grown or injury may occur:

Deutzia gracilis (slender deutzia) Pseudotsuga menuiesii (Douglas-fir) Thuia occidentalis Techny (Techny arborvitae) Tsuga canadensis (eastern hemlock)

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#### Surflan 85DF May be Used on the Following Field- and Liner<sup>1</sup>- Grown Plants and Plants in Landscape Plantings:

<sup>†</sup>Plants transplanted for additional growth before transplanting to final growing location.

Common Name	<u>Scientific</u> Nam
abelia, glossy	Abelia grandifion
acacia, prostrate	Acacia redolens
agave	Agave macroculi
Andromeda	Pieris japonica
apple	Malus spp.
arborvitae, American	Thuja occidental
arborvitae. Oriental	Platycladus orier
ash	Fraxinus spp.
aster, stokes	Stokesia laevis
astilbe/false spirea	Astilbe chinensis
	A. chinensis hyb
azalea	Rhododendron
baby's breath	Gypsophila pani
barberry, Japanese	Berberis thunbe
beillower	Campanula elati
birch, river	Betula nigra
birch, white	Betula pendula
bird of paradise	Strelitzia reginae
blazing star	Liatris spicata
bleeding heart	Dicentra spectal
bottlebrush, lemon	Callistemon citri
boxwood, common	Buxus sempervi
boxwood, Japanese	Buxus microphy
brush cherry	Syzygium panici
caldaium, fancy leafed	Caladium bicolo
California laurel	Umbellularia cali
campanula (belifiower)	Campanula spp.
cape marigold	Dimorphotheca
carpet bugie	Ajuga spp.
cassia, feathery	Cassia artemisio
cherry, Mahaleb	Prunus mahalet
cherry, sweet	Prunus avium
chrysanthemum, florists	Chrysanthemun
cleyera, Japanese	Cleyera japonica
coneflower, purple	Echinacea purp
coreopsis	Coreopsis lance
coloneaster, bearberry	Cotoneaster dar
cotoneaster, brightbead	Cotoneaster bu
cotoneaster, cranberry	Cotoneaster api
cotoneaster, pamey	Cotoneaster lac
cotoneaster, Pyrenees	Cotoneaster co
witheaster, I Jielices	VUUIDASIO W

18 ra Imis lis ntalis is and brids spp. iculata ergii tines 0 bilis inus rirens Ila japonica xulata lifornica spp. oides h m morifolium я wrea eolata mmeri uxifolius viculatus cteus ongestus

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cotoneaster, rock cotoneaster, rockspray cottonwood (grown for pulp) covotebush, dwarf crape Myrtle, common cryptomeria, Japanese cypress, Arizona cypress, Italian daisy, oloriosa (black-eyed Susan) daisy, painted daisy, shasta daisy, trailing African daylily dogwood, flowering dogwood, kousa eastercactus escalionia eucalyptus, mealy eucalyptus, narrow-leaved eucalyptus, red evonymus, evergreen euonymus, stringybark euonymus, winged falsecypress, Lawson fatshedera fir, alpine fir, balsam fir, traser fir, grand fir, Vietch fir, white firethom firethorn, formosa firethom, scarlet forsythia, border geum gardenia gazania, trailing geranium (Pelargonium) geum ginkgo garden gladiolus goldenrain tree heavenly bamboo (Nandina) hibiscus, Chinese holly, Chinese holly, English holly, Japanese honeysuckle, Japanese honeysuc.de, Mexican hopseedbush, clammy ice plant (See precautions for ornamental plantings) ice plant, largeleaf (See precautions for ornamental plantings) impatiens (Busy lizzie)

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Cotoneaster horizontalis Cotoneaster microphyllus Populus deltoides Baccharis pilularis Lagerstroemia indica Cryptomeria japonica Cupressus arizonica (glabra) Cupressus sempervirens Rudbeckia hirta Chrysanthemum coccineum Chrysanthemum maximum Osteospermum fruticosum Hemerocallis spp. Cornus fiorida Cornus kousa Rhipsalidopsis gaertneri Escallonia exoniensis Eucalyptus cinerea Eucalyptus nicholii Eucalyptus sideroxylon Euonymus japonica Euonymus fortunei Euonymus alata Chamaecyparis lawsoniana Fatshedera lizei Abies lasiocarpa Abies balsamea Abies fraseri Abies grandis Abies veitchi Abies concolor Pyracantha, fortuneana Pyracantha skoidzumi Pyracantha coccinea Forsythia intermedia Geum quellyon Gardenia jasminoides Gazania rigens leucolaena Pelargonium hortorum Geum quellyon Ginkao biloba Gladiolus hortulanus Koelreuteria paniculata Nandina domestica Hibiscus rosa-sinesis llex comuta llox aquifolium llex crenata Lonicera japonica Justicia spicigera Dodonaea viscosa Mesembryanthemum crystallinum Carpobrutus edulis Impatiens wallerana

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iris, bearded ivy, Algerian ivy, English Jerseytea, redroot juniper kumguat laurel, mountain laurelcherry, Carolina laurelcherry, English leucothoe, coast leucothoe, drooping lilac, common iily, plantain lilyturf, bigblue lilv-of-the-Nile linden, little leaf magnolia, Southern manzanita, Stanfordmaple marigold mockorange moss, rose myoporum, prostrate myrtie, true oak oleander orange, ornamental Oregon grape osmanthus, holly-leaf Palo Verde, blue pansy pear pecan, ornamental periwinkle, bigleaf periwinkle, dwarf petunia photinia pine pittosporum privet, amur privet, glossy privet, golden privet, Japanese protea ranunculus, Persian redbud redcedar, eastern redcedar, western redwood, coast maphiolepsis (India hawthom) rhododendron rose rose-of-Sharon (Shrubalthea) Russian olive sage shrimp plant snapdragon sotol, desert spoon

Iris spp. Hedera canariensis Hedera helix Ceanothus americanus Juniperus spp. Fortunella spp. Kalmia latifolia Prunus caroliniana Prunus laurocerasus Leucothoe axillaris Leucothoe fontanesiana Syringa vulgaris Hosta spp. Liriope muscari Agapanthus africanus Tilia cordata Magnolia grandiflora Arctostaphylos stanfordiana Acer spp. Tagetes spp. Philadelphus spp. Portulaca grandiflora Myoporum parvifolium Myrtus communis Quercus spp. Nerium oleander Citrus spp. Mahonia aquifolium Osmanthus heterophyllus Cercidium floridum Viola wittrockiana Pyrus communis Carya spp. Vinca major Vinca minor Petunia soo. Photinia fraseri Pinus spo. Pittosporum spp. Ligustrum amurense Ligustrum lucidum Ligustrum vicaryi Ligustrum japonicum Protea neriifolia Ranunculus asiaticus Cercis canadensis Juniperus virginiana Thuja plicata Sequoia sempervirens Rhaphiolepsis indica Rhododendron spp. Rosa spp. Hibiscus syriacus Elaeagnus angustifolia Salvia spp. Justicia brandegeana Antimhinum majus Dasylirion wheeleri

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spruce, black spruce, Colorado spruce, Englemann spruce, Norway spruce, white star jasmine, Chinese stonecrop sumac, African sweetgum, American sweet William tobira trumpet vine, violet vibumum, Laurustinus virburnum, Sandankwa weigela, oldfashioned wintercreeper xylosma, Japanese yarrow yaupon **VOW** yew, Japanese yewpine yucca, pendulous yucca, soaptree zinnia, common

Picea mariana Picea pungeris Picea englemanni Picea abies Picea glauca Trachelospermum jasminoides Sedum brevifolium Rhus lancea Liquidambar styraciflua Dianthus barbatus Pittosporum tobira Chytostoma callistegioides Vibumum tinus Virbunum suspensum Weigela florida Euonymus fortunei Xylosme congestum Achillea spp. llex vomitoria Taxus media Taxus cuspidata Podocarpus macrophyllus Yucca recurvitolia Yucca elata Zinnea elegans

#### Surflan 85DF May be Used on the Following Container-Grown Plants:

Scientific Name

#### Common Name

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andromeda arborvitae, American arborvitae, Oriental astilbe/false spirea

barberry, Japanese belifiower blazing star bleeding heart bottlebrush, lemon boxwood, common brush cherry cleyera, Japanese cotoneaster, bearverry cotoneaster, cranberry cotoneaster, purney cotoneaster, rock crape Myrtle, common cryptomeria, Japanese cypress, Arizona cypress, Italian daylily dogwood, kousa eastercactus escallonia euonymus, evergreen euonymus, stringybark fatshedera firethom

Pieris japonica Thuja occidentalis Platycladus orientalis Astilbe chinensis and A. chinensis hybrids Berberis thunbergil Campanula elatines Liatris spicata Dicentra spectabilis Callistemon citrinus Buxus sempervirens Svzvojum paniculata Clevera japonica Cotoneaster dammeri Cotoneaster apiculatus Cotoneaster lacteus Cotoneaster horizontalis Lagerstroemia indica Cryptomeria japonica Cupressus arizonica (glabra) Cupressus sempervirens Hemerocallis spp. Comus kousa Rhipsalidopsis gaertneri Escallonia exoniensis Euonymus japonica Euonymus fortunei Fatshedera lizei Pyracantha, fortuneana

firethorn, formosa firethorn, scarlet gardenia ginkgo holly, Chinese holly, Japanese Jerseytea, redroot juniper kumquat lilac, common lilyturf, bigblue lilv-of-the-Nile linden, little leaf mockorange myrtle, true oak oleander orange, ornamental pecan, ornamental photinia pine pittosporum privet, arnur privet, glossy privet, golden privet, Japanese redbud rhaphiolepsis (India hawthorn) rhododendron **Russian olive** shrimo plant spruce, Colorado sumac, African sweetgum, American trumpet vine, violet viburnum, Laurustinus wintercreeper yaupon yucca, soaptree

Pyracantha skoidzumi Pyracantha coccinea Gardenia jasminoides Ginkgo biloba llex comuta llex crenata Ceanothus americanus Juniperus spp. Fortunella spp. Syringa vulgaris Liriope muscari Agapanthus africanus Tilia cordata Philadelphus spp. Myrtus communis Quercus spp. Nerium oleander Citrus spp. Carya spp. Photinia fraseri Pinus spp. Pittosporum spp. Ligustrum amurense Ligustrum lucidum Ligustrum vicaryi Ligustrum japonicum Cercis canadensis Rhaphiolepsis indica Rhododendron spp. Elaeagnus angustifolia Justicia brandegeana Picea pungens Rhus lancea Liquidambar styraciflua Clytostoma callistegioides Viburnum tinus Euonymus fortunei llex vomitoria Yucca əlata

# Surflan 85DF May be Used on the Following Field Grown Fruit Plant Nursery Liners<sup>†</sup>:

almond apple apricot avocado cherry fia filbert grape

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lemon macadamia nut nectarine olive orange

grapefruit

kimi.

pear pecan pistachio plum pomegranate prune wainut, English

#### Smail Fruits:

blackberry

blueberry

силалт dewberry boysenberry elderberry gooseberry loganberry raspberry

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Plants transplanted for additional growth before transplanting to final growing location.

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#### Tank Mix Combinations

Tank mix combinations of Surflan 85DF plus Roundup, and many other labeled herbicides may be used to control undesirable vegetation in ornamental areas. Surflan 85DF may also be tank mixed with Gallery\* herbicide (California registration pending) and applied preumergence to broaden the spectrum of broadleaf weed control in ornamental areas. Applied as directed, these Surflan 85DF tank mixes will provide control of susceptible weed species listed on the respective labels. Refer to tank mix product labels for specific use directions, precautions and limitations before use.

Surflan 85DF Plus Roundup: Tank mix combinations of Surflan 85DF plus Roundup are recommended to control existing undesirable vegetation. Applied as directed, Surflan 85DF plus Roundup will provide postemergence control of susceptible weed species listed on the label for Roundup and residual preemergence control of susceptible weed species listed on the label for Surflan 85DF. Refer to the label for Roundup for specific use directions, precautions and limitations before use.

#### Precautions:

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Do not apply sprays containing Roundup over the top of ornamental plants.

Extreme care must be exercised to prevent contact of sprays containing Roundup with foliage and stems of turfgrasses, trees, shrubs, or other desirable vegetation since severe damage or death may result. Note: If spraying with Roundup in areas adjacent to desirable plants, use a shield to prevent spray from contacting foliage and stems of desirable plants.

# **Ornamental Bulbs**

Surflan 85DF may be applied for control of susceptible annual weeds in ornamental bulbs, e.g., bulbous iris, datfodil (narcissus), hyacinth and tulip. Apply Surflan 85DF to the soil surface 2 to 4 weeks atter planting, but prior to the emergence of annual weeds. For fall planted bulbs, apply Surflan 85DF again in late winter or early spring to weed-free soil surfaces.

#### Special Use Precautions:

Do not apply to tulip plants that have emerged to a height greater than 3/4 inch. Do not apply to gladioli coms prior to emergence or less than one inch in diameter.

		Surfla	n 85DF
Time of Application	Soll Texture	pounds/acre	oz/1200 sq ft
Fal	Coarse	0.88	0.4
Fal	Medium and Fine	1.75	0.8
Feb March	All Soil Textures	0.88	0.4

#### **Broadcast Application Rates**

# Greenhouse Areas

Surflan 85DF may be applied to drainage areas under benches in open greenhouse-type structures. Do not apply in enclosed greenhouses or in enclosed shadehouse-type structures. Do not apply within three weeks prior to enclosure in greenhouse-type structures.

# Christmas Tree Plantations

#### Surfian 85DF Alone

Apply Surflan 85DF as a directed spray to the soil surface or as an overtop spray to established plantings of field grown Christmas tree species, including fir (*Abies* spp.), pine (*Pinus* spp.), and spruce (*Picea* spp.). Do not apply to Douglas-fir (*Pseudotsuga menziesii*). Do not apply to seedbeds or seedling transplant beds. Apply only to established plantings. Established plants are defined as those that have been transplanted into their final growing location for a sufficient period of time to allow the soil to be tirmly settled around the roots from packing and rainfall or irrigation. Follow all instructions provided in the "General Information" section of this label.

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#### **Broadcast Application Rates**

Length of Control	Surflan 85DF	
	pounds/acre	oz/1200 sq ft
2 to 4 months	2.4	1
4 to 8 months	4.7	2

#### Tank Mix Combinations

Tank mix combinations of Surflan 85DF plus other labeled herbicides may be used as directed or overtop sprays in established Christmas tree plantings. When applied according to use directions, these tank mixes will provide control of susceptible weed species listed on the respective product labels. Refer to tank mix product labels for specific use directions, precautions and limitations before use.

Surflan 85DF Plus Roundup: Apply tank mix combinations of Surflan 85DF plus Roundup only as directed sprays in Christmas tree plantings. When applied according to use directions, Surflan 85DF plus Roundup will provide postemergence control of susceptible weed species listed on the Roundup label and residual preemergence control or susceptible weed species listed on the label for Surflan 85DF. Refer to the Roundup label for specific use directions, precautions and limitations before use.

#### Precautions:

Do not apply sprays containing Roundup over the top of Christmas tree plantings. Extreme care must be exercised to avoid contact of spray containing Roundup with foliage and stems of Christmas trees or severe damage or death may result.

#### Noncropland Areas and Industrial Sites

#### Noncropland Areas -- Tank Mix Combinations

Tank mix combinations of Surflan 85DF plus Roundup and many other labeled herbicides may be used to control undesirable vegetation in noncropland areas. When applied according to use directions, these tank mixes will provide control of susceptible weed species listed on the respective product labels. Refer to tank mix product labels for specific use directions, precautions and limitations before use.

Length of Control	Surfla	n 85DF
	pounds/acre	oz/1200 sq ft
2 to 4 months	2.4	1
4 to 8 months	4.7	2
8 to 12 months	7.1	3

#### **Industrial Sites -- Tank Mix Combinations**

Tank mix combinations of Surflan 85DF plus Roundup, Spike and many other labeled herbicides may be used as overtop sprays to control existing vegetation on industrial sites such as utility substations, highway guard rails, sign posts and delineators. When applied according to use directions, these tank mixes will provide control of susceptible weed species listed on the respective product labels. Refer to tank mix product labels for specific use directions, precautions and limitation before use.

# Warm Season Turfgrasses

Surflan 85DF may be applied as a preemergence treatment for control of annual grasses and certain broadleaf weeds in established warm season turf including bahiagrass, bermudagrass, buffalograss, centipedegrass, St. Augustinegrass and zoysiagrass or established tall fescue growing in warm season areas. Established turf is defined as a dense turf having a well-anchored root system and healthy, vigorous top growth. Surflan 85DF may be tank mixed with Gallery herbicide (California registration pending) and applied preemergence to broaden the spectrum of broadleaf weed control in warm season turf. Refer to the label for Galk-ry herbicide for specific use directions, precautions, and limitations before use.

Successful preemergence control of weeds listed on this label requires that Surflan 85DF be applied prior to weed germination and be activated by at least one-half (1/2) inch of rainfall or impation within 21 days of application.

#### Special Use Precautions:

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To avoid possible injury, do not apply Surflan 85DF to:

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- Cool season turfgrass species.
- Golf course putting greens or tees or lawns containing dichondra or cool season turgrass species.
- Newly sprigged or sodded areas of bermudagrass, St. Augustinegrass, centipedegrass, or zoysiagrass until these turfs are well-established and have well-anchored root systems.
- Newly hydromulched areas of bermudagrass until such areas are well-established.
- Bermudagrass variety "Sun Turf" when tank mixed with atrazine.

Surfian 85DF will not control emerged weeds.

Any cultural practices that disturb the soil, such as aerification or verticutting, should be done prior to application of Surflan 85DF.

Surflan 85DF may injure turf that is not well-established or is stressed or weakened due to unfavorable winter climatic conditions, drought, nematodes, or other factors which damage or weaken turf root systems. Apply Surflan 85DF only to healthy well-established turf that has a well-anchored root system.

Use Surlan 85DF only as a part of a total turf management program that includes good fertilization practices.

Do not apply Surflan 85DF in the spring or early summer to tall fescue turigrass reserved the previous fall. In such cases, apply Balan<sup>4</sup> 2.5G granular herbicide at 60 to 80 pounds per acre in early summer (Round 1) and Surflan 85DF at 1.75 pounds per acre approximately eight weeks later (Round 2). Do not apply Surflan 85DF at the single application rate (2.4 pounds per acre) to established tall fescue; in such cases, apply 1.75 pounds per acre of Surflan 85DF in an initial application, followed by a second application of 1.75 pounds per acre 8 to 10 weeks later.

In bermudagrass areas that have been overseeded with winter grasses, a spring application of Surflan 85DF will thin the overseeded grasses.

#### Annual Grasses Controlled by Surflan 85DF

Summer Ann	uals:
Common Name	Scientific Name
barnyardgrass (watergrass)	Echinochioa crus-galii
crabgrass, large	Digitaria sanguinalis
crabgrass, smooth	Digitaria ischaemum
crabgrass	Digitaria spp.
crowfootgrass	Dactyloctenium aegyptium
foxtail, bristlegrass	Setaria mayna
foxtail, giant	Setaria faberi
foxtail, green	Setaria viridis
(pigeongrass)	
foxtail, robust	Setaria robusta
foxtail, yellow	Setaria glauca
goosegrass	Eleusine indica
(silver crabgrass)	
Johnsongrass	Sorghum halepense
(seedling only)	• • • · · · · ·
ryeorass, Italian	Lolium multiflorum
sanduur, field	Cenchrus incertus

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Winter Annuals:	
Common Name	<u>Scientific Name</u>
bluegrass, annua	I Poa annua

#### Annual Broadleaf Weeds Controlled by Surflan 85DF

Summer Annuals:		
ientific Name		
ollugo verticillata Nygonum aviculare Intulaca oleracea		

Winter Annusis:		
Common Name	Scientific Name	
chickweed, common	Stellaria media	
henbit	Lamium amplexicaule	

#### Broadleaf Weeds Suppressed by Surflan 85DF

#### Common Name Scientific Name

groundsel, common	Senecio vulgaris
spurge, prostrate	Euphorbia humistrata
woodsorrel, yellow	Oxalis stricta

#### Application Rates, Frequency and Timing of Application

Suiflan 85DF can be applied in the spring for summer annual grass and broadleaf weed control, and in the fall for annual bluegrass (*Poa annua*) and winter annual broadleaf weed control.

#### 1. Summer Annual Grasses and Broadleaf Weeds

Single Application Program: Apply 2.4 pounds per acre of Surflan 85DF per acre in late winter or early spring, prior to the onset of conditions favorable for annual weed germination.

Split Application Program: As an alternative to a single application program, Surflan 85DF may be applied in a split application. This program is desirable when the initial application is made well in advance of weed germination and where weed control is desired for a longer period of time. Apply 1.75 pounds per acre of Surflan 85DF in an initial application, followed by a second application of 1.75 pounds per acre 8 to 10 weeks later.

The second treatment of the split application may follow application of a different preemergence grass herbicide in place of the initial Surflan 85DF application.

#### 2. Annual Bluegrass (Pos annus) and Winter Annual Broadleaf Weeds

In areas of heavy annual bluegrass infestation, its elimination will result in temporary thinning of turfgrass cover. Proper fertilization, irrigation and soil incorporated reseeding should be employed to speed the restoration of desirable turfgrass cover in areas previously occupied by annual bluegrass (See section on reseeding).

Apply Surflan 85DF as a preemergence treatment in late summer or early fall, prior to the expected germination perior, for annual bluegrass and winter annual broadleaf weeds. If annual bluegrass infestation is severe and its elimination will result in thinning of turfgrass cover, apply Surflan 85DF at 1.75 pounds per acre. If thinning of turfgrass cover is not a potential problem, Surflan 85DF may be applied at 2.4 pounds per acre.

# Broadcast Application Rates

Surflan 85DF		
pounds/acre	fl oz/1200 sq ft	
1.75	0.8	
2.4	1	

#### Weed Control In Florida

In Florida, apply 1.75 pounds per acre of Surflan 85DF three times per year, or every 90 to 100 days, in the fall, early spring, and early summer. Do not apply more than 1.75 pounds per acre of Surflan 85DF in any single application.

#### Application Equipment

Apply Surflan 85DF evenly over the turigrass area. Avoid spray pattern skips and overlaps that may result in incomplete coverage or over-application. For best results use application equipment designed to uniformly broadcast liquid herbicides. Calibrate application equipment prior to use, according to manufacturer's directions. Check equipment frequently to make sure it is working properly and distributing spray uniformly.

#### Reseeding

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Herbicides that control annual weeds may also affect establishment of desirable turfgrass seedlings. Reseeding should be delayed for at least 90-120 days following application of Surflan 85DF. When reseeding, it is essential that proper cultural practices such as soil cultivation and seedbed preparation, irrigation and fertilization be followed. For satisfactory reseeding results following Surflan 85DF use, the seeding rate should be increased and equipment designed to place seed in full contact with soil (such as the Rogers Aero Seeder) should be employed.

# Warranty Disclaimer

DowElanco warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. DowElanco MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

# Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Plant injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperature, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tomadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of DowElanco or the seller. All such risks shall be assumed by buyer.

# Limitation of Remedies

The exclusive remedy for bases or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at DowElanco's election, one of the following:

- 1. Refund of purchase price paid by buyer or user for product bought, or
- 2. Replacement of amount of product used

DowElanco shall not be liable for losses or damages resulting from handling or use of this product unless DowElanco is promptly notified of such loss or damage in writing. In no case shall DowElanco be liable for consequential or incidental damages or losses.

The terms of the "Warranty Disclaimer" above and this "Limitation of Remedies" cannot be varied by any written or verbal statements or agreements. No employee or sales agent of DowElanco or the seller is

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authorized to vary or exceed the terms of the "Warranty Disclaimer" or this "Limitation of Remedies" in any manner.

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