



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

- Landscape Ornamentals
- Container Grown Ornamentals
- Field Grown Ornamentals
- Drainage Areas Under Shadehouse Benches
- Ornamental Bulbs
- Ground Covers/Perennials
- Christmas Tree Plantations
- Non-bearing fruit and nut trees and non-bearing vineyards
- Noncropland and Industrial Sites
- Established Warm Season Turf (including Bahiagrass, Bermudagrass, Buffalograss, Centipedegrass, St. Augustinegrass and Zoysiagrass)
- Tall Fescue (warm season areas)

Active Ingredient:		
oryzalin: 3,5-dinitro- <i>N</i> ⁴ -dipropylsulfanilamide	40.4%	
Inert Ingredients	59.6%	
Total	100.0%	

Contains 4.0 pounds of active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN CAUTION PRECAUCION

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

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.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact the National Pesticide Information Center 1-800-858-7378 for emergency medical treatment.

Notice: Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies at the end of label booklet. If terms are unacceptable, return at once unopened.**

For chemical emergency: Spill, leak, fire, exposure, or accident, call CHEMTREC 1-800-424-9300.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

Shake Well Before Using
EPA Reg. No. 70506-44

PRECAUTIONARY STATEMENTS Hazards to Humans and Domestic Animals CAUTION PRECAUCION

Causes Eye Irritation • Prolonged or frequently repeated contact may cause allergic reactions in some individuals

Avoid contact with eyes or clothing.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves
- Shoes plus socks
- Mixers and loaders must wear a chemical-resistant apron in addition to other PPE.

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

ENGINEERING CONTROLS STATEMENTS

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

USER SAFETY RECOMMENDATIONS

Users should:

- 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.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish. 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.

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 24 hours. **Exception:** If the product is soil-injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

Workers may enter treated areas without required PPE during the reentry interval following 1/2 to 1 inch of rainfall or irrigation, if they are performing tasks that do not involve contact with the soil subsurface; otherwise, 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
- Chemical-resistant gloves
- Shoes plus socks

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for Agricultural Pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Entry Restrictions for Non-WPS Uses: Keep all persons, children and pets out of treated area until sprays have dried.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide 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 the 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 by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

GENERAL INFORMATION

Surflan AS Specialty herbicide is a preemergence surface-applied product for the control of many annual grasses and broadleaf weeds in ornamental plantings, bulbs, ground covers/perennials, established warm-season turfgrass, Christmas tree plantations, non-bearing trees and vines, and noncropland and industrial sites.

Surflan AS 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 AS may also be applied with mulch colorants, such as Mulch Magic or Nu-Mulch.

Treatment of Plant Species Not Listed on the Label for Surflan AS

Users who wish to use Surflan AS on plant species not recommended on this label may determine the suitability for use 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 during 30-60 days of normal growing conditions 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 AS on plant species not recommended on this label.

Aerial Application: Do not aerially apply this product.

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

Do not graze or feed forage from treated areas to livestock.

Precaution: Avoid spray drift to non-target areas when applying Surflan AS. Spray drift may result in reduced emergence of non-target plants adjacent to the treated area. Poor weed control may result if directions are not followed. Over-application may result in crop injury or excessive soil residue.

APPLICATION

SOIL PREPARATION

Surflan AS controls weeds growing from seed. Surflan AS will not control emerged weeds. Surflan AS does not control established weeds, weeds growing from stolens, rhizomes, or root pieces. 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 tillth and free of clods at the time of application.

Ground Application: Apply Surflan AS as a directed spray to the soil surface or over the top of plants. Use only a properly calibrated, low-pressure, herbicide sprayer that will apply the spray uniformly. Use screens no finer than 50 mesh in nozzles and in-line strainers. Apply the appropriate rate of Surflan AS, 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 AS to the treated area. The volume of water used is not critical, as long as the desired rate of Surflan AS 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, 1 acre, etc.). Then mix the desired rate of Surflan AS in the amount of water required to cover the entire area to be treated. As the amount of water used (spray volume) decreases, the importance of accurate calibration and uniform application increases. Check the 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.

Hand Held or Backpack Sprayer Application: The amount of water used to apply Surflan AS herbicide is not critical, but should be sufficient for uniform coverage of the target area. Calibrate by determining the volume of water required to treat 1000 square feet. Use this calibration volume to determine the amount of water and Surflan AS herbicide needed to treat the target area (see the following calibration example). **Note:** Sprayer calibration (volume of spray needed to treat 1,000 square feet) will vary with each individual operator.

Steps in Calibration:

1. Mark an area of 1,000 square feet (i.e. 20 by 50 feet, or 25 by 40 feet).
2. Place the sprayer on a level surface and add water noting the final level of water in the spray tank.
3. Spray the marked area with a sufficient volume of water to provide uniform coverage. Refill the sprayer to the same level as before measuring the amount of water added. The measured water added to the sprayer is the volume needed to cover 1,000 square feet.
4. Determine the application rate (fl oz/1000 sq ft) for Surflan AS from the "Approved Uses" section of this label.
5. To each volume of water used, as measured in step 3, add the amount of Surflan AS as determined in step 4.

Example: If the sprayer used 2 gallons of water to cover 1,000 square feet and the desired application rate of Surflan AS is 3 fluid oz/1,000 square feet, then you would add 3 fluid ounces of Surflan AS to every 2 gallons of water to be used.

MIXING DIRECTIONS

Shake Well Before Using

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

Surflan AS - Alone

Make sure spray tank is clean and use only clean water. Fill spray tank 1/2 - 3/4 full. Start agitation and add the required amount of Surflan AS. Continue agitation and finish filling the spray tank. Maintain continuous agitation until application is completed.

Surflan AS - Tank Mix Combinations

Prior to mixing, read and carefully follow all label instructions and precautions for each product added to the tank mixture. Vigorous, continuous agitation is required for all tank mixes of Surflan AS. Sparger pipe agitators generally provide the best agitation in spray tanks.

Mixing Order: Fill the tank 3/4 full with clean water. Start agitation and 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 AS and other aqueous suspensions (AS), flowables (F), and liquids (L); solutions (S); and emulsifiable concentrates (EC).

Continue agitation and finish filling the spray tank with clean water. Maintain agitation until application is completed. 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 sparger agitator is particularly useful for this purpose.

Premixing: When tank mixing, initial mixing and dispersion of certain dry flowable or wettable powder products may be improved by premixing with water (slurrying). Adding the slurried material to the spray tank through a wetting screen of 20 or 35 mesh will help assure good initial dispersion.

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 AS 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 AS. A minimum of one-half (1/2) inch of rain or its equivalent in sprinkler irrigation is necessary to activate Surflan AS. If weeds begin to emerge due to lack of rainfall or irrigation, shallow cultivate 1-2 inches deep to destroy existing weeds, or remove them by hand. Shallow cultivation to a depth of 1-2 inches will enhance herbicidal effectiveness. Erratic weed control may result if Surflan AS is not activated by rainfall, irrigation, or cultivation within 21 days of application, or existing weeds have not been removed.

WEEDS CONTROLLED BY SURFLAN AS

Annual Grasses:

- Common Name**
barley, little
barnyardgrass
(watergrass)
bluegrass, annual
crabgrass, large
crabgrass, smooth
crowfootgrass
cupgrass, southwestern
foxtail, bristlegrass
foxtail, giant

- Scientific Name**
Hordeum pusillum
Echinochloa crus-galli

Poa annua
Digitaria sanguinalis
Digitaria ischaemum
Dactyloctenium aegyptium
Eriochloa gracilis
Setaria magna
Setaria faberi

WEEDS CONTROLLED BY SURFLAN AS (continued)

Annual Grasses:

- Common Name**
foxtail, green
(pigeongrass)
foxtail, robust
foxtail, yellow
goosegrass
(silver crabgrass)
Johnsongrass
(seedling only)
junglerice
lovegrass, Mexican
lovegrass, orcutt
oat, wild
panicum, browntop
panicum, fall
(spreading panicgrass)
panicum, Texas
(buffalograss)
(Coloradograss)
ryegrass, Italian
signalgrass (Brachiaria)
sprangletop, red
witchgrass

Broadleaf Weeds:

- Common Name**
bittercress
carpetweed
chickweed, common
fiddleneck, coast
filaree, redstem
filaree, whitestem
groundsel, common
henbit
knotweed, prostrate
lambquarters
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, yellow

Scientific Name

- Setaria viridis*

Setaria robusta
Setaria glauca
Eleusine indica

Sorghum halepense

Echinochloa colonum
Eragrostis mexicana
Eragrostis orcuttiana
Avena fatua
Panicum fasciculatum
Panicum dichotomiflorum

Panicum texanum

Cenchrus incertus
Brachiaria spp.
Leptochloa filiformis
Panicum capillare

Scientific Name

- Cardamine oligosperma*
Mollugo verticillata
Stellaria media
Amsinckia intermedia
Erodium cicutarium
Erodium moschatum
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 AS

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

- horseweed
ladysthumb
lettuce, prickly
mallow, common
milkweed, climbing
morningglory
mustard, black
mustard, wild
nightshade, black
ragweed, common
smartweed
sowthistle, annual
spurge, spotted
teaweed (prickly sida)
velvetleaf
wheat, volunteer

Scientific Name

- Coryza 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
Abutilon theophrasti
Triticum spp.

CROP-SPECIFIC USE DIRECTIONS

ORNAMENTAL PLANTINGS

Surflan AS is recommended for use on certain landscape container- and field-grown established ornamental plants including: trees, shrubs, ground covers/perennials, flowers, non-bearing fruit and nut trees, non-bearing vineyards; and in the production of ornamental bulbs (See "Ornamental Bulbs" section for special use directions).

Broadcast Application Rates

Labeled Use Site	Length of Control	Surflan AS		Minimum Time Between Applications (months)	Total Amount Allowed Per Year (qt/acre)
		(qt/acre)	(fl oz/1000 sq ft)		
Landscape Ornamentals	2 - 4 months	2	1.5	2	8
	3 - 6 months	3	2.2	4	12
	4 - 8 months	4	3	4	12
Field-grown and container-grown ornamentals	2 - 4 months	2	1.5	3	8
	3 - 6 months	3	2.2	3	9
	4 - 8 months	4	3	3	12

(continued)

Tank Mix Combinations

Tank mix combinations of Surflan AS plus glyphosate, and many other labeled herbicides may be used to control undesirable vegetation in ornamental areas. Surflan AS may also be tank mixed with Gallery herbicide and applied preemergence to broaden the spectrum of broadleaf weed control in ornamental areas. Applied as directed, these tank mixes of Surflan AS 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 AS Plus Glyphosate: Tank mix combinations of Surflan AS plus glyphosate are recommended to control existing undesirable vegetation. Applied as directed, Surflan AS plus glyphosate will provide postemergence control of susceptible weed species listed on the label for glyphosate and residual preemergence control of susceptible weed species listed on the label for Surflan AS. Refer to the label for glyphosate for specific use directions, precautions, and limitations before use.

Precautions: Do not apply sprays containing glyphosate over the top of ornamental plants.

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

Special Use Precautions:

Apply only to established plants 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.

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.

To avoid possible injury, do not apply Surflan AS to:

- Nursery, forest, or Christmas tree: seedling beds, cutting beds, or 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.
- Ornamental plantings where there is likelihood of runoff onto lawn areas.
- Areas containing dichondra or cool season turfgrass species.

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

Applications of Surflan AS over the top of plants with newly forming buds may cause injury. In this situation a directed spray is recommended.

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

Ice Plant: When establishing unrooted ice plant on coarse-textured soils in landscape plantings, do not exceed the 2 quart per acre rate of Surflan AS or crop injury may occur.

Note: Injury on the following plant species has been observed following applications of Surflan AS and use is not recommended:

- Deutzia gracilis* (slender deutzia)
- Pseudotsuga menziesii* (Douglas-fir)
- Thuja occidentalis* "Techny" (Techny arborvitae)
- Tsuga canadensis* (eastern hemlock)
- Begonia* spp. (begonia)
- Coleus hybridus* (coleus)

Surflan AS May be Used on the Following Established Plant Species:
(Note: Limitations on recommended treatment methods).

TREES

Recommended Treatment Method
F = Field Grown
C = Container Grown

Scientific Name	Common Name	
<i>Abies balsamea</i>	Fir, balsam	F
<i>Abies concolor</i>	Fir, white	F
<i>Abies fraseri</i>	Fir, fraser	F
<i>Abies grandis</i>	Fir, grand	F
<i>Abies veitchi</i>	Fir, Vietch	F
<i>Abies lasiocarpa</i>	Fir, alpine	F
<i>Abutilon hybridum</i>	Albus-flowering maple	F
	Luteus-flowering maple	F
	Roseus-flowering maple	F
	Tangerine-flowering maple	F
	Vesuvius red-flowering maple	F
<i>Acer ginnala</i>	Flame maple	F
<i>Acer rubrum</i>	Red sunset maple	F
<i>Acer saccharinum</i>	Silver maple	F
<i>Acer</i> spp.	Maple	F
<i>Alsophila australis</i>	Australian tree fern	C,F
<i>Areacastrum romanzoffianum</i>	Queen palm	F
<i>Betula nigra</i>	Birch, river	F
<i>Betula papyrifera</i>	Paper birch	F
<i>Betula pendula</i>	Birch, white	F
<i>Bucida buceras</i>	Black olive	F
<i>Carya</i> spp.	Pecan, ornamental	C,F
<i>Cedrus, atlantica</i>	Atlas cedar	C,F
<i>Cedrus deodara</i>	Deodar cedar	C,F
<i>Ceratonia siliqua</i>	Carob	F
<i>Cercidium floridum</i>	Palo Verde, blue	F
<i>Cercis canadensis</i>	Redbud	C,F
<i>Chamaecyparis lawsoniana</i>	Falsecypress, Lawson	F
<i>Chamaecyparis obtusa</i>	Filicoides-fernspray cypress	F
	Gracilis-slender Hinoki cypress	F
<i>Chamaecyparis pisifera</i>	Sawara-false cypress	F
	Squarrosa-moss cypress	F
<i>Chamaedorea cataractarum</i>	Cat Palm	F
<i>Chamaedorea costaricana</i>	Palm	F
<i>Chamaedorea elegans</i>	Parlor palm	F
<i>Citrus</i> spp.	Citrus, ornamental	C,F
<i>Cornus florida</i>	Dogwood, flowering	F

<i>Cryptomeria japonica</i>	Cryptomeria, Japanese	C,F
<i>Cupaniopsis anacardioides</i>	Carrot wood	F
<i>Cupressus arizonica (glabra)</i>	Cypress, Arizona	C,F
<i>Cupressus glabra</i>	Arizona cypress	C,F
<i>Cupressocyparis leylandii</i>	Leyland cypress	C,F
<i>Cupressus sempervirens</i>	Cypress, Italian	C,F
<i>Dicksonia antarctica</i>	Tasmanian tree fern	C,F
<i>Elaeagnus angustifolia</i>	Russian olive	C,F
<i>Eucalyptus camaldulensis</i>	Red gum eucalyptus	F
<i>Eucalyptus cinerea</i>	Eucalyptus, mealy	F
	Silver dollar eucalyptus	F
<i>Eucalyptus nicholii</i>	Eucalyptus, narrow-leaved	F
<i>Eucalyptus sideroxylon</i>	Eucalyptus, red ironbark	F
<i>Ficus benjamina</i>	Ficus	F
<i>Fraxinus</i> spp.	Ash	F
<i>Ginkgo biloba</i>	Ginkgo (Maidenhair tree)	C,F
<i>Gleditsia triacanthos</i>	Honey locust	F
<i>Heteromeles arbutiflora</i>	Toyon	F
<i>Juniperus virginiana</i>	Redcedar, Eastern	F
<i>Koelreuteria paniculata</i>	Goldenrain tree	F
<i>Liquidambar styraciflua</i>	Sweetgum, American	C,F
<i>Magnolia</i> spp.	Magnolia	F
<i>Malus</i> spp.	Crabapple	F
<i>Morus alba</i>	White mulberry	F
<i>Picea abies</i>	Pendula-weeping Norway spruce	F
	Repens-spreading Norway spruce	F
	Spruce, Norway	F
	Spruce, Englemann	F
<i>Picea englemanni</i>	Spruce, white	F
<i>Picea glauca</i>	Conica-dwarf Alberta spruce	F
	Dwarf Alberta spruce	F
<i>Picea glauca conica</i>	Spruce, black	F
<i>Picea mariana</i>	Glaucia-Colorado blue spruce	F
<i>Picea pungens</i>	Hoopsii-Hoop's blue spruce	F
	Koster-Koster blue spruce	F
	Spruce, Colorado	C,F
<i>Pinus aristata</i>	Bristlecone pine	F
<i>Pinus canariensis</i>	Canary Island pine	F
<i>Pinus contorta</i>	Shore pine, beach pine	F
<i>Pinus eldarica</i>	Eldarica pine	F
<i>Pinus halepensis</i>	Aleppo pine	C,F
<i>Pinus radiata</i>	Monterey pine	F
<i>Pinus</i> spp.	Pine	C,F
<i>Pinus strobus</i>	Eastern white pine	F
<i>Pinus sylvestris</i>	Scotch pine	F
<i>Pinus thunbergiana</i>	Japanese black pine	F
<i>Platanus occidentalis</i>	American sycamore	F
<i>Platanus racemosa</i>	California sycamore	F
<i>Podocarpus</i> spp.	Podocarpus	F
<i>Populus deltoides</i>	Cottonwood	F
	Cottonwood (grown for pulp)	F
<i>Prunus caroliniana</i>	Laurelcherry, Carolina	F
<i>Prunus glandulosa</i>	Dwarf flowering almond	C,F
<i>Prunus laurocerasus</i>	Laurelcherry, English	F
<i>Prunus mahaleb</i>	Cherry, Mahaleb	F
<i>Prunus yedoensis</i>	Yoshino flowering cherry	F
<i>Pyrus communis</i>	Pear	F
<i>Quercus palustris</i>	Pin oak	F
<i>Quercus phellos</i>	Willow oak	F
<i>Quercus rubra</i>	Red oak	C,F
<i>Quercus</i> spp.	Oak	C,F
<i>Salix babylonica</i>	Babylon weeping willow	F
	Corkscrew willow	F
<i>Schinus molle</i>	California pepper tree	F
<i>Sequoia sempervirens</i>	Redwood, coast	F
<i>Sequoiadendron giganteum</i>	Giant sequoia	F
<i>Swietenia mahogani</i>	Mahogany	F
<i>Tabebuia caraiba</i>	Yellow tab	F
<i>Tilia cordata</i>	Linden, little leaf	C,F
<i>Ulmus parvifolia</i>	Chinese elm	F
<i>Umbellularia californica</i>	California laurel	F
<i>Washingtonia robusta</i>	Mexican fan palm	F

SHRUBS

Recommended Treatment Method
F = Field Grown
C = Container Grown

Scientific Name	Common Name	
<i>Abelia grandiflora</i>	Glossy abelia	F
<i>Acacia redolens</i>	Acacia, prostrate	F
<i>Agave americana</i>	Century plant	F
<i>Agave macroculmis</i>	Agave	F
<i>Anisodonteia hypomandarum</i>	Cape mallow	C,F
<i>Arctostaphylos stanfordiana</i>	Manzanita, Stanford	F
<i>Astilbe chinensis</i>	Astilbe/false spirea	C,F
<i>Baccharis pilularis</i>	Coyotebush	F
<i>Berberis thunbergii</i>	Aurea-golden Japanese barberry	C,F
	Crimson pygmy barberry	C,F
	Atropurea-redleaf	C,F
	Japanese barberry	F
	Barberry, Japanese	C,F
<i>Bougainvillea</i> spp.	Barbara Karst	F
	California gold	F
	Scarlet O'Hara	F
	Texas dawn	F
<i>Buddleia davidii</i>	Butterfly bush	C,F
<i>Buxus microphylla</i>	Littleleaf boxwood	F
<i>Buxus microphylla japonica</i>	Boxwood, Japanese	C,F

(continued)

SHRUBS (continued)

Recommended Treatment Method
F = Field Grown
C = Container Grown

Scientific Name	Common Name		Scientific Name	Common Name	
<i>Buxus sempervirens</i>	Boxwood, common	C, F	<i>Leucothoe axillaris</i>	Leucothoe, coast	F
<i>Callistemon citrinus</i>	Bottlebrush, lemon	C, F	<i>Leucothoe fontanesiana</i>	Leucothoe, drooping	F
<i>Cassia artemisioides</i>	Cassia, feathery	F	<i>Ligustrum amurense</i>	Privet, amur	C, F
<i>Ceanothus americanus</i>	Jerseytea, redroot	C, F	<i>Ligustrum japonicum</i>	Privet, Japanese	C, F
<i>Ceanothus</i> spp.	Wild lilac	C, F		yellow tip ligustrum	C, F
<i>Chaenomeles japonica</i>	Flowering quince	C, F	<i>Ligustrum lucidum</i>	Privet, glossy	C, F
<i>Chamaecyparis obtusa</i>	Kosteri cypress	F	<i>Ligustrum ovalifolium</i>	California privet	F
	Nana-dwarf Hinoki cypress	F	<i>Ligustrum texanum</i>	Howardi privet	F
	Torulosa cypress	F		Wax leaf privet	F
<i>Chamaecyparis pisifera</i>	Squarrosa Minima cypress	F	<i>Ligustrum vicaryi</i>	Privet, golden	C, F
<i>Chamaecyparis pisifera</i> spp.	Fillifera-thread cypress	F		Vicary golden privet	C, F
<i>Chrysalidocarpus lutescens</i>	Areca palm	F	<i>Livistona chinensis</i>	Chinese fountain palm	F
<i>Clethra</i>	Summersweet	C, F	<i>Lonicera fragrantissima</i>	Winter honeysuckle	F
<i>Cleyera japonica</i>	Cleyera, Japanese	C, F	<i>Lonicera periclymenum</i>	Flowering woodbine	F
<i>Coleonema pulchrum</i>	Pink breath of heaven	C, F		Serotina woodbine	F
<i>Cornus alba</i>	Sibirica-Siberian dogwood	F	<i>Lonicera sempervirens</i>	Trumpet honeysuckle	F
<i>Cornus kousa</i>	Dogwood, kousa	C, F	<i>Lorpetalum chinense</i>	(No common name)	C, F
<i>Cornus stolonifera</i>	Flaviramea-yellowtwig dogwood	F	<i>Mahonia aquifolium</i>	Oregon grape	F
<i>Cotoneaster adpressus</i>	Praecox-early cotoneaster	F	<i>Myoporum parvifolium</i>	Myoporum, prostrate	F
<i>Cotoneaster apiculatus</i>	Cotoneaster, cranberry	C, F	<i>Myrtus communis</i>	Myrtle, true	C, F
<i>Cotoneaster buxifolius</i>	Cotoneaster, brightbead	F	<i>Nandina domestica</i>	Compacta-dwarf heavenly bamboo	C, F
<i>Cotoneaster congestus</i>	Cotoneaster, Pyrenees	F		Harbour dwarf-heavenly bamboo	C, F
<i>Cotoneaster dammeri</i>	Cotoneaster, bearberry	C, F		Heavenly bamboo (Nandina)	C, F
<i>Cotoneaster himalayan</i>	Himalayan cotoneaster	F	<i>Nerium oleander</i>	Nana compacta-heavenly bamboo	C, F
<i>Cotoneaster horizontalis</i>	Cotoneaster, rock	C, F		Nana purpurea-heavenly bamboo	C, F
<i>Cotoneaster lacteus</i>	Cotoneaster, parney	C, F		Woods dwarf-heavenly bamboo	C, F
<i>Cotoneaster microphyllus</i>	Cotoneaster, rockspray	F		Hardy red oleander	C, F
<i>Cotoneaster salicifolia</i>	Willowleaf cotoneaster	C, F	<i>Osmanthus heterophyllus</i>	Oleander	C, F
<i>Cytisus praecox</i>	Hollandia-warminster broom	F	<i>Pachysandra terminalis</i>	Ruby lace oleander	C, F
<i>Cytisus scoparius</i>	Lena-Scotch broom	F	<i>Philadelphus</i> spp.	Osmanthus, holly-leaf	F
<i>Dasyliiron wheeleri</i>	Sotol, desert spoon	F	<i>Phoenix roeleanii</i>	Japanese spurge	C, F
<i>Deutzia crenata</i>	Nakiana-dwarf deutzia	F	<i>Photinia fraseri</i>	Mockorange	C, F
<i>Dodonaea viscosa</i>	Hopseedbush, clammy	F		Pigmy date palm	F
	Hopseed bush	F	<i>Pieris japonica</i>	Fraser's photinia	C, F
<i>Escallonia exoniensis</i>	Escallonia	C, F		Photinia	C, F
<i>Euonymus alata</i>	Euonymus, winged	F		Lily-of-the-valley	F
<i>Euonymus fortunei</i>	Canadale gold euonymus	C, F	<i>Pittosporum</i> spp.	Snowdrift lily-of-the-valley	F
	Emerald'n gold euonymus	C, F	<i>Pittosporum tobira</i>	Temple bells lily-of-the-valley	F
	Euonymus, stringybark	C, F		Valley rose lily-of-the-valley	F
<i>Euonymus japonica</i>	Wintercreeper	C, F		Andromeda	C, F
	Euonymus, evergreen	C, F	<i>Platycladus orientalis</i>	Pittosporum	C, F
<i>Euonymus kiatschovica</i>	Silver king euonymus	F	<i>Plumbago ariculata</i>	Green pittosporum	F
<i>Euonymus vegetus</i>	Spreading euonymus	F	<i>Podocarpus macrophyllus</i>	Japanese pittosporum	F
<i>Fatsyhedera lizei</i>	Bigleaf wintercreeper	C, F	<i>Potentilla fragiformis</i>	Tobira	F
<i>Fatsia japonica</i>	Fatsyhedera	C, F	<i>Potentilla fruticosa</i>	Wheeler's dwarf pittosporum	F
<i>Felicia amelloides</i>	Japanese aralia	C, F	<i>Protea neriifolia</i>	Arborvitae, Oriental	C, F
<i>Forsythia intermedia</i>	Blue marguerite	C, F	<i>Pyracantha coccinea</i>	Blue cape plumbago	F
<i>Gardenia jasminoides</i>	Forsythia, border	F	<i>Pyracantha fortuneana</i>	Yewpine	C, F
<i>Genista pilosa</i>	Gardenia	C, F	<i>Pyracantha fortuneana</i>	Cinquefoil	F
<i>Hibiscus rosa-sinensis</i>	Woadwaxen	F		Cinquefoil	C, F
	Ross Estey-hibiscus	F		Protea	F
<i>Hibiscus syriacus</i>	Hibiscus, Chinese	F	<i>Pyracantha skoidzumi</i>	Firethorn, scarlet	C, F
	Rose of Sharon, Red Bird	F	<i>Pyracantha fortuneana</i>	Lolendei Monrovia pyracantha	C, F
	Rose of Sharon, Red Heart	F	<i>Rhaphiolepis indica</i>	Monon pyracantha	C, F
	Rose of Sharon, Woodbridge	F		Red elf hybrid pyracantha	C, F
<i>Hydrangea macrophylla</i>	Rose-of-Sharon (Shrubalthea)	F		Rutgers hybrid pyracantha	C, F
<i>Hydrangea quercifolia</i>	Hydrangea, French	C, F	<i>Rhaphiolepis ovata</i>	Santa Cruz pyracantha	C, F
<i>Ilex aquifolium</i>	Hydrangea, Oakleaf	C, F	<i>Rhaphiolepis ovata</i>	Victory pyracantha	C, F
	Balkans holly	F	<i>Rhipsalidopsis gaertneri</i>	Firethorn, formosa	C, F
	Gold coast holly	F	<i>Rhododendron calendulaceum</i>	Firethorn	C, F
<i>Ilex aquipernyi</i>	Holly, English	F	<i>Rhododendron campylocarpum</i>	Enchantress-Moness rhaphiolepis	F
<i>Ilex cornuta</i>	San Jose holly	C, F	<i>Rhododendron</i>	Rhaphiolepis (India hawthorn)	C, F
	Dwarf Burford holly	C, F	<i>Rhododendron carolinianum x daurium</i>	Springtime-Monme rhaphiolepis	F
<i>Ilex crenata</i>	Holly, Chinese	C, F	<i>Rhododendron catawbiense</i>	Roundleaf rhaphiolepis	F
	Compacta-dwarf Japanese holly	C, F		Eastercactus	C, F
	Convexa holly	C, F	<i>Rhododendron forrestii</i>	Flame azalea	F
	Helleri-Heller's Japanese holly	C, F	<i>Rhododendron x griersonianum</i>	Butterfly rhododendron	F
<i>Ilex glabra</i>	Holly, Japanese	C, F	<i>Rhododendron hybrid spp.</i>	PJM rhododendron	F
<i>Ilex meserveae</i>	Nordica-inkberry holly	F		Catawba album rhododendron	C, F
	Blue boy holly	F		Catawba rhododendron	C, F
	Blue girl holly	F		Lord Roberts rhododendron	C, F
<i>Ilex vomitoria</i>	Ebony magic holly	F		Rocket rhododendron	C, F
	Nana-dwarf yaupon holly	C, F		Elizabeth rhododendron	F
	Pendula-weeping yaupon holly	C, F	<i>Rhododendron impeditum</i>	America rhododendron	F
<i>Juniperus chinensis</i>	yaupon holly	C, F	<i>Rhododendron indica</i>	English Roseum rhododendron	F
<i>Juniperus conferta</i>	Media-old gold juniper	C, F		Nova Zembla rhododendron	F
<i>Juniperus horizontalis</i>	Emerald sea shore juniper	F		Scintillation rhododendron	F
	Huntington blue juniper	C, F	<i>Rhododendron kerume</i>	Rhododendron	F
	Wiltonii-blue carpet juniper	C, F		Formosa azalea	C, F
<i>Juniperus procumbens</i>	Nana-dwarf Japaneses garden juniper	C, F		Waucubusa azalea	C, F
<i>Juniperus prostrata</i>	Prostrata juniper	C, F		Coral bells azalea	C, F
<i>Juniperus sabina</i>	Broadmoor juniper	F		Hino crimson azalea	C, F
	Foemina-Hicks juniper	F	<i>Rhododendron maximum</i>	Hino pink azalea	C, F
	Tamariscifolia-Tam juniper	F	<i>Rhododendron mucronulatum</i>	Snow azalea	C, F
<i>Juniperus scopulorum</i>	Emerald green juniper	F	<i>Rhododendron satsuki</i>	Rhodie max (rosebay)	C, F
<i>Juniperus</i> spp.	Juniper	C, F		Rhododendron	F
<i>Juniperus squamata</i>	Blue juniper	F	<i>Rhododendron spp.</i>	Gumpo pink azalea	F
	Blue star juniper	F	<i>Rhododendron spp. hybrids</i>	Higasa azalea	F
	Parsonii juniper	F		Azalea	C, F
<i>Justicia brandegeana</i>	Shrimp plant	C, F		Rhododendron	C, F
<i>Justicia spicigera</i>	Honeysuckle, Mexican	F	<i>Rhus lancea</i>	Carror azalea	C, F
<i>Kalmia latifolia</i>	Laurel, mountain	F	<i>Rosa rugosa</i>	Girard Roberta azalea	F
<i>Lagerstroemia indica</i>	Crape myrtle	C, F	<i>Rosmarinus officinalis</i>	Golden flare exbury azalea	F
<i>Lavandula angustifolia</i>	English lavender	C, F	<i>Senecio cineraria</i>	Sumac, African	C, F
				Ramanas rose	F
				Rosemary	F
				Dusty miller	C, F

(continued)

SHRUBS (continued)

Recommended Treatment Method
F = Field Grown
C = Container Grown

Scientific Name	Common Name	
<i>Spiraea vanhouttei</i>	Bridal wreath	F
<i>Syringa vulgaris</i>	Lilac, common	C,F
<i>Syzygium paniculata</i>	Brush cherry	C,F
<i>Taxus cuspidata</i>	Yew, Japanese	F
<i>Taxus media</i>	Yew	F
<i>Thuja occidentalis</i>	Arborvitae, American	C,F
	Emerald arborvitae	F
	Globosa-globe arborvitae	F
	Little giant-dwarf arborvitae	F
	Nigra-dark American arborvitae	F
	Pyramidalis arborvitae	F
	Rheingold arborvitae	F
	Woodwardii arborvitae	F
	Aureus nana-dwarf golden arborvitae	F
	Minima glauca-dwarf arborvitae	F
	Red Cedar, Western	F
	Star jasmine, Chinese	F
	Christmas palm	F
	Koreanspice viburnum	C,F
	David viburnum	F
	Viburnum	F
	Viburnum	C,F
	Common snowball viburnum	F
	Doublefile viburnum	F
	Tea viburnum	F
	Virburnum, Sandankwa	F
	Viburnum, Laurustinus	C,F
	Compactum-spring bouquet viburnum	F
	Spring bouquet viburnum	F
	Dwarf cranberry bush	F
	Viburnum	F
	Bristol ruby weigela	F
	Java red weigela	F
	Minuet weigela	F
	Weigela, oldfashioned	F
	Xylosma	F
<i>Xylosma congestum</i>	Xylosma	F
<i>Yucca elata</i>	Yucca, soaptree	C,F
<i>Yucca recurvifolia</i>	Yucca, pendulous	F

GROUNDCOVERS/PERENNIALS

Recommended Treatment Method
F = Field Grown
C = Container Grown

Scientific Name	Common Name	
<i>Agapanthus africanus</i>	Lily-of-the-Nile	C,F
<i>Ajuga</i> spp.	Carpet bugle	F
<i>Arctotheca calendula</i>	Cape weed	F
<i>Asparagus retrofractus</i>	(No common name)	C,F
<i>Asparagus varieegata</i>	Tree fern	C,F
<i>Aster novae-angliae</i>	New England aster	C,F
<i>Aster novi-belgii</i>	New York aster	C,F
<i>Athyrium nipponicum</i>	Japanese painter fern	C,F
<i>Brassica oleracea</i>	Wild cabbage	C,F
<i>Callistephus chinensis</i>	China aster	C,F
<i>Campanula elatines</i>	Bellflower	C,F
<i>Carpobrotus edulis</i>	Ice plant, largeleaf (see label)	F
<i>Clytostoma callistegioides</i>	Trumpet vine, violet	C,F
<i>Cortaderia selloana</i>	Pampas grass	F
<i>Cuphea hyssopifolia</i>	False Mexican heather	C,F
<i>Delosperma alba</i>	White iceplant	F
<i>Dietes vegeta</i>	Fortnight lily	C,F
<i>Digitalis mertonensis</i>	Foxglove	C,F
<i>Doronicum cordatum</i>	Leopard's bane	C,F
<i>Drosanthemum floribundum</i>	Trailing rosea iceplant	F
<i>Erianthus ravennae</i>	Hardy pampus grass	C,F
<i>Festuca ovina glauca</i>	Blue fescue	F
<i>Gaillardia grandiflora</i>	Blanket flower	C,F
<i>Gazania rigens leucolaena</i>	Gazania, trailing	C,F
<i>Gazania</i> spp.	Gazania	F
<i>Hedera canariensis</i>	Ivy, Algerian	F
<i>Hedera helix</i>	Ivy, English	F
<i>Heliotropium fragrans</i>	Common heliotrope	C,F
<i>Hemerocallis</i> spp.	Daylily	C,F
<i>Hosta lancifolia</i>	Albo-marginata hosta	C,F
<i>Hosta</i> spp.	Lily, plantain	C,F
<i>Heuchera micrantha</i>	Coral bells	C,F
<i>Hypericum</i> spp.	St. Johnswort	C,F
<i>Iberis sempervirens</i>	Evergreen candytuft	C,F
<i>Lampranthus spectabilis</i>	Trailing iceplant	F
<i>Leptospermum scaparium</i>	New Zealand teatree/Manuka	C,F
<i>Limonium perezii</i>	Statice/Sea lavender	C,F
<i>Liriope gigantea</i>	White lily turf	F
<i>Liriope muscari</i>	Lilac beauty lily turf	C,F
	Majestic lily turf	C,F
	Monroe white lily turf	C,F
	Silvery sunproof lily turf	C,F
	Variiegated liriope lily turf	C,F
	Big blue lily turf	C,F
	Edging lobelia	C,F
<i>Lobelia erinus</i>	Honeysuckle, Japanese	F
<i>Lonicera japonica</i>	Ice plant (see label)	F
<i>Mesembryanthemum crystallinum</i>	Bee Balm	C,F
<i>Monarda didyma</i>	Mondo grass	F
<i>Ophiopogon japonicus</i>	Daisy, trailing African	F
<i>Osteospermum fruticosum</i>		F

<i>Pachysandra terminalis</i>	Japanese spurge	F
<i>Pennisetum setaceum</i>	Fountaingrass	C,F
<i>Polystichum polyblepharum</i>	Tassel fern	C,F
<i>Sedum brevifolium</i>	Stonecrop	C,F
<i>Sedum kamtschaticum</i>	Stonecrop	C,F
<i>Sedum spurium</i>	Stonecrop, tworow	C,F
<i>Tulbaghia violacea</i>	Society garlic	C,F
<i>Verbena rigida</i>	Veined verbena	C,F
<i>Veronica</i> spp.	Speedwell	C,F
<i>Vinca major</i>	Periwinkle, bigleaf	F
<i>Vinca minor</i>	Periwinkle, dwarf	F

FLOWERS

Recommended Treatment Method
F = Field Grown
C = Container Grown

Scientific Name	Common Name	
<i>Achillea</i> spp.	Yarrow	C,F
<i>Antirrhinum majus</i>	Snapdragon	F
<i>Caladium bicolor</i>	Caladium, fancy leafed	F
<i>Chrysanthemum</i> spp.	Chrysanthemum	C,F
<i>Mixed Hybrid</i>	Dahlia	C,F
<i>Cladium bicolor</i>	Fancy-leafed caladium	F
<i>Coreopsis lanceolata</i>	Coreopsis	F
<i>Coreopsis verticulata</i>	Threadleaf coreopsis	C,F
<i>Dianthus barbatus</i>	Sweet William	F
<i>Dianthus gratianopolitanus</i>	Cheddar pink	C,F
<i>Dicentra spectabilis</i>	Bleeding heart	C,F
<i>Dimorphotheca</i> spp.	Marigold, cape	F
<i>Echinacea purpurea</i>	Coneflower, purple	C,F
<i>Evolvulus nuttallianus</i>	Blue daze	C,F
<i>Geum quellyon</i>	Geum	F
<i>Gladiolus hortulanus</i>	Gladiolus	F
<i>Gypsophila paniculata</i>	Baby's breath	F
<i>Impatiens wallerana</i>	Impatiens (Busy lizzie)	F
<i>Iris</i> spp.	Iris, bearded	F
<i>Liatris spicata</i>	Bleeding star	C,F
<i>Pelargonium hortorum</i>	Geranium	F
<i>Petunia</i> spp.	Petunia	C,F
<i>Portulaca grandiflora</i>	Moss, rose	F
<i>Ranunculus asiaticus</i>	Ranunculus, Persian	F
<i>Rosa</i> spp.	Rose	F
<i>Rudbeckia fulgida</i>	Blackeyed susan	C,F
<i>Rudbeckia hirta</i>	Daisy, gloriosa (black-eyed Susan)	F
<i>Salvia</i> spp.	Salvia (Sage)	F
<i>Stokesia laevis</i>	Aster, stokes	F
<i>Strelitzia reginae</i>	Bird of paradise	F
<i>Tagetes</i> spp.	Marigold	F
<i>Viola wittrockiana</i>	Pansy	F
<i>Zinnia elegans</i>	Zinnia, common	F

NON-BEARING TREES AND VINES

Recommended Treatment Method
F = Field Grown
C = Container Grown

almond	F
apple	F
apricot	F
avocado	F
blackberry	F
blueberry	F
boysenberry	F
cherry, sour	F
cherry, sweet	F
currant	F
dewberry	F
elderberry	F
fig	F
filbert	F
gooseberry	F
grape, American	F
grape, European	F
grapefruit	F
kiwi	F
Kumquat	C,F
lemon	F
loganberry	F
macadamia nut	F
nectarine	F
olive	F
orange	C,F
peach	F
pear	F
pecan	C,F
pistachio	F
plum	F
pomegranate	F
prune	F
raspberry	F
walnut, black	F
walnut, English	F

† Non-bearing plants are defined as those that will not bear fruit for at least one year after treatment.

ORNAMENTAL BULBS

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

Broadcast Application Rates

Time of Application	Soil Texture	Surflan AS		Minimum Time Between Applications (months)	Total Amount Allowed Per Year (qt/acre)
		(qt/acre)	(fl oz/1000 sq ft)		
Fall	Coarse	0.75	0.5	3	1.5
Fall	Medium and Fine	1.5	1.0	3	2.25
Feb. - March	All Soil Textures	0.75	0.5	3	2.25

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 corms prior to emergence or less than one (1) inch in diameter.

SHADEHOUSE AREAS

Surflan AS may be applied to drainage areas under benches in open shadehouse-type structures where the natural flow of air is unimpeded. Do not apply in enclosed greenhouses or in enclosed shadehouse-type structures. Do not apply within 3 weeks prior to enclosure of greenhouse or poly-type structures.

CHRISTMAS TREE PLANTATIONS

Surflan AS Alone

Apply Surflan AS 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.). Follow all instructions provided in the "General Information" section of this label.

Broadcast Application Rates

Length of Control	Surflan AS		Minimum Time Between Applications (months)	Total Amount Allowed Per Year (qt/acre)
	(qt/acre)	(fl oz/1000 sq ft)		
2 - 4 months	2	1.5	2	8
4 - 8 months	4	3	2	8

Tank Mix Combinations

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

Special Use Precautions:

Do not apply to Douglas-fir (*Pseudotsuga menziesii*). Do not apply to seedbeds or seedling transplant beds. Apply only to established plants that have been transplanted into their final 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.

NONCROPLAND AREAS AND INDUSTRIAL SITES

Noncropland Areas - Tank Mix Combinations

Tank mix combinations of Surflan AS plus glyphosate and many other labeled herbicides may be used to control undesirable vegetation in noncropland areas such as roadsides, rights-of-way, etc. 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.

Broadcast Application Rates

Length of Control	Surflan AS		Minimum Time Between Applications (months)	Total Amount Allowed Per Year (qt/acre)
	(qt/acre)	(fl oz/1000 sq ft)		
2 - 4 months	2	1.5	2	6
4 - 8 months	4	3	4	12
8 - 12 months	6	4.5	8	12

Industrial Sites - Tank Mix Combinations

Tank mix combinations of Surflan AS plus glyphosate, Spike herbicide, 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 AS 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, zoysiagrass, and 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. Use Surflan AS only as a part of a total turf management program that includes good fertilization practices.

Surflan AS 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 Gallery for specific use directions, precautions, and limitations before use.

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

Surflan AS will not control emerged weeds. Successful preemergence control of weeds listed on this label requires that Surflan AS be applied prior to weed germination and be activated by at least one-half (1/2) inch of rainfall or irrigation within 21 days of application.

Surflan AS 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 AS only to healthy, well-established turf that has a well-anchored root system.

Do not apply Surflan AS in the spring or early summer to tall fescue turfgrass reseeded the previous fall. In such cases, apply Balan 2.5G granular herbicide at 60-80 pounds per acre in early summer (Round 1) and Surflan AS at 1.5 quarts per acre approximately eight weeks later (Round 2). Do not apply Surflan AS at the single application rate (2 quarts per acre) to established tall fescue; in such cases, apply 1.5 quarts per acre of Surflan AS in an initial application, followed by a second application of 1.5 quarts per acre 8-10 weeks later.

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

ANNUAL GRASSES CONTROLLED BY SURFLAN AS

Summer Annuals:

Common Name
barnyardgrass (watergrass)
crabgrass, large
crabgrass, smooth
crabgrass
crowfootgrass
foxtail, bristleglass
foxtail, giant
foxtail, green (pigeongrass)
foxtail, robust
foxtail, yellow
goosegrass (silver crabgrass)
Johnsongrass (seedling only)
ryegrass, Italian
sandbur, field

Scientific Name

Echinochloa crus-galli
Digitaria sanguinalis
Digitaria ischaemum
Digitaria spp.
Dactyloctenium aegyptium
Setaria magna
Setaria faberi
Setaria viridis
Setaria robusta
Setaria glauca
Eleusine indica
Sorghum halepense
Lolium multiflorum
Cenchrus incertus

Winter Annuals:

Common Name
bluegrass, annual

Scientific Name

Poa annua

ANNUAL BROADLEAF WEEDS CONTROLLED BY SURFLAN AS

Summer Annuals:

Common Name
carpetweed
knotweed, prostrate
purslane, common

Scientific Name

Mollugo verticillata
Polygonum aviculare
Portulaca oleracea

Winter Annuals:

Common Name
chickweed, common
henbit

Scientific Name

Stellaria media
Lamium amplexicaule

BROADLEAF WEEDS SUPPRESSED BY SURFLAN AS

Common Name
groundsel, common
spurge, prostrate
woodsorrel, yellow

Scientific Name

Senecio vulgaris
Euphorbia humistrata
Oxalis stricta

Application Rates, Frequency, and Timing of Application

Surflan AS 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.

Broadcast Application Rates (Warm Season Turfgrasses)

Use Area	Surflan AS		Minimum Time Between Applications (months)	Total Amount Allowed Per Year (qt/acre)
	(qt/acre)	(fl oz/1000 sq ft)		
All, except Florida	1.5	1	3	6
	2	1.5	3	6
Florida	1.5	1	3	4.5

1. Summer Annual Grasses and Broadleaf Weeds

Single Application Program: Apply 2 quarts per acre of Surflan AS 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 AS 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 1.5 quarts per acre of Surflan AS in an initial application, followed by a second application of 1.5 quarts per acre 8-10 weeks later.

The second treatment of the split application may follow application of a different pre-emergence grass herbicide in place of the initial application of Surflan AS.

2. Annual Bluegrass (*Poa annua*) 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 AS as a preemergence treatment in late summer or early fall, prior to the expected germination period 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 AS at 1.5 quarts per acre. If thinning of turfgrass cover is not a potential problem, Surflan AS may be applied at 2 quarts per acre.

Weed Control in Florida

In Florida, apply 1.5 quarts per acre of Surflan AS three times per year, or every 90-100 days, in the fall, early spring, and early summer. Do not apply more than 1.5 quarts per acre of Surflan AS in any single application.

Application Equipment

Apply Surflan AS evenly over the turfgrass 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

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 AS. 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 use of Surflan AS, 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.

Special Use Precautions:

To avoid possible injury, do not apply Surflan AS to:

- Cool season turfgrass species.
- Golf course putting greens and tees or lawns containing dichondra or cool season turfgrass species.
- Newly sprigged or sodded areas of bermudagrass, St. Augustinegrass, centipedegrass, or zoysiagrass until these turfgrasses 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.

TERMS AND CONDITIONS OF USE

If terms of the following Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. Otherwise, use by the buyer or any other user constitutes acceptance of the terms under Warranty Disclaimer, Inherent Risks of Use and Limitations of Remedies.

WARRANTY DISCLAIMER

United Phosphorus, Inc. (UPI) 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. UPI 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. Crop 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 temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of UPI or the seller. All such risks shall be assumed by buyer.

LIMITATION OF REMEDIES

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

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