

1/25
1471-169

(Revised 01/05/87)

ELANCO ID5940

SURFLAN® DRY FLOWABLE - ORNAMENTALS, NONCROPLAND, AND TURF

Net Contents 12 1/2 Pounds

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

Christmas Tree Plantations
Container Grown Ornamentals
Drainage Areas Under
Greenhouse Benches
Field Grown Roses
Forest Nursery Plantations
Ground Covers
Noncropland

Nursery Stock
Landscape Ornamentals
Non-bearing Trees and Vines
Established Warm Season Turf
(Including Bahiagrass, Bermudagrass,
Centipedegrass, St. Augustinegrass,
Tall Fescue and Zoysiagrass)

Active Ingredient:

oryzalin (3,5-dinitro-N⁴,N⁴-dipropylsulfanilamide).....85.0%
Inert Ingredients.....15.0%

Contains 0.85 pounds active ingredient per pound.

SURFLAN® (oryzalin, Elanco)

Keep Out of Reach of Children

CAUTION

ACCEPTED
MAY 26 1987
Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
as amended, for the pesticide
registered under
EPA Reg. No. 1471-169

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Harmful if swallowed or inhaled. Avoid breathing dust or spray mist and contact with skin, eyes or clothing. Use eye protection and protective clothing such as coveralls, a long-sleeved shirt and impermeable gloves when handling this product. Remove contaminated clothing and wash before reuse.

Statements of Practical Treatment

If swallowed: Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

If in eyes: Flush eyes with plenty of water. Call a physician if irritation develops.

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

If inhaled: SURFLAN Dry Flowable should not present a hazard by inhalation. However, if discomfort occurs remove individual to fresh air. If not breathing, provide cardiopulmonary resuscitation assistance and get medical attention.

Environmental Hazards

Do not apply directly to water or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes.

STORAGE AND DISPOSAL

Storage: Store in original container only. Do not store in direct sunlight. Do not store at temperatures above 120°F. If stored above 120°F, SURFLAN Dry Flowable could lose some of its dispersing properties, resulting in difficult application, poor weed control or crop injury. In case of leak or spill, contain material and dispose as waste.

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

Container Disposal: Dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

DISCLAIMER OF WARRANTIES

The manufacturer makes no warranties concerning this product or its use, which extend beyond the description on the label. All other warranties, express or implied, including but not limited to, any implied warranties of merchantability and fitness for a particular purpose, are disclaimed. All statements concerning this product apply only when used as directed.

LIMITATION OF DAMAGES

Elanco's liability, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the return of the amount of the purchase price of the SURFLAN Dry Flowable and under no circumstances shall Elanco be liable for special, indirect or consequential damages.

DIRECTIONS FOR USE

See literature on container for complete Directions for Use. Read all Directions Carefully Before Applying.

EPA Est. No. 37429-GA-01
EPA Reg. No. 1471-XXX
FN 3053
Lot ()

Elanco Products Company
A Division of Eli Lilly and Company
Lilly Corporate Center
Indianapolis, Indiana 46285, U.S.A.

(Revised 01/05/87)

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ORNAMENTAL AND NONCROPLAND AREAS

GENERAL USE PRECAUTIONS

Apply only to established plantings. Rooted liners should be established in containers two weeks prior to treatment or crop injury may occur.

On container grown ornamentals where weed seed germination continues for extended periods of time, subsequent applications of SURFLAN should not be made any sooner than 90 days or crop injury may occur.

Do not apply SURFLAN in ornamental plantings where the likelihood of runoff onto lawn areas containing dichondra or cool-season turfgrass species exists as severe injury or death may occur. Poor weed control may result if directions are not followed. Overapplication may result in crop injury or excessive soil residue.

Plant only ornamental species listed on this label into soil treated the previous season with SURFLAN or injury may occur.

Do not apply to gladioli corms less than one (1) inch in diameter. It is recommended that SURFLAN be applied after emergence.

SURFLAN is an orange chemical. If this temporary coloration is undesirable, this orange color may be altered by using a commercially available colorant such as Blazon®.

GRASSES CONTROLLED BY SURFLAN ALONE

<u>Common Name</u>	<u>Scientific Name</u>
Barley, little	<u>Hordeum pusillum</u>
Barnyardgrass (Watergrass)	<u>Echinochloa crus-galli</u>
Bluegrass, annual	<u>Poa annua</u>
Brachiaria (Signalgrass)	<u>Brachiaria spp.</u>
Crabgrasses	<u>Digitaria spp.</u>
(Large crabgrass)	
(Smooth crabgrass)	
Crowfootgrass	<u>Dactyloctenium aegyptium</u>
Cupgrass, southwestern	<u>Eriochloa gracilis</u>
Foxtails	<u>Setaria spp.</u>
(Bottlegrass)	
(Bristlegrass)	
(Giant foxtail)	
(Green foxtail)	
(Pigeongrass)	
(Robust foxtail)	
(Yellow foxtail)	
Goosegrass	<u>Eleusine indica</u>
(Silver crabgrass)	

<u>Common Name</u>	<u>Scientific Name</u>
Johnsongrass (Seedling only)	<u>Sorghum halepense</u>
Junglerice	<u>Echinochloa colonum</u>
Lovegrass, Mexican	<u>Eragrostis mexicana</u>
Lovegrass, orcutt	<u>Eragrostis orcuttiana</u>
Oat, wild	<u>Avena fatua</u>
Panicum, browntop	<u>Panicum fasciculatum</u>
Panicum, fall (Spreading panicgrass)	<u>Panicum dichotomiflorum</u>
Panicum, Texas	<u>Panicum texanum</u>
Buffalograss	
Coloradograss	
Ryegrass, Italian	<u>Lolium multiflorum</u>
Sandbur, field	<u>Cenchrus incertus</u>
Sprangletop, red	<u>Leptochloa filiformis</u>
Witchgrass	<u>Panicum capillare</u>

BROADLEAF WEEDS CONTROLLED BY SURFLAN ALONE

Bittercress	<u>Cardamine spp.</u>
Carpeweed	<u>Mollugo verticillata</u>
Chickweed, common	<u>Stellaria media</u>
Fiddleneck, coast	<u>Amsinckia intermedia</u>
Filaree, redstem	<u>Erodium cicutarium</u>
Filaree, whitestem	<u>Erodium moschatum</u>
Groundsel, common	<u>Senecio vulgaris</u>
Henbit	<u>Lamium amplexicaule</u>
Knotweed, prostrate	<u>Polygonum aviculare</u>
Lambsquarters	<u>Chenopodium album</u>
Pigweeds	<u>Amaranthus spp.</u>
(Carelessweed)	
(Prostrate pigweed)	
(Redroot)	
(Rough pigweed)	
(Spring pigweed)	
(Tumble pigweed)	
Puncturevine	<u>Tribulus terrestris</u>
Purslane, common	<u>Portulaca oleracea</u>
Pusley, Florida	<u>Richardia scabra</u>
(Florida purslane)	
(Mexican clover)	
(Pusley)	
Rocket, London	<u>Sisymbrium irio</u>
Rockpurslane, desert	<u>Calandrinia ciliata</u>
Shepherdspurse	<u>Capsella bursa-pastoris</u>
Spurge, prostrate	<u>Euphorbia humistrata</u>
Woodsorrel, yellow	<u>Oxalis stricta</u>

Suppression 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, amount and timing of soil moisture:

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

SURFLAN will not control established weeds.

DIRECTIONS FOR USE - Read All Directions Carefully Before Applying

SURFLAN is a preemergence surface-applied herbicide for the control of annual grasses and many broadleaf weeds.

SOIL PREPARATION

SURFLAN will not control established weeds. Therefore, areas to be treated should be free of established weeds. Weed residues, prunings and trash should be thoroughly mixed into the soil or removed prior to treatment. The soil should be in good tilth and free of clods at the time of application.

MIXING DIRECTIONS

SURFLAN Alone in Water

1. Be sure sprayer is clean and not contaminated with any foreign material.
2. Fill tank one-fourth (1/4) full with clean water and start agitation.
3. Be certain that agitation system is working properly. Vigorous, continuous agitation throughout the spray tank is required with dry flowable formulations. Agitation should be sufficient to create a rippling or rolling action on the liquid surface. Sparger pipe agitation generally provides the best agitation in spray tanks.
4. To prevent foaming, avoid stirring or splashing air into the mixture by placing the end of the fill pipe below the surface of the water in the spray tank during the filling process.
5. Pour product directly from container into tank. Controlled addition of the product is important to assure adequate wetting and mixing to prevent clogging of screens and outlet ports.
6. Continue filling tank with water until full.

SURFLAN Tank-Mix in Water

1. Add SURFLAN Dry Flowable to the spray tank following the instructions outlined above for SURFLAN alone.
2. Fill the spray tank to 90% full with water.
3. Add other formulations in this order, other dry flowables (DF), wettable powders (WP), aqueous suspensions (A.S.), flowables (F), liquids (L), solutions (S), and emulsifiable or liquid concentrates (E.C., L.C.) ALLOWING TWO TO THREE MINUTES BETWEEN THE ADDITION OF EACH PRODUCT, and agitate continuously until the products are completely dispersed in the water. Each chemical added to a spray tank needs time to either wet or mix with water and other chemicals in the spray tank. To insure proper mixing, time and agitation is required between the addition of each of the additional products.
4. Continue filling tank with water until full.

General Instructions and Precautions

1. For either SURFLAN Dry Flowable alone or in tank-mix combination maintain agitation from filling through application. If spraying and agitation is stopped before the tank is empty, the materials may settle to the bottom. In this case, it is important to resuspend again all the material in the bottom of the tank before continuing the spray application. Sometimes it is more difficult to resuspend settled material than it is to suspend it originally. A sparger agitator is particularly useful for this purpose.
2. In-line screens in the tank should be no finer than 16 mesh (16 mesh has bigger openings than 50 mesh).
3. If a buildup of material is seen on the walls of the spray tank, wash the tank with soapy water between fillings. Rinse and continue the spraying operation. Clean tank, lines and screens thoroughly after use.
4. Read and carefully follow all label instructions for each material added to the tank.

Read the SURFLAN Dry Flowable label for additional directions, precautions and limitations before use.

APPLICATION

Ground Application: Apply SURFLAN as a directed spray to the soil surface or as an overtop spray. Apply SURFLAN in sufficient water per acre to uniformly treat the area. Use only a properly calibrated, low-pressure herbicide sprayer that will apply the spray uniformly. Use herbicide tips and screens no finer than 16 mesh in nozzle and in-line strainers. 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.

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Maintain agitation from mixing through application. Avoid boom overlaps that will increase rates above those recommended.

Aerial Application: Use a standard aerial herbicide boom sprayer. Aerial spray equipment should be calibrated to apply the proper amount of SURFLAN alone or in tank-mix combinations in two (2) to 10 gallons of spray mixture per acre. Nozzle screens and in-line strainers should be no finer than 50 mesh for tank-mix combinations. SURFLAN (alone or in tank-mix combinations) should be pre-slurried with water for those 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 spray tank is empty. Avoid overlap of spray patterns. Do not apply when weather conditions favor drift from target area.

Chemigation: SURFLAN may be applied for weed control through center pivot and solid set sprinkler irrigation systems. Apply at rates recommended on this label. Prepare mixture using a minimum of one (1) part water to one (1) part product. Injecting a larger volume of a more dilute slurry per hour will assure more accurate calibration of metering equipment. Maintain sufficient agitation to keep the herbicide in suspension. Meter slurry into irrigation water during entire period. Apply SURFLAN in a minimum of one-half (1/2) to one inch (1) of irrigation water. The following precautions and recommendations must be followed to chemigate SURFLAN.

1. Apply only through properly maintained irrigation systems having continuously moving laterals and providing uniform distribution of water. Where a system does not provide uniform water distribution such as at the extreme ends of the lateral, around supports, where treated discharge water is released from water-powered motors, or where extreme changes in elevation occur, unacceptable weed control or crop injury may occur.
2. Apply the product only through irrigation systems containing anti-siphon and check valves, to prevent water source contamination and overflow and siphoning of the slurry tank. The irrigation system should also contain interlocking controls between the metering device and the water pump, to insure simultaneous shut-off.
3. Inject the product with a positive displacement pump into the main line ahead of a right angle turn, to insure adequate mixing.
4. Application of more than label recommended quantities of irrigation water per acre may result in decreased product performance by removing the pesticide from the zone of effectiveness.
5. Do not apply when wind speed favors drift, when system connections or fittings leak, when nozzles do not provide uniform distribution, or when lines containing the product should be dismantled and drained. Use of low trajectory angle sprinklers or drop nozzles will decrease the likelihood of drift.
6. Greater accuracy in pesticide calibration and distribution will be achieved by injecting a larger volume of more dilute slurry per hour.

7. Constant agitation should be maintained in the slurry tank during the entire period of pesticide application.
8. Sample Calculation: One hundred thirty-five (135) acres to be covered by irrigation system.

Recommended rate of 2.4 pounds per acre times 135 acres equals 324 pounds of product.

Prepare slurry mixes using one (1) part water to one (1) part product and add to water in a 500 gallon nurse tank using the entire 324 pounds of product. Apply the entire 500 gallons to 135 acres.

Irrigation system requires 20 hours to apply one-half (1/2) inch of water to 135 acres.

Injection rate equals 500 gallons divided by 20 hours equals 25 gallons per hour or 53.33 fluid ounces to be injected per minute.

Calibrate injection pump to deliver the herbicide mix into the irrigation system at the rate of 53.33 fluid ounces per minute.

9. Posting Requirements: Areas being treated with pesticides applied through irrigation systems must be posted at the usual entrances to the area, at bulletin boards where workers assemble and where the treated area lies adjacent to roads, residential areas, or any other areas such as schools, parks or other public facilities. Posted signs must be legible from 25 feet away and be printed in English and any other appropriate language such as Spanish. Signs must be posted prior to application, during application and for at least one week after application, but may remain in place indefinitely. The sign must indicate the following:

NOTICE

Pesticides are applied in irrigation water in this field. Do not enter this field when the irrigation system is operating. Do not drink, bathe in or play in water or in furrows, puddles, ponds, canals or ditches associated with this irrigation system.

ACTIVATION AND CULTIVATION

SURFLAN will remain stable on the soil surface up to 21 days. In the absence of timely rainfall, irrigation can be used to move SURFLAN into soil surface. A one-half inch rain or its equivalent in sprinkler irrigation is necessary to activate SURFLAN. If weeds begin to emerge due to lack of rainfall or irrigation, shallow cultivate (1 to 2 inches) to destroy existing weeds or remove by hand in containers and place SURFLAN in the weed germination zone. Shallow cultivation (1 to 2 inches) will not reduce herbicidal effectiveness. In containers, remove by hand. If SURFLAN is not activated by rainfall, irrigation or cultivation within 21 days of application, erratic weed control may result.

ORNAMENTAL PLANTS

SURFLAN is recommended for use on the following species. All species on the following list may be treated when field grown; those species marked with an asterisk may also be treated when container grown. Species not marked with an asterisk should not be treated if container grown.

Common Name	Scientific Name
Abelia, Glossy	<u>Abelia grandiflora</u>
Apple, Common	<u>Malus pumila</u>
Arborvitae, Giant	<u>Thuja plicata</u>
Arborvitae, Oriental*	<u>Thuja orientalis</u>
Azalea	<u>Rhododendron spp.</u> cv. "Louisa" cv. "Stewartsonianum"
Barberry, Japanese*	<u>Berberis thunbergi</u>
Bird-of-Paradise	<u>Strelitzia reginae</u>
Bottlebrush, Lemon*	<u>Callistemon citrinus</u>
Boxwood, Common*	<u>Buxus sempervirens</u>
Boxwood, Japanese*	<u>Buxus microphylla</u>
Brushcherry*	<u>Eugenia paniculata</u>
California laurel	<u>Umbellularia californica</u>
Capejasmine	<u>Gardenia jasminoides</u>
Capemarygold	<u>Cryptostemma calendula</u>
Cherry, Mahaleb	<u>Prunus mahaleb</u>
Cherry, Mazzard (Sweet)	<u>Prunus avium</u>
Chrysanthemum, Florists	<u>Chrysanthemum morifolium</u>
Cleyera, Japanese	<u>Cleyera japonica</u>
Cotoneaster*	<u>Cotoneaster lactea</u>
Cotoneaster, Bearberry*	<u>Cotoneaster dammeri</u>
Cotoneaster, Brightbead	<u>Cotoneaster glaucophylla</u>
Cotoneaster, Cranberry*	<u>Cotoneaster apiculata</u>
Cotoneaster, Pyrenees	<u>Cotoneaster congesta</u>
Cotoneaster, Rock*	<u>Cotoneaster horizontalis</u>
Cotoneaster, Rockspray	<u>Cotoneaster microphylla</u>
Coyotebush, Dwarf	<u>Baccharis pilularis</u>
Crapemyrtle, Common*	<u>Lagerstroemia indica</u>
Cryptomeria, Japanese*	<u>Cryptomeria japonica</u>
Cypress, Italian*	<u>Cupressus sempervirens</u>
Daisy, Trailing African	<u>Osteospermum fruticosum</u>
Douglasfir	<u>Pseudotsuga taxifolia</u>
Eastercactus*	<u>Schlumbergera gaertneri</u>
Escallonia*	<u>Escallonia frades</u>
Eucalyptus, Mealy Stringybark	<u>Eucalyptus cinerea</u>
Eucalyptus, Mulga Ironbark	<u>Eucalyptus sideroxylon</u>
Eucalyptus, Narrow-Leaved	<u>Eucalyptus nicholii</u>
Euonymus*	<u>Euonymus fortunei var.</u> "Vegetus"
Euonymus, Evergreen*	
(Japanese Spindle Tree)	<u>Euonymus japonicus</u>
Euonymus, Winged	<u>Euonymus alatus</u>
Falsecypress, Lawson	<u>Chamaecyparis lawsoniana</u>

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<u>Common Name</u>	<u>Scientific Name</u>
Fatshedera*	<u>Fatshedera lizei</u>
Fir, Alpine	<u>Abies lasiocarpa</u>
Fir, Balsam	<u>Abies balsamea</u>
Fir, Fraser	<u>Abies fraseri</u>
Fir, Grand	<u>Abies grandis</u>
Fir, Veitch	<u>Abies veitchi</u>
Fir, White (concolor)	<u>Abies concolor</u>
Firethorn*	<u>Pyracantha fortuneana</u>
Firethorn, Formosa*	<u>Pyracantha koidzumi</u>
Firethorn, Scarlet*	<u>Pyracantha coccinea</u>
Forsythia, Border	<u>Forsythia intermedia</u>
Gazania, Treasureflower	<u>Gazania rigens</u>
Geranium	<u>Pelargonium hortorum</u>
Ginkgo*	<u>Ginkgo biloba</u>
Gladiolus	<u>Gladiolus hortulanus</u>
Goldenrain Tree	<u>Koelreuteria paniculata</u>
Hibiscus, Chinese	<u>Hibiscus rosa-sinensis</u>
Holly, Chinese*	<u>Ilex cornuta</u>
Holly, Convexleaf Japanese*	<u>Ilex crenata</u> var. "Convexa"
Holly, English	<u>Ilex aquifolium</u>
Holly, Howard Japanese*	<u>Ilex crenata</u> var. "Howardi"
Honeysuckle, Japanese	<u>Lonicera japonica</u>
Hopseedbush, Clammy	<u>Dodonaea viscosa</u>
Ice-Plant	<u>Mesembryanthemum crystallinum</u>
Ice-Plant, Largeleaf	<u>Carpobrotus edulis</u>
Ivy, Algerian	<u>Hedera canariensis</u>
Ivy, English	<u>Hedera helix</u>
Jerseytea (redroot)*	<u>Ceanothus americanus</u>
Juniper, Andorra	<u>Juniperus horizontalis</u> var. "Plaumosa"
Juniper, Chinese*	<u>Juniperus chinensis</u>
Juniper, Creeping*	<u>Juniperus horizontalis</u>
Juniper, Greek*	<u>Juniperus excelsa</u>
Juniper, Japanese Garden	<u>Juniperus procumbens</u>
Juniper, Rockymountain*	<u>Juniperus scopulorum</u>
Juniper, Savin*	<u>Juniperus sabina</u>
Juniper, Shore*	<u>Juniperus conferta</u>
Juniper, Wilson Chinese*	<u>Juniperus chinensis</u> var. "Wilsonii"
Laurelcherry, Carolina	<u>Prunus caroliniana</u>
Laurelcherry, English	<u>Prunus laurocerasus</u>
Leucothoe, Coast	<u>Leucothoe axillaris</u>
Leucothoe, Drooping	<u>Leucothoe catesbaei</u>
Lilac, Common*	<u>Syringa vulgaris</u>
Lily-of-the-Nile*	<u>Agapanthus africanus</u>
Lilyturf, Bigblue*	<u>Liriope muscari</u>
Magnolia, Southern	<u>Magnolia grandiflora</u>
Manzanita, Stanford	<u>Arctostaphylos stanfordiana</u>
Maple, Bigtooth*	<u>Acer grandidentatum</u>
Marigold, French	<u>Tagetes patula</u>
Mockorange*	<u>Philadelphus</u> spp.

<u>Common Name</u>	<u>Scientific Name</u>
Mountainlaurel	<u>Kalmia latifolia</u>
Myoporum	<u>Myoporum parvifolium</u>
Myrtle*	<u>Myrtus communis</u>
Nandina*	<u>Nandina domestica</u>
Oak, Interior Live*	<u>Quercus wislizeni</u>
Oleander*	<u>Nerium oleander</u>
Oregongrape	<u>Mahonia aquifolium</u>
Osmanthus, Holly (Holly Olive)	<u>Osmanthus ilicifolius</u>
Pansy, Garden	<u>Viola tricolor</u>
Pear, Bartlett	<u>Pyrus communis</u>
Pelargonium, Sprinter Red	<u>Pelargonium hortorum</u>
Periwinkle, Bigleaf	<u>Vinca major</u>
Periwinkle, Common	<u>Vinca minor</u>
Petunia	<u>Petunia grandiflora</u>
Petunia, Red Cascade	<u>Petunia hybrida</u>
Photinia*	<u>Photinia frazerii</u>
Pieris, Japanese*	<u>Pieris japonica</u>
Pine, Austrian	<u>Pinus nigra</u>
Pine, Bishop	<u>Pinus muricata</u>
Pine, Canary*	<u>Pinus canariensis</u>
Pine, Coulter	<u>Pinus coulteri</u>
Pine, Eastern White	<u>Pinus strobus</u>
Pine, Japanese Black*	<u>Pinus thunbergii</u>
Pine, Monterey	<u>Pinus radiata</u>
Pine, Mugho*	<u>Pinus mugo var. "Mughus"</u>
Pine, Scotch	
(var. Spanish and Nelson)	<u>Pinus sylvestris</u>
Pine, Virginia	<u>Pinus virginiana</u>
Podocarpus, Shrubby Yew*	<u>Podocarpus macrophyllus</u>
Privet, Amur*	<u>Ligustrum amurense</u>
Privet, Glossy*	<u>Ligustrum lucidum</u>
Privet, Golden*	<u>Ligustrum vicaryi</u>
Privet, Japanese*	<u>Ligustrum japonicum</u>
Raphiolepis, India	<u>Raphiolepis indica</u>
Redcedar, Eastern	<u>Juniperus virginiana</u>
Redwood, Giant	<u>Sequoia sempervirens</u>
Rhododendron*	<u>Rhododendron spp.</u>
	cv. "Chionoides"
	cv. "Hinodegiri"
	cv. "PJM"
	cv. "Rosebud"
Rose	<u>Rosa spp.</u>
Rose, Belinda*	<u>Rosa spp. var. "Belinda"</u>
Rose, Cara-Mia	<u>Rosa spp. var. "Cara-Mia"</u>
Rose-of-Sharon (Shrubalthea)	<u>Hibiscus syriacus</u>
Shrimp Plant*	<u>Beloperone guttata</u>
Snapweed, Sultan	<u>Impatiens sultanii</u>
Spruce, Black	<u>Picea mariana</u>
Spruce, Colorado Blue*	<u>Picea pungens var. "Glauca"</u>
Spruce, Engelmann	<u>Picea engelmannii</u>
Spruce, Norway	<u>Picea abies</u>

<u>Common Name</u>	<u>Scientific Name</u>
Spruce, White	<u>Picea glauca</u>
Starjasmine, Chinese	<u>Trachelospermum jasminoides</u>
Stonecrop	<u>Sedum brevifolium</u>
Sweetgum*	<u>Liquidambar styraciflua</u>
Trumpetvine, Violet*	<u>Clytostoma callistegioides</u>
Viburnum, Laurestinus*	<u>Viburnum tinus</u>
Viburnum, Sandankwa	<u>Viburnum suspensum</u>
Weigela, Oldfashioned	<u>Weigela florida</u>
Wintercreeper, Bigleaf*	<u>Euonymus fortunei</u> var. "Emerald Cushion"
Wintercreeper, Purpleleaf	<u>Euonymus fortunei</u> var. "Coloratus"
Xylosma, Japanese	<u>Xylosma japonica</u>
Yaupon*	<u>Ilex vomitoria</u>
Yew, Japanese	<u>Taxus cuspidata</u>
Yucca, Soap tree*	<u>Yucca elata</u>
Zinnia, Common	<u>Zinnia elegans</u>

Precaution

Ice-Plant: When establishing unrooted Ice-plant on coarse soils in landscape plantings, use only the 2.4 pound per acre (1.0 oz per 1200 sq. ft.) rate of SURFLAN or crop injury may occur. After the Ice-plant is well established, a second application may be made.

FIELD GROWN FRUIT TREE NURSERY LINERS

SURFLAN is recommended for use on the following species:

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

Small Fruits:

Blackberry	Currant	Gooseberry
Blueberry	Dewberry	Loganberry
Boysenberry	Elderberry	Raspberry

RECOMMENDATIONS: SURFLAN ALONE

Broadcast Application Rates

<u>Length of Control</u>	<u>SURFLAN Dry Flowable</u>
Short Term Control (2-4 months)	2.4 pounds/acre (1.0 ounces per 1,200 square feet)
Long Term Control (6-8 months)	4.7 pounds/acre (2.0 ounces per 1,200 square feet)
(8-12 months**)	7.1 pounds/acre (3.0 ounces per 1,200 square feet)

** Not recommended in ornamental plantings.

RECOMMENDATIONS: TANK-MIX COMBINATIONS

ORNAMENTAL PLANTINGS AND NONCROPLAND AREAS

Tank-mix combinations of SURFLAN plus Roundup®, Fusilade®, Goal® and Poast® are recommended to control undesirable vegetation in ornamental and noncropland areas. Applied as directed these SURFLAN tank-mixes will provide control of susceptible species listed on the respective labels. Read the product labels for directions, precautions and limitations prior to using.

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Broadcast Application Rates for Tank-Mixes of SURFLAN plus Roundup

SURFLAN/Roundup						
SURFLAN DRY FLOWABLE* Ornamental Plantings		SURFLAN Dry Flowable* Noncropland Areas		Roundup		
Ounces Per 1200 Sq. Ft.	Pounds Per Acre	Ounces Per 1200 Sq. Ft.	Pounds Per Acre	Existing Annual and Broadleaf Weeds	Fluid Ounces Per 1200 sq. ft.	Quarts Per Acre
1 - 2	2.4 - 4.7	1 - 3	2.4 - 7.1	Less Than 6" Tall	0.9	1
1 - 2	2.4 - 4.7	1 - 3	2.4 - 7.1	More Than 6" Tall	1.3	1 1/2
1 - 2	2.4 - 4.7	1 - 3	2.4 - 7.1	Existing Perennial Weeds	1.8 - 4.5	2 - 5

* For length of control desired see SURFLAN Broadcast Application Rate table on page 13.

Precaution

Roundup is not recommended as an over-the-top spray in ornamentals. Extreme care must be exercised to avoid contact of spray containing Roundup with foliage of desirable turfgrasses, trees, shrubs, or other desirable vegetation since severe damage or destruction may result.

Note: If spraying areas adjacent to desirable plants with Roundup, use a shield made of cardboard, sheet metal, or plyboard while spraying to help prevent spray from contacting foliage of desirable plants.

CHRISTMAS TREE PLANTINGS

Tank-mix combinations of SURFLAN and Princep® 80W or Goal® are recommended as ovetop sprays on field grown Christmas tree species. Applied as directed these SURFLAN tank-mixes will provide control of susceptible species listed on the respective labels. Read the product labels for directions, precautions and limitations prior to use.

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INDUSTRIAL SITES

Tank-mix combinations of SURFLAN plus Spike®, Casoron®, Dowpon® 74SP, Hyvar® X, Karmex® (diuron), Krovar® I & II, MSMA, Oust®, Gramoxone® (paraquat), Princep® (simazine), Sencor®, and Telar®, are recommended as overtop sprays to existing vegetation in industrial areas including utility substations, highway guard rails, sign posts and delineators. Applied as directed these SURFLAN tank-mixes will provide control of susceptible species listed on the respective labels. Read the product labels for directions, precautions and limitations prior to use.

WARM SEASON TURFGRASS

GENERAL USE PRECAUTIONS

SURFLAN will not control established weeds.

SURFLAN may injure turf that is under weakened conditions due to degree of establishment or winter climatic conditions. Apply SURFLAN to healthy, established turf only.

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

SURFLAN should not be applied in the spring to turfgrass planted in the previous fall. In bermudagrass areas that have been overseeded with winter grasses, a spring application of SURFLAN will thin the overseeded grasses.

SURFLAN should not be applied to newly sprigged areas of bermudagrass, St. Augustinegrass, centipedegrass or zoysiagrass until these turfgrasses are well established.

SURFLAN should not be applied to newly hydromulched areas of bermudagrass until these areas are well established.

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

Areas planted with bermudagrass var. "Sun Turf" in Northern Oklahoma have shown sensitivity to SURFLAN that has been tank-mixed with atrazine.

Do not apply SURFLAN on golf course putting greens.

SURFLAN is an orange chemical. If this temporary coloration is undesirable, this orange color may be altered by using a commercially available colorant such as Blazon.

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Grasses Controlled by SURFLAN in Turf

<u>Summer Annuals</u>		<u>Winter Annual</u>	
<u>Common Name</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Scientific Name</u>
Barnyardgrass (Watergrass)	<u>Echinochloa crus-galli</u>	Bluegrass, Annual	<u>Poa annua</u>
Crabgrasses (Large Crabgrass) (Smooth Crabgrass)	<u>Digitaria</u> spp.		
Crowfootgrass	<u>Dactyloctenium aegyptium</u>		
Foxtails	<u>Setaria</u> spp.		
(Bottlegrass)			
(Bristlegrass)			
(Giant Foxtail)			
(Green Foxtail)			
(Pigeongrass)			
(Robust Foxtail)			
(Yellow Foxtail)			
Goosegrass (Silver Crabgrass)	<u>Eleusine indica</u>		
Johnsongrass (Seedling only)	<u>Sorghum halepense</u>		
Ryegrass, Italian	<u>Lolium multiflorum</u>		
Sandbur, field	<u>Cenchrus incertus</u>		

Broadleaf Weeds Controlled by SURFLAN in Turf

<u>Summer Annuals</u>		<u>Winter Annuals</u>	
<u>Common Name</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Scientific Name</u>
Carpetweed	<u>Mollugo verticillata</u>	Chickweed, common	<u>Stellaria media</u>
Knotweed, prostrate	<u>Polygonum aviculare</u>		
Purslane, common	<u>Portulaca oleracea</u>	Henbit	<u>Lamium amplexicaule</u>

SURFLAN applied according to directions in turfgrass areas provides partial control or suppression of the following broadleaf weeds:

- Groundsel, common
- Spurge, prostrate
- Woodsorrel, yellow

SURFLAN will not control established weeds.

DIRECTIONS FOR USE - Read All Directions Carefully Before Applying

RATES, FREQUENCY AND TIMING OF APPLICATION

SURFLAN is a preemergence herbicide, which is applied to established Southern turf including bahiagrass, bermudagrass, centipedegrass, tall fescue, St. Augustinegrass and zoysiagrass for the control of annual grasses and some broadleaf weeds. SURFLAN works by controlling weeds as the seeds germinate.

SURFLAN can be applied to nearby established ornamental trees and shrubs. Review ornamental section for proper use instructions.

Successful preemergence control of the annual grass weeds listed on this label requires proper timing of application.

Apply SURFLAN prior to the germination of annual grass weeds. All summer annual grasses do not germinate at the same time. If application timing does not coincide with the normal germination period of any of the annual grass weeds listed on this label, weed control results may be erratic or poor. In the absence of timely rainfall, irrigation can be used to move SURFLAN into the soil surface.

APPLICATION DIRECTIONS

SURFLAN can be applied in the spring for summer annual grass and broadleaf weed control, and in the fall for Poa annua and winter annual broadleaf weed control.

1. SPRING GERMINATING SUMMER ANNUAL GRASSES AND BROADLEAF WEEDS

A. Single Application Program:

For preemergence control, apply 2.4 to 3.6 pounds SURFLAN per acre (1 to 2.5 oz per 1200 sq. ft.) in late winter or early spring prior to the onset of conditions favorable for annual weed grass germination. Select the 3.6 pound rate in areas with a longer growing season or where control of weeds is required for a longer period of time.

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B. Split Application and Tall Fescue Application Program:

As an alternative to single application programs, SURFLAN may also be applied in split applications. 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 SURFLAN at 1.8 pounds per acre (0.75 oz per 1200 sq. ft.) at the initial application followed by a second application of 1.8 pounds. The second application should be made 8 to 10 weeks following the initial application.

The split application program is recommended where tall fescue is the dominant turfgrass species.

2. POA ANNUA (ANNUAL BLUEGRASS) AND BROADLEAF WINTER ANNUALS

In areas of heavy infestation of annual bluegrass, its elimination will temporarily result in thin turfgrass areas. Proper fertilization, irrigation and soil incorporated reseeding will encourage existing desirable turfgrasses and newly planted seedling turfgrasses to fill in these thin areas previously occupied by annual bluegrass. For preemergence control, apply 1.8 pounds SURFLAN per acre (0.75 oz per 1200 sq. ft.) in the late summer or early fall prior to the expected germination of annual bluegrass and broadleaf winter annual weeds.

RESEEDING

Chemicals that effectively control annual weeds may also affect new desirable turfgrass seedlings. Reseeding should be delayed for at least 90-120 days after applying SURFLAN. When reseeding, it is essential that proper cultural practices such as soil cultivation, irrigation and fertilization be followed. For satisfactory reseeding results after using SURFLAN, the amount of seed used should be increased and equipment designed to place seed in contact with the soil (such as the Rogers Aero Seeder) should be employed.

APPLICATION EQUIPMENT

Apply SURFLAN evenly over the turfgrass area without skips, misses, or overlaps. For best results use equipment designed to apply liquid herbicides and insecticides. Calibrate application equipment prior to use, according to the manufacturer's directions. Check frequently to be sure equipment is working properly and distributing spray uniformly.

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PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Keep Out of Reach of Children

Caution

Harmful if swallowed or inhaled. Avoid breathing dust or spray mist and contact with skin, eyes or clothing. Use eye protection and protective clothing such as coveralls, a long-sleeved shirt and impermeable gloves when handling this product. Remove contaminated clothing and wash before reuse.

STATEMENTS OF PRACTICAL TREATMENT

Statements of Practical Treatment

If swallowed: Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

If in eyes: Flush eyes with plenty of water. Call a physician if irritation develops.

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

If inhaled: SURFLAN Dry Flowab should not present a hazard by inhalation. However, if discomfort occurs individual to fresh air. If not breathing, provide cardiopulmonary resuscitation assistance and get medical attention.

Environmental Hazards

Do not apply directly to water or wetlands. Do not contaminate water by cleaning of equipment or disposal of wastes.

STORAGE AND DISPOSAL

Storage: Store in original container only. Do not store in direct sunlight. Do not store at temperatures above 120°F. If stored above 120°F, SURFLAN Dry Flowable could lose some of its dispersing properties, resulting in difficult application, poor weed control or crop injury. In case of leak or spill, contain material and dispose as waste.

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

Container Disposal: Dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

DISCLAIMER OF WARRANTIES

The manufacturer makes no warranties concerning this product or its use, which extend beyond the description on the label. All other warranties, express or implied, including but not limited to, any implied warranties of merchantability and fitness for a particular purpose, are disclaimed. All statements concerning this product apply only when used as directed.

LIMITATION OF DAMAGES

Elanco's liability, whether in contract, warranty, tort, negligence, strict liability or otherwise, should not exceed the return of the amount of the purchase price of the SURFLAN Dry Flowable and under no circumstances shall Elanco be liable for special, indirect or consequential damages.

- (SURFLAN® - oryzalin, Elanco)
- (Spike® - tebuthiuron, Elanco)
- (Blazon® - Milliken Chemical)
- (Casoron® - dichlobenil, Philips-Duphar)
- (Dowpon® - dalapon, Dow)
- (Fusilade® - fluazifop-butyl, ICI Americas)
- (Goal® - oxyfluorfen, Rohm and Haas)
- (Gramoxone® - paraquat, I.C.I.)
- (Hyvar® - bromacil, Du Pont)
- (Karmex® - diuron, Du Pont)
- (Krovar® - I & II - bromacil/diuron, Du Pont)
- (Oust® - sulfometuron methyl, Du Pont)
- (Poast® - sethoxydim, BASF)
- (Princep® - simazine, Ciba-Geigy)
- (Roundup® - glyphosate, Monsanto)
- (Sencor® - metribuzin, Bayer)
- (Telar® - chlorsulfuron, Du Pont)

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SURFLAN Dry Flowable Label

Revised 01/05/87: Updated wordage on precautionary statement, statements of practical treatment and environmental hazards. Changed scientific name of largeleaf ice-plant. Modified pound per acre rates and oz/1000 sq. ft. to rates per 1200 sq. ft. Added Gramoxone trademark. Eliminated scientific names of partially controlled weeds.