



Department of Energy  
Office of Legacy Management

Attachment  
in working  
file

October 15, 2009

Susan C. Linner  
Colorado Field Supervisor  
c/o Alison Deans Michael  
USFWS/Colorado Field Office  
P.O. Box 25486, DFC (MS65412)  
Denver, Colorado 80225-0486

Subject: Weed Control Activities at the Rocky Flats Site Section 7 Consultation Request

Dear Ms. Linner:

In spring 2006, the U.S. Department of Energy (DOE) wrote the *Biological Evaluation for Weed Control in Preble's Mouse Habitat at the Rocky Flats, Colorado, Site* (BEWC) (DOE 2006) and submitted it to the U.S. Fish and Wildlife Service (USFWS) for consultation on weed control activities to be conducted in Preble's meadow jumping mouse (*Zapus hudsonius preblei*) (Preble's mouse) habitat at the Rocky Flats Site. In a letter dated April 25, 2006, USFWS approved the weed control activities outlined in the BEWC. DOE submitted an amendment to the original document on February 28, 2007, which requested that herbicides and mechanical control methods be changed and that weed control activities not require annual renewals. In a letter dated April 4, 2007, USFWS approved the changes. Over the past 2 years, additional weed control issues have arisen in Preble's mouse habitat; this document, which constitutes an additional amendment to the original BEWC, is being submitted to request more modifications. This amendment is submitted for consultation with USFWS to add some control measures that will improve the ability to control weeds in Preble's mouse habitat at the Site. DOE requests concurrence that these changes to weed control activities be approved so they can be implemented.

If you have questions, please feel free to contact me or Jody Nelson at (720) 377-9677.

Sincerely,

Scott R. Surovchak  
LM Site Manager

Enclosure

JKN:abm

Susan C. Linner

-2-

cc:

Steve Berendzen, USFWS

cc: w/o enclosure

Rick DiSalvo, Stoller

Linda Kaiser, Stoller

Jody Nelson, Stoller

# **Amendment II to the Biological Evaluation for Weed Control in Preble's Mouse Habitat at the Rocky Flats, Colorado, Site**

**October 2009**

In spring 2006, the U.S. Department of Energy (DOE) wrote the *Biological Evaluation for Weed Control in Preble's Mouse Habitat at the Rocky Flats, Colorado, Site* (BEWC) (DOE 2006) and submitted it to the U.S. Fish and Wildlife Service (USFWS) for consultation on weed control activities to be conducted in Preble's meadow jumping mouse (*Zapus hudsonius preblei*) (Preble's mouse) habitat at the Rocky Flats Site (Site). In a letter dated April 25, 2006, USFWS approved the weed control activities outlined in the BEWC. DOE submitted an amendment to the original document on February 28, 2007, which requested that herbicides and mechanical control methods be changed and that weed control activities not require annual renewals. In a letter dated April 4, 2007, USFWS approved the changes. Over the past 2 years, additional weed control issues have arisen in Preble's mouse habitat; this document, which constitutes an additional amendment to the original BEWC, is being submitted to request more modifications.

DOE requests the following changes to weed control activities in Preble's mouse habitat at the Site:

1. DOE requests that the herbicides Garlon 3A (active ingredient: triclopyr) and Garlon 4 (active ingredient: triclopyr) be added to the approved herbicide list for work in Preble's mouse habitat. Garlon 3A is an aquatic approved herbicide that is used for killing woody plants. Garlon 4 is the terrestrial, non-aquatic approved version of Garlon 3A. The formulation of Garlon 4 is preferred for use where possible because it controls plants more effectively after just one application. However, because many of the locations are near water, Garlon 3A will be used where Garlon 4 is not appropriate. Garlon 3A could be used in Zones 1 and 2 in Preble's mouse habitat, and Garlon 4 could be used in Zone 2 in Preble's mouse habitat, as defined in the original BEWC. The herbicide is mixed with methylated soybean oil to improve the herbicide contact with plants and ability to penetrate bark. The herbicide labels, methylated soybean oil label, and material safety data sheets are attached.

DOE will use these herbicides to control Russian olive (*Elaeagnus angustifolia*), tamarisk (*Tamarix ramosissima*), and other undesirable woody species. At the Site's two landfills, the monitoring and maintenance plans (approved by the State of Colorado and the U.S. Environmental Protection Agency) do not allow woody plants of any species to grow on the landfill covers. They must be removed or killed. Mechanically controlling these woody species is not effective because the species sprout again, so chemical control will be required at the Site. Since both Russian olive and tamarisk are often found in the riparian areas at Rocky Flats, they are often in Preble's mouse habitat. Portions of the Original Landfill are also in Preble's mouse habitat, and woody plants there must be removed from the landfill cover. To kill these woody species, DOE will make either basal

bark applications or cut-stump applications using Garlon 3A or Garlon 4. Typically if the plant stems are less than 3 inches in diameter, DOE will make basal bark applications; if the stem diameters are greater than 3 inches, DOE will make cut-stump applications. This can vary somewhat depending on the thickness of the bark on each plant. The manufacturer's instructions for applications will be followed.

2. DOE requests that a chain saw be added to the list of mechanical equipment approved for use in Preble's mouse habitat. The chain saw is needed to cut down the larger Russian olive trees and other species that cannot be cut with hand saws or loppers.
3. DOE requests that applications of the herbicide Escort (active ingredient: metasulfuron) be allowed in the spring. Currently, Escort can be applied in Preble's mouse habitat only after August 1. (USFWS required that this stipulation be included in the 2007 amendment to the BEWC.) However, this time constraint has hindered the control of some noxious weed species. Many mustard species, such as whitetop (*Cardaria draba*), lens-podded hoary cress (*Cardaria chalepensis*), and Dame's rocket (*Hesperis matronalis*), are early-season species that are not effectively controlled by spraying after August 1. In order to control early-season species that other herbicides on the list do not control, DOE must be able to spray Escort in the spring as well. Therefore, DOE requests that USFWS approve the springtime use of Escort in Preble's mouse habitat in Zones 1 and 2. The herbicide label and material safety data sheet are attached. DOE will apply Escort according to the manufacturer's instructions and with the equipment outlined in the BEWC. The product label indicates that "[i]t is permissible to treat intermittently flooded low lying sites, seasonally dry flood plains, and transitional areas between upland and lowland sites when no water is present. It is also permissible to treat marshes, swamps, and bogs after water has receded as well as seasonally dry flood deltas. DO NOT make applications to natural or man-made bodies of water such as lakes, reservoirs, ponds, streams, and canals."
4. DOE requests that the herbicide Plateau (active ingredient: imazapic) be approved for controlling leafy spurge (*Euphorbia uralensis*) in Preble's mouse habitat in Zones 1 and 2. Leafy spurge has been found at Rocky Flats in the last few years. DOE intends to eradicate it from the Site before it becomes established. Plateau is the herbicide of choice for killing leafy spurge. It is currently approved for use in Preble's mouse habitat for controlling jointed goatgrass (*Aegilops cylindrica*) growing along the roadsides at the Site. However, the approval of Plateau for Preble's mouse habitat in Zones 1 and 2 would allow DOE to be proactive and treat leafy spurge immediately, should it arise. DOE would follow the manufacturer's instructions and use the equipment outlined in the BEWC. The herbicide label and material safety data sheet are attached.

## References

DOE (U.S. Department of Energy), 2006. *Biological Evaluation for Weed Control in Preble's Mouse Habitat at the Rocky Flats, Colorado, Site*, U.S. Department of Energy, Office of Legacy Management, Grand Junction, Colorado, April 10, 2006.

## MATERIAL SAFETY DATA SHEET

### CORNBELT METHYLATED SOY-STIK

Van Diest Supply Co.  
P.O. Box 610  
Webster City, IA 50595  
515-832-2366

FOR CHEMICAL EMERGENCY  
SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT  
CALL CHEMTREC - DAY OR NIGHT  
1-800-424-9300

### PRODUCT IDENTIFICATION

**Common Name:** Cornbelt Methylated Soy-Stik  
**Chemical Name:** Mixture of surfactants and methyl soyate  
**EPA Reg. No.:** Not Applicable

### HAZARDOUS INGREDIENTS

This material is not known to contain any chemical listed as a carcinogen by OSHA, IARC, or the National Toxicology Program at a concentration greater than 0.1%.

### HEALTH HAZARD DATA

**Oral Toxicity:** Slight throat irritation and respiratory discomfort  
**Eye Irritation:** Slight irritation  
**Skin Irritation:** Mild to moderate irritation  
**Chronic Effects of Overexposure:** No data available  
**Acute Toxicological Properties:** Mild to moderate irritation

### EMERGENCY FIRST AID PROCEDURES

**Eyes:** Flush with large amounts of water for at least 15 minutes. If irritation persists, call a physician.  
**Skin Contact:** Flush with large amounts of water for 15 minutes.  
**Inhalation:** Remove to fresh air. If breathing is difficult, give oxygen and call a physician  
**If Swallowed:** Do NOT induce vomiting. If conscious have victim rinse mouth, then drink large amounts of water. Never give anything by mouth to an unconscious person. Call a physician immediately.

### PRECAUTIONARY MEASURES

**Precautions to be taken in handling and storage:** Store between 40° F and 120° F.  
**Ventilation Type Required:** Local, mechanical, special  
**Protective Gloves:** Rubber or plastic, solvent resistant  
**Eye Protection:** Chemical safety goggles  
**Other Protective Equipment:** Neoprene protective type apron

### FIRE PROTECTION INFORMATION

**Special Fire Fighting Procedures:**  
Firefighters must be equipped to prevent breathing of vapors or products of combustion. Wear an approved self-contained breathing apparatus and protective clothing.  
**Flashpoint (Method Used):** >200°F via Pensky Martin Closed-Cup

**Flammable Limits %:** Not determined

**Extinguishing Agents:** Dry chemical, CO<sub>2</sub>, foam, or sand/earth

**Unusual Fire and Explosion Hazards:** None

### **PHYSICAL DATA**

**Form:** Liquid

**Odor:** Fatty

**Appearance:** Clear Liquid

**Color:** Amber

**Specific Gravity (water=1):** 0.89

**Boiling Point:** No data available

**Melting Point:** No data available

**Solubility in Water (by weight %):** Emulsifiable

**Volatile (by weight %):** 1%

**Evaporation Rate:** Not applicable

**Vapor Pressure (mmHg at 20°C):** No data available

**Vapor Density (air=1):** No data available

**pH:** 5 to 7

### **STABILITY DATA**

**Stability:** Product is stable under normal conditions

**Hazardous Decomposition Products:** Carbon monoxide and carbon dioxide from burning

**Incompatibility (Keep away from):** Strong oxidizers such as hydrogen peroxide, bromine and chromic acid

**Hazardous Polymerization:** Not applicable

### **SPILL, LEAK & DISPOSAL INFORMATION**

**Procedures for Clean-Up:** Absorb with an inert material such as sand, soil or vermiculite.

**Waste Disposal:** Dispose of in accordance with all applicable federal, state and local regulations.

### **DOT INFORMATION**

**Proper Shipping Name:** Adjuvant, Spreader or Sticker

**Hazard Class:** Not regulated

### **REGULATORY INFORMATION**

**311/312 Physical & Health Hazard Categories:** Immediate (Acute)

**313 Reportable Ingredients:** Methanol (CAS #67-56-1) 1-2%

**Reportable Quantity:** Not applicable

**ADDITIONAL INFORMATION**

Prepared By: Van Diest Supply Co.

Date Prepared: 2-5-93

Date Revised: 9-2007

The information, data, and recommendations in this material safety data sheet relate only to the specific material designated herein and do not relate to use in combination with any other material or in any process. The information, data, and recommendations set forth herein are believed by Van Diest Supply Co. to be accurate. Van Diest Supply Co. makes no warranties, either expressed or implied, with respect thereto and assumes no liability in connection with any use of such information, data and recommendations.

Cornbelt is a Registered Trademark of Van Diest Supply Co.  
Webster City, Iowa 50595



# DuPont™ Escort® XP

herbicide

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*“..... A Growing Partnership With Nature”*



# DuPont™ Escort® XP

## herbicide

### Dry Flowable

<i>Active Ingredient</i>	<i>By Weight</i>
Metsulfuron methyl Methyl 2-[[[(4-methoxy-6-methyl- 1,3,5-triazin-2-yl)amino]- carbonyl]amino]sulfonyl]benzoate	60%
<b><i>Inert Ingredients</i></b>	40%
<b>TOTAL</b>	<b>100%</b>

EPA Reg. No. 352-439

### KEEP OUT OF REACH OF CHILDREN

### CAUTION

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

#### FIRST AID

**IF ON SKIN OR CLOTHING:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice.

**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 eye. Call a poison control center or doctor for further 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 1-800-441-3637 for emergency medical treatment information.

### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION!** Causes eye irritation. Avoid contact with skin, eyes or clothing. Avoid breathing dust or spray mist.

#### PERSONAL PROTECTIVE EQUIPMENT

**Applicators and other handlers must wear:**

Long-sleeved shirt and long pants.

Shoes plus socks.

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

#### USER SAFETY RECOMMENDATIONS

**USERS SHOULD:** Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

#### ENVIRONMENTAL HAZARDS

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

This herbicide is injurious to plants at extremely low concentrations. Nontarget plants may be adversely effected from drift and run-off.

## IMPORTANT

DO NOT USE ON FOOD OR FEED CROPS EXCEPT AS RECOMMENDED BY THIS LABEL OR SUPPLEMENTAL LABELING. Injury to or loss of desirable trees or other plants may result if the precautions listed below are not followed.

- Do not apply DuPont™ ESCORT® XP herbicide (except as recommended), or drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend or in locations where the product may be washed or moved into contact with their roots.
- Do not use on lawns, walks, driveways, tennis courts, or similar areas.
- Prevent drift of spray to desirable plants.
- Do not contaminate any body of water, including irrigation water.
- Keep from contact with fertilizers, insecticides, fungicides and seeds.

Low rates of ESCORT® XP can kill or severely injure most crops. Following an ESCORT® XP application, the use of spray equipment to apply other pesticides to crops on which ESCORT® XP is not registered may result in their damage. The most effective way to reduce this crop damage potential is to use dedicated mixing and application equipment.

## GENERAL INFORMATION

ESCORT® XP herbicide is a dispersible granule that is mixed in water and applied as a spray by ground or aerial application.

ESCORT® XP is recommended for the control of annual and perennial weeds and unwanted woody plants on private, public and military lands, on rights-of-way, industrial sites, non-crop areas, ditchbanks of dry drainage ditches, certain types of unimproved turf grass, and conifer and hardwood plantations, including grazed areas on these sites. Do not use on irrigation ditches.

ESCORT® XP controls weeds and woody plants primarily by postemergent activity. Although ESCORT® XP has preemergence activity, best results are generally obtained when ESCORT® XP is applied to foliage after emergence or dormancy break. Generally, for the control of annual weeds, ESCORT® XP provides the best results when applied to young, actively growing weeds. For the control of perennial weeds, applications made at the bud/bloom stage or while the target weeds are in the fall rosette stage may provide the best results. The use rate depends upon the weed species and size at the time of application.

The degree and duration of control may depend on the following:

- weed spectrum and infestation intensity
- weed size at application
- environmental conditions at and following treatment
- soil pH, soil moisture, and soil organic matter.

ESCORT® XP may be applied on conifer and hardwood plantations, and non-crop sites that contain areas of temporary surface water caused by the collection of water between planting beds, in equipment ruts, or in other depressions created by management activities. It is

permissible to treat intermittently flooded low lying sites, seasonally dry flood plains and transitional areas between upland and lowland sites when no water is present. It is also permissible to treat marshes, swamps and bogs after water has receded as well as seasonally dry flood deltas. DO NOT make applications to natural or man-made bodies of water such as lakes, reservoirs, ponds, streams and canals.

## ENVIRONMENTAL CONDITIONS AND BIOLOGICAL ACTIVITY

ESCORT® XP is absorbed primarily through the foliage of plants, and by the roots to a lesser degree. Plant cell division is generally inhibited in sensitive plants within a few hours following uptake. Two to 4 weeks after application, leaf growth slows followed by discoloration and tissue death. The final effects on annual weeds are evident about 4 to 6 weeks after application. The ultimate effect on perennial weeds and woody plants occurs in the growing season following application.

Warm, moist conditions following treatment promote the activity of ESCORT® XP, while cold, dry conditions may reduce or delay activity. Weeds and brush hardened off by cold weather or drought stress may not be controlled.

The use of a surfactant is recommended to enhance the control of susceptible plants, except where noted. Apply at a minimum rate (concentration) of 1/4% volume/volume (1 quart per 100 gallons of spray solution), or at the manufacturer's recommended rate. Use only EPA approved surfactants containing at least 80% active ingredient. Certain types of surfactants, such as those incorporating acetic acid (i.e. LI- 700), may not be compatible with ESCORT® XP and may result in decreased performance. Certain surfactants may not be suitable for use on desirable plants, such as turf and conifers, listed on this label. Consult the surfactant manufacturer's label for appropriate uses.

Weed and brush control may be reduced if rainfall occurs soon after application.

## RESISTANCE

When herbicides that affect the same biological site of action are used repeatedly over several years to control the same weed species in the same field, naturally-occurring resistant biotypes may survive a correctly applied herbicide treatment, propagate, and become dominant in that field. Adequate control of these resistant weed biotypes cannot be expected. If weed control is unsatisfactory, it may be necessary to retreat the problem area using a product affecting a different site of action.

To better manage herbicide resistance through delaying the proliferation and possible dominance of herbicide resistant weed biotypes, it may be necessary to change cultural practices within and between crop seasons such as using a combination of tillage, retreatment, tank-mix partners and/or sequential herbicide applications that have a different site of action. Weed escapes that are allowed to go to seed will promote the spread of resistant biotypes.

It is advisable to keep accurate records of pesticides applied to individual fields to help obtain information on the spread and dispersal of resistant biotypes. Consult your agricultural dealer, consultant, applicator, and/or appropriate state

agricultural extension service representative for specific alternative cultural practices or herbicide recommendations available in your area.

## INTEGRATED PEST MANAGEMENT

This product may be used as part of an Integrated Pest Management (IPM) program that can include biological, cultural, and genetic practices aimed at preventing economic pest damage. IPM principles and practices include field scouting or other detection methods, correct target pest identification, population monitoring, and treating when target pest populations reach locally determined action thresholds. Consult your state cooperative extension service, professional consultants or other qualified authorities to determine appropriate action treatment threshold levels for treating specific pest/crop systems in your area.

## DIRECTIONS FOR USE

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

DuPont™ ESCORT® XP should be used only in accordance with recommendations on this label or in separately published DuPont recommendations.

DuPont will not be responsible for losses or damages resulting from the use of this product in any manner not specifically recommended by DuPont. User assumes all risks associated with such non-recommended use.

Do not apply more than 4 ounces of ESCORT® XP per acre per year.

Do not use on food or feed crops except as recommended by this label or supplemental labeling.

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 in your State responsible for pesticide regulation.

## TANK MIXES

ESCORT® XP may be tank mixed with other herbicides registered for the use sites described in this label. Use only those tank mix partners which are labeled for the appropriate use site. When tank mixing, use the most restrictive label limitations for each of the products being used in the tank mix.

## AGRICULTURAL USES

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

- Coveralls
- Shoes plus socks

## CONIFER PLANTATIONS

### Application Information

ESCORT® XP is recommended for the control of many species of weeds and deciduous trees on sites where conifers are growing or are to be planted. Apply by ground equipment or by air (helicopter only). Refer to the "Weeds Controlled" and "Brush Species Controlled" for a listing of susceptible species.

### Application Timing

Apply ESCORT® XP after weeds have emerged or after undesirable hardwoods have broken winter dormancy and have reached the point of full leaf expansion.

### Conifer Site Preparation

#### --Application Before Transplanting

After consulting the "Weeds Controlled" and "Brush Species Controlled" tables, apply the rates of ESCORT® XP recommended for the most difficult to control species on the site.

**Southeast**—Apply up to 4 ounces per acre for loblolly and slash pines. Transplant the following planting season.

**Northeast and Lake States**—Apply up to 2 ounces per acre for red pine. Transplant the following planting season. Apply up to 2 ounces per acre for black, white and Norway spruce. Transplant the following spring.

**West**—Apply up to 2 ounces per acre prior to planting Douglas Fir, Sitka Spruce, Western Red Cedar, Western Hemlock, Ponderosa Pine, and Grand Fir in the Coast Rangeland and western slope of the Cascades in Oregon and Washington. These conifer species listed can be planted anytime after application. Other conifer species can be planted providing the user has prior experience indicating acceptable tolerance to ESCORT® XP soil residues.

Without prior experience, it is recommended that other species be planted on a small scale to determine selectivity before large-scale plantings are made as unacceptable injury may occur. DuPont will not assume responsibility for injury to any conifer species not listed on this label.

#### **Tank Mix Combinations—**

For broader spectrum control, the following products are recommended in combination with DuPont™ ESCORT® XP.

#### **Glyphosate (4 pound active per gallon)**

Tank mix 1 to 2 ounces of ESCORT® XP with 2 to 10 quarts of glyphosate per acre. Refer to the product container for a list of species controlled.

#### **Imazapyr (4 pound active per gallon)**

Tank mix 1 to 2 ounces of ESCORT® XP with 10 to 24 fluid ounces of imazapyr per acre. Loblolly and slash pines may be transplanted the planting season following application. This combination controls ash, black gum, cherry, hawthorn, honeysuckle, hophornbeam, persimmon, oaks (red, white and water), sassafras, sweetgum, Vaccinium species, and suppresses blackberry, dogwood, elms, myrtle dahoon, hickories, and red maple.

#### **Glyphosate (4 pound active per gallon) + Imazapyr (4 pound active per gallon)**

Tank mix 1/2 to 1 ounce of ESCORT® XP with 16 to 64 fluid ounces of glyphosate and 10 to 12 fluid ounces of imazapyr per acre. Slash and loblolly pines may be transplanted the planting season following application. This combination controls cherry, dogwood, elms, oaks (red and water), persimmon, sassafras, sweetgum and suppresses hickory.

#### **DuPont™ VELPAR® L or VELPAR® DF**

Tank mix 1 to 2 ounces of ESCORT® XP per acre with VELPAR® L or VELPAR® DF at the rates recommended on the container for various soil textures. Loblolly and slash pines may be transplanted the planting season following application. Refer to the product container for a list of species controlled.

#### **DuPont™ OUST® EXTRA**

Tank mix 1/2 to 1 1/2 ounces of ESCORT® XP with 2 to 3 ounces of OUST® EXTRA per acre for herbaceous weed control. Refer to the product container and the "Weeds Controlled" section of this label for a listing of the weeds controlled. Loblolly and slash pines may be transplanted the planting season following application. Tank mix 2 ounces of ESCORT® XP with 3 ounces of OUST® EXTRA per acre for herbaceous weed control and early spring suppression of bull thistle and Canada thistle in the Coast Rangeland and western slope of the Cascade Mountains. Douglas fir may be transplanted at least 90 days following application.

#### **Release--Hardwood Control and Suppression**

ESCORT® XP is recommended for application over the top of established slash and loblolly pine to control the species listed in "Weeds Controlled" and "Brush Species Controlled" section of this label. Apply 1 to 4 ounces per acre to control the species indicated, including kudzu.

#### **Tank Mix Combinations—**

For broader spectrum control the following products are recommended in combination with ESCORT® XP.

#### **Imazapyr (4 pound active per gallon)**

Tank mix 1 to 2 ounces of ESCORT® XP with 8 to 16 fluid ounces of imazapyr per acre for application to loblolly pine. Refer to the imazapyr label regarding the use of surfactants and the appropriate application timing with respect to the age and development stage of the pines. This combination controls ash, black gum, cherry, hawthorn, honeysuckle, hophornbeam, oaks (red, white and water), sassafras, sweetgum, Vaccinium species, and suppresses blackberry, dogwood, elms, myrtle dahoon, hickories, persimmon, and red maple.

#### **VELPAR® L or VELPAR® DF**

Tank mix 1 to 2 ounces of ESCORT® XP with VELPAR® L or VELPAR® DF at the rates recommended on the container for various soil textures. This combination may be applied to loblolly and slash pines.

#### **Release--Herbaceous Weed Control**

ESCORT® XP may be applied to transplanted loblolly and slash pine for the control of herbaceous competition. Consult the "Weeds Controlled" for a listing of the susceptible species and recommended application rates. Best results are obtained when ESCORT® XP is applied just before weed emergence until shortly after weed emergence.

#### **Tank Mix Combinations—**

For broader spectrum control the following products are recommended in combination with ESCORT® XP.

#### **Imazapyr (4 pound active per gallon)**

Tank mix 1/2 to 1 ounce of ESCORT® XP with 4 fluid ounces of imazapyr per acre. The tank mix may be used on loblolly pine.

#### **VELPAR® L or VELPAR® DF**

Tank mix 1/2 to 1 ounce of ESCORT® XP with VELPAR® L or VELPAR® DF at the rates recommended on the container for various soil textures. This combination may be applied to loblolly and slash pines.

#### **Release - Directed Spray in Conifers**

##### **Western US**

To release conifers from competing brush species, such as, blackberry, salmonberry, snowberry, thimbleberry and wild roses, mix 2 to 4 ounces of ESCORT® XP per 100 gallons of spray solution. Direct spray onto the foliage of competing brush species using a knapsack or backpack sprayer. For best results, apply any time after the brush species have reached full leaf stage but before autumn coloration. At application, the majority of the brush species should be less than six feet in height to help ensure adequate spray coverage. Thorough coverage of the target foliage is necessary to optimize results. Care should be taken to direct the ESCORT® XP spray solution away from the conifer foliage.

**NOTE:**

ESCORT® XP may cause temporary yellowing and or growth suppression when the spray solution contacts conifer foliage. The use of a surfactant with ESCORT® XP may improve brush control results. When using a surfactant with ESCORT® XP, extra precaution must be taken to avoid contact with conifer foliage. Excessive drift onto conifers may result in severe injury.

**IMPORTANT PRECAUTIONS**

**—CONIFER PLANTATIONS ONLY**

- Applications of ESCORT® XP made to conifers that are suffering from loss of vigor caused by insects, diseases, drought, winter damage, animal damage, excessive soil moisture, planting shock, or other stresses may injure or kill the trees.
- Applications of ESCORT® XP made for herbaceous release should only be made after adequate rainfall has closed the planting slit and settled the soil around the roots following transplanting.
- Do not apply ESCORT® XP to conifers grown as ornamentals.
- ESCORT® XP applications may result in damage and mortality to other species of conifers when they are present on sites with those listed in the preceding recommendations for conifer plantations.

**HARDWOOD PLANTATIONS**

**Application Information**

ESCORT® XP is recommended at rates of up to 2 ounces per acre for the control of many weed species on sites where yellow poplar is growing or is to be planted, and on sites where red alder is to be planted. Apply by ground equipment or by air (helicopter only). Refer to the "Weeds Controlled" sections of this label for a listing of susceptible species.

**Application Timing**

ESCORT® XP may be applied as a site preparation treatment prior to planting red alder or yellow poplar. As a prior to planting site preparation treatment for red alder, ESCORT® XP may be tank mixed with other herbicides labeled for this use.

ESCORT® XP may also be applied over-the-top of planted yellow poplar seedlings after the soil has settled around the root system, but before the seedlings have broken dormancy (prior to bud break).

**Release--Herbaceous Weed Control**

ESCORT® XP may be applied to yellow poplar for the control of herbaceous competition. Consult the "Weeds Controlled" for a listing of the susceptible species and recommended application rates. Best results are obtained when ESCORT® XP is applied just before weed emergence until shortly after weed emergence.

**Tank Mix Combinations—**

Tank mix 1/2 ounce of ESCORT® XP with 4 to 6 pints of DuPont™ VELPAR® L as recommended on the package label for "RELEASE--HERBACEOUS WEED CONTROL" in pine plantations in the eastern U.S. Follow the VELPAR® L label recommendations regarding altering the application rate by soil texture.

**IMPORTANT PRECAUTIONS**

**—HARDWOOD PLANTATIONS ONLY**

- Application of VELPAR® L and ESCORT® XP made to yellow poplar that are suffering from loss of vigor caused by insects, disease, drought, winter damage, animal damage, excessive soil moisture, planting shock or other stresses may injure or kill the seedlings.
- Applications of ESCORT® XP made for release should only be made after adequate rainfall has closed the planting slit and settled the soil around the roots following transplanting.
- The use of surfactant is not recommended for applications made over the tops of trees.
- Careful consideration must be given by an experienced and knowledgeable forester to match the requirements of yellow poplar and/or red alder to the conditions of the site. Treatment of yellow poplar and/or red alder planted on a site inadequate to meet its requirements may injure or kill the seedlings.

**NON-AGRICULTURAL USES**

**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.

Do not enter or allow others to enter the treated area until sprays have dried.

**Non-crop industrial weed control and selective weed control in turf (industrial, unimproved only) are not within the scope of the Worker Protection Standard.**

**NON-CROP SITES**

**Application Information**

ESCORT® XP is recommended for general weed control on private, public and military lands as follows: Uncultivated nonagricultural areas (such as airports, highway, railroad and utility rights-of-way, sewage disposal areas, etc.); uncultivated agricultural areas - non-crop producing (such as farmyards, fuel storage areas, fence rows, soil bank land, barrier strips, etc.); industrial sites - outdoor (such as lumberyards, pipeline and tank farms, etc.) including grazed areas on these sites. It is also recommended for the control of certain noxious and troublesome weeds.

Consult the "Weeds Controlled" and "Brush Species Controlled" tables to determine the appropriate application rate.

ESCORT® XP may be applied in tank mixture with other herbicides labeled for use on non-crop sites. Fully read the labels and follow all directions and restrictions on each label.

Applications may be made by ground or air. Use a sufficient volume of water to ensure thorough coverage of the target vegetation with the application equipment being used.

## NATIVE GRASSES

DuPont™ ESCORT® XP is recommended for weed control and suppression in the establishment and maintenance of native grasses. It may be used where blue grama, bluestems (big, little, plains, sand, ww spar) bromegrasses (meadow), buffalograss, green sprangletop, indiangrass, kleingrass, lovegrasses (atherstone, sand, weeping, wilman), orchardgrass, sideoats grama, switchgrass (blackwell), wheatgrass (bluebunch, intermediate, pubescent Siberian, slender, streamband, tall, thickspike, western), and Russian wildrye are established. It may also be applied over these species in the seedling stage, except for orchardgrass and Russian wildrye.

### Application Information

Apply ESCORT® XP at the rate of 1/10 ounce per acre for the control and suppression\* of bur buttercup (testiculate), common purslane, common sunflower\*, cutleaf eveningprimrose\*, flixweed\*, lambsquarters\* (common and slimleaf), maretail\*, pigweed (redroot and tumble), snow speedwell, tansymustard\* and tumble mustard (Jim Hill mustard).

\* Suppression is a visual reduction in weed competition (reduced population or vigor) as compared to untreated areas. Degree of suppression will vary with the size of weed and environmental conditions following treatment.

### Application Timing

For established grasses, apply when weeds are in the seedling stage.

For grasses in the seedling stage, apply preplant or preemergence where the soil (seed bed) has been cultivated.

## IMPORTANT PRECAUTIONS

### —NATIVE GRASSES

- Grass species or varieties may differ in their response to various herbicides. If no information is available, limit the initial use of ESCORT® XP to a small area. Components in a grass seed mixture will vary in tolerance to ESCORT® XP, so the final stand may not reflect the seed ratio.
- Under certain conditions such as heavy rainfall, high pH, prolonged cold weather, or wide fluctuations in day/night temperatures prior to or soon after ESCORT® XP application, temporary discoloration and/or grass injury may occur. ESCORT® XP should not be applied to grass that is stressed by severe weather conditions, drought, low fertility, water-saturated soils, disease, or insect damage as grass injury may result. Severe winter stress, drought, disease, or insect damage before or following application also may result in grass injury.

### GRASS REPLANT INTERVALS

Following an application of ESCORT® XP to non-crop areas, the treated sites may be replanted with various species of grasses at the intervals recommended below.

For soils with a pH of 7.5 or less, observe the following replant intervals:

Species	Rate (ounces per acre)	Replant Interval (months)
Brome, Meadow	1/2—1	2
	1—2	3
Brome, Smooth	1/2—1	2
	1—2	4
Fescue, Alta	1/2—1	2
	1—2	4
Fescue, Red	1/2—1	2
	1—2	4
Fescue, Sheep	1/2—1	1
	1—2	4
Foxtail, Meadow	1/2—1	2
	1—2	4
Green Needlegrass	1/2—2	1
Orchardgrass	1/2—1	2
	1—2	4
Russian wildrye	1/2—1	1
	1	2
	2	3
Switchgrass	1/2—1	1
	1—2	3
Timothy	1/2—1	2
	1—2	4
Wheatgrass, Western	1/2—1	2
	1—2	3

For soils with a pH of 7.5 or greater observe the following replant intervals:

Species	Rate (ounces per acre)	Replant Interval (months)
Alkali Sacaton	1/2—1	1
	1—2	3
Bluestem, Big	1/2—2	3
Brome, Mountain	1/2—1	1
	1—2	2
Grama, Blue	1/2—2	1
Grama, Sideoats	1/2	2
	>1/2	>3
	>1/2	>3
Switchgrass	1/2	2
	>1/2	>3
Wheatgrass, Thickspike	1/2—2	1
Wheatgrass, Western	1—2	2
	1/2—1	3

The recommended intervals are for applications made in the Spring to early Summer. Because ESCORT® XP degradation is slowed by cold or frozen soils, applications made in the late Summer or Fall should consider the intervals as beginning in the Spring following treatment. Testing has indicated that there is considerable variation in response among the species of grasses when seeded into areas treated with ESCORT® XP. If species other than those listed above are to be planted into areas treated with ESCORT® XP, a field bioassay should be performed, or previous experience may be used, to determine the feasibility of replanting treated sites.

**ADDITIONAL GRASS INFORMATION  
APPLICATION INFORMATION FOR GRASS  
ESTABLISHMENT**

DuPont™ ESCORT® XP is recommended for the control or suppression of broadleaf weeds to aid in the establishment of the following perennial native or improved grasses:

Blue Grama	Sideoats grama
Bluestems --	Switchgrass --
Big	Blackwell
Little	Wheatgrasses --
Plains	bluebunch
Sand	crested
W W spar	intermediate
Buffalograss	pubescent
Green sprangletop	Siberian
Kleingrass	slender
Lovegrasses --	steambank
Atherstone	tall
Sand	thickspike
Weeping	western
Wilman	Wildrye grass --
Orchardgrass	Russian

Maximize potential for grass establishment by consulting with the Natural Resource and Conservation Service of other government agencies or local experts concerning planting techniques and other cultural practices. Performance from ESCORT® XP may not always be satisfactory due to the inability of newly planted grass stands to sufficiently compete with weeds, and the severity of weed pressure in new grass stands.

An additional herbicide application or mowing may be needed.

**Use Rates and Application Timing for Grass Establishment Preplant (prior to planting) or Preemergence (after planting but before grass emergence)**

Do not use more than 1/10 ounce per acre of ESCORT® XP for grass establishment.

Apply ESCORT® XP at 1/10 ounce per acre on all labeled grasses except orchardgrass and Russian wildrye grass. Do not apply ESCORT® XP preplant or preemergence to orchardgrass and Russian wildrye grass as severe crop injury may result.

**Early postemergence to new plantings**

Apply ESCORT® XP at 1/10 ounce per acre, plus a non-ionic surfactant at the rate of 2 to 4 pints per 100 gallons of spray solution on all labeled grasses anytime after grass emergence.

Do not use a spray adjuvant other than non-ionic surfactant. Because grass species differ in time of emergence, apply only after the majority of grasses are in the 3 to 4 leaf stage.

**Postemergence to stands with 1 – 5 leaf grasses planted the previous season**

Apply ESCORT® XP at 1/10 ounce per acre plus a non-ionic surfactant at the rate of 2 to 4 pints per 100 gallons of spray solution, on all labeled grasses when the majority of the grasses have one or more leaves.

Do not use a spray adjuvant other than non-ionic surfactant.

**APPLICATION INFORMATION FOR ESTABLISHED GRASSES**

**Use Rates for Established Grasses**

Apply up to 1 ounce ESCORT® XP per acre as a broadcast application to established grasses. For spot applications, use 1 ounce per 100 gallons of water. Do not apply more than 1 2/3 ounces of ESCORT® XP per acre per year.

Refer to the Weeds Controlled section of this label for a listing of the weeds controlled by ESCORT® XP and the appropriate use rate to obtain control.

**Application Timing – Established Grasses**

ESCORT® XP may be applied to established native grasses such as bluestems and grama, and on other established grasses such as bermudagrass, bluegrass, orchardgrass, bromegrass, fescue and timothy that were planted the previous growing season (or earlier) and are fully tillered, unless otherwise directed on this label. Specific application timing information on several of these grass species follows:

Grass	Minimum time from Grass establishment ESCORT® XP application
Bermudagrass	2 months
Bluegrass, bromegrass, Orchardgrass	6 months
Timothy	12 months
Fescue	24 months

**Fescue Precautions:**

Note that ESCORT® XP may temporarily stunt tall fescue, cause it to turn yellow, or cause seedhead suppression. To minimize these symptoms, take the following precautions:

- Do not use more than 4/10 ounce per acre of ESCORT® XP
  - Tank mix ESCORT® XP with 2,4-D
  - Use the lowest recommended rate for target weeds
  - Use a non-ionic surfactant at 1/2 to 1 pint per 100 gallons of spray solution
  - Make application later in the spring after the new growth is 5 to 6 inches tall, or in the fall
  - Do not use surfactant when liquid nitrogen is used as a carrier
  - Do not use a spray adjuvant other than non-ionic surfactant
- The first cutting yields may be reduced due to seedhead suppression resulting from treatment with ESCORT® XP.

**Timothy Precautions:**

Timothy should be at least 6 inches tall at application and be actively growing. Applications of ESCORT® XP to timothy under any other conditions may cause crop yellowing and/or stunting. To minimize these symptoms, take the following precautions:

- Do not use more than 4/10 ounce per acre ESCORT® XP
  - Tank mix ESCORT® XP with 2, 4-D
  - Use the lowest recommended rate for target weeds
  - Use a non-ionic surfactant at 1/2 pint per 100 gallons of spray solution (1/16%)
  - Make applications in the late summer or fall
  - Do not use surfactant when liquid nitrogen is used as a carrier
  - Do not use spray adjuvant other than non-ionic surfactant
- Application of ESCORT® XP to Pensacola bahiagrass, ryegrass (Italian or perennial) and Garrison's creeping foxtail may cause severe injury to and/or loss of forage.

## Rotation Intervals for Overseeding and Renovation

Location	Crop or Grass Species	Maximum DuPont™ ESCORT® XP Rate (oz per A)	Minimum Rotation Interval (months)
AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA, WV	Alfalfa, red clover, white clover, sweet clover, bermudagrass, bluegrass, ryegrass, tall fescue	1/10 to 3/10	4
	Wheat (except durum)	1/10 to 3/10	1
	Durum, barley, oat	1/10 to 3/10	10
ALL STATES NOT INCLUDED ABOVE	Red clover, white clover, and sweet clover	1/10 to 2/10	12
	Bermudagrass, bluegrass, ryegrass	1/10 to 2/10	6
	Tall Fescue	1/10 to 2/10	18
	Wheat (except durum)	1/10 to 2/10	1
	Durum, barley, oat	1/10 to 2/10	10
ALL AREAS WITH SOIL PH OF 7.5 OR LESS	Russian wildrye	1/10 to 1/2	1
	Green needlegrass, switchgrass, sheep fescue	1/10 to 1	1
	Meadow brome, smooth brome, alta fescue, red fescue, meadow foxtail, orchardgrass, Russian wildrye, timothy	1/10 to 1	2
ALL AREAS WITH SOIL PH OF 7.9 OR LESS	Alkali sacaton, mountain brome, blue grama thickspike wheatgrass	1/10 to 1	1
	Sideoats grama, switchgrass	1/10 to 1/2	2
	Western wheatgrass	1/10 to 1	2
	Sideoats grama, switchgrass, big bluestem	1/10 to 1	3

### Other Grasses:

Varieties and species of forage grasses differ in their tolerance to herbicides. When using ESCORT® XP on a particular grass for the first time, limit use to a small area. In no injury occurs throughout the season, larger acreage may be treated the following season.

Broadleaf forage species, such as alfalfa and clover, are highly sensitive to ESCORT® XP and will be severely stunted or injured by ESCORT® XP.

### CROP ROTATION

Before using ESCORT® XP, carefully consider your crop rotation plans and options.

#### Minimum Rotational Intervals

Minimum rotation intervals\* are determined by the rate of breakdown of ESCORT® XP applied. ESCORT® XP breakdown in the soil is affected by soil pH, presence of soil microorganisms, soil temperature, and soil moisture. Low soil pH, high soil temperature, and high soil moisture increase ESCORT® XP breakdown in soil, while high soil pH, low soil temperature, and low soil moisture slow ESCORT® XP breakdown.

Of these 3 factors, only soil pH remains relatively constant. Soil temperature, and to a greater extent, soil moisture, can vary significantly from year to year and from area to area. For this reason, soil temperatures and soil moisture should be monitored regularly when considering crop rotations.

\* The minimum rotation interval represents the period of time from the last application to the anticipated date of the next planting.

### Soil pH Limitations

ESCORT® XP should not be used on soils having a pH above 7.9, as extended soil residual activity could extend crop rotation intervals beyond normal. Under certain conditions, ESCORT® XP could remain in the soil for 34 months or more, injuring wheat and barley. In addition, other crops planted in high-pH soils can be extremely sensitive to low concentrations of ESCORT® XP.

#### Checking Soil pH

Before using ESCORT® XP, determine the soil pH of the areas of intended use. To obtain a representative pH value for the test area, take several 0" to 4" samples from different areas of the field and analyze them separately. Consult local extension publications for additional information on recommended soil sampling procedures.

#### BIOASSAY

A field bioassay must be completed before rotating to any crop or grass species/variety not listed in the Rotation Intervals Table, or if the soil pH is not in the specified range, or if the use rate applied is not specified in the table. To conduct a field bioassay, grow test strips of the crop(s) or grass(es) you plan to grow the following year in fields previously treated with ESCORT® XP. Crop or grass response to the bioassay will indicate whether or not to rotate to the crop(s) or grass(es) grown in the test strips. If a field bioassay is planned, check with your local Agricultural dealer or DuPont representative for information detailing the field bioassay procedure.

When used as directed, there is no grazing or haying restriction for use rates of 1 2/3 ounce per acre or less. At use rates greater than 1 2/3 ounce per acre and up to 3 1/3 ounce per acre, forage grasses may be cut for hay, fodder or green forage and fed to livestock, including lactating animals, 3 days after treatment.

### IMPORTANT PRECAUTIONS

- Grass species or varieties may differ in their response to various herbicides. If no information is available, limit the initial use of DuPont™ ESCORT® XP to a small area.
- Components in a grass seed mixture will vary in tolerance to ESCORT® XP so the final stand may not reflect the seed ratio.
- Under certain conditions such as heavy rainfall, high pH, prolonged cold weather, or wide fluctuations in day/night temperatures prior to or soon after ESCORT® XP application, temporary discoloration and/or grass injury may occur. ESCORT® XP should not be applied to grass that is stressed by severe weather conditions, drought, low fertility, water-saturated soils, disease, or insect damage as grass injury may result. Severe winter stress, drought, disease, or insect damage before or following application also may result in grass injury.
- Applications of ESCORT® XP to lands undersown with legumes may cause injury to the legumes. Legumes in a seeding mixture may be severely injured or killed following an application of ESCORT® XP.
- The control of weeds in wheel track areas may be reduced if ground applications are made when dry, dusty field conditions exist. The addition of 2,4-D or MCPA should improve weed control under these conditions.

### WEEDS CONTROLLED

#### 1/3 to 1/2 ounce per acre

Annual sowthistle	Goldenrod
Aster	Lambsquarters
Bahiagrass	Marestail/horseweed****
Beebalm	Maximillion sunflower
Bittercress	Miners lettuce
Bitter sneezeweed	Pennsylvania smartweed
Blackeyed-susan	Plains coreopsis
Blue mustard	Plantain
Bur buttercup	Redroot pigweed
Chicory	Redstem filaree
Clover	Rough fleabane
Cocklebur	Shepherd's purse
Common chickweed	Silky crazyweed (locoweed)
Common groundsel	Smallseed falseflax
Common purslane	Smooth pigweed
Common yarrow	Sweet clover
Conical catchfly	Tansymustard
Corn cockle	Treacle mustard
Cow cockle	Tumble mustard
Crown vetch	Wild carrot
Dandelion	Wild garlic
Dogfennel	Wild lettuce
False chamomile	Wild mustard
Fiddleneck tarweed	Woolly croton
Field pennycress	Wood sorrel
Flixweed	Yankeweed

#### 1/2 to 1 ounce per acre

Blackberry	Honeysuckle
Black henbane	Multiflora rose and other wild roses
Broom snakeweed*	Musk thistle***
Buckhorn plantain	Oxeye daisy
Bull thistle	Plumeless thistle
Common crupina	Prostrate knotweed
Common sunflower	Rosering gaillardia
Curly dock	Seaside arrowgrass
Dewberry	Sericea lespedeza
Dyer's woad	Tansy ragwort
Garlic mustard	Teasel
Gorse	Wild caraway
Halogeton	
Henbit	

#### 1 to 2 ounces per acre

Common mullein	Purple loosestrife
Common tansy	Purple scabious
Field bindweed**	Scotch thistle
Greasewood	Scouringrush
Gumweed	Salsify
Houndstongue	Snowberry
Lupine	St. Johnswort
Old world climbing fern (Lygodium)	Sulphur cinquefoil
Perennial pepperweed	Western salsify
Poison hemlock	Whitewop (hoary cress)
	Wild Iris

#### 1 1/2 to 2 ounces per acre

Canada thistle**	Tall larkspur
Dalmation toadflax**	Wild parsnip
Dunecap larkspur	Yellow toadflax**
Russian knapweed**	

#### 3 to 4 ounces per acre

Kudzu

\* Apply fall through spring.

\*\* Suppression, which is a visual reduction in weed competition (reduced population or vigor) as compared to untreated areas. Apply as a full coverage spray for best performance.

\*\*\* Certain biotypes of musk thistle are more sensitive to ESCORT® XP and may be controlled with rates of 1/4 to 1/2 ounce per acre. Treatments of ESCORT® XP may be applied from rosette through bloom stages of development.

\*\*\*\* Certain biotypes of marestail/horsetail are less sensitive to ESCORT® XP and may be controlled by tank mixes with herbicides with a different mode of action.

#### Problem Weed Control

For broader spectrum control and for use on certain biotypes of broadleaf weeds which may be resistant to ESCORT® XP and herbicides with the same mode of action, the following tank mixes are recommended.

#### Dicamba + 2,4-D

Weed	Rate of ESCORT® XP (fluid ounces/acre)	Rate of dicamba (fluid ounces/acre)	Rate of 2,4-D (fluid ounces/acre)
Kochia control	1/2	8	16
Spotted knapweed control	1/2	8	16
Rush skeletonweed suppression	1	8	16

## TURF, INDUSTRIAL (UNIMPROVED ONLY)

### Application Information

DuPont™ ESCORT® XP is recommended for selective weed control in unimproved industrial turf where certain grasses are well established and desired as ground cover. ESCORT® XP is also recommended for the control of certain noxious and troublesome weeds in turf.

In addition to conventional spray equipment, ESCORT® XP may also be applied with invert emulsion equipment. When using an invert emulsion, mix the prescribed rate of ESCORT® XP in the water phase.

Consult the "Weeds Controlled" table to determine which weeds will be controlled by the following recommendations:

<b>Turf Type</b>	<b>Rate of DuPont™ ESCORT® XP (ounces/acre)</b>
Fescue and Bluegrass	1/4 to 1/2
Crested Wheatgrass and Smooth Brome	1/4 to 1
Bermudagrass	1/4 to 2

### Application Timing

Applications may be made at anytime of the year, except when the soil is frozen.

When a spring application is made on fescue or bluegrass, a second application may be made during the summer after full seedhead maturation.

### Growth Suppression and Seedhead Inhibition (Chemical Mowing)

#### Application Information

ESCORT® XP is recommended for growth suppression and seedhead inhibition in well established fescue and bluegrass turf at the use rate of 1/4 to 1/2 ounce per acre.

#### Tank Mix Combination

ESCORT® XP may be tank mixed with "Embark" for improved performance in the regulation of growth and seedhead suppression. Tank mix 1/4 to 1/2 ounce of ESCORT® XP with 1/8 to 1/4 pint of "Embark".

#### Application Timing

Application may be made after at least 2 to 3 inches of new growth has emerged until the appearance of the seed stalk.

#### Fescue Precautions:

ESCORT® XP may temporarily stunt tall fescue, cause it to turn yellow, or cause seedhead suppression. To minimize these symptoms, take the following precautions:

- Do not use more than 4/10 ounce per acre of ESCORT® XP.
- Tank mix ESCORT® XP with 2,4-D.
- Use the lowest recommended rate for target weeds.
- Use a non-ionic surfactant at 1/2 to 1 pint per 100 gallons of spray solution.
- Make application later in the spring after the new growth is 5 to 6 inches tall, or in the fall.
- Do not use a surfactant when liquid nitrogen is used as a carrier.
- Do not use a spray adjuvant other than non-ionic surfactant.
- The yields from the first cutting may be reduced due to seedhead suppression resulting from treatment with ESCORT® XP.

## IMPORTANT PRECAUTIONS

### —INDUSTRIAL TURF ONLY

- An application of ESCORT® XP may cause temporary discoloration (chlorosis) of the grasses. Use the lower recommended rates for minimum discoloration.
- With fescue and bluegrass, sequential applications made during the same or consecutive growth periods (i.e. spring and fall) may result in excessive injury to turf.
- Excessive injury may result when ESCORT® XP is applied to turf that is under stress from drought, insects, disease, cold temperatures (winter injury) or poor fertility.
- ESCORT® XP is not recommended for use on bahiagrass.

## BRUSH CONTROL

### Application Information

ESCORT® XP is recommended for the control of undesirable brush growing in non-crop areas including grazed areas on these sites. Applications may be made by air, high volume ground application, low volume ground application and ultra-low volume ground application. Except as noted for multiflora rose, ESCORT® XP should be applied as a spray to the foliage.

The application volume required will vary with the height and density of the brush and the application equipment used. Generally, aerial applications will require 15 to 25 gallons of water per acre; high volume ground application will require 100 to 400 gallons of water per acre; low volume ground application will require 20 to 50 gallons of water per acre; and ultra-low volume ground application will require 10 to 20 gallons of water per acre.

Regardless of the application volume and equipment used, thorough coverage of the foliage, particularly the terminal growing points, is necessary to optimize results.

## BRUSH SPECIES CONTROLLED

Species	High Volume Rate (ounces/100 gallon)	Broadcast Rate (ounces/acre)
Ash	1—2	1—3
Aspen	1—2	1—3
Black locust	1—2	1—3
Blackberry	1—2	1—3
Camelthorn	1—2	1—3
Cherry	1—2	1—3
Cottonwood	1—2	2—3
Eastern red cedar	1—2	2—3
Elder	1—2	2—3
Elm	1—2	1—3
Firs	3	1—2
Hawthorn	1—2	1—3
Honeysuckle	1—2	1/2—1
Mulberry	1—2	2—3
Multiflora rose	1—2	1—3
Muscadine (wild grape)	1—2	2—3
Oaks	1—2	1—3
Ocean spray ( <i>Holodiscus</i> )	1—2	2—3
Osage orange	1—2	2—3
Red maple	1—2	2—3
Salmonberry	1/2—1	1—3
Snowberry	1/2—1	1—3
Spruce (black and white)	3	2—3
Thimbleberry	1/2—1	1—3
Tree of heaven ( <i>Ailanthus</i> )	1—2	1—2
Wild roses	1/2—1	1—3
Willow	1/2—1	1—3
Yellow poplar	1/2—1	1—3

For low volume and ultra-low volume ground applications, mix 4 to 8 ounces of DuPont™ ESCORT® XP per 100 gallons of spray solution.

### Application Timing

Make a foliar application of the recommended rate of ESCORT® XP during the period from full leaf expansion in the spring until the development of full fall coloration on deciduous species to be controlled. Coniferous species may be treated at anytime during the growing season.

### Spot Treatment

ESCORT® XP is recommended for the control of many species of weeds including noxious/invasive weeds in certain established grasses growing on non-crop areas. Refer to the "Weeds Controlled" section for a listing of susceptible weed species and the application rate per acre per the target weed.

Or, mix one gram of ESCORT® XP per one gallon of water along with a surfactant. Spray to the point of wetting the entire surface of the target weeds, approximately 40 gallons of solution per acre.

### Tank Mix Combinations—

ESCORT® XP may be tank mixed with any product labeled for non-crop brush control at the application rates specified on the companion product's label for the pests specified on the product's companion label. Read and follow the label instructions of both products when tank mixing. Follow the most restrictive limitations of any of the product labels being tank mixed.

### Low Rate Applications

#### Imazapyr (2 pound active per gallon)

Combine 1 to 2 ounces of ESCORT® XP with 1 to 4 pints of imazapyr herbicide per acre and apply as a broadcast spray. Aerial applications should use a minimum of 15 gallons per acre spray volume. In addition to species listed

above controlled by ESCORT® XP, this combination controls black gum, hophornbeam, sassafras, sweetgum, Vaccinium species, dogwood, myrtle dahoon, hickories, and persimmon.

#### Picloram (2 pound active per gallon) + Imazapyr (2 pound active per gallon)

Combine 1 to 1 1/2 ounce of ESCORT® XP with 2 to 8 fluid ounces of imazapyr and 1 to 2 pints of picloram per 100 gallons of water. Apply as a high volume spray. This tank mix controls cherry, elms, box elder, maples, hackberry, redbud, ash, oaks (including shingle oak), black locust and sassafras.

\*Picloram is a restricted use pesticide.

#### Spotgun Basal Soil Treatment

For control of multiflora rose, prepare a spray suspension of ESCORT® XP by mixing 1 ounce per gallon of water. Mix vigorously until the ESCORT® XP is dispersed and agitate periodically while applying the spray suspension.

Apply the spray preparation with an exact delivery handgun applicator. Apply at the rate of 4 milliliters for each 2 feet of rose canopy diameter. Direct the treatment to the soil within 2 feet of the stem union. When treating large plants and more than one delivery is required, make applications on opposite sides of the plant.

Applications should be made from early spring to summer.

## IMPORTANT PRECAUTIONS

### —NON-CROP BRUSH ONLY

- When using tank mixtures of ESCORT® XP with companion herbicides, read and follow all use instructions, application rates, warnings and precautions appearing on the labels. Follow the most restrictive label instructions for each of the herbicides used.

## SPRAY EQUIPMENT

Low rates of ESCORT® XP can kill or severely injure most crops. Following an ESCORT® XP application, the use of spray equipment to apply other pesticides to crops on which ESCORT® XP is not registered may result in their damage. The most effective way to reduce this crop damage potential is to use dedicated mixing and application equipment.

The selected sprayer should be equipped with an agitation system to keep ESCORT® XP suspended in the spray tank. Use a sufficient volume of water to thoroughly cover the foliage of undesirable weeds, generally 10 to 40 gallons per acre. Select a spray volume and delivery system that will deliver a uniform spray pattern. Be sure the sprayer is calibrated before use. Avoid overlapping and shut off spray booms while starting, turning, slowing or stopping to avoid injury to desired plants.

Refer to the brush control section of this label for information unique to that particular use.

## MIXING INSTRUCTIONS

1. Fill the tank 1/4 to 1/3 full of water.
2. While agitating, add the required amount of DuPont™ ESCORT® XP.
3. Continue agitation until the ESCORT® XP is fully dispersed, at least 5 minutes.
4. Once the ESCORT® XP is fully dispersed, maintain agitation and continue filling tank with water. ESCORT® XP should be thoroughly mixed with water before adding any other material.
5. As the tank is filling, add tank mix partners (if desired) then add the necessary volume of nonionic surfactant. Always add surfactant last.
6. If the mixture is not continuously agitated, settling will occur. If settling occurs, thoroughly re-agitate before using.
7. ESCORT® XP spray preparations are stable if they are pH neutral or alkaline and stored at or below 100° F.
8. If ESCORT® XP and a tank mix partner are to be applied in multiple loads, pre-slurry the ESCORT® XP in clean water prior to adding to the tank. This will prevent the tank mix partner from interfering with the dissolution of the ESCORT® XP.

## USE PRECAUTIONS

- Do not drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the product may be washed or moved into contact with their roots, as injury or loss of desirable trees or other plants may result
- Treatment of powdery, dry soil or light, sandy soil when there is little likelihood of rainfall soon after treatment may result in off target movement and possible damage to susceptible crops when soil particles are moved by wind or water. Injury to crops may result if treated soil is washed, blown, or moved onto land used to produce crops. Exposure to ESCORT® XP may injure or kill most crops. Injury may be more severe when the crops are irrigated. Do not apply ESCORT® XP when these conditions are identified and powdery, dry soil or light or sandy soils are known to be prevalent in the area being treated.
- Applications made where runoff water flows onto agricultural land may injure crops. Applications made during periods of intense rainfall, to soils saturated with water, to surfaces paved with materials such as asphalt or concrete, or to soils through which rainfall will not readily penetrate may result in runoff and movement of ESCORT® XP. Do not treat frozen soil. Treated soil should be left undisturbed to reduce the potential for ESCORT® XP movement by soil erosion due to wind or water.
- Do not use on lawns, walks, driveways, tennis courts or similar areas.
- Do not apply through any type of irrigation system.
- When used as directed, there are no grazing or haying restrictions for use rates of 1 2/3 ounce per acre and less. At use rates of 1 2/3 to 3 1/3 ounce per acre,

forage grasses may be cut for hay, fodder or green forage and fed to livestock, including lactating animals, 3 days after treatment.

- Do not use this product in the following counties of Colorado: Saguache, Rio Grande, Alamosa, Costilla and Conejos.
- Do not use this product in California.

## SPRAYER CLEANUP

Spray equipment must be cleaned before ESCORT® XP is sprayed. Follow the cleanup procedures specified on the labels of previously applied products. If no directions are provided, follow the six steps outlined below.

### *At the End of the Day*

When multiple loads of ESCORT® XP herbicide are applied, it is recommended that at the end of each day of spraying, the interior of the tank be rinsed with fresh water and then partially filled, and the boom and hoses flushed. This will prevent the buildup of dried pesticide deposits that can accumulate in the application equipment.

1. Drain tank; thoroughly rinse spray tanks, boom, and hoses with clean water. Loosen and physically remove any visible deposits.
2. Fill the tank with clean water and 1 gal of household ammonia\* (contains 3% active) for every 100 gal of water. Flush the hoses, boom, and nozzles with the cleaning solution. Then add more water to completely fill the tank. Circulate the cleaning solution through the tank and hoses for at least 15 min. Flush the hoses, boom, and nozzles again with the cleaning solution, and then drain the tank.
3. Remove the nozzles and screens and clean separately in a bucket containing cleaning agent and water.
4. Repeat step 2.
5. Rinse the tank, boom, and hoses with clean water.
6. If only ammonia is used as a cleaner, the rinsate solution may be applied back to the crop(s) recommended on this label. Do not exceed the maximum labeled use rate. If other cleaners are used, consult the cleaner label for rinsate disposal instructions. If no instructions are given, dispose of the rinsate on site or at an approved waste disposal facility.

\* Equivalent amounts of an alternate-strength ammonia solution or a DuPont-approved cleaner can be used in the cleanout procedure. Carefully read and follow the individual cleaner instructions. Consult your agricultural dealer, applicator, or DuPont representative for a listing of approved cleaners.

### Notes:

1. **Attention:** Do not use chlorine bleach with ammonia, as dangerous gases will form. Do not clean equipment in an enclosed area.
2. Steam-cleaning aerial spray tanks is recommended prior to performing the above cleanout procedure to facilitate the removal of any caked deposits.

3. When DuPont™ ESCORT® XP is tank mixed with other pesticides, all required cleanout procedures should be examined and the most rigorous procedure should be followed.
4. In addition to this cleanout procedure, all precleanout guidelines on subsequently applied products should be followed as per the individual labels.

## **SPRAY DRIFT MANAGEMENT**

The interaction of many equipment and weather-related factors determines the potential for spray drift. The applicator is responsible for considering all these factors when making application decisions.

**AVOIDING SPRAY DRIFT IS THE RESPONSIBILITY OF THE APPLICATOR.**

### **IMPORTANCE OF DROPLET SIZE**

The most effective way to reduce drift potential is to apply large droplets (>150 - 200 microns). The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. The presence of sensitive species nearby, the environmental conditions, and pest pressure may affect how an applicator balances drift control and coverage. **APPLYING LARGER DROPLETS REDUCES DRIFT POTENTIAL, BUT WILL NOT PREVENT DRIFT IF APPLICATIONS ARE MADE IMPROPERLY OR UNDER UNFAVORABLE ENVIRONMENTAL CONDITIONS!** See **Wind, Temperature and Humidity**, and **Temperature Inversions** sections of this label.

### **Controlling Droplet Size - General Techniques**

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. **WHEN HIGHER FLOW RATES ARE NEEDED, USE A HIGHER-CAPACITY NOZZLE INSTEAD OF INCREASING PRESSURE.**
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles.

### **Controlling Droplet Size - Aircraft**

- **Number of Nozzles** - Use the minimum number of nozzles with the highest flow rate that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is emitted backwards, parallel to the airstream will produce larger droplets than other orientations.
- **Nozzle Type** - Solid stream nozzles (such as disc and core with swirl plate removed) oriented straight back produce larger droplets than other nozzle types.
- **Boom Length** - The boom length should not exceed 3/4 of the wing or rotor length - longer booms increase drift potential.
- **Application Height** - Application more than 10 ft above the canopy increases the potential for spray drift.

## **BOOM HEIGHT**

Setting the boom at the lowest labeled height (if specified) which provides uniform coverage reduces the exposure of droplets to evaporation and wind. For ground equipment, the boom should remain level with the crop and have minimal bounce.

## **WIND**

Drift potential increases at wind speeds of less than 3 mph (due to inversion potential) or more than 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given wind speed. **AVOID GUSTY OR WINDLESS CONDITIONS.** Note: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

## **TEMPERATURE AND HUMIDITY**

When making applications in hot and dry conditions, set up equipment to produce larger droplets to reduce effects of evaporation.

## **TEMPERATURE INVERSIONS**

Drift potential is high during a temperature inversion. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain close to the ground and move laterally in a concentrated cloud. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

## **SHIELDED SPRAYERS**

Shielding the boom or individual nozzles can reduce the effects of wind. However, it is the responsibility of the applicator to verify that the shields are preventing drift and not interfering with uniform deposition of the product.

## STORAGE AND DISPOSAL

**Pesticide Storage:** Store product in original container only. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Store in a cool, dry place.

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

**Container Disposal: For Plastic Containers:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke. **For Fiber Sacks:** Completely empty fiber sack by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into manufacturing or application equipment. Then dispose of sack in a sanitary landfill or by incineration if allowed by State and local authorities. **For Fiber Drums With Liners:** Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by State and local authorities. If drum is contaminated and cannot be reused, dispose of in the same manner. **For Bags Containing Water Soluble Packets:** Do not reuse the outer box or the resealable plastic bag. When all water-soluble packets are used, the outer packaging should be clean and may be disposed of in a sanitary landfill or by incineration, or if allowed by State and local authorities, by open burning. If burned, stay out of smoke. If the resealable plastic bag contacts the formulated product in any way, the bag must be triple rinsed with clean water. Add the rinsate to the spray tank and dispose of the outer wrap as described above. **For Metal Containers (non aerosol):** Triple rinse (or equivalent) the container. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. **For Paper and Plastic Bags:** Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

**NOTICE TO BUYER:** Purchase of this material does not confer any rights under patents of countries outside of the United States.

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"Embark" is a registered trademark of PBI Gordon Corporation.

SL - 1060A 071706 04-06-06

## LIMITATION OF WARRANTY AND LIABILITY

**NOTICE:** Read This Limitation of Warranty and Liability Before Buying or Using This Product. If the Terms Are Not Acceptable, Return the Product at Once, Unopened, and the Purchase Price Will Be Refunded.

It is impossible to eliminate all risks associated with the use of this product. Such risks arise from weather conditions, soil factors, off target movement, unconventional farming techniques, presence of other materials, the manner of use or application, or other unknown factors, all of which are beyond the control of DuPont. These risks can cause: ineffectiveness of the product; crop injury, or; injury to non-target crops or plants.

DuPont does not agree to be an insurer of these risks. TO THE FULLEST EXTENT PERMITTED BY LAW, WHEN YOU BUY OR USE THIS PRODUCT, YOU AGREE TO ACCEPT THESE RISKS.

DuPont warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for the purpose stated in the Directions for Use, subject to the inherent risks described above, when used in accordance with the Directions for Use under normal conditions.

DUPONT MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR OF MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

TO THE FULLEST EXTENT PERMITTED BY LAW, IN NO EVENT SHALL DUPONT OR SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT. BUYER'S OR USER'S BARGAINED-FOR EXPECTATION IS CROP PROTECTION. THE EXCLUSIVE REMEDY OF THE USER OR BUYER AND THE EXCLUSIVE LIABILITY OF DUPONT OR SELLER, FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY OR CONTRACT, NEGLIGENCE, TORT OR STRICT LIABILITY), WHETHER FROM FAILURE TO PERFORM OR INJURY TO CROPS OR OTHER PLANTS, AND RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT, OR AT THE ELECTION OF DUPONT OR SELLER, THE REPLACEMENT OF THE PRODUCT.

DuPont or its Ag Retailer must have prompt notice of any claim so that an immediate inspection of buyer's or user's growing crops can be made. Buyer and all users shall promptly notify DuPont or a DuPont Ag Retailer of any claims, whether based on contract, negligence, strict liability, other tort or otherwise or be barred from any remedy.

This Limitation of Warranty and Liability may not be amended by any oral or written agreement.

For product information call: 1-888-6-DUPONT

Internet address: <http://cropprotection.dupont.com/>

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The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

DuPont  
Material Safety Data Sheet

Page 1

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"DuPont" "ESCORT" XP HERBICIDE  
M0000459 Revised 1-JUN-2005  
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-----  
CHEMICAL PRODUCT/COMPANY IDENTIFICATION  
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Material Identification

"ESCORT" is a registered trademark of DuPont.

"DuPont" is a trademark of DuPont.

Grade : 60% FORMULATION

Tradenames and Synonyms

METSULFURON METHYL  
"ESCORT" 60DF

Company Identification

MANUFACTURER/DISTRIBUTOR  
DuPont  
1007 Market Street  
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-800-441-7515 (outside the U.S.  
302-774-1000)  
Transport Emergency : CHEMTREC 1-800-424-9300 (outside U.S.  
703-527-3887)  
Medical Emergency : 1-800-441-3637 (outside the U.S.  
302-774-1000)

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COMPOSITION/INFORMATION ON INGREDIENTS  
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Components

Material	CAS Number	%
METSULFURON METHYL (METHYL 2-[[[(4-METHOXY-6-METHYL-1,3,5- TRIAZIN-2-YL)AMINO] CARBONYL] AMINO] SULFONYL] BENZOATE)	74223-64-6	60
INERT INGREDIENTS		40

-----  
HAZARDS IDENTIFICATION  
-----

## Emergency Overview

CAUTION! Causes eye irritation. Avoid contact with skin, eyes or clothing. Avoid breathing dust or spray mist.

## Potential Health Effects

Based on animal data, eye contact with ESCORT XP may cause eye irritation with tearing, pain or blurred vision.

Based on animal data, repeated dermal contact with the active ingredient may cause skin irritation with itching, burning, redness, swelling or rash.

## Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

-----  
FIRST AID MEASURES  
-----

## # First Aid

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

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 eye. Call a poison control center or doctor for further treatment advice.

IF SWALLOWED: No specific intervention is indicated as the product is not likely to be hazardous by ingestion. Consult a physician if necessary.

IF INHALED: No specific intervention is indicated as the product is not likely to be hazardous by inhalation. Consult a physician if necessary.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-441-3637 for emergency medical treatment information.

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FIRE FIGHTING MEASURES  
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## Flammable Properties

Not a fire or explosion hazard.

Like most organic powders or crystals, under severe dusting conditions, this material may form explosive mixtures in air.

## Extinguishing Media

Water Spray, Foam, Dry Chemical, CO2.

## Fire Fighting Instructions

Evacuate personnel to a safe area. Wear self-contained breathing apparatus. Wear full protective equipment. Use water spray. Runoff from fire control may be a pollution hazard.

If area is exposed to fire and conditions permit, let fire burn itself out. Burning chemicals may produce by-products more toxic than the original material. If product is on fire, wear self-contained breathing apparatus and full protective equipment. Use water spray. Control runoff.

-----  
ACCIDENTAL RELEASE MEASURES  
-----

## Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Emergency Response - Chemical resistant coveralls, waterproof gloves, waterproof boots and face/eye protection. If dusting occurs, use NIOSH approved respirator protection.

## Initial Containment

Dike spill. Prevent material from entering sewers, waterways, or low areas.

Follow applicable Federal, State/Provincial and Local laws/regulations.

## Spill Clean Up

Shovel or sweep up.

-----  
HANDLING AND STORAGE  
-----

## Handling (Personnel)

Avoid breathing vapors or mist. Avoid breathing dust. Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling. Wash clothing after use. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material.

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

## Handling (Physical Aspects)

Keep away from heat, sparks and flames.

## Storage

Store product in original container only. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Store in a cool, dry place. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material.

-----  
EXPOSURE CONTROLS/PERSONAL PROTECTION  
-----

## Engineering Controls

Use only with adequate ventilation.

## Personal Protective Equipment

Always follow the label instructions when handling this product.

Applicators and other handlers must wear:

Long-sleeved shirt and long pants.  
Shoes plus socks.

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.

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.  
Shoes plus socks.

## Exposure Guidelines

## Applicable Exposure Limits

## METSULFURON METHYL

PEL (OSHA) : None Established  
TLV (ACGIH) : None Established  
AEL \* (DuPont) : 10 mg/m<sup>3</sup>, 8 & 12 Hr. TWA

\* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

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PHYSICAL AND CHEMICAL PROPERTIES  
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## Physical Data

Solubility in Water : Dispersible  
Odor : Slight  
Form : Solid granule  
Color : Light brown  
Specific Gravity : 1.47 @ 25C (77F)

Bulk Density (Tap Bulk Density) : 0.64 - 0.74 g/mL

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STABILITY AND REACTIVITY  
-----

## Chemical Stability

Stable at normal temperatures and storage conditions.

## Incompatibility with Other Materials

None reasonably foreseeable.

## Decomposition

Decomposition will not occur.

## Polymerization

Polymerization will not occur.

-----  
TOXICOLOGICAL INFORMATION  
-----

## Animal Data

ESCORT XP  
Oral LD50: > 5000 mg/kg in rats  
(Very low toxicity)  
Skin LD50: > 2000 mg/kg in rabbits  
(Slight to moderate toxicity)

ESCORT XP is a slight eye irritant, but is not a skin irritant or skin sensitizer in animal tests.

## (TOXICOLOGICAL INFORMATION - Continued)

## Metsulfuron Methyl

Inhalation LC50, 4 hr: > 5.3 mg/L in rats  
(Very low toxicity)

Single exposures of animals to Metsulfuron Methyl by inhalation caused body weight loss and other nonspecific effects.

Repeated applications of Metsulfuron Methyl to the skin of rabbits caused skin irritation but no other changes were observed.

Repeated oral doses of Metsulfuron Methyl produced decreased body weight gain and decreased liver weights when compared to the control group. Long term administration caused body weight loss.

Animal testing indicates that Metsulfuron Methyl does not have carcinogenic, developmental, or reproductive effects.

There is a report indicating that Metsulfuron Methyl produced genetic damage in a mammalian cell culture test; however, other tests with Metsulfuron Methyl in bacterial and mammalian cell cultures and in animals did not produce genetic damage. The weight of evidence suggests that Metsulfuron Methyl does not cause genetic damage.

-----  
ECOLOGICAL INFORMATION  
-----

## Ecotoxicological Information

## AQUATIC TOXICITY:

## METSULFURON METHYL

96 hour LC50 - Rainbow trout: > 150 ppm.

96 hour LC50 - Bluegill sunfish: > 150 ppm.

## AVIAN TOXICITY:

## METSULFURON METHYL

LD50 - Mallard Duck: > 2510 mg/kg.

LC50 - Bobwhite Quail: > 5620 mg/kg

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DISPOSAL CONSIDERATIONS  
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## # Waste Disposal

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

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/provincial, and local regulations.

## ENVIRONMENTAL HAZARDS:

## (DISPOSAL CONSIDERATIONS - Continued)

Do not apply directly to water, or 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.

This herbicide is injurious to plants at extremely low concentrations. Nontarget plants may be adversely effected from drift and run-off.

## Container Disposal

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

For Fiber Sacks: Completely empty fiber sack by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into manufacturing or application equipment. Then dispose of sack in a sanitary landfill or by incineration if allowed by state and local authorities.

For Fiber Drums with Liners: Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by State and local authorities. If drum is contaminated and cannot be reused, dispose of in the same manner.

For Bags Containing Water Soluble Packets: Do not reuse the outer box or the resealable plastic bag. When all water-soluble packets are used, the outer packaging should be clean and may be disposed of in a sanitary landfill or by incineration, or if allowed by State and local authorities, by open burning. If burned, stay out of smoke. If the resealable plastic bag contacts the formulated product in any way, the bag must be triple-rinsed with clean water. Add the rinsate to the spray tank and dispose of the outer wrap as described above.

For Metal Containers (non aerosol): Triple rinse (or equivalent) the container. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

For Paper and Plastic Bags: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

-----  
TRANSPORTATION INFORMATION  
-----

## Shipping Information

DOT/IMO  
Proper Shipping Name : NOT REGULATED

-----  
REGULATORY INFORMATION  
-----

## U.S. Federal Regulations

## TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes  
Chronic : No  
Fire : No  
Reactivity : No  
Pressure : No

In the United States this product is regulated by the US Environmental Protection Agency under the Federal Insecticide, Fungicide and Rodenticide Act. It is a violation of federal law to use this product in a manner inconsistent with its labeling.

EPA Reg. No. 352-439

-----  
OTHER INFORMATION  
-----

## NFPA, NPCA-HMIS

NFPA Rating  
Health : 1  
Flammability : 1  
Reactivity : 0

NPCA-HMIS Rating  
Health : 1  
Flammability : 1  
Reactivity : 0

Personal Protection rating to be supplied by user depending on use conditions.

-----  
The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS: DuPont Crop Protection  
Address : Wilmington, DE 19898  
Telephone : 1-888-638-7668

M0000459

DuPont  
Material Safety Data Sheet

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(Continued)

# Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS

# Specimen Label



# Garlon<sup>®</sup> 4

## Specialty Herbicide

®Trademark of Dow AgroSciences LLC

**For the control of woody plants and annual and perennial broadleaf weeds in non-crop industrial manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides, railroads, forests and in the establishment and maintenance of wildlife openings. Use on these sites may include application to grazed areas.**

### Active Ingredient:

triclopyr: 3,5,6-trichloro-2- pyridinyloxyacetic acid, butoxyethyl ester.....	61.6%
Other Ingredients .....	38.4%
Total.....	100.0%

Contains petroleum distillates

Acid equivalent: triclopyr - 44.3% - 4 lb/gal

EPA Reg. No. 62719-40

### 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.)

### Precautionary Statements

#### Hazards to Humans and Domestic Animals

**Causes Moderate Eye Irritation • Harmful If Swallowed • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Reactions In Some Individuals**

**Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.**

### Personal Protective Equipment (PPE)

**Applicators and other handlers who handle this pesticide must wear:**

- Long-sleeved shirt and long pants
- Shoes plus socks

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

### Engineering Controls

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the WPS (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.

### 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 eye. Call a poison control center or doctor for treatment advice.

**If swallowed:** Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

**Note to Physician:** This product may pose an aspiration pneumonia hazard. Contains petroleum distillates.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

### Environmental Hazards

This pesticide is toxic to fish. Do not apply directly to water, or 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 washwater or rinsate.

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

### Physical or Chemical Hazards

**Combustible.** Do not use or store the product near heat or open flame.

**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 elsewhere on this label. If terms are unacceptable, return at once unopened.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994. If you wish to obtain additional product information, visit our web site at [www.dowagro.com](http://www.dowagro.com).

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

### 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

The requirements in this box apply to forestry uses.

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

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

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

- Coveralls
- Chemical-resistant gloves
- Shoes plus socks
- Protective eyewear

### Non-Agricultural Use Requirements

The requirements in this box apply to all use sites on this label except for forestry uses.

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:** For applications to non-cropland areas, do not allow entry into areas until sprays have dried.

### Storage and Disposal

Do not contaminate water, food, or feed by storage and disposal. Open dumping is prohibited.

**Pesticide Storage:** Store above 28°F or agitate before use.

**Pesticide Disposal:** Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

### Storage and Disposal (Cont.)

**Nonrefillable containers 5 gallons or less:**

**Container Reuse:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

**Refillable containers 5 gallons or larger:**

**Container Reuse:** Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

**Nonrefillable containers 5 gallons or larger:**

**Container Reuse:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

### General Information

Use Garlon® 4 specialty herbicide for the control of woody plants and annual and perennial broadleaf weeds in non-crop industrial manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides, railroads, forests and in the establishment and maintenance of wildlife openings. Use on these sites may include application to grazed areas.

Garlon 4 is an oil soluble, emulsifiable liquid product containing the herbicide triclopyr. Garlon 4 may be applied to woody or herbaceous broadleaf plants as a foliar spray or as a basal bark or cut stump application to woody plants. As a foliar spray, Garlon 4 controls only herbaceous plants that have emerged from the soil or woody plants that are in full leaf at the time of application. Small amounts of Garlon 4 can kill or injure many broadleaf plants. To prevent damage to crops and other desirable plants, follow all directions and precautions.

### General Use Precautions and Restrictions

**In Arizona:** The state of Arizona has not approved Garlon 4 for use on plants grown for commercial production; specifically forests grown for commercial timber production, or on designated grazing areas.

When applying this product in tank mix combination, follow all applicable use directions, precautions, and limitations on each manufacturer's label.

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

Apply no more than 1/2 gallon of Garlon 4 (2 lb ae of triclopyr) per acre per growing season on rights-of-way or any area where grazing or harvesting is allowed.

On forestry sites, Garlon 4 may be used at rates up to 6 quarts (6 lb ae of triclopyr) per acre per year.

Garlon 4 may be used at rates up to 8 quarts (8 lb ae of triclopyr) per acre per year on non-crop industrial manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides and railroads, fence rows, non-irrigation ditch banks. Portions of grazed areas that intersect treated non-cropland, rights-of-way and forestry sites may be treated at up to 8 lb ae per acre if the area to be treated on the day of application comprises no more than 10% of the total grazable area.

Do not apply Garlon 4 directly to, or otherwise permit it to come into direct contact with, cotton, grapes, peanuts, soybeans, tobacco, vegetable crops, flowers, citrus, or other desirable broadleaf plants. Do not permit spray mists containing Garlon 4 to drift onto such plants.

It is permissible to treat non-irrigation ditch banks, seasonally dry wetlands (such as flood plains, deltas, marshes, swamps, or bogs) and transitional areas between upland and lowland sites where surface water is not present except in isolated pockets due to uneven or unlevel conditions. Do not apply to open water (such as lakes, reservoirs, rivers, streams, creeks, salt water bays, or estuaries).

Do not apply on ditches currently being used to transport irrigation water. Do not apply where runoff or irrigation water may flow onto agricultural land as injury to crops may result.

Do not apply this product using mist blowers unless a drift control additive, high viscosity inverting system, or equivalent is used to control spray drift.

Sprays applied directly to Christmas trees may result in conifer injury. When treating unwanted vegetation in Christmas tree plantations, care should be taken to direct sprays away from conifers.

Garlon 4 is formulated as a low volatile ester. However, the combination of spray contact with impervious surfaces, such as roads and rocks, and increasing ambient air temperatures, may result in an increase in the volatility potential for this herbicide, increasing a risk for off-target injury to sensitive crops such as grapes and tomatoes.

### Grazing and Haying Restrictions

Except for lactating dairy animals, there are no grazing restrictions following application of this product.

- **Grazing Lactating Dairy Animals:** Do not allow lactating dairy animals to graze treated areas until the next growing season following application of this product.
- Do not harvest hay for 14 days after application.
- Portions of grazed areas that intersect treated non-cropland, rights-of-way and forestry sites may be treated at up to 8 lb ae per acre if the area to be treated on the day of application comprises no more than 10% of the total grazable area.

**Slaughter Restrictions:** During the season of application, withdraw livestock from grazing treated grass at least 3 days before slaughter.

### Avoiding Injurious Spray Drift

Make applications only when there is little or no hazard from spray drift. Small quantities of spray, which may not be visible, may seriously injure susceptible plants. Do not spray when wind is blowing toward susceptible crops or ornamental plants that are near enough to be injured. It is suggested that a continuous smoke column at or near the spray site or a smoke generator on the spray equipment be used to detect air movement, lapse conditions, or temperature inversions (stable air). If the smoke layers or indicates a potential of hazardous spray drift, do not spray.

**Aerial Application:** Garlon 4 may be aerially applied by fixed wing aircraft or helicopter. For aerial application on rights-of-way or other areas near susceptible crops, apply through a Microfoil<sup>†</sup> or Thru-Valve boom<sup>†</sup>, or use an agriculturally labeled drift control additive. Other drift reducing systems or thickened sprays prepared by using high viscosity inverting systems may be used if they are made as drift-free as mixtures containing agriculturally labeled thickening agents or applications made with the Microfoil or Thru Valve boom. Do not use a thickening agent with the Microfoil or Thru Valve booms, or other systems that cannot accommodate thick sprays. Spray only when the wind velocity is low (follow state regulations). Avoid application during air inversions. If a spray thickening agent is used, follow all use recommendations and precautions on the product label.

<sup>†</sup>Reference within this label to a particular piece of equipment produced by or available from other parties is provided without consideration for use by the reader at its discretion and subject to the reader's independent circumstances, evaluation, and expertise. Such reference by Dow AgroSciences is not intended as an endorsement of such equipment, shall not constitute a warranty (express or implied) of such equipment, and is not intended to imply that other equipment is not available and equally suitable. Any discussion of methods of use of such equipment does not imply that the reader should use the equipment other than is advised in directions available from the equipment's manufacturer. The reader is responsible for exercising its own judgment and expertise, or consulting with sources other than Dow AgroSciences, in selecting and determining how to use its equipment.

## Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications:

1. The distance of the outer most operating nozzles on the boom must not exceed 3/4 the length of the rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they should be observed.

The applicator should be familiar with and take into account the information covered in the following Aerial Drift Reduction Advisory. [This information is advisory in nature and does not supersede mandatory label requirements.]

### Aerial Drift Reduction Advisory

**Information on Droplet Size:** The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

#### Controlling Droplet Size:

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the airstream produced larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**Boom Length:** For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

**Application Height:** Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Swath Adjustment:** When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

**Wind:** Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. **Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**Temperature and Humidity:** When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**Temperature Inversions:** Applications should not occur during a local, low level temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of the smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

**Sensitive Areas:** The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

**Ground Equipment:** To aid in reducing spray drift, Garlon 4 should be used in thickened (high viscosity) spray mixtures using an agriculturally labeled drift control additive, high viscosity invert system, or equivalent as directed by the manufacturer. When using a spray thickening or inverting additive, follow all use directions and precautions on the product label. With ground equipment, spray drift can be reduced by keeping the spray boom as low as possible; by applying 20 gallons or more of spray per acre; by keeping the operating spray pressures at the lower end of the manufacturer's recommended pressures for the specific nozzle type used (low pressure nozzles are available from spray equipment manufacturers); and by spraying when wind velocity is low. In hand-gun applications, select the minimum spray pressure that will provide adequate plant coverage (without forming a mist). Do not apply with nozzles that produce a fine droplet spray. Select nozzles and pressures which provide adequate plant coverage, but minimize the production of fine spray particles.

**High Volume Leaf-Stem Treatment:** To minimize spray drift, keep sprays no higher than brush tops and keep spray pressures low enough to provide coarse spray droplets. An agriculturally labeled thickening agent may be used to reduce drift.

## Mixing Directions

Garlon 4 may be foliarly applied by diluting with water or by preparing an oil-water emulsion. For woody plant control, an oil-water emulsion performs more dependably under a broader range of conditions than a straight water dilution and is recommended for aerial applications.

### Oil-Water Mixture Sprays

Prepare a premix of oil, surfactant and Garlon 4 in a separate container using diesel fuel, fuel oil, or kerosene plus an emulsifier such as Sponto 712 or Triton X-100. Use a jar test to check spray mix compatibility before preparing oil-water emulsion sprays in the mixing tank. Do not allow any water or mixtures containing water to get into the premix or Garlon 4 since a thick "invert" (water in oil) emulsion may form that will be difficult to break. Such an emulsion may also be formed if the premix or Garlon 4 is put into the mixing tank before the addition of water. Fill the spray tank about one-half full with water, then slowly add the premix with continuous agitation and complete filling the tank with water. Continue moderate agitation.

**Ground Application:** Add oil to the spray mix at a rate of 5 to 10% of the total mix, up to a maximum of 1 gallon of oil per acre, using agricultural spray emulsifiers according to mixing instructions below.

**Aerial Application:** Use oil and water in the spray mixture in a 1:5 ratio (1 part oil to 5 parts water), up to a maximum of 1 gallon of oil per acre according to mixing instructions below.

### Oil Mixture Sprays for Basal Treatment

Prepare oil-based spray mixtures using either diesel fuel, No. 1 or No. 2 fuel oil, kerosene or a commercially available basal oil. Substitute other oils or diluents only as recommended by the oil or diluent's manufacturer. When preparing an oil mixture, read and follow the use directions and precautions on the manufacturer's product label. Add Garlon 4 to the required amount of oil in the spray tank or mixing tank and mix thoroughly. If the mixture stands over 4 hours, reagitation is required.

**Oil Mixtures of Garlon 4 and Tordon K:** Tordon K and Garlon 4 may be used in tank mix combination for basal bark treatment of woody plants. These herbicides are incompatible and will not form a stable mixture when mixed together directly in oil. Make a stable tank mixture for basal bark application by first combining each product with a compatibility agent prior to final mixing in the desired ratio. (See product bulletin for mixing instructions.) Tordon K is not registered for use in the states of California and Florida.

### Water Dilutions

For water dilutions, an agricultural surfactant at the manufacturer's recommended rate may be added to the spray mixture to provide improved wetting of foliage. To help minimize spray drift, a drift control and deposition aid cleared for application to growing crops is recommended.

## Tank Mixing

Garlon 4 may be applied in tank mix combination with labeled rates of other herbicides provided (1) the tank mix product is labeled for the timing and method of application for the use site to be treated; and (2) tank mixing is not prohibited by the label of the tank mix product. When tank mixing Garlon 4 with other materials, a compatibility test (jar test) using relative proportions of the tank mix ingredients should be conducted prior to mixing ingredients in the spray tank. Use a clear glass quart jar with lid and mix the tank mix ingredients in the required order and their relative proportions. Invert the jar containing the mixture several times and observe the mixture for approximately 1/2 hour. If the mixture balls-up, forms flakes, sludges, jels, oily films or layers, or other precipitates, it is not compatible and the tank mix combination should not be used.

**Mixing Order for Tank Mixes:** Add one-half of the needed water to the mixing tank and start agitation. Add different materials in the order indicated below, allowing time for complete dispersion and mixing after addition of each product.

1. Water soluble herbicide (if used)
2. Premix of oil, emulsifier, Garlon 4 and other oil-soluble herbicide (if used); see below

Add the remaining water. During the final filling of the tank, add a drift control and deposition aid cleared for application to growing crops (if used), plus an agricultural surfactant (if a water dilution rather than an oil-water emulsion spray is used). Maintain continuous agitation of the spray mixture during mixing, final filling and throughout application to ensure spray uniformity.

**Premixing:** Prepare a premix of oil, emulsifier (if oil-water emulsion), and Garlon 4 plus other oil-soluble herbicide (if used), e.g., 2,4-D ester. **Note:** Do not allow water or mixtures containing water to get into the premix or Garlon 4 since a thick "invert" (water in oil) emulsion may form that will be difficult to break. Such an emulsion may also be formed if the premix or Garlon 4 is put into the mixing tank before the addition of water.

### Tank Mixing Precautions:

- Read carefully and follow all applicable use directions, precautions, and limitations on the respective product labels.
- Do not exceed recommended application rates. If products containing the same active ingredient are tank mixed, do not exceed the maximum allowable active ingredient use rates.
- For direct injection or other spray equipment where the product formulations will be mixed in undiluted form, special care should be taken to ensure tank mix compatibility.
- Always perform a (jar) test to ensure the compatibility of products to be used in tank mixture.

### Mixing with Liquid Fertilizer for Broadleaf Weed Control

Garlon 4 may be tank mixed with liquid nitrogen fertilizer and foliarly applied for weed control and fertilization of grass pastures. Use Garlon 4 in accordance with recommendations for grass pastures as given on this label. Apply at rates recommended by supplier or Extension Service Specialist. **Note:** Garlon 4 is not recommended for use with liquid fertilizer on woody plants (brush). Foliage burn caused by liquid fertilizer may reduce herbicide effectiveness on woody plants. Test for mixing compatibility using desired procedure and spray mix proportions in clear glass jar before mixing in spray tank. A compatibility aid such as Unite or Compex may be needed in some situations. **Compatibility is best with straight liquid nitrogen fertilizer solutions. Mixing with N-P-K solutions or suspensions may not be satisfactory even with the addition of compatibility aid.** Premixing Garlon 4 with 1 to 4 parts water may help in difficult situations.

Fill in the spray tank about half full with the liquid fertilizer, then add the herbicide with agitation and complete filling the tank with fertilizer. Apply immediately and continue agitation in the spray tank during application.

**Do not store liquid fertilizer spray mixtures.** Application during very cold weather (near freezing) is not advisable. The likelihood of mixing or compatibility problems with liquid fertilizer increases under cold conditions.

**Note:** Do not use spray equipment for other applications to land planted, or to be planted, to susceptible crops or desirable plants **unless** it has been determined that all phytotoxic herbicide residue has been removed by thoroughly cleaning the equipment.

## Plants Controlled by Garlon 4

### Woody Plant Species

alder	cottonwood	maple (except bigleaf, vine <sup>3</sup> )	sweetbay magnolia
arrowwood	crataegus (hawthorn)	milkweed vine <sup>3</sup>	sweetgum
ash	dogwood	mulberry	sycamore
aspen	Douglas-fir	oaks	tanoak
bear clover (bearmat)	elderberry	osage orange	thimbleberry
beech	elm (except winged elm)	pepper vine <sup>3</sup>	tree-of-heaven
birch	gallberry	persimmon, eastern	( <i>Ailanthus</i> ) <sup>1</sup>
blackberry	gorse	pine	trumpet creeper <sup>3</sup>
blackbrush	granjeno	poison ivy	tulip poplar
blackgum	guajillo	poison oak	twisted acacia
boxelder <sup>1</sup>	guava <sup>3</sup>	poplar	Virginia creeper <sup>3</sup>
Brazilian pepper	hazel	salmonberry	wax myrtle (top growth)
buckthorn	hickory	saltbush	wild rose
casacara	hornbeam	( <i>Braccharis</i> spp.) <sup>3</sup>	willow
ceanothus	huisache (suppression)	salt cedar <sup>1</sup>	willow primrose
cherry <sup>3</sup>	kudzu <sup>2</sup>	sassafras	winged elm
chinquapin	locust	scotch broom	
choke cherry	madrone	sumac	

<sup>1</sup>For best control, use either a basal bark or cut stump treatment.

<sup>2</sup>For complete control, re-treatment may be necessary.

<sup>3</sup>Basal or dormant stem applications only.

### Annual, Biennial and Perennial Broadleaf Weeds

**Note:** Numbers in parentheses refer to footnotes below table.

black medic	dandelion (top growth)	Oxalis	vetch
bull thistle	dogfennel	plantain	wild carrot
burdock	field bindweed	purple loosestrife	(Queen Anne's lace)
Canada thistle	goldenrod	ragweed	wild lettuce
chicory	ground ivy	sericea lespedeza (1)	wild violet
cinquefoil	lambquarters	smartweed	yarrow
clover	lespedeza	sulfur cinquefoil (2)	
creeping beggarweed	matchweed	sweet clover	
curly dock	mustard	tropical soda apple (3)	

- Sericea lespedeza:** Apply 1 to 2 pints of Garlon 4 per acre. For best results, apply after maximum foliage development in the late spring to early summer, but prior to bloom.
- Sulfur cinquefoil:** Apply 1 to 2 pints of Garlon 4 per acre. For best results, apply to plants in the rosette stage.
- Tropical soda apple:** Apply 2 pints of Garlon 4 per acre when tropical soda apple plants reach the first flower stage. For best results, apply in a total spray volume of 40 gallons per acre using ground equipment. An agricultural surfactant may be added at the manufacturer's recommended rate to provide more complete wetting and coverage of the foliage. Spot treatments may be used to control sparse plant stands. For spot treatment use a 1 to 1.5% solution of Garlon 4 in water (1 to 1 1/2 gallons of Garlon 4 in 100 gallons total spray mixture) and spray the entire plant to completely wet the foliage. **In Florida,** control of tropical soda apple may be improved by using the following management practices:

- Mow plants to a height of 3 inches every 50 to 60 days or whenever they reach flowering. Continue the mowing operation through April.
- In late May to June (50 to 60 days after the April mowing), apply Garlon 4 as a broadcast treatment.
- Use spot treatment to control any remaining plants or thin stands of plants that germinate following a broadcast treatment.

### Application Methods

Use Garlon 4 at rates of 1 to 8 quarts per acre to control broadleaf weeds and woody plants. It is suggested that rates higher in this rate range be used to control woody plants. In all cases, use the amount specified in enough water to give uniform and complete coverage of the plants to be controlled. The order of addition to the spray tank is water, spray thickening agent (if used), surfactant (if used), additional herbicide (if used), and Garlon 4. If a standard agricultural surfactant is used, use at a rate of 1 to 2 quarts per acre. Use continuous adequate agitation.

Before using any recommended tank mixtures, read the directions and all precautions on both labels.

For best results apply when woody plants and weeds are actively growing. When hard to control species such as ash, blackgum, choke cherry, elm, maples (other than vine or big leaf), oaks, pines, or winged elm are prevalent, during applications made during late summer when the plants are mature, or during drought conditions, use the higher rates of Garlon 4 alone or in combination with Tordon® 101 Mixture specialty herbicide or Tordon K herbicide. Tordon 101 Mixture and Tordon K are restricted use pesticides. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

When using Garlon 4 in combination with 2,4-D low volatile ester herbicide, generally the higher rates of Garlon 4 should be used for satisfactory brush control.

Use the higher dosage rates when brush approaches an average of 15 feet in height or when the brush covers more than 60% of the area to be treated. If lower rates are used on hard to control species, resprouting may occur the year following treatment.

On sites where easy to control brush species dominate, rates less than those listed may be effective. Consult state or local extension personnel for such information.

### Foliage Treatment With Ground Equipment

Use sufficient spray volume to completely and uniformly cover foliage. For ground application, apply 10 gallons or more of total spray volume per acre. Use higher spray volumes for ground applications to ensure adequate coverage with increased depth and density of foliage, particularly for treatment of woody plants.

### High Volume Foliage Treatment

For control of woody plants, use Garlon 4 at the rate of 2 to 6 quarts per 100 gallons of spray mixture, or Garlon 4 at 2 to 4 quarts may be tank mixed with labeled rates of 2,4-D low volatile ester herbicide, Tordon 101 Mixture, or Tordon K and diluted to make 100 gallons of spray. Do not apply more than 2 gallons of Garlon 4 per acre. On rangeland and permanent pasture sites, make 1 application per year and apply no more than 2 quarts of Garlon 4 (2 lb ae of triclopyr) per acre. Apply at a volume of 100 to 400 gallons of total spray per acre depending upon size and density of woody plants. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida. When tank mixing, follow applicable use directions and precautions on each manufacturer's label.

Depending upon the size and density of the woody plants, apply sufficient spray volume to thoroughly wet all leaves, stems, and root collars. To minimize spray drift, select the minimum spray pressure that provides adequate plant coverage without forming a mist and direct sprays no higher than the top of the target plants. Use a drift control additive cleared for application to growing crops to reduce spray drift. Before using any tank mixture, read the directions and use precautions on both labels. For best results, apply when woody plants and weeds are actively growing.

**Table 1:** The following table is provided as a guide to the user to achieve the proper rate of Garlon 4.

Total Spray Volume (gallons/acre)	Rate of Garlon 4	
	Forestry Sites (qt/100 gallons of spray) <sup>1</sup>	Non-Cropland Sites (qt/100 gallons of spray) <sup>2</sup>
400	1.5	2
300	2	2.7
200	3	4
100	6	8
50	12	16
40	15	20
30	20	26.7
20	30	40
10	60	80

<sup>1</sup>Do not exceed the maximum use rate of 6 qt of Garlon 4 (6 lb ae of triclopyr) per acre per year.

<sup>2</sup>Do not exceed the maximum use rate of 8 qt of Garlon 4 (8 lb ae of triclopyr) per acre per year for non-grazable areas, or 2 qt (2 lb ae of triclopyr) per acre per year for grazed areas, except on portions of grazed areas that meet the following requirement. Portions of grazed areas that intersect treated non-cropland, rights-of-way and forestry sites may be treated at up to 8 lb ae per acre if the area to be treated on the day of application comprises no more than 10% of the total grazable area.

Table 2

Application Rates per 100 Gallons of Spray		
Garlon 4	Plus Tank Mix Product	Rate (qt)
1 - 4 qt	--	--
1 - 2 qt	Grazon® P+D specialty herbicide	4
1 - 2 pt	2,4-D low volatile ester herbicide	1 - 2
1 - 2 qt	Tordon 22K	1 - 2
2 qt	Reclaim® specialty herbicide <sup>1,2</sup>	2

<sup>1</sup> Reclaim is registered for use only in Arizona, Texas, Oklahoma and New Mexico.

<sup>2</sup> See directions for Mesquite Control Using High Volume Foliage Treatment below.

**Mesquite Control Using High Volume Foliage Treatment:** For control of mesquite infestations of low to moderate density, apply Garlon 4 and Reclaim in a tank mixture to individual plants with backpack or hand-held sprayers or a vehicle-mounted sprayer with hand-held spray wand or spray gun. For individual plant treatment, use 2 quarts of Garlon 4 in combination with 2 quarts of Reclaim per 100 gallons of total spray solution (1/2% v/v of each product). Apply in water or as an oil-water emulsion as described in Mixing Directions. If using an oil-water emulsion, add the oil at a rate of 5% of the total spray volume. Apply as a complete spray-to-wet foliar application, including all leaves. Thorough coverage is necessary for good results, but do not spray to the point of runoff. Do not apply when mesquite foliage is wet. The total amount of Garlon 4 applied should not exceed 1 1/3 pints per acre. For best results, follow information given elsewhere in this label concerning effect of environmental conditions and application timing on control. This application method works best for brush less than 8 feet tall since efficient treatment and thorough coverage of taller brush is difficult to achieve with this method. To minimize drift, select a spray nozzle and pressure that provides good coverage while forming a coarse spray. Additionally, drift may be reduced by using the minimum pressure necessary to obtain plant coverage without forming a mist and by directing sprays no higher than the top of target plants. If desired, a spray dye may be added to the spray mixture to mark the treated plants.

#### Low Volume Foliage Treatment

To control susceptible woody plants, mix up to 20 quarts of Garlon 4 in 10 to 100 gallons of finished spray. The spray concentration of Garlon 4 and total spray volume per acre should be adjusted according to the size and density of target woody plants and kind of spray equipment used. With low volume sprays, use sufficient spray volume to obtain uniform coverage of target plants including the surfaces of all foliage, stems, and root collars (see General Use Precautions and Restrictions). For best results, a surfactant should be added to all spray mixtures. Match equipment and delivery rate of spray nozzles to height and density of woody plants. When treating tall, dense brush, a truck mounted spray gun with spray tips that deliver up to 2 gallons per minute at 40 to 60 psi may be required. Backpack or other types of specialized spray equipment with spray tips that deliver less than 1 gallon of spray per minute may be appropriate for short, low to moderate density brush.

**Tank Mixing:** As a low volume foliage spray, up to 12 quarts of Garlon 4 may be applied in tank mix combination with labeled rates of Tordon K or Tordon 101 Mixture in 10 to 100 gallons of finished spray. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

### Broadcast Applications With Aerial or Ground Equipment

Environmental conditions and application timing influence brush and weed control results. For best results, apply when woody plants and weeds are actively growing. For woody species, apply after the rapid growth period of early spring when leaf tissue is fully expanded and terminal growth has slowed. Brush regrowth should be at least 4 ft high prior to treatment to insure adequate foliage for herbicide absorption. Adequate soil moisture before and after treatment as well as the presence of healthy foliage at the time of application are important factors contributing to optimal herbicidal activity.

Use sufficient spray volume to completely and uniformly cover foliage. For ground application, apply 10 gallons or more of total spray volume per acre. For aerial application, apply at least 2 gallons of total spray volume per acre. Use higher spray volumes for ground or aerial applications to ensure adequate coverage with increased depth and density of foliage, particularly for treatment of woody plants.

**Mesquite:** The herbicidal response of mesquite is strongly influenced by foliage condition, growth stage and environmental conditions. For best results, apply when new growth foliage has turned from light to dark green, when the soil temperature is above 75°F at a depth of 12 to 18 inches, and soil moisture is adequate for plant growth. Apply within 60 days after the 75°F minimum soil temperature at the 12- to 18-inch depth has been reached. Product performance may be adversely affected if application is made before mesquite foliage has turned from light to dark green or if foliage has been injured or removed by late frost, insects, hail or plant diseases. Do not treat if mesquite exhibits new (light green) terminal growth in response to recent heavy rainfall during the growing season. Rate of soil warm-up at the 12- to 18-inch depth may vary with soil texture and drainage. Coarse-textured (sandy) soils warm up sooner than fine-textured (clay) soils and dry soils warm up more quickly than wet soils. Mesquite regrowth should be at least 4 ft high prior to treatment to insure adequate foliage for herbicide absorption.

#### Mesquite Only

Apply 1/2 to 1 pint of Garlon 4 per acre in combination with 2/3 to 1 1/3 pint per acre of Reclaim. See label for Reclaim for additional treatment recommendations and information on mesquite control. Apply aerially as an oil:water emulsion in 4 gallons or more total volume per acre or with ground equipment in 10 gallons or more total volume per acre. Use a maximum of 1 gallon of oil per acre for aerial or ground application.

#### Mesquite and Pricklypear Cactus

If pricklypear cactus is a target species in association with mesquite, apply a tank mix of 1/2 to 1 pint of Garlon 4 with 1 to 2 pints of Tordon 22K per acre. (The 2 pint per acre rate of Tordon 22K provides a higher and more uniform plant kill of pricklypear.) Tordon 22K may also be applied in combination with Reclaim to control pricklypear while providing improved control of mesquite. See labels for Tordon 22K and Reclaim for additional information and treatment recommendations. Apply aerially as an oil:water emulsion in 4 gallons or more total volume per acre or with ground equipment in 10 or gallons or more total volume per acre. If mesquite canopy is dense, use higher spray volumes. Use a maximum of 1 gallon of oil per acre for aerial or ground application.

### **South Texas Mixed Brush (Mesquite, Pricklypear Cactus, Blackbrush, Twisted Acacia and Granjeno)**

Use 1 to 2 pints of Garlon 4 in a tank mix with 2 pints of Tordon 22K per acre if pricklypear is a problem, or with 2/3 to 1 1/3 pints of Reclaim per acre if mesquite is the prevalent species. Garlon 4 contributes to the control of non-legume species such as granjeno and oaks. However, if woody legume species are predominate, apply 2 pints of Tordon 22K per acre in combination with 2/3 to 1 1/3 pints of Reclaim per acre for improved control. See labels for Tordon 22K and Reclaim for additional information and treatment recommendations. Apply aerially in an oil:water emulsion in 4 gallons or more total volume per acre or with ground equipment in 15 gallons or more total volume per acre. Use a maximum of 1 gallon of oil per acre for aerial or ground application. The use of an oil:water emulsion is critical and good spray coverage is essential for acceptable brush control.

### **Sand Shinnery Oak Suppression**

In Texas, New Mexico and Oklahoma, apply Garlon 4 alone at a rate of 1/2 to 2 pints per acre for suppression of shinnery oak growing on sandy soils. Grass response following suppression may be impressive where rainfall is adequate. Grazing deferment following application together with proper grazing management is recommended to allow for the reestablishment of grass stands.

### **Post Oak and Blackjack Oak - Regrowth Stands**

Apply in the late spring (May) to early summer (June-July) when oak leaves are fully developed (expanded). Use 2 quarts of Garlon 4 alone or in tank mix combination with 0.5 to 1 pints of 2,4-D low-volatile ester herbicide per acre. Apply in an oil:water emulsion or water surfactant dilution in sufficient total volume per acre to assure thorough coverage, usually 5 gallons or more per acre by fixed-wing aircraft or helicopter or 15 to 25 gallons per acre by ground equipment. Use a maximum of 1 gallon of oil per acre for aerial or ground application. Lower rates may be used for suppression only. Control will require at least 3 consecutive treatments. **Note:** Regrowth plants have a large root mass relative to top growth when compared to undisturbed plants. In order for top growth to intercept and translocate enough herbicide to control the roots, delay broadcast treatment until top growth is at least 4 ft tall.

**High Volume Foliage Treatment:** For regrowth less than 4 ft tall, apply 2 quarts of Garlon 4 per 100 gallons of water and 2 quarts of ag surfactant alone or in tank mix combination with 1 gallon of Grazon P+D or 1 quart of Tordon 22K. Apply as a high volume leaf-stem treatment to individual plants using ground equipment.

### **Post Oak and Blackjack Oak - Mature Stands**

For control of mature stands (greater than 5 ft tall), apply 2 quarts of Garlon 4 per acre in late spring (May) to early summer (June-July) when oak leaves are fully developed (expanded). Understory species such as winged elm, buckbrush, tree huckleberry and ash occurring in some areas will not be controlled (only suppressed or defoliated) by using Garlon 4 alone. Where these understory species occur, control may be improved by tank mixing 2 quarts of Garlon 4 with 1 quart of Tordon 22K or 4 quarts of Grazon P+D per acre. For best results, apply as an oil:water emulsion in a total volume of 5 gallons per acre or more by fixed-wing aircraft or helicopter.

### **Other Susceptible Woody Plants**

Apply 2 to 4 pints of Garlon 4 alone or in combination with 2 to 3 quarts of 3.8 lb/gal 2,4-D low volatile ester or amine formulation per acre. If difficult to control species such as ash, choke cherry, elm, maple or oaks are prevalent, and during applications made when plants are mature late in the summer or during drought conditions, use the higher rates of Garlon 4, alone or with 2,4-D. Garlon 4 may also be applied in a tank mixture with Grazon P+D or Tordon 22K for increased control of certain species. See labels for Grazon P+D and Tordon 22K for additional information and treatment recommendations. Apply aerially in 4 gallons or more total volume per acre or with ground equipment in 10 gallons or more total volume per acre. For best results on blackberry, apply during or after bloom. For management of kudzu, apply 1 quart of Garlon 4 per acre. Repeat application may be necessary to achieve desired level of control.

### **Susceptible Broadleaf Weeds**

Use 2 pints of Garlon 4 per acre in a water spray. Apply as a broadcast spray in a total volume of 10 gallons or more per acre by ground equipment or aerially in a total volume of 2 gallons or more per acre. Apply anytime the weeds are actively growing. Garlon 4 at 1/2 to 3 pints may be tank mixed with 1 to 2 quarts of 3.8 lb/gal 2,4-D amine or low volatile ester.

### **Woody Plant Control**

**Foliage Treatment:** Use 4 to 8 quarts of Garlon 4 in enough water to make 5 gallons or more per acre of total spray, or 1 1/2 to 3 quarts of Garlon 4 may be combined with labeled rates of 2,4-D low volatile ester, Tordon 101 Mixture, or Tordon K in sufficient water to make 5 gallons or more per acre of total spray. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

### **Broadleaf Weed Control**

Use Garlon 4 at rates of 1 to 4 quarts in a total volume of 5 gallons or more per acre as a water spray mixture. Apply anytime weeds are actively growing. Garlon 4 at 0.25 to 3 quarts may be tank mixed with labeled rates of 2,4-D amine or low volatile ester, Tordon K, or Tordon 101 Mixture to improve the spectrum of activity. For thickened (high viscosity) spray mixtures, Garlon 4 can be mixed with diesel oil or other inverting agent. When using an inverting agent, read and follow the use directions and precautions on the product label. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

### **Foliage Treatment (Utility and Pipeline Rights-of-Way)**

Use 4 to 8 quarts of Garlon 4 alone, or 3 to 4 quarts of Garlon 4 in a tank mix combination with labeled rates of 2,4-D low volatile ester, Tordon 101 Mixture or Tordon K and apply in a total spray volume of 10 to 30 gallons per acre. Use the higher rates and volumes when plants are dense or under drought conditions. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

Portions of grazed areas that intersect treated non-cropland, rights-of-way and forestry sites may be treated at up to 8 lb ae per acre if the area to be treated on the day of application comprises no more than 10% of the total grazable area.

## Basal Bark, Dormant Stem and Cut Surface Treatments

Individual plant treatments such as basal bark and cut surface applications may be used on any use site listed on this label at a maximum use rate of 8 lb ae of triclopyr per acre. These types of applications are made directly to ungrazed parts of plants and, therefore, are not restricted by the grazing maximum rate of 2 lb ae of triclopyr per acre.

### Basal Bark Treatment

To control susceptible woody plants with stems less than 6 inches in basal diameter, mix 1 to 5 gallons of Garlon 4 in enough oil to make 100 gallons of spray mixture. Apply with knapsack sprayer or power spraying equipment using low pressure (20 to 40 psi). Spray the basal parts of brush and tree trunks to a height of 12 to 15 inches from the ground, thoroughly wetting the indicated area. Spray until runoff at the ground line is noticeable. Old or rough bark requires more spray than smooth young bark. Apply anytime, including the winter months, except when snow or water prevent spraying to the ground line. **Mixing with oil requires vigorous agitation to form an oil solution.** Once a solution is formed it will stay stable.

### Low Volume Basal Bark Treatment

To control susceptible woody plants with stems less than 6 inches in basal diameter, mix 20 to 30 gallons of Garlon 4 in enough oil to make 100 gallons of spray mixture. Apply with a backpack or knapsack sprayer using low pressure and a solid cone or flat fan nozzle. Spray the basal parts of brush and tree trunks to a height of 12 to 15 inches from the ground in a manner that thoroughly wets the lower stems, including the root collar area, but not to the point of runoff. Herbicide concentration should vary with size and susceptibility of species treated. Apply anytime, including the winter months, except when snow or water prevent spraying to the ground line or when stem surfaces are saturated with water. See Table 1 for relationship between mixing rate, spray volume and maximum application rate. **Note:** The addition of a soil active herbicide to a basal bark mixture with Garlon 4 may result in damage to surrounding non-target vegetation. Care should be taken to assess the areas in which these soil active herbicides are used in combination with Garlon 4 in basal bark applications. **Mixing with oil requires vigorous agitation to form an oil solution.** Once a solution is formed it will stay stable.

**Garlon 4 Plus Tordon K in Oil Tank Mix:** Garlon 4 and Tordon K may be used in tank mix combination as a low volume basal bark treatment to improve control of certain woody species such as ash, elm, maple, poplar, aspen, hackberry, oak, oceanspray, birch, hickory, pine, tanoak, cherry, locust, sassafras, and multiflora rose. (See product bulletin for mixing instructions.) Tordon K is not registered for use in the states of California and Florida.

## Streamline Basal Bark Treatment (Southern States)

To control or suppress susceptible woody plants for conifer release, mix 20 to 30 gallons of Garlon 4 in enough oil to make 100 gallons of spray mixture. Streamline basal bark treatments are most effective on stems less than 4 inches in basal diameter. Apply with a backpack or knapsack sprayer using equipment that provides a directed straight stream spray. Apply the spray in a 2- to 3-inch wide band to one side of stems less than 3 inches in basal diameter. When the optimum amount of spray mixture is applied, the treated zone should widen to encircle the stem within approximately 30 minutes. Treat both sides of stems which are 3 to 4 inches in basal diameter. Direct the spray at bark that is approximately 12 to 24 inches above ground. Pines (loblolly, slash, shortleaf, and Virginia) up to 2 inches in diameter breast height (dbh) can be controlled by directing the spray at a point approximately 4 feet above ground. Vary spray mixture concentration with size and susceptibility of the species being treated. Better control is achieved when spray is applied to thin juvenile bark and above rough thickened mature bark. This technique is not recommended for scrub and live oak species, including blackjack, turkey, post, live, bluejack and laurel oaks, or bigleaf maple. Apply anytime, including winter months, except when snow or water prevents spraying at the desired height above ground level. **Note:** Best results with some hardwood species occur when applications are made from approximately 6 weeks prior to leaf expansion in the spring until approximately 2 months after leaf expansion is completed. **Mixing with oil requires vigorous agitation to form an oil solution.** Once a solution is formed it will stay stable.

## Low Volume Stem Bark Band Treatment (North Central and Lake States)

To control susceptible woody plants with stems less than 6 inches in basal diameter, mix 20 to 30 gallons of Garlon 4 in enough oil to make 100 gallons of spray mixture. Apply with a backpack or knapsack sprayer using low pressure and a solid cone or flat fan nozzle. Apply the spray in a 6- to 10-inch wide band that completely encircles the stem. Spray in a manner that completely wets the bark, but not to the point of runoff. The treatment band may be positioned at any height up to the first major branch. For best results, apply the band as low as possible. Spray mixture concentration should vary with size and susceptibility of species to be treated. Applications may be made anytime, including winter months. **Mixing with oil requires vigorous agitation to form an oil solution.** Once a solution is formed it will stay stable.

## Thinline Basal Bark Treatment

To control susceptible woody plants with stems less than 6 inches in diameter, apply Garlon 4, either undiluted or mixed at 50 to 75% v/v with oil, in a thin stream to all sides of the lower stems. The stream should be directed horizontally to apply a narrow band of Garlon 4 around each stem or clump. Use a minimum of 2 to 15 milliliters of Garlon 4 or oil mixture with Garlon 4 to treat single stems and from 25 to 100 milliliters to treat clumps of stems. Use an applicator metered or calibrated to deliver the small amounts required. **Mixing with oil requires vigorous agitation to form an oil solution.** Once a solution is formed it will stay stable.

### Dormant Stem Treatment

Dormant stem treatments control susceptible woody plants and vines with stems less than 2 inches in diameter. Plants with stems greater than 2 inches in diameter may not be controlled and resprouting may occur. This treatment method is best suited for sites with dense, small diameter brush. Dormant stem treatments of Garlon 4 can also be used as a chemical side-trim for controlling lateral branches of larger trees that encroach onto roadside, utility, or other rights-of-way.

Mix 4 to 8 quarts of Garlon 4 in 2 to 3 gallons of crop oil concentrate or other recommended oil and add this mixture in enough water to make 100 gallons of spray solution. Use continuous adequate agitation. Apply with knapsack or power spraying equipment, using low pressure (20 to 40 psi). In western states, apply anytime after woody plants are dormant and most of the foliage has dropped. In other areas apply anytime within 10 weeks of budbreak, generally February through April. Thoroughly wet the upper parts of the stems and use the remainder to wet the lower 12 to 15 inches above the ground to the point of runoff. For root suckering species such as sumac, sassafras and locust, also spray the ground under the plant to cover small root suckers which may not be visible above the soil surface. For oil-water mixture application, mix 6 quarts of Garlon 4, 25 gallons of oil and 1.5 gallons of an approved agricultural spray emulsifier such as Sponto 712 or Triton X-100 as indicated in the mixing directions. Treat as above. Garlon 4 may be mixed with 4 quarts of Weedone 170 herbicide to improve the control of black cherry and broaden the spectrum of herbicidal activity. Do not apply to wet or saturated bark as poor control may result.

### Cut Stump Treatment

To control resprouting, mix 20 to 30 gallons of Garlon 4 in enough oil to make 100 gallons of spray mixture. Apply with a backpack or knapsack sprayer using low pressures and a solid cone or flat fan nozzle. Spray the root collar area, sides of the stump, and the outer portion of the cut surface, including the cambium, until thoroughly wet, but not to the point of runoff. Spray mixture concentration should vary with the size and susceptibility of species treated. Apply anytime, including in winter months, except when snow or water prevent spraying to the ground line.

**Mixing with oil requires vigorous agitation to form an oil solution.** Once a solution is formed it will stay stable.

### Cut Stump Treatment in Western States

To control resprouting of salt cedar and other *Tamarix* species, bigleaf maple, tanoak, Oregon myrtle, and other susceptible species, apply undiluted Garlon 4 to wet the cambium and adjacent wood around the entire circumference of the cut stump. Treatments may be applied throughout the year; however, control may be reduced with treatment during periods of moisture stress as in late summer. Cut stumps so that they are approximately level to facilitate uniform coverage of Garlon 4. Use an applicator which can be calibrated to deliver the small amounts of material required.

### Growing Point and Leaf Base (Crown) Treatment of Yucca

Prepare a 2% v/v solution of Garlon 4 in diesel or fuel oil (13 fl oz of Garlon 4 in 5 gallons of spray mixture). Thoroughly wet the center of the plant including growing point and leaf bases to the soil surface. Complete coverage of leaves is not necessary.

### Forest Management Applications

For broadcast applications, apply 1 to 6 quarts of Garlon 4 per acre in a total spray volume of 5 to 25 gallons per acre by air or 10 to 100 gallons per acre by ground. Use spray volumes sufficient to provide thorough coverage of treated foliage. Nozzles or additives that produce larger droplets of spray may require higher spray volumes to provide adequate coverage.

**Plant Back Interval for Conifers:** Conifers planted sooner than 1 month after treatment with Garlon 4 at less than 4 quarts per acre or sooner than 2 months after treatment at 4 to 6 quarts per acre may be injured. When tank mixtures of herbicides are used for forest site preparation, labels for all products in the mixture should be consulted and the longest recommended waiting period before planting observed.

### Forest Site Preparation (Not for Conifer Release)

**Southern States including Alabama, Arkansas, Delaware, Florida, Georgia, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia:** To control susceptible woody plants and broadleaf weeds, apply Garlon 4 at a rate of 4 to 6 quarts per acre. To broaden the spectrum of woody plants and broadleaf weeds controlled, apply 2 to 4 quarts of Garlon 4 per acre in tank mix combination with labeled rates of Tordon 101 Mixture or Tordon K. Tordon 101 Mixture and Tordon K are not registered for use in the state of Florida. Where grass control is also desired, Garlon 4, alone or in tank mix combination with Tordon K or Tordon 101 Mixture, may be applied with labeled rates of other herbicides registered for grass control in forests. Use of tank mix products must be in accordance with the most restrictive of label limitations and precautions. Do not exceed labeled application rates. Garlon 4 cannot be tank mixed with any product containing a label prohibition against such mixing.

**Western, Northeastern, North Central, and Lake States (States not Listed Above as Southern States):** To control susceptible woody plants and broadleaf weeds, apply Garlon 4 at a rate of 3 to 6 quarts per acre. To broaden the spectrum of woody plants and broadleaf weeds controlled, apply 1.5 to 3 quarts of Garlon 4 per acre in tank mix combination with labeled rates of Tordon 101 Mixture, Tordon K, or 2,4-D low volatile ester. Tordon 101 Mixture and Tordon K are not registered for use in the state of California. Where grass control is also desired, Garlon 4, alone or in tank mix combination with Tordon 101 Mixture or Tordon K, may be applied with labeled rates of other herbicides registered for grass control in forests. When applying tank mixes, follow applicable use directions and precautions on each product label.

**Southern Coastal Flatwoods:** To control susceptible broadleaf weeds and woody species such as gallberry and wax-myrtle, and for partial control of saw-palmetto, apply 2 to 4 quarts of Garlon 4 per acre. To broaden the spectrum of species controlled to include fetterbush, staggerbush, titi, and grasses, apply 2 to 3 quarts of Garlon 4 per acre in tank mix combination with labeled rates of Arsenal Applicator's Concentrate herbicide. Where control of gallberry, wax-myrtle, broadleaf weeds, and grasses is desired, apply 2 to 3 quarts of Garlon 4 per acre in tank mix combination with labeled rates of Accord Concentrate or Accord SP herbicide.

These treatments may be broadcast during site preparation of flat planted or bedded sites or, on bedded sites, applied in bands over the top of beds. For best results, apply in late summer or fall. Efficacy may not be satisfactory when applications are made in early season prior to August.

**Note:** Do not apply after planting pines.

### Directed Spray Applications for Conifer Release

To release conifers from competing hardwoods and brush such as red maple, sugar maple, striped maple, sweetgum, red and white oaks, ash, hickory, alder, birch, aspen, pin cherry, *Ceanothus* spp., blackberry, chinquapin, and poison oak, mix 4 to 20 quarts of Garlon 4 in enough water to make 100 gallons of spray mixture. This spray mixture should be directed onto foliage of competitive hardwoods using knapsack or backpack sprayers with flat fan nozzles or equivalent anytime after the hardwoods and brush have reached full leaf size, but before autumn coloration. The majority of treated hardwoods and brush should be less than 6 feet in height to ensure adequate spray coverage. Care should be taken to direct spray away from contact with conifer foliage, particularly foliage of desirable pines. See Table 1 for relationship between mixing rate, spray volume and maximum application rate.

**Note:** Spray may cause temporary damage and growth suppression where contact with conifers occurs; however, injured conifers should recover and grow normally. Over-the-top spray applications can kill pines.

### Broadcast Applications for Mid-Rotation Understory Brush Control in Southern Coastal Flatwoods Pine Stands (Ground Equipment Only)

For control of susceptible species such as gallberry and wax-myrtle and broadleaf weeds, apply 2 to 4 quarts of Garlon 4 per acre. To broaden the spectrum of woody plants controlled to include fetterbush, staggerbush, and titi, apply 2 to 3 quarts of Garlon 4 per acre in tank mix combination with labeled rates of Arsenal Applicator's Concentrate. Saw-palmetto will be partially controlled by use of Garlon 4 at 4 quarts per acre or by mixtures of Garlon 4 at 2 to 3 quarts per acre in tank mix combination with either Arsenal Applicator's Concentrate or Escort herbicide. These mixtures should be broadcast applied over target understory brush species, **but to prevent injury to pines, make applications underneath the foliage of pines.** Apply sprays in 30 gallons or more per acre of total volume. For best results, apply in late summer or fall. Efficacy may not be satisfactory when applications are made in early season prior to August.

### Broadcast Applications for Conifer Release in the Pacific Northwest and California

**Dormant Conifers Before Bud Swell (Excluding Pines):** To control or suppress deciduous hardwoods such as vine maple, bigleaf maple, alder, scotch broom, or willow **before leaf-out**, or evergreen hardwoods such as madrone, chinquapin, and *Ceanothus* spp., use Garlon 4 at 1 to 2 quarts per acre. Use diesel or fuel oil as a diluent, or use water plus 1 to 2 gallons per acre of diesel oil or a suitable surfactant or oil substitute at manufacturer's recommended rates. **Mixing with oil as the only diluent requires vigorous agitation to form an oil solution.** Once a solution is formed it will stay stable.

**Conifer Plantations (Excluding Pines) After Hardwoods Begin Growth and Before Conifer Bud Break ("Early Foliar" Hardwood Stage):** Use Garlon 4 at 1 to 1.5 quarts alone or with 2,4-D low volatile ester herbicide in water carrier to provide no more than 3 lb ae per acre from both products. After conifer bud break, these sprays may cause more serious injury to the crop trees. Use of a surfactant may cause unacceptable injury to conifers especially after bud break.

**Conifer Plantations (Excluding Pines) After Conifers Harden Off in Late Summer and While Hardwoods are Still Actively Growing:** Use Garlon 4 at rates of 1 to 1.5 quarts per acre alone or with 2,4-D low volatile ester to provide no more than 3 lb ae per acre from both products. Treat as soon after conifer bud hardening as possible so that hardwoods and brush are actively growing. Use of oil, oil substitute, or surfactant may cause unacceptable injury to the conifers.

### Broadcast Applications for Conifer Release in the Eastern United States

To release spruce, fir, red pine, and white pine from competing hardwoods such as red maple, sugar maple, striped maple, alder, birch (white, yellow, and grey), aspen, ash, pin cherry, and *Rubus* spp. and perennial and annual broadleaf weeds, use Garlon 4 at rates of 1.5 to 3 quarts per acre alone or with 2,4-D amine or low volatile ester to provide no more than 4 lb ae per acre from both products. Apply in late summer or early fall after conifers have formed their overwintering buds and hardwoods are in full leaf and prior to autumn coloration.

### Broadcast Applications for Conifer Release in the Lake States Region

To release spruce, fir, and red pine from competing hardwoods such as aspen, birch, maple, cherry, willow, oak, hazel, and *Rubus* spp. and perennial and annual broadleaf weeds, use Garlon 4 at rates of 1.5 to 3 quarts per acre. Apply in late summer or early fall after conifers have formed their overwintering buds and hardwoods are in full leaf and prior to autumn coloration.

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### **Terms and Conditions of Use**

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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 Limitation of Remedies.

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### **Warranty Disclaimer**

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Dow AgroSciences 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. Dow AgroSciences MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

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### **Inherent Risks of Use**

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

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### **Limitation of Remedies**

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To the extent permitted by law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at Dow AgroSciences' election, one of the following:

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

To the extent permitted by law, Dow AgroSciences shall not be liable for losses or damages resulting from handling or use of this product unless Dow AgroSciences is promptly notified of such loss or damage in writing. To the extent permitted by law, in no case shall Dow AgroSciences be liable for consequential or incidental damages or losses.

The terms of the Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Dow AgroSciences or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

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Label Code: D02-102-026

Replaces Label: D02-102-025

LOES Number: 010-00085

EPA accepted 04/18/07

### **Revisions:**

1. Product may be applied by fixed wing aircraft or helicopter.
2. Added mixing directions section.
3. Added blackbrush, granjeno, guajillo, guava, milkweed vine, osage orange, pepper vine, trumpet creeper, twisted acacia, Virginia creeper and willow primrose to list of woody plants controlled.
4. Added biennial broadleaf weeds to list of weeds controlled.
5. Added dormant stem and cut surface treatments.

# Specimen Label



# Garlon<sup>®</sup> 3A

## Specialty Herbicide

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For the control of woody plants, broadleaf weeds in forests and industrial non-crop areas, including manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides, railroads, fence rows, non-irrigation ditch banks, and around farm buildings; including application to grazed areas, and establishment and maintenance of wildlife openings on these sites, and in Christmas tree plantations. Use within production forests and industrial non-crop sites (including those listed above) may include applications to control target vegetation in and around standing water sites, such as marshes, wetlands, and the banks of ponds and lakes.

For use in New York State, comply with Section 24(c) Special Local Need labeling for Garlon 3A, SLN NY-060002.

Active Ingredient:	
triclopyr: 3,5,6-trichloro-2-pyridinyloxyacetic acid, triethylamine salt .....	44.4%
Other Ingredients .....	55.6%
Total .....	100.0%

Acid equivalent: triclopyr - 31.8% - 3 lb/gal

EPA Reg. No. 62719-37

### Keep Out of Reach of Children

## DANGER PELIGRO

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.)

## Precautionary Statements

### Hazard to Humans and Domestic Animals

**Corrosive • Causes Irreversible Eye Damage • Harmful If Swallowed Or Absorbed Through Skin • Prolonged Or Frequently Repeated Skin Contact May Cause Allergic Reaction In Some Individuals**

Do not get in eyes or on skin or clothing.

### Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Protective eyewear
- Chemical resistant gloves (≥14 mils) such as butyl rubber, natural rubber, neoprene rubber or nitrile rubber

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 exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

### Engineering Controls

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the WPS (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.

### 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 eye. Call a poison control center or doctor for treatment advice.

**If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**If swallowed:** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person. Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

**Note to Applicator:** Allergic skin reaction is not expected from exposure to spray mixtures of Garlon 3A herbicide when used as directed.

**Note to Physician:** Probable mucosal damage may contraindicate the use of gastric lavage.

## Environmental Hazards

Do not contaminate water when cleaning equipment or disposing of equipment washwaters. Under certain conditions, treatment of aquatic weeds can result in oxygen depletion or loss due to decomposition of dead plants, which may contribute to fish suffocation. This loss can cause fish suffocation. Therefore, to minimize this hazard, do not treat more than one-third to one-half of the water area in a single operation and wait at least 10 to 14 days between treatments. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Consult with the State agency for fish and game before applying to public water to determine if a permit is needed.

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

## Physical or Chemical Hazards

**Combustible.** Do not use or store the product near heat or open flame.

**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 elsewhere on this label. If terms are unacceptable, return at once unopened.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994. If you wish to obtain additional product information, visit our web site at [www.dowagro.com](http://www.dowagro.com).

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

## 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 48 hours.

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

- Coveralls
- Shoes plus socks
- Protective eyewear
- Chemical-resistant gloves (≥14 mils) such as butyl rubber, natural rubber, neoprene rubber or nitrile rubber

## 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:** For applications to non-cropland areas, do not allow entry into areas until sprays have dried, unless applicator and other handler PPE is worn.

## Storage and Disposal

Do not contaminate water, food, or feed by storage and disposal. Open dumping is prohibited.

**Pesticide Storage:** Store above 28°F or agitate before use.

**Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

### Nonrefillable containers 5 gallons or less:

**Container Reuse:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

### Refillable containers 5 gallons or larger:

**Container Reuse:** Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

### Nonrefillable containers 5 gallons or larger:

**Container Reuse:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

## General Information for Production Forests and Industrial Non-Crop Areas

Use Garlon® 3A specialty herbicide for the control of woody plants and broadleaf weeds in forests and industrial non-crop areas including manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides, railroads, fence rows, non-irrigation ditch banks, and around farm buildings, including application to grazed areas, and establishment and maintenance of wildlife openings on these sites, and in Christmas tree plantations. Use within production forests and industrial non-crop sites (including those listed above) may include applications to control target vegetation in and around standing water sites, such as marshes, wetlands, and the banks of ponds and lakes.

**Obtain Required Permits:** Consult with appropriate state or local water authorities before applying this product to public waters. State or local public agencies may require permits.

## General Use Precautions and Restrictions

For use in New York State, comply with Section 24(c) Special Local Need labeling for Garlon 3A, SLN NY-060002.

When applying this product in tank mix combination, follow all applicable use directions, precautions and limitations on each manufacturer's label.

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

Do not apply Garlon 3A directly to, or otherwise permit it to come into direct contact with, grapes, tobacco, vegetable crops, flowers, or other desirable broadleaf plants. Do not permit spray mists containing Garlon 3A to drift onto such plants.

It is permissible to treat non-irrigation ditch banks, seasonally dry wetlands (such as flood plains, deltas, marshes, swamps, or bogs) and transitional areas between upland and lowland sites.

Water treated with Garlon 3A may not be used for irrigation purposes for 120 days after application or until residue levels of Garlon 3A are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

**Seasonal Irrigation Waters:** Garlon 3A may be applied during the off-season to surface waters that are used for irrigation on a seasonal basis provided that there is a minimum of 120 days between applying Garlon 3A and the first use of treated water for irrigation purposes, or until residue levels of Garlon 3A are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

**Irrigation Canals/Ditches:** Do not apply Garlon 3A to irrigation canals/ditches unless the 120-day restriction on irrigation water usage can be observed or residue levels of Garlon 3A are determined by laboratory analysis, or other appropriate means of analysis, to be 1 ppb or less.

- Do not apply to salt water bays or estuaries.
- Do not apply directly to un-impounded rivers or streams.
- Do not apply on ditches or canals currently being used to transport irrigation water or that will be used for irrigation within 4 months following treatment. It is permissible to treat irrigation and non-irrigation ditch banks.
- Do not apply where runoff water may flow onto agricultural land as injury to crops may result.
- When making applications to control unwanted plants on banks or shorelines of moving water sites, minimize overspray to open water.

- The use of a mistblower is not recommended.
- Apply no more than 2 lb ae of triclopyr (2/3 gallon of Garlon 3A) per acre per growing season on range and pasture sites, including rights-of-way, fence rows or any area where grazing or harvesting is allowed.
- On forestry sites, Garlon 3A may be used at rates up to 6 lb ae of triclopyr (2 gallons of Garlon 3A) per acre per year.
- For all terrestrial use sites other than range, pasture, forestry sites, and grazed areas, the maximum application rate is 9 lb ae of triclopyr (3 gallons of Garlon 3A) per acre per year.

## Precautions for Potable Water Intakes for Emerged Aquatic Weed Control

See chart below for specific setback distances near functioning potable water intakes. **Note:** Existing potable water intakes which are no longer in use, such as those replaced by potable water wells or connections to a municipal water system, are not considered to be functioning potable water intakes. These setback restrictions do not apply to terrestrial applications made adjacent to potable water intakes.

Area Treated (acres)	Garlon 3A Application Rate			
	2 qt/acre	4 qt/acre	6 qt/acre	8 qt/acre
	Setback Distance (ft)			
4	0	200	400	500
>4 - 8	0	200	700	900
>8 - 16	0	200	700	1000
>16	0	200	900	1300

To apply Garlon 3A around and within the distances noted above from a functioning potable water intake, the intake must be turned off until the triclopyr level in the intake water is determined to be 0.4 parts per million (ppm) or less by laboratory analysis or immunoassay.

- **Recreational Use of Water in Treatment Area:** There are no restrictions on use of water in the treatment area for recreational purposes, including swimming and fishing.
- **Livestock Use of Water from Treatment Area:** There are no restrictions on livestock consumption of water from the treatment area.

## Grazing and Haying Restrictions

Except for lactating dairy animals, there are no grazing restrictions following application of this product.

- **Grazing Lactating Dairy Animals:** Do not allow lactating dairy animals to graze treated areas until the next growing season following application of this product.
- Do not harvest hay for 14 days after application.
- Grazed areas of non-cropland and forestry sites may be spot treated if they comprise no more than 10% of the total grazable area.

**Slaughter Restrictions:** During the season of application, withdraw livestock from grazing treated grass at least 3 days before slaughter.

## Avoiding Injurious Spray Drift

Make applications only when there is little or no hazard from spray drift. Small quantities of spray, which may not be visible, may seriously injure susceptible plants. Do not spray when wind is blowing toward susceptible crops or ornamental plants that are near enough to be injured. It is suggested that a continuous smoke column at or near the spray site or a smoke generator on the spray equipment be used to detect air movement, lapse conditions, or temperature inversions (stable air). If the smoke layers or indicates a potential of hazardous spray drift, do not spray.

**Aerial Application:** For aerial application on rights-of-way or other areas near susceptible crops, apply through a Microfoil<sup>1</sup> or Thru-Valve boom<sup>1</sup>, or use an agriculturally labeled drift control additive. Other drift reducing systems or thickened sprays prepared by using high viscosity inverting systems may be used if they are made as drift-free as mixtures containing agriculturally labeled thickening agents or applications made with the Microfoil or Thru-Valve boom. Keep spray pressures low enough to provide coarse spray droplets. Spray boom should be no longer than 3/4 of the rotor length. Do not use a thickening agent with the Microfoil or Thru-Valve booms, or other systems that cannot accommodate thick sprays. Spray only when the wind velocity is low (follow state regulations). Avoid application during air inversions. If a spray thickening agent is used, follow all use recommendations and precautions on the product label.

<sup>1</sup> Reference within this label to a particular piece of equipment produced by or available from other parties is provided without consideration for use by the reader at its discretion and subject to the reader's independent circumstances, evaluation, and expertise. Such reference by Dow AgroSciences is not intended as an endorsement of such equipment, shall not constitute a warranty (express or implied) of such equipment, and is not intended to imply that other equipment is not available and equally suitable. Any discussion of methods of use of such equipment does not imply that the reader should use the equipment other than is advised in directions available from the equipment's manufacturer. The reader is responsible for exercising its own judgment and expertise, or consulting with sources other than Dow AgroSciences, in selecting and determining how to use its equipment.

#### **Spray Drift Management**

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications:

1. The distance of the outer most operating nozzles on the boom must not exceed 3/4 the length of the rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they should be observed.

The applicator should be familiar with and take into account the information covered in the following Aerial Drift Reduction Advisory. [This information is advisory in nature and does not supersede mandatory label requirements.]

#### **Aerial Drift Reduction Advisory**

**Information on Droplet Size:** The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

#### **Controlling Droplet Size:**

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**Boom Length:** For some use patterns, reducing the effective boom length to less than 3/4 of the rotor length may further reduce drift without reducing swath width.

**Application Height:** Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Swath Adjustment:** When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

**Wind:** Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. **Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**Temperature and Humidity:** When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**Temperature Inversions:** Applications should not occur during a local, low level temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of the smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

**Sensitive Areas:** The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

**Ground Equipment:** To aid in reducing spray drift, Garlon 3A should be used in thickened (high viscosity) spray mixtures using an agriculturally labeled drift control additive, high viscosity invert system, or equivalent as directed by the manufacturer. With ground equipment, spray drift can be reduced by keeping the spray boom as low as possible; by applying 20 gallons or more of spray per acre; by keeping the operating spray pressures at the lower end of the manufacturer's recommended pressures for the specific nozzle type used (low pressure nozzles are available from spray equipment manufacturers); and by spraying when wind velocity is low (follow state regulations). In hand-gun applications, select the minimum spray pressure that will provide adequate plant coverage (without forming a mist). Do not apply with nozzles that produce a fine-droplet spray.

**High Volume Leaf-Stem Treatment:** To minimize spray drift, do not use pressure exceeding 50 psi at the spray nozzle and keep sprays no higher than brush tops. An agriculturally labeled thickening agent may be used to reduce drift.

## Plants Controlled

### Woody Plant Species

alder	dogwood	salt cedar <sup>2</sup>
arrowwood	elderberry	salmonberry
ash	elm	sassafras
aspen	gallberry	scotch broom
Australian pine	hazel	sumac
bear clover (bearmat)	hornbeam	sweetbay magnolia
beech	kudzu <sup>1</sup>	sweetgum
birch	locust	sycamore
blackberry	madrone	tanoak
blackgum	maples	thimbleberry
Brazilian pepper	mulberry	tulip poplar
cascara	oaks	waxmyrtle
ceanothus	persimmon	western hemlock
cherry	pine	wild rose
chinquapin	poison ivy	willow
choke cherry	poison oak	winged elm
cottonwood	poplar	
crataegus (hawthorn)	salt-bush	
Douglas fir	( <i>Baccharis</i> spp.)	

<sup>1</sup>For complete control, re-treatment may be necessary.

<sup>2</sup>Use cut surface treatments for best results.

### Annual and Perennial Broadleaf Weeds

bindweed	Mexican petunia	tropical soda apple
burdock	plantain	vetch
Canada thistle	purple loosestrife	wedelia
chicory	ragweed	wild lettuce
curly dock	smartweed	
dandelion	Spanish needles/ common beggarthicks	
field bindweed		
lambsquarter	tansy ragwort	

### Purple Loosestrife (*Lythrum salicaria*)

Purple loosestrife can be controlled with foliar applications of Garlon 3A. For broadcast applications, use a minimum of 4 1/2 to 6 lb ae of triclopyr (6 to 8 quarts of Garlon 3A) per acre. Apply Garlon 3A when purple loosestrife is at the bud to mid-flowering stage of growth. Follow-up applications for control of regrowth should be made the following year in order to achieve increased control of this weed species. For all applications, a non-ionic surfactant should be added to the spray mixture. Follow all directions and use precautions on the label of the surfactant. Thorough wetting of the foliage and stems is necessary to achieve satisfactory control. A minimum spray volume of 50 gallons per acre is recommended for ground broadcast applications.

If using a backpack sprayer, a spray mixture containing 1% to 1.5% Garlon 3A or 5 to 7.6 fl oz of Garlon 3A per 4 gallons of water should be used. All purple loosestrife plants should be thoroughly wetted.

### Application Methods

Use Garlon 3A at rates of 3/4 to 9 lb ae of triclopyr (1/4 to 3 gallons of Garlon 3A) per acre to control broadleaf weeds and woody plants. In all cases, use the amount specified in enough water to give uniform and complete coverage of the plants to be controlled. Use only water suitable for spraying. Use an agriculturally labeled non-ionic surfactant for all foliar applications. When using surfactants, follow the use directions and precautions listed on the surfactant manufacturer's label. Use the higher concentrations of surfactant in the spray mixture when applying lower spray volumes per acre. The order of addition to the spray tank is water, spray thickening agent (if used), additional herbicide (if used), and Garlon 3A. Surfactant should be added to the spray tank last or as recommended on the product label. If combined with emulsifiable concentrate herbicides, moderate continuous adequate agitation is required.

Before using any recommended tank mixtures, read the directions and all use precautions on both labels.

For best results, apply when woody plants and weeds are actively growing. When hard to control species such as ash, blackgum, choke cherry, elm, maples, oaks, pines, or winged elm are prevalent and during applications made in late summer when the plants are mature and during drought conditions, use the higher rates of Garlon 3A alone or in combination with Tordon<sup>®</sup> 101 Mixture specialty herbicide. (Tordon 101 Mixture is a restricted use pesticide. See product label.) Tordon 101 Mixture is not registered for use in the states of California and Florida.

When using Garlon 3A in combination with 2,4-D 3.8 lb amine, like DMA 4 IVM, or low volatile ester herbicides, generally the higher rates should be used for satisfactory brush control.

Use the higher dosage rates when brush approaches an average of 15 feet in height or when the brush covers more than 60% of the area to be treated. If lower rates are used on hard to control species, resprouting may occur the year following treatment.

On sites where easy to control brush species dominate, rates less than those listed may be effective. Consult State or Local Extension personnel for such information.

## Foliage Treatment With Ground Equipment

### High Volume Foliage Treatment

For control of woody plants, use Garlon 3A at the rate of 3 to 9 lb ae of triclopyr (1 to 3 gallons of Garlon 3A) per 100 gallons of spray solution, or Garlon 3A at 3/4 to 3 lb ae of triclopyr (1 to 4 quarts of Garlon 3A) may be tank mixed with 1/4 to 1/2 gallons of 2,4-D 3.8 lb amine, like DMA 4 IVM, or low volatile ester or Tordon 101 Mixture and diluted to make 100 gallons of spray solution. Apply at a volume of 100 to 400 gallons of total spray per acre depending upon size and density of woody plants. Coverage should be thorough to wet all leaves, stems, and root collars. (See General Use Precautions and Restrictions.) Do not exceed maximum allowable use rates per acre (see table below). Tordon 101 Mixture is not registered for use in the states of California and Florida.

### Maximum Labeled Rate versus Spray Volume per Acre

Total Spray Volume (gal/acre)	Maximum Rate of Garlon 3A		
	Rangeland and Pasture Sites <sup>1</sup> (gal/100 gal of spray)	Forestry Sites <sup>2</sup> (gal/100 gal of spray)	Other Non-Cropland Sites <sup>3</sup> (gal/100 gal of spray)
400	Do not use	0.5	0.75
300	Do not use	0.67	1
200	Do not use	1	1.5
100	0.67	2	3
50	1.33	4	6
40	1.67	5	7.5
30	2.33	6.65	10
20	3.33	10	15
10	6.67	20	30

<sup>1</sup> Do not exceed the maximum use rate of 2 lb ae of triclopyr (2/3 gal of Garlon 3A)/acre/year.

<sup>2</sup> Do not exceed the maximum use rate of 6 lb ae of triclopyr (2 gal of Garlon 3A)/acre/year.

<sup>3</sup> Do not exceed the maximum use rate of 9 lb ae of triclopyr (3 gal of Garlon 3A)/acre/year on non-cropland use sites other than rangeland, pasture, forestry, and grazed areas.

### Low Volume Foliage Treatment

To control susceptible woody plants, apply up to 15 lb ae of triclopyr (5 gallons of Garlon 3A) in 10 to 100 gallons of finished spray. The spray concentration of Garlon 3A and total spray volume per acre should be adjusted according to the size and density of target woody plants and kind of spray equipment used. With low volume sprays, use sufficient spray volume to obtain uniform coverage of target plants including the surfaces of all foliage, stems, and root collars (see General Use Precautions and Restrictions). For best results, a surfactant should be added to all spray mixtures. Match equipment and delivery rate of spray nozzles to height and density of woody plants. When treating tall, dense brush, a truck mounted spray gun with spray tips that deliver up to 2 gallons per minute at 40 to 60 psi may be required. Backpack or other types of specialized spray equipment with spray tips that deliver less than 1 gallon of spray per minute may be appropriate for short, low to moderate density brush.

**Tank Mixing:** As a low volume foliar spray, up to 9 lb ae of triclopyr (3 gallons of Garlon 3A) may be applied in tank mix combination with 1/2 to 1 gallon of Tordon K or 1 to 2 gallons of Tordon 101 Mixture in 10 to 100 gallons of finished spray. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

## Broadcast Applications With Ground Equipment

Apply using equipment that will assure uniform coverage of the spray volumes applied. To improve spray coverage, add an agriculturally labeled non-ionic surfactant as described later under Directions for Use. See Maximum Labeled Rate versus Spray Volume per Acre table above for relationship between mixing rate, spray volume and maximum application rate.

### Woody Plant Control

**Foliage Treatment:** Use 6 to 9 lb ae of triclopyr (2 to 3 gallons of Garlon 3A) in enough water to make 20 to 100 gallons of total spray per acre or 1 1/2 to 3 lb ae of triclopyr (1/2 to 1 gallon of Garlon 3A) may be combined with 1 to 2 gallons of 2,4-D 3.8 lb amine, like DMA 4 IVM, or low volatile esters or Tordon 101 Mixture in sufficient water to make 20 to 100 gallons of total spray per acre. Tordon 101 Mixture is not registered for use in the states of California and Florida.

### Broadleaf Weed Control

Use Garlon 3A at rates of 1 to 4 1/2 lb ae of triclopyr (1/3 to 1 1/2 gallons of Garlon 3A) in a total volume of 20 to 100 gallons of water per acre. Apply any time during the growing season. Garlon 3A at 1 to 3 lb ae of triclopyr (1/3 to 1 gallon of Garlon 3A) may be tank mixed with 1/2 to 1 gallon of Tordon K, Tordon 101 Mixture or 2,4-D 3.8 lb amine, like DMA 4 IVM, or low volatile herbicides to improve the spectrum of activity. Tordon 101 Mixture and Tordon K are not registered for use in the states of California and Florida.

### Aerial Application (Helicopter Only)

Aerial sprays should be applied using suitable drift control. (See General Use Precautions and Restrictions.) Add an agriculturally labeled non-ionic surfactant as described under Directions for Use. See Maximum Labeled Rate versus Spray Volume per Acre table above for relationship between mixing rate, spray volume and maximum application rate.

### Foliage Treatment (Non-Grazed Rights-of-Way)

**Non-grazed areas:** Use 6 to 9 lb ae of triclopyr (2 to 3 gallons of Garlon 3A) or 3 to 4 1/2 lb ae of triclopyr (1 to 1 1/2 gallons of Garlon 3A) in a tank mix combination with 1 to 2 gallons of 2,4-D 3.8 lb amine, like DMA 4 IVM, or low volatile esters or Tordon 101 Mixture, and apply in a total spray volume of 10 to 30 gallons per acre. Use the higher rates and volumes when plants are dense or under drought conditions. Tordon 101 Mixture is not registered for use in the states of California and Florida.

Interspersed areas in non-grazed rights-of-ways that may be subject to grazing may be spot treated if the treated area comprises no more than 10% of the total grazable area.

### Forest Management Applications

For best control from broadcast applications of Garlon 3A, use a spray volume which will provide thorough plant coverage. Recommended spray volumes are usually 10 to 25 gallons per acre by air or 10 to 100 gallons per acre by ground. To improve spray coverage of spray volumes less than 50 gallons per acre, add an agriculturally labeled non-ionic surfactant as described under Directions for Use. Application systems should be used to prevent hazardous drift to off-target sites. Nozzles or additives that produce larger droplets of spray may require higher spray volumes to maintain brush control.

### Forest Site Preparation (Not for Conifer Release)

Use up to 6 lb ae of triclopyr (2 gallons of Garlon 3A) and apply in a total spray volume of 10 to 30 gallons per acre or Garlon 3A at 3 to 4 1/2 lb ae of triclopyr (1 to 1 1/2 gallons of Garlon 3A) may be used with 1 to 2 gallons of Tordon 101 Mixture or 2,4-D 3.8 lb low volatile ester in a tank mix combination in a total spray volume of 10 to 30 gallons per acre. Use a non-ionic agricultural surfactant for all foliar applications as described under Directions for Use. Tordon 101 Mixture is not registered for use in the states of California and Florida.

**Note:** Conifers planted sooner than one month after treatment with Garlon 3A at less than 4 lb ae of triclopyr (1 1/3 gallons of Garlon 3A) per acre or sooner than two months after treatment at 4 to 9 lb ae of triclopyr (1 1/3 to 3 gallons of Garlon 3A) per acre may be injured. When tank mixtures of herbicides are used for forest site preparation, labels for all products in the mixture should be consulted and the longest recommended waiting period before planting observed.

### Directed Spray Applications for Conifer Release

To release conifers from competing hardwoods such as red maple, sugar maple, striped maple, sweetgum, red and white oaks, ash, hickory, alder, birch, aspen, and pin cherry, mix 3 to 6 lb ae of triclopyr (1 to 2 gallons of Garlon 3A) in enough water to make 100 gallons of spray mixture. To improve spray coverage, add an agriculturally labeled non-ionic surfactant as described under Directions for Use. The spray mixture should be directed onto foliage of competitive hardwoods using knapsack or backpack sprayers with flat fan nozzles or equivalent any time after hardwoods have reached full leaf size, but before autumn coloration. The majority of treated hardwoods should be less than 6 feet in height to ensure adequate spray coverage. Care should be taken to direct spray away from contact with conifer foliage, particularly foliage of desirable pines.

**Note:** Spray may cause temporary damage and growth suppression where contact with conifers occurs; however, injured conifers should recover and grow normally. Over-the-top spray applications can kill pines.

### Broadcast Applications for Conifer Release in the Northeastern United States

To release spruce, fir, red pine and white pine from competing hardwoods, such as red maple, sugar maple, striped maple, alder, birch (white, yellow or gray), aspen, ash, pin cherry and *Rubus* spp. and perennial and annual broadleaf weeds, use Garlon 3A at rates of 1 1/2 to 3 lb ae of triclopyr (2 to 4 quarts of Garlon 3A) per acre alone or with 2,4-D amine, like DMA 4 IVM, or 2,4-D ester to provide no more than 4 lb ae per acre from both products. Apply in late summer or early fall after conifers have formed their over wintering buds and hardwoods are in full leaf and prior to autumn coloration.

### Broadcast Applications for Douglas Fir Release in the Pacific Northwest and California

To release Douglas fir from susceptible competing vegetation such as broadleaf weeds, alder, blackberry or Scotch broom, apply Garlon 3A at 1 to 1 1/2 lb ae of triclopyr (1 1/3 to 2 quarts of Garlon 3A) per acre alone or in combination with 4 lb per acre of atrazine. Mix all sprays in a water carrier with a non-ionic surfactant. Apply in early spring after hardwoods begin growth and before Douglas fir bud break ("early foliar" hardwood stage) or after Douglas fir seasonal growth has "hardened off" (set winter buds) in late summer, but while hardwoods are still actively growing. When treating after Douglas fir bud set, apply prior to onset of autumn coloration in hardwood foliage. **Note:** Treatments applied during active Douglas fir shoot growth (after spring bud break and prior to bud set) may cause injury to Douglas fir trees.

### Cut Surface Treatments

Individual plant treatments such as basal bark and cut surface applications may be used on any use site listed on this label at a maximum use rate of 2.67 gallons of Garlon 3A (8 lb ae of triclopyr) per acre. These types of applications are made directly to ungrazed parts of plants and, therefore, are not restricted by the grazing maximum rate of 2/3 of a gallon of Garlon 3A (2 lb ae of triclopyr) per acre.

To control unwanted trees of hardwood species such as elm, maple, oak and conifers in labeled sites, apply Garlon 3A, either undiluted or diluted in a 1 to 1 ratio with water, as directed below.

#### With Tree Injector Method

Apply by injecting 1/2 milliliter of undiluted Garlon 3A or 1 milliliter of the diluted solution through the bark at intervals of 3 to 4 inches between centers of the injector wound. The injections should completely surround the tree at any convenient height. **Note: No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is injected directly into plants.**

#### With Hack and Squirt Method

Make cuts around the tree trunk at a convenient height with a hatchet or similar equipment so that the cuts overlap slightly and make a continuous circle around the trunk. Spray 1/2 milliliter of undiluted Garlon 3A or 1 milliliter of the diluted solution into the pocket created between the bark and the inner stem/trunk by each cut.

#### With Frill or Girdle Method

Make a single girdle through the bark completely around the tree at a convenient height. The frill should allow for the herbicide to remain next to the inner stem and absorb into the plant. Wet the cut surface with undiluted or diluted solution.

Both of the above methods may be used successfully at any season except during periods of heavy sap flow of certain species - for example, maples.

#### Stump Treatment

Spray or paint the cut surfaces of freshly cut stumps and stubs with undiluted Garlon 3A. The cambium area next to the bark is the most vital area to wet.

### Christmas Tree Plantations

Use Garlon 3A for the control of woody plants and annual and perennial broadleaf weeds in established Christmas tree plantations. For best results, apply when woody plants and weeds are actively growing. Garlon 3A does not control weeds which have not emerged at the time of application. If lower rates are used on hard to control woody species, resprouting may occur the year following treatment. Brush over 8 feet tall is difficult to treat efficiently using hand equipment such as backpack or knapsack sprayers. When treating large brush or trees or hard to control species such as ash, blackgum, choke cherry, elm, hazel, madrone, maples, oaks or sweetgum, and for applications made during drought conditions or in late summer when the leaves are mature, use the higher rates of Garlon 3A or use cut surface application methods. For foliar applications, apply in enough water to give uniform and complete coverage of the plants to be controlled. Applications made under drought conditions may provide less than desirable results.

**Use Precautions:**

- Do not use on newly seeded grass until well established as indicated by vigorous growth and development of secondary root system and tillering
- Newly seeded turf (alleyways, etc.) should be mowed two or three times before any treatment with Garlon 3A.
- Do not reseed Christmas tree areas treated with Garlon 3A for a minimum of three weeks after application.
- Do not use Garlon 3A if legumes, such as clover, are present and injury cannot be tolerated.

**Spray Preparation**

The order of addition to the spray tank is water, drift control agent (if used), non-ionic agricultural surfactant and Garlon 3A. Continue moderate agitation while mixing and spraying. Use a non-ionic agricultural surfactant for all applications. When using surfactants, follow use directions and precautions listed on the manufacturer's label. Use the higher recommended concentrations of surfactant in the spray mixture when applying lower spray volumes per acre.

**Application**

Apply in late summer or early autumn after terminal growth of Christmas trees has hardened of, but before leaf drop of, target weeds. Apply at a rate of 3/4 to 1 3/4 lb ae of triclopyr (2 to 5 pints of Garlon 3A) per acre as a foliar spray directed toward the base of Christmas trees. Use sufficient spray volume to provide uniform coverage of target plants (20 to 100 gallons per acre). **Do not apply with 2,4-D.** Application rates of Garlon 3A recommended for Christmas trees will only suppress some well established woody plants that are greater than 2 to 3 years old (see table below). Broadcast sprays may also be applied in bands between the rows of planted trees. Use spray equipment that will assure uniform coverage of the desired spray volume.

**Spray solution from Garlon 3A can cause needle and branch injury to Christmas trees.** To minimize injury to Christmas trees, direct sprays so as to minimize contact with foliage. Blue spruce, white spruce, balsam fir and Fraser fir are less susceptible to injury than white pine and Douglas fir.

**Restriction:** Apply Garlon 3A only to established Christmas trees that were planted at least one full year prior to application.

**Application Rates and Species Controlled:**

Garlon 3A		
2 pints/acre (3/4 lb ae of triclopyr)	3 to 4 pints/acre (1 1/2 lb ae of triclopyr)	5 pints/acre (1 3/4 lb ae of triclopyr)
clover dandelion dock, curly lambquarters lespedeza plantain, broadleaf plantain, buckhorn ragweed, common vetch	bindweed, field (TG) blackberry <sup>1</sup> chicory (S) fireweed ivy, ground lettuce, wild oxalis poison ivy smartweed (TG) thistle, Canada (TG) violet, wild Virginia creeper <sup>†</sup>	arrowwood (SDL) aspens beech (SDL) birch (SDL) chinquapin cottonwood (SDL) elderberry grape, wild mulberry (SDL) poplar (SDL) sassafras (SDL) sumac (SDL) sycamore (SDL)

(TG) Top growth control, retreatment may be necessary

(S) Suppression

(SDL) Seedlings less than 2 to 3 years old

<sup>1</sup>Use 4 pint per acre rate

**Directed Applications**

To control hardwoods such as red maple, sugar maple, striped maple, sweetgum, red and white oaks, ash, alder, birch, aspen, and pin cherry, mix 4 to 20 fl oz of Garlon 3A in enough water to make 3 gallons of spray mixture. For directed applications, do not exceed 6 lb ae of triclopyr (2 gallons of Garlon 3A) per acre per year. To improve coverage, add a non-ionic agricultural surfactant to the spray. This spray mixture should be directed onto foliage of competitive hardwoods using knapsack or backpack sprayers with flat fan nozzles or equivalent any time after hardwoods have reached full leaf size, but before autumn coloration (when plants are actively growing). The majority of treated hardwoods should be less than 8 feet in height to ensure adequate spray coverage.

**Note:** To prevent Christmas tree injury, care should be taken to direct spray away from contact with Christmas tree foliage.

**Cut Surface Treatments**

When treating large brush or trees or hard to control species such as ash, blackgum, choke cherry, elm, hazel, madrone, maples, oaks, salt cedar or sweetgum, and for applications made during drought conditions or in late summer when the leaves are mature, use cut surface treatments. (See directions for Cut Surface Treatments in preceding section of this label.)

**Wetland Sites in Production Forests and Industrial Non-Crop Areas**

Garlon 3A may be used within production forests and industrial non-crop sites to control target vegetation in and around standing water sites, such as marshes, wetlands, and the banks of ponds and lakes and transition areas between upland and lowland sites.

For control of woody plants and broadleaf weeds in these sites, follow use directions and application methods on this label for forestry and non-cropland sites.

**Use Precautions:**

Minimize overspray to open water when treating target vegetation in and around non-flowing, quiescent or transient water. When making applications to control unwanted plants on banks or shorelines of flowing water, minimize overspray to open water. **Note:** Consult local public water control authorities before applying this product in and around public water. Permits may be required to treat such areas.

**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**

Dow AgroSciences 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. Dow AgroSciences MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

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**Inherent Risks of Use**

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

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**Limitation of Remedies**

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

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

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

The terms of the Warranty Disclaimer, Inherent Risks of Use, and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Dow AgroSciences or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

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**Produced for  
Dow AgroSciences LLC  
9330 Zionsville Road  
Indianapolis, IN 46268**

Label Code: D02-101-039  
Replaces Label: D02-101-038  
LOES Number: 010-00084

EPA accepted 01/03/06

# MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994  
Dow AgroSciences LLC  
Indianapolis, IN 46268

## GARLON\* 3A HERBICIDE

Effective Date: 17-Nov-06  
Product Code: 38321  
MSDS: 004422

### 1. PRODUCT AND COMPANY IDENTIFICATION:

**PRODUCT:** Garlon\* 3A Herbicide

#### COMPANY IDENTIFICATION:

Dow AgroSciences LLC  
9330 Zionsville Road  
Indianapolis, IN 46268-1189

### 2. HAZARDOUS IDENTIFICATIONS:

#### EMERGENCY OVERVIEW

Light purple-pink liquid, ammonia-like odor. May cause eye irritation with corneal injury. May cause skin irritation. Toxic to aquatic organisms.

**EMERGENCY PHONE NUMBER:** 800-992-5994

### 3. COMPOSITION/INFORMATION ON INGREDIENTS:

COMPONENT	CAS NUMBER	W/W%
Triclopyr TEA Salt	057213-69-1	44.4
Triethylamine	000121-44-8	3.0
Ethanol	000064-17-5	2.1
Balance		50.5

### 4. FIRST AID:

**EYES:** Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist.

**SKIN:** Wash skin with plenty of water.

**INGESTION:** Do not induce vomiting. Give one cup (8 ounces or 240 ml) of water or milk if available and transport to a medical facility. Do not give anything by mouth to an unconscious person.

**INHALATION:** No emergency medical treatment necessary.

**NOTE TO PHYSICIAN:** Due to irritant properties, swallowing may result in burns/ulceration of mouth, stomach & lower gastrointestinal tract with subsequent stricture. Aspiration of vomitus may cause lung injury. Suggest endotracheal/esophageal control if lavage is done. If burn is present, treat as any thermal burn, after decontamination. Exposure to amine vapors may cause minor transient edema of the corneal epithelium (glauropsia) with blurred vision, blue haze & halos around bright objects. Effects disappear in a few hours and temporarily reduce ability to drive vehicles. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

### 5. FIRE FIGHTING MEASURES:

**FLASH POINT:** 110 °F (43 °C)

**METHOD USED:** TCC

#### FLAMMABLE LIMITS

LFL: Not determined

UFL: Not determined

**EXTINGUISHING MEDIA:** Alcohol foam and CO<sub>2</sub>.

**FIRE & EXPLOSION HAZARDS:** Toxic, irritating vapors may be formed or given off if product is involved in fire. Although product is water-based, it has a flash point due to the presence of small amounts of ethanol and triethylamine.

**FIRE-FIGHTING EQUIPMENT:** Use positive-pressure, self-contained breathing apparatus and full protective clothing.

### 6. ACCIDENTAL RELEASE MEASURES:

**ACTION TO TAKE FOR SPILLS/LEAKS:** Contain small spills and absorb with an inert material such as clay or dry sand. Report large spills to Dow AgroSciences at 800-992-5994.

### 7. HANDLING AND STORAGE:

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** **HANDLING:** Keep out of reach of children. Causes irreversible eye damage. Harmful if inhaled or absorbed through skin. Prolonged or frequently repeated skin contact may cause allergic skin reaction in some individuals. Avoid contact with eyes, skin, clothing, breathing vapor, or spray mist. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

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**STORAGE:** Store above 28°F or agitate before use. Store in original container. See product label for handling/storage precautions relative to the end use of this product.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions.

#### EXPOSURE GUIDELINE(S):

Ethanol (ethyl alcohol): ACGIH TLV and OSHA PEL are 1000 ppm. ACGIH classification is A4.  
Triclopyr TEA Salt: Dow AgroSciences Industrial Hygiene Guideline is 2 mg/M<sup>3</sup> as acid equivalent; Skin.  
Triethylamine: ACGIH TLV is 1 ppm TWA, 3 ppm STEL, Skin. OSHA PEL is 10 ppm TWA, 15 ppm STEL.

A "skin" notation following the exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact. It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

**ENGINEERING CONTROLS:** Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

#### RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

**EYE PROTECTION:** Use chemical goggles. Eye wash fountain should be located in immediate work area. If exposure causes eye discomfort, use a full-face respirator.

**SKIN PROTECTION:** When prolonged or frequently repeated contact could occur, use chemically protective clothing resistant to this material. Selection of specific items such as face shield, gloves, boots, and apron or full-body suit will depend on operation.

**RESPIRATORY PROTECTION:** Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use a NIOSH approved air-purifying respirator.

**APPLICATORS AND ALL OTHER HANDLERS:** Refer to the product label for personal protective clothing and equipment.

### 9. PHYSICAL AND CHEMICAL PROPERTIES:

**BOILING POINT:** Not determined  
**VAPOR PRESSURE:** Not determined  
**VAPOR DENSITY:** Not applicable  
**SOLUBILITY IN WATER:** Miscible  
**SPECIFIC GRAVITY:** 1.135 (68/68°F)  
**APPEARANCE:** Light purple/pink liquid  
**ODOR:** Ammonia-like odor

### 10. STABILITY AND REACTIVITY:

**STABILITY: (CONDITIONS TO AVOID)** Avoid sources of ignition if temperature is near or above flash point.

**INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID)** Any oxidizing agent. Consult manufacturer for specific cases.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Nitrogen oxides and hydrogen chloride may be formed under fire conditions.

**HAZARDOUS POLYMERIZATION:** Not known to occur.

### 11. TOXICOLOGICAL INFORMATION:

**POTENTIAL HEALTH EFFECTS:** This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

**EYE:** May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur. Vapor of amines may cause swelling of the cornea resulting in visual disturbances such as blurred or hazy vision. Bright lights may appear to be surrounded by halos. Effects may be delayed and typically disappear spontaneously.

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**SKIN:** Prolonged contact may cause skin irritation with local redness. Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage. Prolonged or frequently repeated skin contact may cause allergic skin reactions in some individuals. With the dilute mix, no allergic skin reaction is expected. Prolonged skin contact is unlikely to result in absorption of harmful amounts. The LD<sub>50</sub> for skin absorption in rabbits is >5,000 mg/kg.

**INGESTION:** Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Swallowing may result in gastrointestinal irritation or ulceration. The oral LD<sub>50</sub> for rats is 2,574 mg/kg (male) and 1,847 mg/kg (female).

**INHALATION:** Brief exposure (minutes) is not likely to cause adverse effects.

**SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:** Effects have been reported on the following organs: liver and kidney.

**CANCER INFORMATION:** Triclopyr did not cause cancer in laboratory animal studies.

**TERATOLOGY (BIRTH DEFECTS):** Triclopyr did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother. Ethanol has been shown to cause birth defects and toxicity to the fetus in laboratory animal tests. It has also been shown to cause human fetotoxicity and/or birth defects when ingested during pregnancy.

**REPRODUCTIVE EFFECTS:** For triclopyr, in laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

**MUTAGENICITY:** For triclopyr and ethanol: in-vitro genetic toxicity studies were negative. For triclopyr: animal genetic toxicity studies were negative. For ethanol: animal genetic toxicity studies were negative in some cases and positive in other cases.

## 12. ECOLOGICAL INFORMATION:

### ENVIRONMENTAL FATE:

### MOVEMENT & PARTITIONING:

Based largely or completely on information for triclopyr. Bioconcentration potential is low (BCF <100 or Log Pow <3).

### DEGRADATION & PERSISTENCE:

Biodegradation under aerobic static laboratory conditions is high (BOD<sub>20</sub> or BOD<sub>28</sub>/ThOD >40%).

The 20-Day biochemical oxygen demand (BOD<sub>20</sub>) is 0.30 p/p.

Theoretical oxygen demand (ThOD) is calculated to be 0.75 p/p.

### ECOTOXICOLOGY:

Material is slightly toxic to aquatic organisms on an acute basis (LC<sub>50</sub> or EC<sub>50</sub> is between 10 and 100 mg/L in most sensitive species).

## 13. DISPOSAL CONSIDERATIONS:

**DISPOSAL METHOD:** If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws and regulations.

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## GARLON\* 3A HERBICIDE

### 14. TRANSPORT INFORMATION:

#### U.S. DEPARTMENT OF TRANSPORTATION (DOT) INFORMATION:

For non-bulk shipments by land:  
This material is not regulated for transport.

For bulk shipments by land:  
COMBUSTIBLE LIQUID, N.O.S. (TRIETHYLAMINE,  
ETHANOL)/COMBUSTIBLE LIQUID/NA1993/PGIII

For shipments by air or vessel:  
FLAMMABLE LIQUIDS, N.O.S. (TRIETHYLAMINE,  
ETHANOL)/3/UN1993/PGIII

### 15. REGULATORY INFORMATION:

**NOTICE:** The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

#### U.S. REGULATIONS

**SARA 313 INFORMATION:** This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
Triethylamine	000121-44-8	3.0%

**SARA HAZARD CATEGORY:** This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard  
A delayed health hazard  
A fire hazard

**TOXIC SUBSTANCES CONTROL ACT (TSCA):** All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

**STATE RIGHT-TO-KNOW:** The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
Ethanol	000064-17-5	NJ1 NJ3 PA1
Triethylamine	000121-44-8	NJ1 NJ3 PA1 PA3

NJ1=New Jersey Special Health Hazard Substance (present at > or = to 0.1%).

NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).

PA1=Pennsylvania Hazardous Substance (present at > or = to 1.0%).

PA3=Pennsylvania Environmental Hazardous Substance (present at > or = to 1.0%).

**OSHA HAZARD COMMUNICATION STANDARD:** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

#### NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

CATEGORY	RATING
Health	3
Flammability	2
Reactivity	0

**COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND):** This product contains the following substance(s) listed as "Hazardous Substances" under CERCLA which may require reporting of releases:

Chemical Name	CAS Number	RQ	% in Product
Triethylamine	000121-44-8	5000	3.0%

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### RCRA Categorization Hazardous Code:

Triethylamine = U404

### 16. OTHER INFORMATION:

**MSDS STATUS:** Revised Section: 2, 3, 11, 12, 13, 15  
Reference: DR-0121-6064  
Replaces MSDS dated: 11/24/03  
Document Code: D03-101-004  
Replaces Document Code: D03-101-003

The Information Herein Is Given In Good Faith, But No  
Warranty, Express or Implied, Is Made. Consult Dow  
AgroSciences for Further Information.

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# Material Safety Data Sheet

Dow AgroSciences LLC

**Product Name:** GARLON\* 4 Herbicide

**Issue Date:** 03/09/2009  
**Print Date:** 12 Mar 2009

Dow AgroSciences LLC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

## 1. Product and Company Identification

### Product Name

GARLON\* 4 Herbicide

### COMPANY IDENTIFICATION

Dow AgroSciences LLC  
A Subsidiary of The Dow Chemical Company  
9330 Zionsville Road  
Indianapolis, IN 46268-1189  
USA

Customer Information Number: 800-992-5994

### EMERGENCY TELEPHONE NUMBER

**24-Hour Emergency Contact:** 800-992-5994  
**Local Emergency Contact:** 800-992-5994

## 2. Hazards Identification

### Emergency Overview

**Color:** Yellow

**Physical State:** Liquid.

**Odor:** Gasoline-like

### Hazards of product:

WARNING! May cause skin irritation. May cause allergic skin reaction. May cause eye irritation.

### OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

### Potential Health Effects

**Eye Contact:** May cause eye irritation. Corneal injury is unlikely. May cause pain disproportionate to the level of irritation to eye tissues.

\* Indicates a Trademark

• Indicates a Trademark of Dow AgroSciences LLC

**Skin Contact:** Brief contact may cause moderate skin irritation with local redness. Prolonged contact may cause moderate skin irritation with local redness. Repeated contact may cause moderate skin irritation with local redness. May cause drying and flaking of the skin.

**Skin Absorption:** Prolonged skin contact is unlikely to result in absorption of harmful amounts.

**Skin Sensitization:** Has caused allergic skin reactions when tested in guinea pigs. With the dilute mix, no allergic skin reaction is expected.

**Inhalation:** Prolonged excessive exposure to mist may cause adverse effects. Mist may cause irritation of upper respiratory tract (nose and throat).

**Ingestion:** Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

**Aspiration hazard:** Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

**Effects of Repeated Exposure:** In animals, effects have been reported on the following organs: Skin. Repeated excessive exposure may cause adverse effects.

**Cancer Information:** In a lifetime animal dermal carcinogenicity study, an increased incidence of skin tumors was observed when kerosene was applied at doses that also produced skin irritation. This response was similar to that produced in skin by other types of chronic chemical/physical irritation. No increase in tumors was observed when non-irritating dilutions of kerosene were applied at equivalent doses, indicating that kerosene is unlikely to cause skin cancer in the absence of long-term continued skin irritation. In long-term animal studies with ethylene glycol butyl ether, small but statistically significant increases in tumors were observed in mice but not rats. The effects are not believed to be relevant to humans. If the material is handled in accordance with proper industrial handling procedures, exposures should not pose a carcinogenic risk to man.

**Birth Defects/Developmental Effects:** For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. For the minor component(s): Has caused birth defects in lab animals only at doses producing severe toxicity in the mother. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

**Reproductive Effects:** For similar active ingredient(s). Triclopyr. For the minor component(s) In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

### 3. Composition Information

Component	CAS #	Amount
Triclopyr-2-butoxyethyl ester	64700-56-7	61.6 %
Kerosene (petroleum)	8008-20-6	>= 18.6 - <= 31.0 %
Ethylene glycol monobutyl ether	111-76-2	0.5 %
Solvent naphtha (petroleum), light aromatic	64742-95-6	0.2 %
Balance		>= 6.7 - <= 19.1 %

### 4. First-aid measures

**Eye Contact:** Hold eyes 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 eyes. Call a poison control center or doctor for treatment advice.

**Skin Contact:** Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.

**Inhalation:** Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

**Ingestion:** Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

**Notes to Physician:** The decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

**Medical Conditions Aggravated by Exposure:** Skin contact may aggravate preexisting dermatitis.

## 5. Fire Fighting Measures

**Extinguishing Media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

**Special Protective Equipment for Firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

**Unusual Fire and Explosion Hazards:** Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.

**Hazardous Combustion Products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Phosgene. Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

## 6. Accidental Release Measures

**Steps to be Taken if Material is Released or Spilled:** Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance.

**Personal Precautions:** Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**Environmental Precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

## 7. Handling and Storage

### Handling

**General Handling:** Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. Keep out of reach of children. Do not swallow. Avoid breathing vapor or mist. Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Wash thoroughly after handling.

### Storage

Store in a dry place. Store in original container. Keep container tightly closed. Do not store near food, foodstuffs, drugs or potable water supplies.

## 8. Exposure Controls / Personal Protection

### Exposure Limits

Component	List	Type	Value
Kerosene (petroleum)	Dow IHG	TWA as total hydrocarbon vapor	10 mg/m3 SKIN
	ACGIH	TWA Non-aerosol. as total hydrocarbon vapor	200 mg/m3 P: Application restricted to conditions in which there are negligible aerosol exposures.
Triclopyr-2-butoxyethyl ester	Dow IHG	TWA	2 mg/m3 D-SEN

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

A "skin" notation following the inhalation exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact.

It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

### Personal Protection

**Eye/Face Protection:** Use safety glasses.

**Skin Protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.

**Hand protection:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Respiratory Protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. In misty atmospheres, use an approved particulate respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

**Ingestion:** Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

**Engineering Controls**

**Ventilation:** Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

## 9. Physical and Chemical Properties

<b>Physical State</b>	Liquid.
<b>Color</b>	Yellow
<b>Odor</b>	Gasoline-like
<b>Flash Point - Closed Cup</b>	64 °C (147 °F) <i>Closed Cup</i>
<b>Flammable Limits in Air</b>	<b>Lower:</b> No test data available <b>Upper:</b> No test data available
<b>Autoignition Temperature</b>	No test data available
<b>Vapor Pressure</b>	0.1 mmHg @ 37.8 °C <i>Literature</i> (kerosene)
<b>Boiling Point (760 mmHg)</b>	>= 150 °C (>= 302 °F) <i>Literature</i> (initial).
<b>Vapor Density (air = 1)</b>	1 <i>Literature</i>
<b>Specific Gravity (H2O = 1)</b>	1.08 <i>Literature Pyknometer</i>
<b>Liquid Density</b>	1.09 g/cm3 <i>Calculated</i>
<b>Freezing Point</b>	No test data available
<b>Melting Point</b>	Not applicable
<b>Solubility in water (by weight)</b>	emulsifiable
<b>pH</b>	6.4 <i>pH Electrode</i>
<b>Decomposition Temperature</b>	No test data available

## 10. Stability and Reactivity

**Stability/Instability**

Thermally stable at typical use temperatures.

**Conditions to Avoid:** Active ingredient decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

**Incompatible Materials:** Avoid contact with: Acids. Bases. Oxidizers.

**Hazardous Polymerization**

Will not occur.

**Thermal Decomposition**

Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen chloride. Nitrogen oxides. Phosgene. Toxic gases are released during decomposition.

## 11. Toxicological Information

**Acute Toxicity****Ingestion**

LD50, Rat, male 1,581 mg/kg

LD50, Rat, female 1,338 mg/kg

**Skin Absorption**

LD50, Rabbit, male and female > 2,000 mg/kg

**Inhalation**

|| LC50, 4 h, Aerosol, Rat, male and female > 5.2 mg/l

### Sensitization

#### Skin

|| Has caused allergic skin reactions when tested in guinea pigs. With the dilute mix, no allergic skin reaction is expected.

### Repeated Dose Toxicity

|| In animals, effects have been reported on the following organs: Skin. Repeated excessive exposure may cause adverse effects.

### Chronic Toxicity and Carcinogenicity

|| Active ingredient did not cause cancer in laboratory animals. In a lifetime animal dermal carcinogenicity study, an increased incidence of skin tumors was observed when kerosene was applied at doses that also produced skin irritation. This response was similar to that produced in skin by other types of chronic chemical/physical irritation. No increase in tumors was observed when non-irritating dilutions of kerosene were applied at equivalent doses, indicating that kerosene is unlikely to cause skin cancer in the absence of long-term continued skin irritation. In long-term animal studies with ethylene glycol butyl ether, small but statistically significant increases in tumors were observed in mice but not rats. The effects are not believed to be relevant to humans. If the material is handled in accordance with proper industrial handling procedures, exposures should not pose a carcinogenic risk to man.

### Carcinogenicity Classifications:

Component	List	Classification
Kerosene (petroleum)	ACGIH	Confirmed animal carcinogen with unknown relevance to humans.; Group A3
Ethylene glycol monobutyl ether	ACGIH	Confirmed animal carcinogen with unknown relevance to humans.; Group A3

### Developmental Toxicity

|| For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Active ingredient did not cause birth defects in laboratory animals. For the minor component(s): Has caused birth defects in lab animals only at doses producing severe toxicity in the mother. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. For kerosene: Did not cause birth defects or any other fetal effects in laboratory animals.

### Reproductive Toxicity

|| For similar active ingredient(s). Triclopyr. For the minor component(s) In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. For kerosene: Limited data in laboratory animals suggest that the material does not affect reproduction.

### Genetic Toxicology

|| For the active ingredient(s): For kerosene: In vitro genetic toxicity studies were negative. For the active ingredient(s): For the component(s) tested: Animal genetic toxicity studies were negative.

## 12. Ecological Information

### ENVIRONMENTAL FATE

Data for Component: Triclopyr-2-butoxyethyl ester

#### Movement & Partitioning

Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). Based largely or completely on information for similar material(s). Potential for mobility in soil is medium (Koc between 150 and 500).

**Partition coefficient, n-octanol/water (log Pow):** 4.09 - 4.49 Measured

#### Persistence and Degradability

Chemical degradation (hydrolysis) is expected in the environment. Material is expected to biodegrade only very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

#### Stability in Water (1/2-life):

12 h; 25 °C; pH 6.7

6.6 d; pH 5

**OECD Biodegradation Tests:**

Biodegradation	Exposure Time	Method
18 %	28 d	OECD 301B Test

**Theoretical Oxygen Demand:** 1.39 mg/mg

Data for Component: **Kerosene (petroleum)**

**Movement & Partitioning**

Based largely or completely on component information. Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

**Partition coefficient, n-octanol/water (log Pow):** 3.3 - 6 Estimated

**Bioconcentration Factor (BCF):** 61 - 159; fish

**Persistence and Degradability**

Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).

Data for Component: **Ethylene glycol monobutyl ether**

**Movement & Partitioning**

Bioconcentration potential is low (BCF less than 100 or log Pow less than 3). Potential for mobility in soil is high (Koc between 50 and 150).

**Henry's Law Constant (H):** 1.60E-06 atm\*m3/mole Measured

**Partition coefficient, n-octanol/water (log Pow):** 0.83 Measured

**Partition coefficient, soil organic carbon/water (Koc):** 67 Estimated

**Persistence and Degradability**

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

**OECD Biodegradation Tests:**

Biodegradation	Exposure Time	Method
95 %	28 d	OECD 301E Test
100 %	28 d	OECD 302B Test

**Biological oxygen demand (BOD):**

BOD 5	BOD 10	BOD 20	BOD 28
5.2 %	57 %	72.2 %	

**Chemical Oxygen Demand:** 2.21 mg/g

**Theoretical Oxygen Demand:** 2.30 mg/mg

Data for Component: **Solvent naphtha (petroleum), light aromatic**

**Movement & Partitioning**

For the major component(s): Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). Potential for mobility in soil is low (Koc between 500 and 2000). For the minor component(s): Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient, n-octanol/water (log Pow):** No test data available:

**Persistence and Degradability**

For the major component(s): Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). For some component(s): Biodegradation under aerobic static laboratory conditions is low (BOD20 or BOD28/ThOD between 2.5 and 10%).

**ECOTOXICITY**

Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested). Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg).

**Fish Acute & Prolonged Toxicity**

LC50, fathead minnow (Pimephales promelas), static, 96 h: 2.2 - 6.3 mg/l

LC50, rainbow trout (Oncorhynchus mykiss), flow-through, 96 h: 0.8 - 0.98 mg/l

**Aquatic Invertebrate Acute Toxicity**

LC50, water flea Daphnia magna, static, 48 h, survival: 1.7 - 18.8 mg/l

|| LC50, water flea Daphnia magna, flow-through, 48 h, survival: 0.43 mg/l

**Aquatic Plant Toxicity**

|| EC50, green alga Pseudokirchneriella subcapitata (formerly known as Selenastrum capricornutum), biomass growth inhibition, 5 d: 13.3 mg/l

**Toxicity to Non-mammalian Terrestrial Species**

|| oral LD50, bobwhite (Colinus virginianus): 1,350 mg/kg

|| oral LD50, Honey bee (Apis mellifera): > 100 micrograms/bee

|| contact LD50, Honey bee (Apis mellifera): > 100 micrograms/bee

**Toxicity to Soil Dwelling Organisms**

|| LC50, Earthworm Eisenia foetida, adult, 7 d: 910 mg/kg

### 13. Disposal Considerations

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

### 14. Transport Information

**DOT Non-Bulk**  
NOT REGULATED

**DOT Bulk**

**Proper Shipping Name:** COMBUSTIBLE LIQUID, N.O.S.

**Technical Name:** CONTAINS KEROSENE

**Hazard Class:** COMBUSTIBLE LIQUID **ID Number:** NA1993 **Packing Group:** PG III

**IMDG**

**Proper Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S

**Technical Name:** Contains Triclopyr-2-butoxyethyl Ester, KEROSENE

**Hazard Class:** 9 **ID Number:** UN3082 **Packing Group:** PG III

**EMS Number:** f-a,s-f

**Marine pollutant.:** Yes

**ICAO/IATA**

NOT REGULATED

**Additional Information**

MARINE POLLUTANT (Contains Triclopyr and Kerosene)

*This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.*

### 15. Regulatory Information

**OSHA Hazard Communication Standard**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312**

<b>Immediate (Acute) Health Hazard</b>	Yes
<b>Delayed (Chronic) Health Hazard</b>	Yes
<b>Fire Hazard</b>	Yes
<b>Reactive Hazard</b>	No
<b>Sudden Release of Pressure Hazard</b>	No

**Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313**

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

**Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:**

The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

<b>Component</b>	<b>CAS #</b>	<b>Amount</b>
Kerosene (petroleum)	8008-20-6	>= 18.6 - <= 31.0 %

**Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:**

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

**Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103**

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

**California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)**

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

**Toxic Substances Control Act (TSCA)**

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

**16. Other Information**

**Hazard Rating System**

<b>NFPA</b>	<b>Health</b>	<b>Fire</b>	<b>Reactivity</b>
	2	2	1

**Revision**

Identification Number: 50683 / 1016 / Issue Date 03/09/2009 / Version: 8.0  
 DAS Code: XRM-4714

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

**Legend**

N/A	Not available
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W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation
Action Level	A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded.

*Dow AgroSciences LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.*

SPECIMEN

# PLATEAU<sup>®</sup>

herbicide

**FOR WEED CONTROL, NATIVE GRASS ESTABLISHMENT AND TURF GROWTH  
SUPPRESSION ON PASTURES, RANGELAND AND NONCROP AREAS AND  
CONIFER PLANTATION SITE PREPARATION**

**Active Ingredient:**

Ammonium salt of imazapic ( $\pm$ )-2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1*H*-imidazol-2-yl]-5-methyl-3-pyridinecarboxylic acid\* ..... 23.6%

**Other Ingredients:** ..... 76.4%

**Total:** ..... 100.0%

\*Equivalent to 22.2% ( $\pm$ )-2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1*H*-imidazol-2-yl]-5-methyl-3-pyridinecarboxylic acid  
(1 gallon contains 2.0 pounds of active ingredient as the free acid)

EPA Reg. No. 241-365  
U.S. Patent No. 4,798,619

EPA Est. No.

**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.)

See inside for complete **First Aid, Precautionary Statements, Directions for Use, Conditions of Sale and Warranty**, and state-specific crop and/or use site restrictions.

**In case of an emergency endangering life or property involving this product,  
call day or night 1-800-832-HELP (4357).**

**Net Contents:**

BASF Corporation  
26 Davis Drive  
Research Triangle Park, NC 27709

**BASF**  
The Chemical Company

<b>FIRST AID</b>	
<b>If inhaled</b>	<ul style="list-style-type: none"> <li>● Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.</li> <li>● Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>If on skin or clothing</b>	<ul style="list-style-type: none"> <li>● Take off contaminated clothing.</li> <li>● Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>● Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>● Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>● Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.</li> <li>● Call a poison control center for treatment advice.</li> </ul>
<b>HOTLINE NUMBER</b>	
<p>Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact BASF Corporation for emergency medical treatment information: 1-800-832-HELP (4357).</p>	

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

# CAUTION

Avoid breathing spray mist. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling.

#### Personal Protective Equipment (PPE):

Applicators and other handlers must wear:

- Long-sleeve shirt and long pants
- Chemical-resistant gloves made of waterproof material
- shoes plus socks

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

#### User Safety Recommendations:

Users Should:

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

## ENVIRONMENTAL HAZARDS

For terrestrial use only. **DO NOT** apply directly to water, or 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 wash-waters or rinsate.

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

This product may contaminate water through drift of spray in wind. This product has a high potential for runoff for several months or more after application. Poorly draining soils and soils with shallow watertables are more prone to produce runoff that contains this product. A level, well maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential for contamination of water from rainfall-runoff. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours.

## IMPORTANT

**Plateau® herbicide** may be applied to non-irrigation ditches and low lying areas when water has drained, but may be isolated in pockets due to uneven or unlevel conditions. **DO NOT** treat the inside of irrigation ditches. **DO NOT** rinse equipment on or near desirable trees or ornamental plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. **DO NOT** use on residential lawns.

## DIRECTIONS FOR USE

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

**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.

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

**DO NOT** use **Plateau** on food or feed crops except as recommended by this label or supplemental labeling.

**DO NOT** cut treated area for hay within seven days after treatment.

**DO NOT** use organophosphate insecticides on newly seeded areas treated with **Plateau** unless severe injury or loss of stand can be tolerated.

Observe all cautions and limitations on this label and on the labels of products used in combination with **Plateau**. **DO NOT** use **Plateau** other than in accordance with the instructions set forth on this label. The use of **Plateau** not consistent with this label may result in injury to desired vegetation. Keep containers closed to avoid spills and contamination.

When making new plantings of prairiegrass or wildflowers, carry-over from persistent herbicides such as sulfonyl-urea, imidazolinone, triazine, substituted urea, dinitroaniline, and other herbicides applied the previous year may result in compounded injury or death of desirable vegetation when treated with **Plateau**.

When making applications around desirable trees or ornamental plants, small areas should be tested to determine the tolerance of a particular species to soil and/or foliar applications of **Plateau**. See "TOLERANCE OF TREES AND BRUSH TO **PLATEAU** HERBICIDE" section of this label.

**DO NOT** apply this product through any type of irrigation system.

**DO NOT** exceed 12 ounces of **Plateau** per acre in one year.

## AGRICULTURAL USE REQUIREMENTS

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

**DO NOT** enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

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

- coveralls
- chemical-resistant gloves made of any waterproof material
- 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 (WPS) 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.

Noncrop weed control is not within the scope of the Worker Protection Standard. See the GENERAL INFORMATION section of this label for a description of noncrop sites.

**DO NOT** enter treated areas without protective clothing until sprays have dried.

## STORAGE AND DISPOSAL

**DO NOT** contaminate water, food or feed by storage or disposal.

**PESTICIDE STORAGE:** KEEP FROM FREEZING. **DO NOT** store below 20°F.

**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

**Nonrefillable Container. DO NOT** reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

**Triple rinse containers small enough to shake (capacity ≤ 5 gallons) as follows:** Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

**Triple rinse containers too large to shake (capacity > 5 gallons) as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times.

**Pressure rinse as follows:** Empty the remaining contents into application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank, or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

## In Case of Spill

In case of large-scale spillage regarding this product, call:  
CHEMTREC 1-800-424-9300  
BASF Corporation 1-800-832-HELP (4357)

## GENERAL INFORMATION

**Plateau® herbicide** is an aqueous solution to be mixed with water and an adjuvant and applied as a spray solution to provide weed control and/or turf height suppression on pastures, rangeland (see "GUIDELINES FOR RANGELAND USE" section), Federal Conservation Reserve Program (CRP) land and noncropland areas including noncropland areas that may be grazed or cut for hay. Examples of noncropland areas include, but are not limited to railroad, utility, pipeline and highway rights-of-way, railroad crossings, utility plant sites, petroleum tank farms, pumping installations, non-agricultural fence rows, storage areas, non-irrigation ditchbanks, prairie sites, airports, industrial turf, golf courses, recreational and non-residential turf and other similar areas. **Plateau** may be used for the release of bermudagrass, bahiagrass, smooth bromegrass, wheatgrass, "wildtype" common Kentucky bluegrass, native prairiegrass, wildflowers, crown vetch, other grasses and certain legumes. **Plateau** can also be used for weed control during the establishment of native prairiegrasses and other grasses (see "REVEGETATION WITH PRAIRIEGRASSES AND OTHER FORAGE GRASSES" section). **Plateau** may also be used for conifer plantation site preparation.

**Plateau** is readily absorbed through leaves, stems, and roots and is translocated rapidly throughout the plant, with accumulation in the meristematic regions. Treated plants stop growing soon after spray application. Chlorosis appears first in the newest leaves, and necrosis spreads from this point. In perennials, the herbicide is translocated into, and kills, underground storage organs which prevents regrowth. Chlorosis and tissue necrosis may not be apparent in some plant species for several weeks after application. Complete kill of plants may not occur for several weeks after application. Adequate soil moisture is important for optimum **Plateau** activity. When adequate soil moisture is present, **Plateau** will provide residual control of susceptible germinating weeds. Activity on established weeds will depend on the weed species and rooting depth. **Plateau** is rainfast one hour after application.

**Plateau** will control annual and perennial grasses and broadleaf weeds and vine species. **Plateau** will provide residual control of labeled weeds which germinate in the treated area. Certain brush species and ornamentals may be injured by direct application of **Plateau** to their foliage. This product may be applied either preemergence or postemergence to the weeds. However, postemergence application is the method of choice in most situations, particularly for perennial species. For maximum activity, weeds should be growing vigorously at the time of postemergence applications and the spray solution should include an adjuvant (see "SPRAY ADJUVANTS FOR POSTEMERGENCE APPLICATIONS" section). These solutions may be applied as a broadcast or as a spot treatment using backpack, or ground equipment.

**Plateau** may be applied in the dormant or growing season for weed control.

Tolerance of desirable grass species to **Plateau** may be reduced when grasses are stressed due to insect damage, disease, environmental conditions, shade, poorly drained soils or other causes.

Depending on the turf type being treated, some yellowing of turf may occur with applications during the growing season. Depending on weather conditions, yellowing will usually disappear in 2 to 4 weeks.

**Plateau** should not be applied to newly seeded or sprigged grass stands, unless otherwise stated in this label (see "REVEGETATION WITH PRAIRIEGRASSES AND OTHER FORAGE GRASSES" section).

## MANAGING OFF-TARGET MOVEMENT

**Spray Drift:** Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment- and weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

Spray drift from applying this product may result in damage to sensitive plants adjacent to the treatment area. Only apply this

product when the potential for drift to these and other adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, or non-target crops) is minimal. **DO NOT** apply when the following conditions exist that increase the likelihood of spray drift from intended targets: high or gusty winds, high temperatures, low humidity, temperature inversions.

To minimize spray drift, the applicator should be familiar with and take into account the following drift reduction advisory information. Additional information may be available from state enforcement agencies or the Cooperative Extension on the application of this product.

The best drift management strategy and most effective way to reduce drift potential are to apply large droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see **Wind, Temperature and Humidity and Temperature Inversions**).

### Controlling Droplet Size:

-Volume - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.

-Pressure - **DO NOT** exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

-Number of Nozzles - Use the minimum number of nozzles that provide uniform coverage.

-Nozzle Orientation - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is recommended practice. Significant deflection from the horizontal will reduce droplet size and increase drift potential.

-Nozzle Type - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift. **DO NOT** use nozzles producing a mist droplet spray.

**Application Height:** Making applications at the lowest possible height (aircraft, ground driven spray boom) that is safe and practical reduces exposure of droplets to evaporation and wind.

**Swath Adjustment:** When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the application equipment (e.g. aircraft, ground) upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller droplets, etc.).

**Wind:** Drift potential is lowest between wind speeds of 3-10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 3 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**Temperature and Humidity:** When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**Temperature Inversions:** Drift potential is high during a temperature inversion. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud, which can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind

conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

**Wind Erosion:** Avoid treating powdery dry or light sandy soils when conditions are favorable for wind erosion. Under these conditions, the soil surface should first be settled by rainfall or irrigation.

**Aerial Application Methods and Equipment:** Use 2 or more gallons of water per acre. The actual minimum spray volume per acre is determined by the spray equipment used. Use adequate spray volume to provide accurate and uniform distribution of spray particles over the treated area and to avoid spray drift.

**Managing spray drift from aerial applications:** Applicators must follow these requirements to avoid off-target drift movement: 1) boom length - the distance of the outermost nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor, 2) nozzle orientation - nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees, and 3) application height - without compromising aircraft safety, applications should be made at a height of 10 feet or less above the crop canopy or tallest plants. Applicators must follow the most restrictive use cautions to avoid drift hazards, including those found in this labeling as well as applicable state and local regulations and ordinances.

**Ground Application (Broadcast):** Use 5 or more gallons of water per acre. The actual minimum spray volume per acre is determined by the spray equipment used. Use adequate spray volume to provide accurate and uniform distribution of spray particles over the treated area and to avoid spray drift.

### MIXING INSTRUCTIONS

Fill the spray tank one-half to three-quarters full with clean water. Use a calibrated measuring device to measure the required amount of **Plateau® herbicide**. Add **Plateau** to the spray tank while agitating. Fill the remainder of the tank with water.

For postemergence applications, add a surfactant to the spray tank (see "SPRAY ADJUVANTS FOR POSTEMERGENCE APPLICATIONS" section of this label for specific recommendations). Maintain agitation while spraying to ensure a uniform spray mixture. An antifoaming agent may be added to the tank if needed.

When tank-mixing **Plateau** with recommended herbicides, add wettable powders, dispersible granules or other dry formulations first, then EC's, then **Plateau**, and then an adjuvant.

### SPRAYING INSTRUCTIONS

**DO NOT** apply during windy or gusty conditions unless applications are being made with a drift control agent and/or an enclosed or shielded spray system. **DO NOT** apply if rainfall is threatening. Rainfall within 1 hour after **Plateau** application may reduce weed control.

### GROUND APPLICATIONS:

Uniformly apply with properly calibrated ground equipment in 2 or more gallons of water per acre. Application equipment, specially designed to make low volume application should be used when making applications using less than 10 gallons of water per acre. A spray pressure of 20 to 40 psi is recommended.

To achieve acceptable control of the target vegetation, good spray coverage of the weed foliage (postemergence) or soil surface (preemergence) is required. To achieve good spray coverage the sprayer must be calibrated to deliver the recommended spray volume and pressure and adjust the spray boom height to ensure proper coverage of weed foliage or soil surface (according to the manufacturer's recommendation). Avoid overlaps when spraying.

### SPOT TREATMENTS:

To prepare the spray solution, thoroughly mix in water 0.25 to 1.5% (0.3 to 1.9 oz/gallon water) **Plateau** plus an adjuvant (see "SPRAY ADJUVANTS FOR POSTEMERGENCE APPLICATIONS" section). A methylated seed oil at 1% v/v is the recommended spray adjuvant except when treating seedling prairiegrasses and wildflowers. When making spot applications, spray coverage should be sufficient to moisten the leaves of the target vegetation, but not to the point of run-off. See section on desired species and **DO NOT** exceed the recommended **Plateau** rate per acre. Also see "WEEDS CONTROLLED" and "SPECIAL WEED CONTROL" sections for specific rate and/or tank-mix recommendations.

## AERIAL APPLICATION:

All precautions should be taken to minimize or eliminate spray drift. Fixed wing aircraft and helicopters can be used to apply **Plateau**<sup>®</sup> herbicide, however, when making applications by fixed wing aircraft maintain appropriate buffer zones to prevent spray drift out of the target area. Aerial equipment designed to minimize spray drift such as a helicopter equipped with a MICROFOIL™ boom, or THRU-VALVE™ boom or raindrop nozzles, must be used and calibrated. Except when applying with a MICROFOIL boom, a drift control agent may be added at the recommended label rate. To avoid drift, applications should not be made during inversion conditions, when winds are gusty, or under any other conditions that promote spray drift.

Uniformly apply recommended amount of **Plateau**, using enough water volume to provide adequate coverage of target area or foliage. Include an adjuvant in the spray solution (see "SPRAY ADJUVANTS FOR POSTEMERGENCE APPLICATIONS" section). A foam reducing agent may be added at the recommended rate, if needed. Aerial application to target species growing under the canopy of trees and brush may not receive sufficient spray coverage for effective control. For weed species with a recommended fall application timing (see "SPECIAL WEED CONTROL" section), delaying the aerial application until trees and brush have dropped their leaves can improve weed control and reduce the potential for tree and brush injury (see "TOLERANCE OF TREES AND BRUSH TO PLATEAU HERBICIDE" section).

**IMPORTANT:** Thoroughly clean application equipment, including landing gear, immediately after use of this product. Prolonged exposure of this product to uncoated steel (except stainless steel) surfaces may result in corrosion and failure of the exposed part. The maintenance of an organic coating (paint) may prevent corrosion.

Avoid overlaps when spraying.

## SPRAY ADJUVANTS FOR POSTEMERGENCE APPLICATIONS

Postemergence applications of **Plateau** require a spray adjuvant. See "SPECIAL WEED CONTROL" section. Due to variations in surfactant contents, certain surfactants containing high amounts of alcohols, paraffin based petroleum oils, and other compounds which can increase phytotoxicity to desirable vegetation, it is recommended to choose a low phytotoxic surfactant.

**Methylated Seed Oils or Vegetable Oil Concentrates:** Instead of a surfactant, a methylated vegetable-based seed oil concentrate containing 5 to 20% surfactant and the remainder methylated vegetable oil is the preferred adjuvant for use with **Plateau** and may be used at the rate of 1.5 to 2 pints per acre. Methylated seed oils provide their greatest effects at 30 GPA or less. At spray volumes above 50 GPA, their advantage appears negated. When using spray volumes greater than 30 gallons per acre methylated seed oil or vegetable based seed oil concentrates should be mixed at a rate of 1% of the total spray volume or alternatively use a nonionic surfactant as described below. Research indicates these oils may aid in deposition and uptake of **Plateau** for hard-to-control perennials, waxy leaf species or when plants are under moisture or temperature stress. **DO NOT** use a methylated seed oil or vegetable oil concentrate when making applications to newly emerged seedling prairiegrasses or wildflowers as injury may occur.

**Nonionic Surfactants:** Use a nonionic surfactant at the rate of 0.25% v/v or higher (see manufacturer's label) of the spray solution (0.25% v/v is equivalent to 1 quart in 100 gallons). For best results, select a nonionic surfactant with a HLB (hydrophilic to lipophilic balance) ratio between 12 and 17 and having at least 60% surfactant in the formulated product (alcohols, fatty acids, oils, ethylene glycol or diethylene glycol should not be considered as surfactants to meet the above requirements).

**Silicone-Based Surfactants:** See manufacturer's label for specific rate recommendations. Silicone-based surfactants may reduce the surface tension of the spray droplet allowing greater spreading on the leaf surface as compared to conventional nonionic surfactants. However, some silicone-based surfactants may dry too quickly, limiting herbicide uptake and higher spray volumes may exhibit "run-off".

**Fertilizer/Surfactant Blends:** Nitrogen-based liquid fertilizers such as 28%N, 32%N, 10-34-0, or ammonium sulfate, may be added at the rate of 2 to 3 pints per acre in combination with the

recommended rate of nonionic surfactant or methylated seed oil. Research indicates that nitrogen based fertilizers aid in the burndown of annual weeds and increase **Plateau** uptake through waxy leaf species. However, fertilizers may increase phytotoxicity to desired species and newly emerged seedling prairiegrasses and wildflowers. The use of liquid fertilizers at a rate of 2 to 3 pints per acre in a tank-mix without a nonionic surfactant or a methylated seed oil is not recommended and may result in herbicide failure. Only when liquid fertilizer is used as the spray carrier is no additional spray adjuvant required.

## TANK MIXES

For use in noncrop areas, **Plateau** may be tank-mixed with PENDULUM<sup>®</sup> herbicide for additional control of late season annual grasses and certain broadleaves. For additional weed control in noncrop areas, **Plateau** may be tank-mixed with ACCORD<sup>®</sup>, ROUNDUP<sup>®</sup> PRO, glyphosate, ARSENAL<sup>®</sup> herbicide, SAHARA<sup>®</sup> DG herbicide, diuron, CAMPAIGN<sup>®</sup>, FINALE<sup>®</sup>, GARLON<sup>™</sup> 3A, MSMA, VANQUISH<sup>®</sup>, OUST<sup>®</sup>, ESCORT<sup>®</sup>, TORDON<sup>®</sup>, or other labeled products. A compatibility test is advised for products not listed. 2,4-D and other phenoxy type herbicides have resulted in reduced control of perennial grass weeds.

**DO NOT** tank mix with organophosphate insecticides or use the same year as **Plateau** when making applications to newly planted areas.

Consult manufacturer's labels for specific rates and weeds controlled. Always follow the more restrictive label when making an application involving tank-mixes.

## FOR WEED CONTROL IN PASTURE AND RANGELAND

For the control of undesirable weeds in pasture and rangeland (see "GUIDELINES FOR RANGELAND USE" section), apply **Plateau** at 2 to 12 oz. per acre as a broadcast treatment or as a 0.25% to 1% solution with 1.0% MSO for spot treatments. See appropriate sections of this label for specific use directions.

## GUIDELINES FOR RANGELAND USE

**Plateau** may be applied to rangeland for the control of undesirable vegetation in order to achieve one or more of the following vegetation management objectives:

1. The control of undesirable (non-native, invasive and noxious) plant species.
2. The control of undesirable vegetation in order to aid in the establishment of desirable rangeland plant species.
3. The control of undesirable vegetation in order to aid in the establishment of desirable rangeland vegetation following a fire.
4. The control of undesirable vegetation for purposes of wildfire fuel reduction.
5. The release of existing desirable rangeland plant communities from the competitive pressure of undesirable plant species.
6. The control of undesirable vegetation for purposes of wildlife habitat improvement.

To ensure the protection of threatened and endangered plants when applying **Plateau** to rangeland:

1. Federal agencies must follow NEPA regulations to ensure protection of threatened and endangered plants.
2. State agencies must work with the Fish and Wildlife Service or the Service's designated state conservation agency to ensure protection of threatened and endangered plants.
3. Other organizations or individuals must operate under a Habitat Conservation Plan if threatened or endangered plants are known to be present on the land to be treated.

Please see the appropriate section(s) of this label for specific use directions for the desired rangeland vegetation management objective.

**Plateau** should only be applied to a given rangeland acre as specific weed problems arise. For the control of annual weed species such as cheatgrass, downy brome and medusahead rye, a single application of **Plateau** that coincides with the successful establishment and/or release of desirable rangeland vegetation and the use of available IPM can provide effective, sustainable control of the annual weed problem. For difficult to control perennial weed

species such as leafy spurge, dalmatian toadflax and Russian knapweed, a single broadcast application of **Plateau® herbicide** should be effective in most cases. If needed, spot treatments with **Plateau** can be used to control any remnant plants or new seedlings that may emerge. Long term control of undesirable weed species ultimately depends on the successful use of land management practices that promote the growth and sustainability of desirable rangeland plant species.

### USE OF PLATEAU HERBICIDE ON FEDERAL CONSERVATION RESERVE PROGRAM (CRP) LAND

**Plateau** may be used on Federal Conservation Reserve Program (CRP) land at rates up to 12 oz. per acre per year (see minimum plant-back intervals below). See appropriate section of this label for specific instructions for the intended use.

### ROTATIONAL CROP RESTRICTIONS

The following rotational crops may be planted after applying **Plateau**. Planting rotational crops earlier than the recommended interval may result in crop injury.

Plateau Use Rate (oz/A)	Minimum Plant Back Interval (Months After Plateau Herbicide Application)				
	≤4	12	18	26	40
5-8	12	14	22	30	44
9-12	12	18	24	36	48
Rotational Crops	Bahiagrass	Snapbeans	Barley	Field corn <sup>2</sup>	Canola <sup>2</sup>
	CLEARFIELD®	Southern	Cotton <sup>1</sup>	All crops not	Potatoes <sup>2</sup>
	corn hybrids	peas	Grain	otherwise list-	Red table
	Peanuts	Soybeans	sorghum	ed or included	beets <sup>2</sup>
	Rye	Tobacco	Oats	for use on this	Sugar
	Wheat			label <sup>2</sup>	beets <sup>2</sup>

<sup>1</sup> For Arizona, New Mexico, Oklahoma, and Texas only: Depending on the **Plateau** use rate, cotton may be planted 18 to 24 months after **Plateau** application in the states of Arizona, New Mexico, Oklahoma, and Texas unless drought conditions develop the year of **Plateau** application. **DO NOT** rotate to cotton at 18 to 24 months after **Plateau** application if less than 15 inches of rainfall or irrigation is received from the time of **Plateau** application through November 1 of the same year. If drought conditions develop the year of **Plateau** application, cotton may be planted 26, 30 and 40 months after **Plateau** application.

<sup>2</sup> After the recommended rotational interval listed for these selected crops and for all crops not otherwise listed or included for use on this label, a successful field bioassay must be completed. The field bioassay consists of a test strip of the intended rotational crop planted across the previously treated field and grown to maturity. The test strip should include low areas and knolls, and include variations in soil such as type and pH. If no crop injury is evident in the test strip, then the intended rotational crop may be planted the following year.

Use of **Plateau** in accordance with label directions is expected to result in normal growth of plant-back crops in most situations; however, various environmental and agronomic factors make it impossible to eliminate all risks associated with the use of this product and, therefore, plant-back crop injury is always possible. If crop injury is a concern then a bioassay with the desired crop is recommended prior to planting.

### FOR FOLIAR AND SEEDHEAD SUPPRESSION OF BAHIAGRASS, COOL SEASON GRASSES AND SUPPRESSION OF SOME ANNUAL WEEDS

**Bahiagrass:** **Plateau** may be used at the rate of 2 to 6 oz per acre to suppress growth and seedhead development of bahiagrass in unimproved areas. In North and South Carolina it is recommended to use **Plateau** at the rate of 2 oz or 3 oz per acre respectively, as higher rates may cause turf thinning. Depending on rate of **Plateau** used, surfactant and environmental conditions, temporary turf discoloration may occur. For optimum performance, application should be made after green-up. Applications may be made before or after mowing. If applied prior to mowing, raise mowing height to leave adequate existing foliage as new growth will be suppressed. If applied after mowing, allow adequate foliage to remain by increasing mower height or allowing time for foliar regrowth prior to

application. **DO NOT** apply to turf under stress (drought, cold, insect, disease, etc.) or severe injury may occur. **DO NOT** use a methylated seed oil adjuvant.

PLATEAU	PHYTOTOXICITY	LENGTH OF SUPPRESSION
2 oz	none to low	partial to season long
3 to 6 oz	low to moderate	season long

For winter annual weed control, apply 8 oz of **Plateau** when bahiagrass is dormant, but when weeds are actively growing. This can be followed by 3 to 4 oz of **Plateau** in the spring after bahiagrass green-up for the suppression of seedheads and foliage.

#### Cool Season Grasses:

**KY31 Tall Fescue and "Wildtype Common" Kentucky Bluegrass:** Apply **Plateau** at 2 to 4 oz per acre for foliar and seedhead suppression of certain cool season grasses such as "KY31" tall fescue and "wildtype common" Kentucky bluegrass. **DO NOT** use a methylated seed oil adjuvant. Add a surfactant to the 2 oz rate of **Plateau** for optimum performance. The addition of a surfactant to 4 oz of **Plateau** may cause excessive turf injury or mortality of tall fescue. Application to turf type tall fescue or Kentucky bluegrass may result in severe injury or loss of stand.

**Wheatgrass:** Apply **Plateau** at 6 to 10 oz. per acre for foliar and seedhead suppression of crested wheatgrass, and 6 to 12 oz. per acre for foliar and seedhead suppression of intermediate wheatgrass. Other wheatgrass species may also be suppressed, however, apply **Plateau** to a limited area to determine effectiveness. Tank-mixes with 2,4-D or products containing 2,4-D may decrease the effectiveness of **Plateau**. Tank-mixes with GARLON®, TORDON®, TRANSLINE™ and VANQUISH® may decrease the potential of turf injury. **DO NOT** apply to turf under stress or severe injury may occur.

### FOR THE CONTROL OF UNDESIRABLE WEEDS IN BERMUDAGRASS NOT BEING GROWN FOR FORAGE OR HAY

**Plateau** may be used on bermudagrass turf such as roadsides, utility rights-of-way, railroad crossings, airports, non-irrigation drainage ditches and other noncropland sites. There is a differential tolerance between bermudagrass types (see below paragraphs). Depending on bermudagrass type, timing of application, and **Plateau** rate, some foliar, stolon, and seedhead suppression may occur. **IMPORTANT:** Apply **Plateau** after bermudagrass has reached full green-up. Spring applications made prior to full green-up may delay green-up. Always add a surfactant when applying **Plateau**. **DO NOT** apply to grass under stress from drought, disease, insects or other causes. Simultaneous mow/spray operations may suppress internode development. After mowing, allow adequate foliage regrowth prior to **Plateau** application as some internode suppression may prevent bermudagrass from quickly recovering from mowing.

**Common Bermudagrass:** Common bermudagrass is the most tolerant bermudagrass to **Plateau**. Tank-mixes with ROUNDUP PRO, ACCORD or glyphosate will improve the weed control spectrum, but may increase turf phytotoxicity. Some stolon internode shortening and seedhead suppression may occur for the first 8 weeks.

**Established Coastal Bermudagrass:** **Plateau** at 2 to 12 oz per acre will provide control of labeled weeds as well as foliar and seed head suppression of established coastal bermudagrass. **DO NOT** use on World Feeder varieties of bermudagrass. Depending on environmental conditions and weed pressure, the longevity of suppression and weed control increases as the **Plateau** rate increases. Tank-mixes with ROUNDUP PRO, ACCORD, or glyphosate may result in death or excessive injury of coastal bermudagrass.

**Turf Type Bermudagrass:** Turf type bermudagrass varieties show a high degree of variation in tolerance to **Plateau**. **Plateau** at rates of 2 to 6 oz per acre will provide some annual weed control and foliar & seedhead suppression. Rates above 6 oz per acre may result in excessive injury or death of turf type bermudagrass.

**SEE ABOVE SECTIONS FOR PLATEAU® HERBICIDE RATES AND TIMINGS FOR SPECIFIC BERMUDAGRASS TYPES WITH REGARD TO WEED CONTROL AND TURF TOLERANCE.**

**Winter Annual Weed Control:** Apply **Plateau** at the rate of 4 to 12 oz. per acre prior to winter weed germination or while winter weeds are actively growing. Early spring applications may delay green-up of bermudagrass turf.

**Summer Annual Weeds:** For best results, apply **Plateau** at the rate of 4 to 12 oz per acre preemergence or early postemergence before weeds have reached 6 inches in height. Larger weeds may be controlled depending on susceptibility, growing conditions, tank-mix partner and adjuvant selection.

**Perennial Weeds:** Apply **Plateau** at the rate of 8 to 12 oz per acre postemergence after weeds have produced adequate foliage for herbicide uptake. For a particular weed see "SPECIAL WEED CONTROL" section below. The addition of ACCORD or ROUNDUP PRO herbicide may increase control.

**Bahiagrass Control:** Apply **Plateau** at the rate of 8 to 12 oz per acre postemergence. See "SPECIAL WEED CONTROL" section below for recommendations. The addition of ROUNDUP PRO or ACCORD herbicide at 12 to 16 oz per acre may increase control.

**FOR THE CONTROL OF UNDESIRABLE WEEDS IN UNIMPROVED CENTIPEDE GRASS**

**Plateau** may be applied at a rate of 4 to 8 oz per acre to established centipede grass for the control of annual broadleaf and grass weeds. Apply **Plateau** after centipede grass has reached full green-up. Spring applications made prior to full green-up may delay green-up. Always add a surfactant when applying **Plateau**. **DO NOT** apply to grass under stress from drought, disease, insects or other causes. Simultaneous mow/spray operations may suppress internode development. After mowing, allow adequate foliage regrowth prior to **Plateau** application as some internode suppression may prevent centipede grass from quickly recovering from mowing.

**FOR CONTROL OF UNDESIRABLE WEEDS IN SMOOTH BROMEGRASS, WILDTYPE COMMON KENTUCKY BLUEGRASS AND WHEATGRASSES**

**Plateau** may be used on smooth brome grass, "wildtype" common Kentucky bluegrass and wheatgrass. **Plateau** provides control of labeled grass and broadleaf weeds (see "WEEDS CONTROLLED" and "SPECIAL WEED CONTROL" sections). Treatment of smooth brome grass and wheatgrass with **Plateau** may result in foliar height and seedhead suppression.

**Smooth Brome grass and "Wildtype" Common Kentucky Bluegrass:** Use **Plateau** at 4 to 8 oz per acre in the spring for weed control and growth suppression after smooth brome grass and "wildtype" common Kentucky bluegrass have reached 100% green-up. Applications prior to 100% green-up may delay green-up. Rates from 8 to 12 oz per acre may be applied in the spring but may result in excessive growth suppression. For fall applications (see "SPECIAL WEED CONTROL" section), **Plateau** may be used at 8 to 12 oz per acre for control of perennial weeds.

**Wheatgrass:** To control undesirable weeds in wheatgrasses apply **Plateau** at 4 to 12 oz. per acre.

**FOR CONTROL OF UNDESIRABLE WEEDS IN CROWN VETCH**

**Plateau** may be applied at the rate of 4 oz per acre to newly seeded crown vetch beds to aid in the establishment of vetch and reduce weed competition.

**Plateau** at 8 to 12 oz per acre may be used on unimproved established crown vetch in noncropland areas. **Plateau** provides control of labeled grass and broadleaf weeds (refer to the "WEEDS CONTROLLED" and "SPECIAL WEED CONTROL" sections for specific rates). Treatment of crown vetch beds with **Plateau** may cause internode shortening and some minor tip chlorosis depending on timing of application.

**Plateau** should be applied during winter dormancy or early spring to reduce potential injury. Applications made after May, may result in increased injury or defoliation. Addition of surfactants such as dilimene based or crop oil concentrates will increase injury. Fall applications during the period of active crown vetch growth may result in severe injury or loss of stand.

**REVEGETATION WITH PRAIRIEGRASSES AND OTHER FORAGE GRASSES**

**Plateau** may be applied at the rate of 2 to 12 oz per acre to newly established or existing stands of labeled species (see below for details) in such areas as pasture, rangeland (see "GUIDELINES FOR RANGELAND USE" section), Conservation Reserve Program (CRP) land and noncropland sites such as roadsides, industrial sites, prairie restoration sites, drainage ditch banks, and other similar areas. Certain local ecotypes or varieties may be suppressed by **Plateau**. Many factors such as poor seedling vigor, cool temperatures, poor soil, planting depth, excessive moisture, disease, insects and dry weather after emergence can all result in poor stands. Additional stress of herbicide residue, poor soils and other factors contributing to poor seedling vigor can also increase injury and could result in mortality. BASF can not be held responsible for such unforeseen factors. It is suggested to try **Plateau** on a small area if tolerance is not known. **Plateau** controls many annual and perennial grass and broadleaf weeds. Weed competition is reduced allowing grass seedlings to establish. **Plateau** is also effective for control of noxious weeds in established grass stands and must be applied postemergence as a foliar treatment to perennial weeds. **IMPORTANT: ALWAYS ADD AN ADJUVANT** when applying **Plateau**. To maximize weed control always use a methylated seed oil when treating established grass stands. Use a nonionic surfactant when treating newly emerged seedling grasses. The addition of liquid fertilizer will decrease grass tolerance and should not be used when treating newly emerged seedling grasses.

**Plateau** may be applied at a rate of up to 12 oz per acre to Federal Conservation Reserve Program (CRP) land for the establishment or release of certain grass species (see "TOLERANT GRASS SPECIES" table).

**Establishment:** For optimum results in establishing mixed grass stands with **Plateau**, make application at planting before grass seedlings emerge. Newly emerged grasses can be sensitive to **Plateau** and/or the adjuvant used. If grasses have begun to emerge, it is best to wait until they have reached the five leaf stage to make a **Plateau** application and use a nonionic or silicone surfactant. **DO NOT** use a methylated seed oil at this time as some grass species tolerance will be lost. **Plateau** will control annual weeds preemergence or early postemergence. See "WEEDS CONTROLLED" section for maximum height of weeds and see below for more details on best rate and timing for grass and wildflower species. Postemergence applications may result in stand thinning due to variability in seedling grass tolerance to the use of spray adjuvants. Seedling grasses are generally more tolerant to the use of spray adjuvants after they have reached the five leaf stage. When planting into a field which was row cropped the previous year, compounded injury may occur from herbicide carry-over (see "DIRECTIONS FOR USE" section).

**Rates and Control:** Apply **Plateau** at 2 to 6 oz per acre to fields cropped the previous year, when annual weeds are the target and/or if grass/forb mixtures are used. **Plateau** at 2 to 6 oz per acre will provide control and/or suppression of many annual grass and broadleaf weeds. Use lower rates when in the northern most U.S., dry climates or for late season plantings into clean seedbeds.

**Plateau** rates as low as 2 oz. per acre may be used on soils with a pH > 7, a low CEC and a coarse texture containing a minimum of clay and organic matter. Use higher rates in heavy weed pressure, heavy residue, high organic matter, high rainfall and long growing season (southern portions of Illinois, Indiana, Missouri and Ohio, etc.). Apply **Plateau** at 8 to 12 oz per acre for giant ragweed or for perennial weed control/suppression. **Plateau** rates of 8 to 12 oz per acre may result in stunting or stand thinning. The duration and intensity of suppression are directly related to weed pressure, chemical residue, soil type and environmental conditions. See below for details for particular grass tolerances and timings.

**Established Stands:** For optimum results, apply **Plateau** as an early postemergence application to annual grasses and broadleaf weeds. For perennial weed control, see "SPECIAL WEED CONTROL" section. The use of high rates may result in foliar and/or seed head height suppression of established grass stands. This effect is more likely to occur under conditions of light soils, low weed pressure, low rainfall, and short growing seasons. Use the lower rates for light weed infestations or when applying to grass stands containing desirable wildflowers and legumes (see "WILDFLOWER ESTABLISHMENT AND MAINTENANCE" section for rate tolerance). Use higher rates to broaden and lengthen weed control spectrum.

**Big Bluestem, Little Bluestem and Indiangrass: Plateau® herbicide** may be applied at the rate of 2 to 12 oz per acre at planting, or any time thereafter, including after seedling grasses have emerged or to perennial stands (dormant or actively growing). See "WEEDS CONTROLLED" section for desired rate. Use the lower rates in Wisconsin, Michigan, Minnesota, South Dakota, North Dakota, Kansas, Oklahoma, Texas and Nebraska and higher rates as rainfall and/or growing season increases.

**Switchgrass (*Panicum virgatum*): Plateau** is not recommended for the establishment of pure switchgrass stands as severe injury or death may result. **Plateau** may be applied at a rate of 2 to 4 oz per acre if switchgrass is planted in mixed stands with tolerant species, but only if some stand thinning or loss of stand can be tolerated. Mature switchgrass planting can be reclaimed from certain perennial weeds such as tall fescue, leafy spurge, johnsongrass, etc., with **Plateau** at rates of 10 to 12 oz per acre. However, severe stunting and injury is imminent. **DO NOT** apply **Plateau** to switchgrass if such severe injury can not be tolerated.

**Sideoats and Blue Grama:** Apply **Plateau** to monoculture stands of sideoats and blue grama only if some stand thinning or loss of stand can be tolerated. **Plateau** may be applied at the rate of 2 to 4 oz/A plus an adjuvant to aid in the establishment of sideoats and blue grama after new seedlings have emerged and reached the five (5) leaf stage. When using **Plateau** at 4 oz per acre it is not recommended to use in combination with a methylated seed oil adjuvant as stand thinning may occur. The lower rates may provide adequate weed suppression in early summer plantings in the states of Wisconsin, Michigan, Minnesota, South Dakota, North Dakota, Kansas, Oklahoma, Texas and Nebraska and other states where growing degree days are short. Sideoats and blue grama have shown tolerance to **Plateau** at 2 to 4 oz/A, applied preemergence at planting, however, some stand thinning may occur. For weed control in established stands use 4 to 10 oz/A of **Plateau**. Up to 12 oz/A of **Plateau** may be applied, but may result in foliar and/or seedhead suppression, or in the injury of sideoats and blue grama, depending on surfactant choice, soil type, variety, weed pressure and environmental conditions.

**Buffalograss:** Apply **Plateau** at the rate of 2 to 4 oz/A for control or suppression of labeled weeds and to aid in the establishment of newly sprigged buffalograss. Apply **Plateau** immediately after planting prior to spring growth or seed germination. New growth and small seedlings can be severely injured or killed. If applying after emergence it is best to wait until buffalograss has at least five true leaves and use a nonionic or silicone surfactant. **DO NOT** use a methylated seed oil. For established stands, **Plateau** may be applied at the rate of 2 to 8 oz/A for weed control. Higher rates may cause some turf discoloration and stunting. **Plateau** may be applied to dormant buffalograss to control winter annual weeds. Turf type buffalograss may express different tolerance level to **Plateau** than wild type buffalograss. Some turf types can tolerate low rates of **Plateau** at seeding. Consult seed dealer for details.

**Eastern Gamagrass:** **Plateau** should only be used for the establishment or maintenance of eastern gamagrass if some stand thinning or loss can be tolerated. Apply **Plateau** at 2 to 6 oz per acre at planting prior to gamagrass emergence. Stand thinning and stunting is imminent. Adverse conditions, poor soils, or added stress to the gamagrass could result in stand mortality. Postemergence application to seedlings will cause mortality. On established eastern gamagrass, apply **Plateau** at 2 to 8 oz per acre prior to gamagrass breaking dormancy. Some stunting will occur and increases as the **Plateau** rate increases. Applications made during or after green-up may result in foliar and seedhead suppression and possible mortality of weak plants.

**Tall Fescue Control:** (Not for use in California unless directed otherwise in supplemental labeling.) Tall fescue can be controlled by using **Plateau** at the rate of 12 oz per acre plus methylated seed oil at 2 pints per acre in established stands of or to prepare a seed bed for big bluestem, little bluestem, and indiangrass. The addition of nitrogen fertilizer (see "SPRAY ADJUVANTS FOR POSTEMERGENCE APPLICATIONS" section) to the above mix will aid in control. Tall fescue must be actively growing for optimum control. If tall fescue has reached the boot stage or has reached summer dormancy, control may be poor. For improved control of tall fescue, **Plateau** may be tank mixed with ACCORD®, ROUNDUP® PRO, or glyphosate. Fall applications of **Plateau** at 8 to 12 oz/A plus 24 to 64 oz/A ACCORD® or ROUNDUP® PRO will result in best control of existing tall fescue and new germinating seedlings. With spring applications of **Plateau** at 6 to 12 oz/A, plus a ACCORD® or ROUNDUP® PRO at 32 to 64 oz/A, use higher rates for older, mature fescue stands and lower **Plateau** rates when planting forbs. When using 8 oz/A of **Plateau** in the fall with a glyphosate product, it is recommended to apply 4 oz/A **Plateau** in

the spring at planting for annual weed and seedling fescue control. Burning the fescue stand, where permitted, the following spring, just prior to green-up, will aid in control and provide a better seedbed for planting. Mowing the fescue several times the summer before fall application will weaken the fescue root system, making it more susceptible to herbicides. Always allow for at least 10 inches of regrowth, following the last mowing before spraying, as both **Plateau** and glyphosate products need foliage present for herbicide uptake and satisfactory control.

#### TOLERANT GRASS SPECIES<sup>1</sup>

Common Name	Genus Species	Plateau Rate (oz/A) <sup>2</sup>	
		New Seeding	Established
Big Bluestem	<i>Andropogon gerardii</i>	2-12	2-12
Little Bluestem	<i>Schizachyrium scoparium</i>	2-12	2-12
Indiangrass	<i>Sorghastrum nutans</i>	2-12	2-12
Bushy Bluestem	<i>Andropogon glomeratus</i>	—*	2-12
King Ranch Bluestem	<i>Bothriochloa ischaemum</i>	—	2-12
Silver Beard Bluestem	<i>Bothriochloa saccharoides</i>	—	2-12
Broomsedge	<i>Andropogon virginicus</i>	—	2-12
Fingergrass, Rhodes grass	<i>Choris</i> spp.	—	2-12
Needlegrass	<i>Stipa</i> spp.	—	2-12
Needleandthread	<i>Stipa comata</i>	—	2-12
Kearny (Plains) Threawn	<i>Aristida longespica</i>	—	2-12
Prairie Threawn	<i>Aristida oligantha</i>	—	2-12
Prairie Sandreed	<i>Calamovilfa longifolia</i>	—	2-12
Smooth Bromegrass	<i>Bromus inermis</i>	—	2-12
Kentucky Bluegrass	<i>Poa pratensis</i>	—	2-12 <sup>4</sup>
Sandberg's Bluegrass	<i>Poa sandbergii</i>	—	2-12
Wheatgrasses	<i>Agropyron</i> spp.	—	2-12
Bottlebrush Squirreltail	<i>Sitanian hystrix</i>	—	2-12
Russian Wild Ryegrass	<i>Elymus junceus</i>	2-6 <sup>2</sup>	2-12
Sideoats Grama	<i>Bouteloua curtipendula</i>	2-8 <sup>3</sup>	2-8
Blue Grama	<i>Bouteloua gracilis</i>	2-8 <sup>3</sup>	2-8
Buffalograss	<i>Buchloe dactyloides</i>	2-4	2-8
Eastern Gamagrass	<i>Tripsacum dactyloides</i>	2-6 <sup>3</sup>	2-8

<sup>1</sup> See individual grass sections for application timing.

<sup>2</sup> High rates may result in stunting and growth suppression.

<sup>3</sup> **Plateau** preemergence applications to newly seeded sideoats, blue grama and Eastern gamagrass may result in thinning or loss of stand.

<sup>4</sup> Some bluegrass varieties are sensitive to **Plateau**. Drought can delay recovery and may result in overgrazing of treated area.

\* Tolerance unknown

**TOLERANCE OF ESTABLISHED GRASSES TO  
8 TO 12 OZ/A OF PLATEAU® HERBICIDE  
APPLIED IN THE FALL**

Grass Species <sup>1</sup>	Tolerant	Suppressed <sup>2</sup>	Not Tolerant	Tolerance Unknown
Bermudagrass	X			
Bluegrass, Kentucky		X		
Bluegrass, Sandberg's	X			
Bluestem, big	X			
Bluestem, bushy	X			
Bluestem, King Ranch	X			
Bluestem, little	X			
Bluestem, silver beard	X			
Bromegrass, meadow		X	X	
Bromegrass, smooth		X		
Broomsedge	X			
Buffalograss	X	X		
Cheatgrass			X	
Creeping foxtail, Garrison				X
Downey brome			X	
Fescue, Idaho	X			
Fescue, tall			X	
Gamagrass, eastern		X		
Grama, blue	X	X		
Grama, sideoats	X	X		
Indiangrass	X			
Medusahead			X	
Needleandthread	X			
Needlegrass, green	X			
Orchardgrass		X		
Prairie cordgrass		X		
Prairie dropseed				X
Praire sandreed	X			
Praire threeawn	X			
Quackgrass		X		
Redtop		X	X	
Reed canarygrass		X	X	
Rhodes grass/Fingergrass	X			
Ryegrass, annual or Italian			X	
Ryegrass, perennial		X	X	
Squirreltail, bottlebrush	X			
Switchgrass		X	X	
Timothy			X	
Wheatgrass, bluebunch	X	X		
Wheatgrass, crested	X	X		
Wheatgrass, intermediate	X	X		
Wheatgrass, pubescent	X	X		
Wheatgrass, siberian	X			
Wheatgrass, slender	X	X		
Wheatgrass, stream-bank	X	X		
Wheatgrass, western	X	X		
Wild ryegrass, Basin	X			
Wild ryegrass, Canada		X		
Wild ryegrass, Russian	X			
Wild ryegrass, Virginia		X		

<sup>1</sup> Species with an X in more than one column means tolerance will vary depending on variety, use rate and environmental conditions.

<sup>2</sup> Suppression may be expressed as reduction in number of seedheads, seedhead height suppression or foliage height reduction; however, full recovery of the grass can be expected.

**WILDFLOWER ESTABLISHMENT  
AND MAINTENANCE**

Due to high degree of variation in genotypes, ecotypes and varieties of wildflowers, tolerances to **Plateau** can vary dramatically and may be reduced under certain soil types and environmental conditions. Apply **Plateau** only if some stand thinning or loss can be tolerated. Preemergence applications of low use rates (2 oz/A)

to tolerant species, result in the least amount of injury, but may not eliminate it. Postemergence applications of **Plateau** can result in injury or death of some genotypes, and should be used only as a rescue treatment when weed competition threatens the stand. Use of certain spray adjuvants can also increase wildflower injury and loss of stand. Although most legumes listed in the tolerance table are tolerant to 4 oz/A of **Plateau** preemergence, some stand thinning may occur. Legumes are more tolerant to post applications, but chlorosis or stunting is possible. Recommendations listed in the tables below are designed for mixed grass/wildflower stands. Less than satisfactory results may occur from applications to monoculture stands. It is recommended to try on a small scale to determine degree of satisfaction on monoculture stands.

**For prairiegrass/wildflower mixtures:** Where some wildflower injury (phytotoxicity, height suppression) can be tolerated, apply **Plateau** at the rate to achieve desired weed control, but not to exceed tolerance rate listed in the table below. Wildflower injury can be reduced or eliminated with preemergence applications. To minimize injury, apply **Plateau** at 2 to 4 oz per acre at planting to tolerant species listed below. Use the 2 oz per acre rate under cool dry conditions and in low rainfall areas. If postemergence application is made to established prairiegrass/wildflower mixtures, use the lowest rate of **Plateau** necessary to achieve desired weed control (see "WEEDS CONTROLLED" section). Postemergence application can result in stand thinning or death due to vast variation in seed sources, varieties and genotypes. It is recommended that a small area be tested prior to full application for tolerance of desired species. The rates listed below are for those species in which acceptable tolerance has been confirmed on the varieties/genotypes being treated.

Application of **Plateau** in conjunction with an organophosphate insecticide may cause an increase in wildflower injury.

**Seedling Wildflower and Legume Tolerance to  
Plateau (4 oz/A)<sup>1</sup> in Mixed Grass/Forb Stands.**

Common Name	Genus Species	PRE	POST
Alfalfa	<i>Medicago sativa</i>	No	Yes
Aster, New England	<i>Aster novae angliae</i>	No	Yes
Aster, Prairie	<i>Aster tanacetifolius</i>	No	Yes
Baby Blue Eyes	<i>Nemophila menziesii</i>	No	Yes
Beggar ticks	<i>Bidens frondosa</i>	No	Yes
Bird's Eyes	<i>Gilia tricolor</i>	No	Yes
Bishop's Flower	<i>Anuni majus</i>	No	Yes
Blackeyed Susan	<i>Rudbeckia hirta</i>	Yes	Yes
Blanketflower	<i>Gaillardia aristata</i>	No	Yes
Bundleflower, Illinois	<i>Desmanthus illinoensis</i>	Yes	Yes
Catchfly	<i>Silene armeria</i>	No	Yes
Chicory	<i>Cichorium intybus</i>	Yes	Yes
Clover, Crimson	<i>Trifolium incarnatum</i>	Yes	Yes
Clover, White	<i>Trifolium repens</i>	No	Yes
Coneflower, Purple	<i>Echinacea purpurea</i>	Yes	Yes
Coneflower, Upright Prairie	<i>Ratibida columnifera</i>	Yes	Yes
Coreopsis, Dwarf Red Plains	<i>Coreopsis tinctoria</i> var. Gay Feather	Yes	Yes
Coreopsis, Lance Leaved	<i>Coreopsis lanceolata</i>	Yes	Yes
Coreopsis, Plains	<i>Coreopsis tinctoria</i>	Yes	Yes
Cornflower	<i>Centaurea cyanus</i>	No	Yes
Cosmos, Garden	<i>Cosmos bipinnatus</i>	Yes	Yes
Cosmos, Yellow	<i>Cosmos sulphureus</i>	Yes	Yes
Daisy, Ox-eye	<i>Chrysanthemum leucanthemum</i>	Yes	Yes
Daisy, Shasta	<i>Chrysanthemum maximum</i>	Yes	Yes
Five Spot	<i>Nemophila maculata</i>	No	Yes
Flax, Blue	<i>Linum perenne</i>	No	Yes
Indian Blanket	<i>Gaillardia pulchella</i>	No	Yes
Indigo, Blue False	<i>Baptisia australis</i>	Yes	No
Johnny Jump-ups	<i>Viola cornuta</i>	Yes	Yes
Lemon Mint	<i>Monarda citriodora</i>	No	Yes

**Seedling Wildflower and Legume Tolerance to Plateau® herbicide (4 oz/A)<sup>1</sup> in Mixed Grass/Forb Stands. (CONT):**

Common Name	Genus Species	PRE	POST
Lespedeza, Bicolor	<i>Lespedeza</i>	Yes	Yes
Lespedeza, Korean	<i>Lespedeza stipulacea</i>	No	Yes
Lespedeza, Sericea	<i>Lespedeza cuneata</i>	No	Yes
Lupine, Perennial	<i>Lupinus perennis</i>	Yes	Yes
Mexican Hat	<i>Ratibida columnifera</i>	Yes	Yes
Partridgepea	<i>Cassia fasciculata</i>	Yes	Yes
Pea, Calico	<i>Pisum viganasinensis</i>	Yes	Yes
Pea, Flat	<i>Lathyrus sylvestris</i>	Yes	Yes
Pea, Perennial	<i>Lathyrus latifolius</i>	Yes	Yes
Phlox, Drummond	<i>Phlox drummondii</i>	Yes	No
Poppy, California	<i>Eschscholzia californica</i>	Yes	No
Poppy, Corn	<i>Papaver rhoeas</i>	Yes	Yes
Poppy, Red Corn	<i>Papaver</i> sp.	Yes	Yes
Prairieclover, Purple	<i>Dalea purpurea</i>	Yes	Yes
Prairieclover, White	<i>Dalea candidum</i>	Yes	Yes
Tick-trefoil, Showy	<i>Desmodium canadense</i>	No	Yes
Trefoil, Birdfoot	<i>Lotus corniculatus</i>	No	Yes
Vetch, Crown	<i>Coronilla varia</i>	Yes	—
Vetch, Hairy	<i>Vicia villosa</i>	Yes	—
Yarrow, Gold	<i>Achillea filipendulina</i>	No	Yes

<sup>1</sup> For legumes, at least three true leaves should be present before a postemergence application.

**Established Wildflower and Legume Tolerance to Plateau (maximum rate<sup>1</sup>, oz/A) in Mixed Grass/Forb Stands.**

Common Name	Genus Species	PRE	POST <sup>2</sup>
Flax, Blue	<i>Linum perenne</i>	0	6
Indian Blanket	<i>Gaillardia pulchella</i>	0	6
Blanketflower	<i>Gaillardia aristata</i>	0	8
Chickory	<i>Cichorium intybus</i>	4	6
Daisy, Shasta	<i>Chrysanthemum maximum</i>	4	8
Prairieclover, Purple	<i>Dalea purpurea</i>	4	12
Coneflower, Upright Prairie	<i>Ratibida columnifera</i>	6	6
Mexican Hat	<i>Ratibida columnifera</i>	6	6
Poorjoe	<i>Diodia teres</i>	8	—
Lupine, Perennial <sup>4</sup>	<i>Lupinus perennis</i>	8	12
Coneflower, Purple	<i>Echinacea purpurea</i>	8	8
Daisy, Ox-eye <sup>3</sup>	<i>Chrysanthemum leucanthemum</i>	8	8
Leadplant	<i>Amorpha canescens</i>	8	8
Lespedeza, Bicolor	<i>Lespedeza</i>	8	8
Milkweed, Common	<i>Asclepias syriaca</i>	8	—
Pea, Prairie Scurf	<i>Psoralea esculenta</i>	8	8
Yarrow, Gold <sup>3</sup>	<i>Achillea filipendulina</i>	8	8
Blackeyed Susan	<i>Rudbeckia hirta</i>	8	10
Johnny Jump-ups	<i>Viola cornuta</i>	8	12
Sweetclover	<i>Melilotus</i> sp.	12	8
Alfalfa	<i>Medicago sativa</i>	12	12
Bundleflower, Illinois	<i>Desmanthus illinoensis</i>	12	12
Lespedeza, Sericea	<i>Lespedeza cuneata</i>	12	12
Partridgepea	<i>Cassia fasciculata</i>	12	12
Sensitive vine	<i>Mimosa strigillosa</i>	12	12
Vetch, Crown	<i>Coronilla varia</i>	12	12
Violet, Wild	<i>Viola</i> spp.	12	12

<sup>1</sup> Height suppression or stand reduction may occur at maximum use rate. For legumes, some yellowing and stunting can occur at higher use rates.

<sup>2</sup> Postemergence application should be made early post on the flowers to reduce injury and increase flower set.

<sup>3</sup> Will not flower.

<sup>4</sup> Most native rangeland lupines are tolerant to **Plateau** at 12 oz/A postemergence.

**Wildflower Establishment with Plateau 4 oz/A + PENDULUM herbicide 2 lbs a.i./A<sup>1</sup>**

Common Name	Genus Species	PRE <sup>2</sup>	POST <sup>3</sup>
Blackeyed Susan	<i>Rudbeckia hirta</i>	Yes	Yes
Blanketflower	<i>Gaillardia pulchella</i>	No	Yes
Bundleflower, Illinois	<i>Desmanthus illinoensis</i>	>50% thinning	Yes
Clover, Crimson	<i>Trifolium incarnatum</i>	>50% thinning	Yes
Coneflower, Claspig	<i>Dracopsis amplexicaulis</i>	Yes	Yes
Coneflower, Upright Prairie	<i>Ratibida columnifera</i>	No	OK
Coneflower, Purple	<i>Echinacea purpurea</i>	Yes	Yes
Coreopsis, Dwarf Red Plains	<i>Coreopsis tinctoria</i> var. Gay Feather	OK stunting	OK stunting
Coreopsis, Plains	<i>Coreopsis tinctoria</i>	OK stunting	Yes
Coreopsis, Lance Leaved	<i>Coreopsis lanceolata</i>	25% thinning	Yes
Cornflower	<i>Centaurea cyanus</i>	No	OK 20% thinning
Cosmos, Garden	<i>Cosmos bipinnatus</i>	OK 10% thinning	OK stunting
Cosmos, Yellow	<i>Cosmos sulphureus</i>	Yes	Yes
Daisy, Ox-eye	<i>Chrysanthemum leucanthemum</i>	25% thinning	Yes
Daisy, Shasta	<i>Chrysanthemum maximum</i>	marginal-OK 20% thinning	Yes
Lupine, Perennial	<i>Lupinus perennis</i>	Yes	≤50% thinning
Partridgepea	<i>Cassia fasciculata</i>	25% thinning	Yes
Poppy, California	<i>Eschscholzia californica</i>	Yes	25% injury stunting, thinning
Yarrow, Gold	<i>Achillea filipendulina</i>	OK thinning	OK

<sup>1</sup> 2 lbs ai/A = 2.4 qts of PENDULUM herbicide 3.3 EC or 3.3 lbs of PENDULUM herbicide WDG

<sup>2</sup> Preemergence at planting

<sup>3</sup> Postemergence to seedlings

Yes = no injury

No = results in no wildflower germination or unacceptable injury to seedling flowers.

OK = can be used if thinning and/or stunting can be tolerated or if establishment is threatened by weed competition.

Due to the diversity of species and varieties that exist in areas where wildflowers are grown, the response to **Plateau** may vary greatly. Careful testing on desirable species is recommended to determine if area-wide applications can be made. Try on a limited area to verify tolerance in a specific area.

The suitability of **Plateau** use on wildflower species not listed, should be determined by treating a small number of such wild flowers at an appropriate rate, not to exceed 12 oz per acre per year. Treated wildflowers should be evaluated 1 to 2 months following application for possible injury. THE USER ASSUMES RESPONSIBILITY FOR ANY DAMAGE OR OTHER LIABILITY.

**SPECIAL WEED CONTROL**

(Not for use in California unless directed otherwise in supplemental labeling.)

ALWAYS ADD AN ADJUVANT to **Plateau** (see "SPRAY ADJUVANTS FOR POSTEMERGENCE APPLICATIONS" section). Research has shown Methylated Seed Oil (MSO) surfactants provide **Plateau** with superior control of perennial weeds. This effect is not always observed and is most prevalent on waxy leaf species, perennials and weeds under stress conditions. For the weeds listed below, it is recommended to use a MSO for best results. The use of nonionic surfactants or silicone based surfactants may result in less than acceptable control.

**Johnsongrass & Itchgrass:** For best results, apply **Plateau** at the rate of 8 to 12 oz per acre after johnsongrass or itchgrass has reached 18 to 24 inches in height at the whorl. The addition of

ACCORD® or ROUNDUP® PRO at the rate of 8 to 16 oz per acre may improve control after culm elongation or in dense stands. Use higher herbicide rates as density increases. Larger grass than specified above can be controlled.

**Dallisgrass, Bahiagrass, Vaseygrass, Paspalum spp., Smutgrass:** For dallisgrass, bahiagrass and smutgrass control, apply **Plateau® herbicide** postemergence at the rate of 10 to 12 oz per acre, after grass has reached 100% green-up. For dallisgrass and smutgrass, activity may range from suppression to control depending upon grass growth stage and growing conditions at the time of application. For vaseygrass apply **Plateau** at the rate of 4 to 6 oz per acre postemergence after grass has reached 100% green-up and is from 3 to 8 inches in height. The addition of ACCORD® or ROUNDUP® PRO at the rate of 12 to 16 oz per acre will improve efficacy. Use higher herbicide rates as target grass weed densities and/or maturity increase. The addition of PENDULUM® will provide increased preemergence control of these grasses from seeds.

**Leafy Spurge:** For best results, apply **Plateau** at 8 to 12 oz per acre in late summer or fall (August through October, but timing may vary by state and/or altitude). Consecutive year applications will optimize long term control. **Plateau** at 12 oz/A applied spring or fall, or 4 oz/A in the spring following an 8 oz/A fall treatment may result in excessive injury to cool season grasses in some areas. For best results, always use a methylated seed oil at 2 pints per acre. Two pints per acre of nitrogen fertilizer (see "SPRAY ADJUVANTS FOR POSTEMERGENCE APPLICATIONS" section) may also be added to the spray tank to increase leafy spurge control, however, this may increase injury to desired species of grasses and forbs. The use of nonionic and silicone based surfactants have resulted in little or no control of leafy spurge. Approximate dates for fall timing in North and South Dakota is late August through September; for Nebraska and Iowa is mid-September through mid-October. This application should be made after good soil moisture is present but prior to the leafy spurge losing its milky sap flow due to a killing frost. To check and see if the milky sap flow has been affected by a frost simply break the main stem of the leafy spurge and if milky sap flows from the break then **Plateau** can still be applied.

**Tall Fescue Control:** Tall fescue can be controlled by using **Plateau** at the rate of 12 oz plus Methylated Seed Oil at 2 pints per acre. The addition of ACCORD, glyphosate or ROUNDUP PRO and/or nitrogen fertilizer (see "SPRAY ADJUVANTS FOR POSTEMERGENCE APPLICATIONS" section) to the above mix will aid in control. Tall fescue must be actively growing for optimum control. If tall fescue has reached summer dormancy, control may be poor.

Fall applications of **Plateau** at 8 to 12 oz/A plus a ACCORD® or ROUNDUP® PRO at 24 to 64 oz/A will result in best control of existing tall fescue and new germinating seedlings. With spring applications of **Plateau** at 6 to 12 oz/A, plus ACCORD or ROUNDUP PRO at 32 to 64 oz/A, use higher rates for older, mature fescue stands and lower **Plateau** rates when planting forbs. When using 8 oz/A of **Plateau** in the fall with ACCORD or ROUNDUP PRO, it is recommended to apply 4 oz/A **Plateau** in the spring at planting for annual weed and seedling fescue control. Burning the fescue stand, where permitted, the following spring, just prior to green-up, will aid in control and provide a better seedbed for planting. Mowing the fescue several times the summer before fall application, will weaken the fescue root system, making it more susceptible to herbicides. Always allow for at least 10 inches of regrowth, following the last mowing before spraying, as both **Plateau** and ROUNDUP products need foliage present for herbicide uptake and satisfactory control.

**Russian Knapweed:** Apply 12 oz/A of **Plateau** plus 1 quart per acre of methylated seed oil during Russian knapweed senescence in the fall. Control improves as senescence progresses and may still be obtained with applications made after full senescence. Applications made prior to the initiation of senescence will result in reduced control.

**Dalmatian Toadflax:** Apply 12 oz/A of **Plateau** plus 1 quart per acre of methylated seed oil in the fall when the top 25% of the plant is necrotic, usually after a hard frost (late October through November). The addition of ammonium sulfate at a rate of 2 to 3 pints per acre may improve control. As long as there is some green stem and/or leaf tissue remaining, good control can be achieved. This timing usually corresponds to fall basal growth. Applications made prior to this will result in poor control.

**Resistant Biotypes:** Naturally occurring biotypes (a plant within a given species that has a slightly different, but distinct genetic

makeup from other plants of the same species) of some weeds listed on this label may not be effectively controlled by this and/or other herbicides (OUST®) with the ALS/AHAS enzyme inhibiting mode of action. If naturally occurring ALS/AHAS resistant biotypes are present in an area, **Plateau** should be tank-mixed or applied sequentially with an appropriate registered herbicide having a different mode of action to ensure control.

## RESIDUAL BAREGROUND WEED CONTROL

For sensitive areas and use around desirable vegetation **Plateau** at 12 ounces per acre may be tank mixed with PENDULUM® herbicide, ROUNDUP® PRO, ESCORT®, KARMEX®, 2,4-D, diuron, ENDURANCE® or other labeled products to provide total vegetation control. For other bareground areas **Plateau** at 12 oz per acre may be tank mixed with ARSENAL® herbicide, SAHARA® DG herbicide, KROVAR®, OUST®, TORDON®, VANQUISH® or other labeled products to provide total bareground weed control. For maximum weed control, use 2 pints per acre of methylated seed oil as an adjuvant.

**Spot Treatments:** **Plateau** may be used to control weed encroachment in bareground or total vegetation control situations. To prepare the spray solution, thoroughly mix in each gallon of water 0.25 to 5% volume/volume (0.3 oz to 5.4 oz per gallon) **Plateau** plus a methylated seed oil adjuvant.

## USE UNDER PAVED SURFACES

Applications should be made to the soil surface only when final grade is established. **DO NOT** move soil following **Plateau** application. Apply **Plateau** in sufficient water to ensure thorough and uniform wetting of the soil surface, including the shoulder area. Add **Plateau** at a rate of 12 oz. per acre to clean water in the spray tank during the filling operation. Agitate before spraying. If soil is not moist prior to treatment, incorporation of **Plateau** will improve control. **Plateau** can be incorporated into the soil to a depth of two inches using a rototiller or disc. Rainfall or irrigation totaling one inch is also sufficient to incorporate **Plateau** into the soil surface. **DO NOT** allow treated soil to wash or move into untreated area.

## CONIFER PLANTATION SITE PREPARATION

**Plateau** may be applied as a site preparation treatment prior to establishing conifer plantations to provide residual weed control of herbaceous weeds. Apply **Plateau** at 12 ozs per acre.

**DO NOT apply more than 12 ozs per acre per year.**

**DO NOT use in forests. Only for use on sites that are managed as conifer plantations.**

## TOLERANCE OF TREES AND BRUSH TO PLATEAU

The following tolerance information is provided as a general guideline when it is desirable or necessary to make **Plateau** applications in and around desirable tree and brush species. **DO NOT** use **Plateau** on nursery, orchard, ornamental plantings, new plantings, seedling trees or fiber farms except as specified on supplemental labeling. It is suggested that **Plateau** be tried on a limited basis to determine tolerance in your area. **Plateau** may be used at rates up to 12 oz per acre for weed control in and around established trees on pasture, rangeland (see "GUIDELINES FOR RANGELAND USE" section) and noncropland areas such as roadsides, prairies and similar areas used for wildlife cover, erosion control, wind breaks, etc. Tree and brush species known to have acceptable tolerance to **Plateau** when applied under the canopy and/or to the foliage are listed below. Tolerance is based upon trees with a minimum of 2 inch DBH. Application to tree and brush species that are under stress due to drought, disease, insect damage or other factors may be more susceptible to injury from **Plateau** and may result in severe injury or death. Some species may exhibit tip chlorosis and minor necrosis. Foliar contact may increase injury to include defoliation and terminal death. Application methods that minimize foliar contact with desirable tree and brush species can improve tolerance.

When making fall applications of **Plateau**, potential injury to tree and brush species from foliar contact may be minimized by making the application after the leaves have begun to senesce (fall color) or after leaf drop. Conifer species are generally tolerant to fall applications. **Plateau** applications in and around tree and brush species should be made at the recommended timing for the target weed species.

**Brush and Tree Species Tolerance to Plateau® herbicide at 12 oz per Acre<sup>1</sup>**

Common Name	Genus Species	Tolerance by Application Method <sup>2</sup>	
		Directed Below Foliage	To Foliage
Apple (Var. Winesap) <sup>3</sup>	<i>Malus sylvestris</i>	Yes	NR
Ash, Blue	<i>Fraxinus quadrangulata</i>	Yes	NR
Ash, Green	<i>Fraxinus pennsylvanica</i>	No	No
Azalea	<i>Rhododendron</i> spp.	No	No
Basswood	<i>Tilia heterophylla</i>	No	No
Boxelder	<i>Acer negundo</i>	Yes	Injury <sup>5</sup>
Buckeye, Ohio	<i>Aesculus glabra</i>	Yes	NR
Cedar-juniper, Western	<i>Thuja plicata</i>	Yes	Yes
Cherry, Black <sup>3</sup>	<i>Prunus serotina</i>	No	No
Cherry, Choke	<i>Prunus virginiana</i>	No	No
Cherry, Sweet <sup>3</sup>	<i>Prunus avium</i>	No	NR
Cottonwood	<i>Populus deltoides</i>	Yes	Injury <sup>5</sup>
Cottonwood, narrow leaf	<i>Populus</i> spp.	Yes	Injury <sup>5</sup>
Currant species	<i>Ribes</i> spp.	Injury <sup>5</sup>	No
Dogwood, Flowering	<i>Cornus</i> spp.	Yes	Yes
Dogwood, Grey	<i>Cornus racemosa</i>	Yes	Injury <sup>5</sup>
Dogwood, Red Trig	<i>Cornus</i> spp.	Yes	Yes
Douglas Fir	<i>Pseudotsuga menziesii</i>	Yes	Yes <sup>4</sup>
Elm, American	<i>Ulmus americana</i>	Yes	Yes
Elm, Siberian	<i>Ulmus pumila</i>	Yes	No
Elm, Slippery	<i>Ulmus rubra</i>	Yes	Yes
Gooseberry	<i>Ribes</i> spp.	Injury <sup>5</sup>	Injury <sup>5</sup>
Hackberry	<i>Celtis occidentalis</i>	Yes	Yes
Hawthorn	<i>Crataegus</i> spp.	Yes	Injury <sup>5</sup>
Juniper, Chinese	<i>Juniperus chinensis</i>	Yes	Yes
Juniper, Western	<i>Juniperus osteosperma</i>	Yes	Yes
Lilac	<i>Syringa</i> spp.	No	No
Linden, American	<i>Tilia americana</i>	No	No
Locust, Black	<i>Robinia pseudoacacia</i>	Yes	Yes
Locust, Honey	<i>Gleditsia triacanthos</i>	Yes	Yes
Maple, Red	<i>Acer rubrum</i>	Yes	Yes
Maple, Sugar	<i>Acer saccharum</i>	Yes	Yes
Mulberry, Red	<i>Morus rubra</i>	Yes	NR
Mulberry, White	<i>Morus alba</i>	Yes	NR
Oak, Black	<i>Quercus velutina</i>	Yes	NR
Oak, Live	<i>Quercus virginiana</i>	Yes	Yes
Oak, Southern Red	<i>Quercus falcata</i>	Yes	NR
Oak, White	<i>Quercus alba</i>	Yes	NR
Olive, Russian	<i>Elaeagnus angustifolia</i>	Yes	No
Osage Orange	<i>Maclura pomifera</i>	Yes	NR
Peach (Var. Elberta) <sup>3</sup>	<i>Prunus persica</i>	Yes	NR
Photinia, Red Tip	<i>Photinia fraseri</i>	Yes	Yes
Pine, Lodgepole	<i>Pinus contorta</i>	Yes	Injury <sup>4</sup>
Pine, White <sup>4</sup>	<i>Pinus strobus</i>	Yes	Yes
Pittosporum, Japanese	<i>Pittosporum tobira</i>	Yes	Yes
Plum species	<i>Prunus</i> spp.	Yes	No
Poplar, Yellow (Tulip)	<i>Liriodendron tulipifera</i>	Yes	NR
Privet, Common	<i>Ligustrum vulgare</i>	Yes	Yes
Rabbitbrush species	<i>Chrysothamnus</i> spp.	Yes	Yes
Redbud	<i>Cercis canadensis</i>	Yes	Yes
Redcedar, Eastern	<i>Juniperus virginiana</i>	Yes	Yes
Rose, Multiflora	<i>Rosa multiflora</i>	Yes <sup>5</sup>	No
Sage, Big	<i>Artemisia tridentata</i>	Yes	Yes
Sage, Fringe	<i>Artemisia frigida</i>	Yes	Yes
Sage, Silver	<i>Artemisia cana</i>	Yes	Yes
Sagebrush, Big	<i>Artemisia tridentata</i>	Yes	Yes

**Brush and Tree Species Tolerance to Plateau at 12 oz per Acre<sup>1</sup> (CONT):**

Common Name	Genus Species	Tolerance by Application Method <sup>2</sup>	
		Directed Below Foliage	To Foliage
Sagebrush, Fringed	<i>Artemisia frigida</i>	Yes	Yes
Saltcedar	<i>Tamarix</i> spp.	Yes	No
Serviceberry	<i>Amelanchier alnifolia</i>	Yes	NR
Snowberry, Western	<i>Symphoricarpos occidentalis</i>	Yes	Injury <sup>5</sup>
Spruce species	<i>Picea</i> spp.	Yes <sup>4</sup>	Yes <sup>4</sup>
Sugarberry	<i>Celtis laevigata</i>	Yes	Yes
Sweetgum	<i>Liquidambar styraciflua</i>	Yes	Yes <sup>6</sup>
Sycamore	<i>Plantanus occidentalis</i>	Yes	No
Tree-of-Heaven	<i>Ailanthus altissima</i>	Yes	Yes
Walnut, American Black	<i>Juglans nigra</i>	Yes	No
Willow	<i>Salix</i> spp.	Yes	Injury <sup>5</sup>

<sup>1</sup> Not intended for nursery, orchard, ornamental plantings, new plantings or seedling trees.

<sup>2</sup> Yes = Tolerant

No = Not Tolerant, Severe injury or death

NR = Not Recommended due to insufficient tolerance data

<sup>3</sup> Not for use on ornamental or fruit bearing trees.

<sup>4</sup> Applications made just before or during candling may cause candle injury or death.

<sup>5</sup> Possible defoliation and/or death. Some species may exhibit tip chlorosis and minor necrosis. If spray contacts foliage then defoliation and terminal death may occur. Injury can be reduced or eliminated if applied in fall after color change or leaf drop.

<sup>6</sup> See supplemental label, "For Use In Sweetgum (*Liquidambar styraciflua*) Grown on Fiber Farms."

**WEEDS CONTROLLED**

(Not for use in California unless directed otherwise in supplemental labeling.)

**Plateau, 4 to 6 oz per acre**

Common Name	Genus Species	PRE <sup>1</sup>		Annual/ Biennial/ Perennial <sup>3</sup>
		POST <sup>2</sup>		
<b>BROADLEAVES</b>				
Bedstraw, Catchweed	<i>Galium aparine</i>	C	4	WA
Beggarweed, Florida	<i>Desmodium tortuosum</i>	C	2	SA
Buffalobur	<i>Solanum rostratum</i>	—	C	SA
Buttercup, Bur	<i>Ranunculus testiculatus</i>	C	C	WA
Cocklebur, Common	<i>Xanthium strumarium</i>	S	6	SA
Lambsquarters, Common	<i>Chenopodium album</i>	C	2	SA
Halogeton	<i>Halogeton glomeratus</i>	C	C	SA
Morningglory				
Entireleaf	<i>Ipomoea hederacea</i>	S	3	SA
Ivyleaf	<i>Ipomoea hederacea</i>	S	3	SA
Tall	<i>Ipomoea purpurea</i>	S	3	SA
Mustard, Garlic	<i>Alliaria petiolata</i>	C	C	SA
Mustard, Wild	<i>Brassica kaber</i>	C	C	WA
Pigweed	<i>Amaranthus</i> sp.	C	6	SA
Queen Anne's Lace	<i>Daucus carota</i>	—	4	B
Radish, Wild	<i>Raphanus raphanistrum</i>	S	4	WA
Yellow Rocket	<i>Barbarea vulgaris</i>	C	4	WA
Sicklepod	<i>Senna obtusifolia</i>	C	4	SA
Sida, Prickly	<i>Sida spinosa</i>	C	2	SA
Smartweed				
Ladysthumb	<i>Polygonum persicaria</i>	C	C	SA
Pennsylvania	<i>Polygonum pennsylvanicum</i>	C	C	SA
Swamp	<i>Polygonum coccineum</i>	C	C	SA
Starbur, Bristly	<i>Acanthospermum hispidum</i>	C	2	SA
Velvetleaf	<i>Abutilon theophrasti</i>	C	6	SA

**Plateau® herbicide, 4 to 6 oz per acre (CONT):**

Common Name	Genus Species	PRE <sup>1</sup>	POST <sup>2</sup>	Annual/ Biennial/ Perennial <sup>3</sup>
<b>GRASS WEEDS</b>				
Brome, Downy	<i>Bromus tectorum</i>	C	—	WA
Cheat	<i>Bromus secalinus</i>	C	—	WA
Crabgrass				
Large (Hairy)	<i>Digitaria sanguinalis</i>	C	4	SA
Smooth	<i>Digitaria ischaemum</i>	C	4	SA
Foxtail,				
Giant	<i>Setaria faberi</i>	C	6	SA
Green	<i>Setaria viridis</i>	C	4	SA
Yellow	<i>Setaria glauca</i>	C	4	SA
Goatgrass, Jointed	<i>Aegilops cylindrica</i>	C	C	WA
Goosegrass	<i>Elusine indica</i>	S	2	SA
Johnsongrass (Seedling)	<i>Sorghum halepense</i>	C	12	SA
Medusahead	<i>Taeniatherum caput-medusae</i>	C	2	WA
Panicum, Fall	<i>Panicum dichotomiflorum</i>	S	6	SA
Sandbur	<i>Cenchrus sp.</i>	S	C	A/P
Shattercane	<i>Sorghum bicolor</i>	C	12	SA
Signalgrass, Broadleaf	<i>Brachiaria platyphylla</i>	C	C	SA
Stiltgrass, Japanese	<i>Microstegium vimineum</i>	C	4	A
Vaseygrass	<i>Paspalum urvillei</i>	—	8	P
<b>SEDGES</b>				
Nutsedge				
Yellow	<i>Cyperus esculentus</i>	S	4S	P
Purple	<i>Cyperus rotundus</i>	S	4S	P
Sedge	<i>Juncus sp.</i>	S	4S	A/P

<sup>1</sup> C = control, S = suppression in northern United States only

<sup>2</sup> Maximum plant height in inches at time of application

<sup>3</sup> Growth habit: A=Annual, SA=Summer Annual, WA=Winter Annual, B=Biennial, P=Perennial

**Plateau, 8 to 12 oz per acre**

Common Name	Genus Species	PRE <sup>1</sup>	POST <sup>2</sup>	Annual/ Biennial/ Perennial <sup>3</sup>
<b>BROADLEAVES</b>				
Anoda, Spurred	<i>Anoda cristata</i>	C	6	SA
Baby's Breath <sup>5</sup>	<i>Gypsophila paniculata</i>	—	C	P
Bedstraw, Catchweed	<i>Galium aparine</i>	C	C	WA
Bedstraw, Marsh	<i>Galium spp.</i>	C	C	WA
Beggarweed, Florida	<i>Desmodium tortuosum</i>	C	6	SA
Bindweed, Field	<i>Convolvulus arvensis</i>	—	C	P
Buffalobur	<i>Solanum rostratum</i>	—	C	SA
Burclover	<i>Medicago sp.</i>	—	4	SA
Chickweed, Common	<i>Stellaria media</i>	C	6	SA
Cocklebur, Common	<i>Xanthium strumarium</i>	C	6	SA
Cornsalad, Common	<i>Valerianella locusta</i>	—	C	WA
Crownbeard, Golden	<i>Verbisina encelioides</i>	C	2	SA
Dandelion	<i>Taraxacum officinale</i>	—	C	P
Dock, Curly	<i>Rumex crispus</i>	C	6	B
Fiddleneck	<i>Amsinckia sp.</i>	—	C	SA
Flax, Spurge	<i>Thymelaea passerina</i>	C	C	A
Fleabane, Annual	<i>Erigeron annuus</i>	—	C	A
Geranium, Carolina	<i>Geranium carolinianum</i>	—	C	WA/B
Geranium, Cranesbill	<i>Geranium maculatum</i>	C	C	WA/B
Ground Cherry	<i>Physalis heterophylla</i>	—	C	P
Hemlock, Poison	<i>Conium maculatum</i>	C	6	B
Henbit	<i>Lamium amplexicaule</i>	C	3	WA/B

**Plateau, 8 to 12 oz per acre (CONT):**

Common Name	Genus Species	PRE <sup>1</sup>	POST <sup>2</sup>	Annual/ Biennial/ Perennial <sup>3</sup>
<b>BROADLEAVES</b>				
Houndstongue, Bristly	<i>Cynoglossum officinale</i>	C	C	B
Indigo, Hairy	<i>Indigofera hirsuta</i>	C	2	P
Jimsonweed	<i>Datura stramonium</i>	C	6	SA
Knapweed, Russian <sup>6</sup>	<i>Centaurea repens</i>	—	C*	P
Knotweed, Prostrate	<i>Polygonum aviculare</i>	C	C	SA
Kochia*	<i>Kochia scoparia</i>	C	3	SA
Lambsquarters, Common	<i>Chenopodium album</i>	C	3	SA
Morningglory				
Cypressvine	<i>Ipomoea quamoclit</i>	C	6	SA
Entireleaf	<i>Ipomoea hederacea</i>	C	6	SA
Ivyleaf	<i>Ipomoea hederacea</i>	C	6	SA
Pitted	<i>Ipomoea lacunosa</i>	C	6	SA
Smallflower	<i>Jacquemontia tamnifolia</i>	C	6	SA
Tall	<i>Ipomoea purpurea</i>	C	6	SA
Mustard, Wild	<i>Brassica kaber</i>	C	C	WA
Onion, Wild	<i>Allium canadense</i>	C	C	P
Pepperweed, Perennial	<i>Lepidium latifolium</i>	—	C	P
Pigweed <sup>4</sup>	<i>Amaranthus sp.</i>	C	6	SA
Plantain, Narrowleaf	<i>Plantago lanceolata</i>	C	C	B
Poinsettia, Wild	<i>Euphorbia heterophylla</i>	C	6	SA
Puncture Vine	<i>Tribulus terrestris</i>	—	C	SA
Purslane, Common	<i>Portulaca oleracea</i>	C	4	SA
Pusley, Florida	<i>Richardia scapra</i>	C	4	SA
Queen Anne's Lace	<i>Daucus carota</i>	C	C	B
Ragweed				
Common	<i>Ambrosia artemisiifolia</i>	C	3	SA
Giant	<i>Ambrosia trifida</i>	S	6	SA
Western	<i>Ambrosia psilostachya</i>	—	C	A/P
Rocket, Yellow	<i>Barbarea vulgaris</i>	C	C	WA
Senna, Coffee	<i>Cassia occidentalis</i>	C	4	SA
Sicklepod	<i>Senna obtusifolia</i>	C	6	SA
Sida, Prickly	<i>Sida spinosa</i>	C	6	SA
Smartweed				
Ladysthumb	<i>Polygonum persicaria</i>	C	C	SA
Pennsylvania	<i>Polygonum pennsylvanicum</i>	C	C	SA
Swamp	<i>Polygonum coccineum</i>	C	C	SA
Spurge				
Leafy	<i>Euphorbia esula</i>	—	FALL*	P
Spotted	<i>Euphorbia maculata</i>	C	4	SA
Toothed	<i>Euphorbia dentata</i>	C	4	SA
Starbur, Bristly	<i>Acanthospermum hispidum</i>	—	6	SA
Sunflower	<i>Helianthus annuus</i>	—	18	SA
Tansymustard	<i>Descurainia pinnata</i>	C	C	WA
Teasel, Common	<i>Dipsacus fullonum</i>	—	C	B
Thistle				
Bull	<i>Cirsium vulgare</i>	S	C	WA/B
Musk	<i>Carduus nutans</i>	S	C	B
Platt	<i>Cirsium canescens</i>	S	C	P
Russian*	<i>Salsola iberica</i>	C	3	A
Toadflax, Dalmatian	<i>Linaria dalmatica</i>	—	C*	P
Velvetleaf	<i>Abutilon theophrasti</i>	C	C	A
Vervain, Blue	<i>Verbena hastata</i>	—	S	WA
Vervain, prostrate	<i>Verbena bracteata</i>	—	C	P
Whitetop	<i>Cardaria spp.</i>	—	C	P
Willowherb	<i>Epilobium spp.</i>	—	C	P
Woodsorrel, Yellow	<i>Oxalis stricta</i>	C	C	P

Plateau® herbicide, 8 to 12 oz per acre (CONT):

Common Name	Genus Species	PRE <sup>1</sup>	POST <sup>2</sup>	Annual/ Biennial/ Perennial <sup>3</sup>
<b>GRASS</b>				
Bahiagrass	<i>Paspalum nutatum</i>	S	C*	P
Barley, Little	<i>Hordeum pusillum</i>	C	4	WA
Barley, Squirrel Tail	<i>Hordeum jubatum</i>	—	C	P
Barnyardgrass	<i>Echinochloa crus-galli</i>	C	6	SA
Canarygrass, Reed	<i>Phalaris arundinacea</i>	—	C	P
Cheat	<i>Bromus secalinus</i>	C	—	WA
Crabgrass	<i>Digitaria</i> sp.	C	6	SA
Crowfootgrass	<i>Dactyloctenium aegyptium</i>	C	C	SA
Dallisgrass	<i>Paspalum dilatatum</i>	S	C*	P
Downy Brome	<i>Bromus tectorum</i>	C	—	WA
Dropseed, Tall	<i>Sporobolus cryptandrus</i>	S	C	A/P
Fescue, Tall	<i>Festuca arundinacea</i>	C	C*	P
Foxtail				
Giant	<i>Setaria faberi</i>	C	C	SA
Green	<i>Setaria viridis</i>	C	C	SA
Knotroot	<i>Setaria geniculatus</i>	S	6	SA
Purple Robust	<i>Setaria viridis</i>	S	S	SA
Yellow	<i>Setaria glauca</i>	C	4	SA
Garlic, Wild	<i>Allium vineale</i>	C	C	P
Goosegrass	<i>Elusine indica</i>	C	3S	SA
Itchgrass	<i>Rottboellia cochinchinensis</i>	—	C*	SA
Johnsongrass				
Seedling	<i>Sorghum halepense</i>	C	C	SA
Rhizome	<i>Sorghum halepense</i>	—	C*	P
Medusahead	<i>Taeniatherum caput-medusae</i>	C	C	WA
Panicum				
Fall	<i>Panicum dichotomiflorum</i>	C	C	SA
Texas	<i>Panicum texanum</i>	C	C	SA
Ryegrass, Annual (Italian)	<i>Lolium multiflorum</i>	C	C	WA
Ryegrass, Perennial	<i>Lolium perenne</i>	—	C	P
Sandbur	<i>Cenchrus</i> sp.	S	C	A/P
Shattercane	<i>Sorghum bicolor</i>	C	C	SA
Signalgrass, Broadleaf	<i>Brachiaria platyphylla</i>	C	C	SA
Smutgrass	<i>Sporobolus indicus</i>	—	C	P
Stiltgrass, Japanese	<i>Microstegium vimineum</i>	C	C	A
Stinkgrass, Annual	<i>Eragrostis cilianensis</i>	C	2	SA
Torpedograss	<i>Panicum repens</i>	—	C	P
Vaseygrass	<i>Paspalum urvillei</i>	—	C	P
Wild Oats	<i>Avena fatua</i>	—	C	WA
<b>SEDGES/RUSHES</b>				
Nutsedge				
Yellow	<i>Cyperus esculentus</i>	C	C	P
Purple	<i>Cyperus rotundus</i>	C	C	P
Rush	<i>Juncus</i> sp.	S	4	A/P

<sup>1</sup> C = control, S = suppression

<sup>2</sup> Maximum plant height in inches at time of application

<sup>3</sup> Growth habit: A=Annual, SA=Summer Annual, WA=Winter Annual, B=Biennial, P=Perennial

<sup>4</sup> Some species are tolerant and resistant biotypes are possible.

<sup>5</sup> For annual control. The addition of 1-2 pints of 2,4-D will aid in burndown.

<sup>6</sup> For best control apply in the fall.

\*See "SPECIAL WEED CONTROL" section

## Conditions of Sale and Warranty

The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and must be followed carefully. However, it is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of BASF CORPORATION ("BASF") or the Seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer.

BASF warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions For Use**, subject to the inherent risks, referred to above.

To the extent consistent with applicable law, BASF makes no other express or implied warranty of fitness or merchantability or any other express or implied warranty.

To the extent consistent with applicable law, Buyer's exclusive remedy and BASF's exclusive liability, whether in contract, tort, negligence, strict liability, or otherwise, shall be limited to repayment of the purchase price of the product.

To the extent consistent with applicable law, BASF and the Seller disclaim any liability for consequential, special or indirect damages resulting from the use or handling of this product.

BASF and the Seller offer this product, and the Buyer and User accept it, subject to the foregoing **Conditions of Sale and Warranty** which may be varied only by agreement in writing signed by a duly authorized representative of BASF.

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## USES WITH OTHER PRODUCTS (TANK-MIXES)

If this product is used in combination with any other product except as specifically recommended in writing by BASF, then to the extent consistent with applicable law, BASF shall have no liability for any loss, damage, or injury arising out of its use in any such combination not so specifically recommended. If used in combination recommended by BASF, to the extent consistent with applicable law, the liability of BASF shall in no manner extend to any damage, loss or injury not directly caused by the inclusion of the BASF product in such combination use, and in any event, to the extent consistent with applicable law, shall be limited to return of the amount of the purchase price of the BASF product.

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Supersedes: NVA 2006-04-126-0287  
Based on: NVA 2008-04-126-0219

BASF Corporation  
26 Davis Drive  
Research Triangle Park, NC 27709



The Chemical Company

# Safety data sheet

## PLATEAU®

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### 1. Substance/preparation and company identification

Company

BASF CORPORATION  
100 Campus Drive  
Florham Park, NJ 07932, USA

24 Hour Emergency Response Information

CHEMTREC: 1-800-424-9300  
BASF HOTLINE: 1-800-832-HELP

Substance number: 000000063415  
Molecular formula: C14 H16 N3 O3.N H4  
Molecular weight: 292.34 g/mol  
Chemical family: imidazole derivative  
Synonyms: imazapic ammonium salt

### 2. Composition/information on ingredients

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
104098-49-9	23.6 %	3-Pyridinecarboxylic acid, 2-(4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl)-5-methyl-, monoammonium salt (Replaced by 115 136-53-3)
	76.4 %	Proprietary ingredients

### 3. Hazard identification

Emergency overview

CAUTION: KEEP OUT OF REACH OF CHILDREN.  
KEEP OUT OF REACH OF DOMESTIC ANIMALS.  
Avoid inhalation of mists/vapours.  
Avoid contact with the skin, eyes and clothing.  
Wash thoroughly after handling.

Potential health effects

See Product Label for additional precautionary statements.

Primary routes of exposure

Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquified gases.

Acute toxicity:

Relatively nontoxic after single ingestion. Relatively nontoxic after short-term inhalation. Relatively nontoxic after short-term skin contact.

Irritation:

May cause slight but temporary irritation to the eyes. May cause slight irritation to the skin.

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**Sensitization:**

Skin sensitizing effects were not observed in animal studies.

**Repeated dose toxicity:**

No other known chronic effects.

**Medical conditions aggravated by overexposure:**

Individuals with pre-existing diseases of the respiratory, skin or eyes may have increased susceptibility to excessive exposures.

**Potential environmental effects**

**Aquatic toxicity:**

There is a high probability that the product is not acutely harmful to aquatic invertebrates. Acutely harmful for aquatic plants.

There is a high probability that the product is not acutely harmful to fish.

**Terrestrial toxicity:**

With high probability not acutely harmful to terrestrial organisms.

---

## 4. First-aid measures

**General advice:**

First aid providers should wear personal protective equipment to prevent exposure. Remove contaminated clothing. Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or physician for treatment advice. Have the product container or label with you when calling a poison control center or doctor or going for treatment.

**If inhaled:**

Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary.

**If on skin:**

Rinse skin immediately with plenty of water for 15 - 20 minutes.

**If in eyes:**

Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing.

**If swallowed:**

Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to by a poison control center or doctor. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions.

**Note to physician**

Antidote: No known specific antidote.

Treatment: Treat symptomatically.

---

## 5. Fire-fighting measures

Flash point: > 200 °F (Unspecified)

**Suitable extinguishing media:**

foam, dry extinguishing media, carbon dioxide, water spray

**Hazards during fire-fighting:**

carbon monoxide, carbon dioxide, nitrogen oxide, nitrogen dioxide, Hydrocarbons,

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If product is heated above decomposition temperature, toxic vapours will be released. The substances/groups of substances mentioned can be released if the product is involved in a fire.

Protective equipment for fire-fighting:

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

Evacuate area of all unnecessary personnel. Contain contaminated water/firefighting water. Do not allow to enter drains or waterways.

---

## 6. Accidental release measures

Personal precautions:

Take appropriate protective measures. Clear area. Shut off source of leak only under safe conditions. Extinguish sources of ignition nearby and downwind. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental precautions:

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater. Contain contaminated water/firefighting water.

Cleanup:

Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

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## 7. Handling and storage

### Handling

General advice:

RECOMMENDATIONS ARE FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS. PESTICIDE APPLICATORS & WORKERS must refer to the Product Label and Directions for Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170. Ensure adequate ventilation. Provide good ventilation of working area (local exhaust ventilation if necessary). Keep away from sources of ignition - No smoking. Keep container tightly sealed. Protect contents from the effects of light. Protect against heat. Protect from air. Handle and open container with care. Do not open until ready to use. Once container is opened, content should be used as soon as possible. Avoid aerosol formation. Avoid dust formation. Provide means for controlling leaks and spills. Do not return residues to the storage containers. Follow label warnings even after container is emptied. The substance/ product may be handled only by appropriately trained personnel. Avoid all direct contact with the substance/product. Avoid contact with the skin, eyes and clothing. Avoid inhalation of dusts/mists/vapours. Wear suitable personal protective clothing and equipment.

Protection against fire and explosion:

The relevant fire protection measures should be noted. Fire extinguishers should be kept handy. Avoid all sources of ignition: heat, sparks, open flame. Sources of ignition should be kept well clear. Avoid extreme heat. Keep away from oxidizable substances. Electrical equipment should conform to national electric code. Ground all transfer equipment properly to prevent electrostatic discharge. Electrostatic discharge may cause ignition.

### Storage

General advice:

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Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect containers from physical damage. Protect against contamination. The authority permits and storage regulations must be observed.

**Storage incompatibility:**

General: Segregate from incompatible substances. Segregate from foods and animal feeds. Segregate from textiles and similar materials.

**Temperature tolerance**

Protect from temperatures above: 40 °C

Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

---

## 8. Exposure controls and personal protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

**Advice on system design:**

Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

Personal protective equipment

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

**Respiratory protection:**

Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and vapours. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

**Hand protection:**

Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

**Eye protection:**

Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

**Body protection:**

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

**General safety and hygiene measures:**

Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

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## 9. Physical and chemical properties

Form:

liquid

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Odour:	odourless	
Colour:	amber	
pH value:	6.4 - 7	
Density:	1.07 - 1.09 g/cm <sup>3</sup>	
Relative density:	1.07 - 1.09	
Partitioning coefficient n-octanol/water (log Pow):		Not applicable
Solubility in water:		fully soluble

## 10. Stability and reactivity

### Conditions to avoid:

Avoid all sources of ignition: heat, sparks, open flame. Avoid extreme temperatures. Avoid prolonged exposure to extreme heat. Avoid contamination. Avoid electro-static discharge. Avoid prolonged storage.

### Substances to avoid:

strong oxidizing agents

### Hazardous reactions:

The product is chemically stable.

Hazardous polymerization will not occur. No hazardous reactions if stored and handled as prescribed/indicated.

### Decomposition products:

Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated., Prolonged thermal loading can result in products of degradation being given off.

### Thermal decomposition:

Possible thermal decomposition products:

carbon monoxide, carbon dioxide, nitrogen oxide, Hydrocarbons

Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released.

### Corrosion to metals:

Corrosive effect on: zinc iron mild steel

## 11. Toxicological information

### Acute toxicity

#### Oral:

LD50/rat: > 5,000 mg/kg

#### Inhalation:

LC50/rat: > 2.38 mg/l / 4 h

Moderately toxic.

LC50/rat: > 9.52 mg/l / 1 h

#### Dermal:

LD50/rabbit: > 5,000 mg/kg

#### Skin irritation:

rabbit: non-irritant (Primary skin irritation test)

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Eye irritation :  
rabbit: non-irritant

Sensitization:  
Skin sensitization test/guinea pig:  
Skin sensitizing effects were not observed in animal studies.  
Genetic toxicity:  
*Information on: imazapic*  
*No mutagenic effect was found in various tests with microorganisms and mammals.*

Carcinogenicity:  
*Information on: imazapic*  
*In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed.*

Reproductive toxicity:  
*Information on: imazapic*  
*The results of animal studies gave no indication of a fertility impairing effect.*

Developmental toxicity/teratogenicity:  
*Information on: imazapic*  
*No indications of a developmental toxic / teratogenic effect were seen in animal studies.*

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## 12. Ecological information

*Information on: imazapic*

*Evaluation: Not readily biodegradable (by OECD criteria).*

### Environmental toxicity

*Information on: imazapic*  
*Acute and prolonged toxicity to fish:*  
*Rainbow trout/LC50 (96 h): > 100 mg/l*

*Information on: imazapic*  
*Acute toxicity to aquatic invertebrates:*  
*Daphnia magna/EC50 (48 h): > 100 mg/l*

*Information on: imazapic*  
*Toxicity to aquatic plants:*  
*green algae/EC50 (120 h): > 51.7 µg/l*  
*algae/EC50: > 0.053 ppm*

*Information on: imazapic*  
*Other terrestrial non-mammals:*  
*mallard duck/LC50: > 5,000 ppm*  
*With high probability not acutely harmful to terrestrial organisms.*  
*Honey bee/LD50: > 100 µg/bee*  
*With high probability not acutely harmful to terrestrial organisms.*

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**Other ecotoxicological advice:**

The ecological data given are those of the active ingredient. Do not release untreated into natural waters.

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## 13. Disposal considerations

**Waste disposal of substance:**

Pesticide wastes are regulated.

Improper disposal of excess pesticide, spray mix or rinsate is a violation of federal law.

If pesticide wastes cannot be disposed of according to label instructions, contact the State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**Container disposal:**

Rinse thoroughly at least three times (triple rinse) in accordance with EPA recommendations.

Consult state or local disposal authorities for approved alternative procedures such as container recycling. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

RCRA:

This product is not regulated by RCRA.

---

## 14. Transport information

Reference Bill of Lading

---

## 15. Regulatory information

Federal Regulations

**Registration status:**

TSCA, US

released / exempt

**OSHA hazard category:**

Skin and/or eye irritant

SARA hazard categories (EPCRA 311/312): Acute

State regulations

**CA Prop. 65:**

There are no listed chemicals in this product.

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## 16. Other information

Refer to product label for EPA registration number.

Recommended use: herbicide

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**Local contact information**

Product Stewardship

919 547-2000

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# CORNBELT METHYLATED SOY-STIK

This Product Contains an Antifoam that will suppress foam development in tank mix combinations to which it is added.

## FUNCTIONING AGENTS:

Total Principle Functioning Agents ..... 100%  
(Active Ingredients Include Methylated Soybean Oil)

NOTE: Ingredients exempt from requirements of residue tolerances under Title 40 of the Code of Federal Regulations 180.1001.

## CAUTION

KEEP OUT OF REACH OF CHILDREN  
See Side Panel For Additional Cautions

## PRECAUTIONARY STATEMENTS

In case of contact with eyes, flush with water for at least 15 minutes. If irritation persists, contact physician. In case of skin contact, wash affected areas with water. Remove contaminated clothing and launder before reuse.

## STORAGE AND DISPOSAL

Dispose of container in accordance with local, state and federal regulations.

In the event of a major spill, fire or other emergency, call CHEMTREC at (800) 424-9300.

Store above 40 degrees F.

## GENERAL INFORMATION

Cornbelt Methylated Soy-Stik is a blend of methylated soybean oil and surfactant emulsifier specifically designed for use with postemergence herbicides. Cornbelt Methylated Soy-Stik should be used when a methylated crop oil is specifically required (ie. Pursuit) in place of traditional non-ionic surfactants and paraffin crop oils.

Cornbelt Methylated Soy-Stik increases herbicidal action thru increased absorption. Cornbelt Methylated Soy-Stik improves the performance consistency of herbicides over a wide range of environmental conditions. Cornbelt Methylated Soy-Stik includes a defoamer to help minimize the formation of foam when mixing. The premium quality of Cornbelt Methylated Soy-Stik provides more rapid surface wetting and greater penetration of the leaf cuticle along with improved handling.

**DIRECTIONS FOR USE:**

Always follow herbicide manufacturer's recommendations for application rates and tank filling/mixing instructions. Unless otherwise specified, use Cornbelt Methylated Soy-Stik at the following rates:

**NORMAL CONDITIONS:**

1.5 pts./acre

**EXTREME CONDITIONS:**

2.0 pts./acre

(Extreme weed pressure or plants are stressed at time of treatment.)

**CONDITIONS OF SALE AND WARRANTY:**

The directions for use of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of Van Diest Supply Company or the Seller. All such risks shall be assumed by the Buyer.

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