

DRAFT  
ENVIRONMENTAL ASSESSMENT

PROPOSED FUNDING TO ERADICATE NOXIOUS WEEDS UTILIZING SELECT  
MANUAL AND MECHANICAL REMOVAL AND THE APPLICATION OF  
PROSCRIBED HERBICIDES

WALKER RIVER BASIN, NEVADA AND CALIFORNIA

Prepared by:

Joy M. Giffin  
U.S. Fish and Wildlife Service  
1340 Financial Blvd., Ste 234  
Reno, NV 89502

Michelle Langsdorf  
Mason and Smith Valley Conservation Districts  
215 West Bridge Street, Suite 11A  
Yerington, Nevada 89447

for  
U.S. Fish and Wildlife Service  
Reno, Nevada

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## **1.0 PURPOSE AND NEED FOR ACTION**

### **1.1 BACKGROUND AND INTRODUCTION**

Walker River headwaters are located in the Sierra Nevada Mountains and terminate at Walker Lake, a desert terminal lake approximately 160 miles away. Nearly all surface water within the Walker River Basin (Basin) is allocated for agriculture, the primary land use (Walker River Chronology, Nevada Division of Water Resources). Local communities graze cattle and sheep; and produce alfalfa, onions, garlic, silage corn, and grains with large portions of the agricultural production exported to California and other states.

Invasive and noxious weeds are a serious concern for landowners within the Basin. These weeds threaten the local economy, devastate wildlife habitat, clog waterways, reduce water quality/quantity, alter fire cycles and diminish agricultural production often thriving in gaps between land ownership and political boundaries. Therefore, the Walker River Basin Cooperative Weed Management Area (CWMA), a volunteer group of private landowners and local, state, and federal agencies encompassing the entire Basin within Nevada and California, was formed to coordinate weed management efforts between these gaps. The CWMA recognizes the importance of a watershed approach when managing noxious weeds (i.e. tall whitetop (*Lepidium latifolium*), hoary cress (*Cardaria draba*), tamarisk (*Tamarix spp.*) and other species, which reduce the overall health of the Basin vegetation. Noxious weed projects must begin at the headwaters and systematically continue downstream to the terminus.

A standardized inventory and treatment methodology for the entire basin is not currently in place; as a result, some areas and species are left untreated. For example, the Walker River Weed Control District (WRWCD) is responsible for treating whitetop, knapweed, Canada thistle, musk thistle, scotch thistle, yellow-star thistle and puncture vine on private and county lands within Mason and Smith Valleys. The WRWCD does not address all species identified by the State of Nevada Noxious Weed Law NRS 555 posing a threat to watershed health. Other CMWA partners regularly are unable to manage many locations throughout the Basin due to the remoteness and inaccessibility of these areas. For instance, a stretch of the East Walker River has steep canyon walls with multiple miles between access points, given the enormity of the Basin; these areas often receive no to low priority for inventory and treatment measures. Without addressing all weed species of concern and locations from a comprehensive systematic approach, noxious weeds would continue to threaten the ecology and economy of the Basin.

### **1.2 PROPOSED ACTION**

The Fish and Wildlife Service (Service) proposes to provide funds and technical assistance to state and local agencies and Tribes to reduce, control, or eradicate noxious weeds, which have been introduced into the riparian and wetland habitats throughout the Walker River Basin (Appendix A). The Service would provide financial and technical

assistance for the manual and mechanical removal of noxious weeds along with herbicide application using integrated pest management approaches. The actions would be completed through cooperative agreements with State and local agencies and Tribes. The intent of the proposed project is to prevent the spread of invasive weeds in the Walker River Basin and to avert further degradation of agricultural fields, and native habitat. Funds provided to control noxious weeds may be used for eradication efforts on land owned by individuals (private land), counties, municipalities, States, tribes, Bureau of Land Management, and/or Forest Service. Permission to access and treat these lands must always be provided by the landowner or land manager, and requirements of the various land managers must always be followed.

Financial assistance would also be used to complete a comprehensive inventory of noxious weeds found within the Basin. It is critical to identify the specific noxious weeds infesting the Basin, exact location of the weeds, and to what extent the noxious weeds have spread in order to develop of an effective treatment and eradication project.

All herbicide usage in Nevada would be completed under the supervision of a Nevada state licensed pesticide applicator and in California supervision would come from the regulatory authority (Inyo/Mono Counties Agricultural Commissioner's Office). Individuals applying herbicides would receive training by the US Forest Service<sup>1</sup> and maintain a daily pesticide use log recording: date, location, active ingredient, EPA registration number, total amount of product or rate/acre, number of acres, restricted re-entry interval and weather conditions (start and finish temperatures and wind velocity). Herbicide mixing and application would be restricted to label regulations (i.e. temperature and wind conditions, precipitation forecast, and mixing locations) to minimize unintended consequences to native vegetation and surface water. Best management practices as stated on the specified herbicide labels would always be followed (Appendix B).

### **1.3 PURPOSE AND NEED FOR THE PROPOSED ACTION**

The purpose and need for the proposed action is to provide funds and technical assistance for Basin wide noxious weed removal. Proper noxious weed control and eradication techniques require beginning in the headwaters of the Basin, and methodically moving down stream identifying and mapping all noxious weeds and treating weeds with appropriate herbicide, manual, and mechanical techniques. All weed eradication efforts would require funding for future years of monitoring and continued eradication of noxious weed populations.

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<sup>1</sup> The Forest Service conducts a comprehensive training that includes weed identification, equipment maintenance, calibration, etc. over a two-week period. This would allow crews to work on Forest Service land and have a consistent methodology for herbicide application throughout the Basin. All seasonal crew members hired to inventory and treat the Nevada portion of the basin for this project would be trained by the Forest Service.

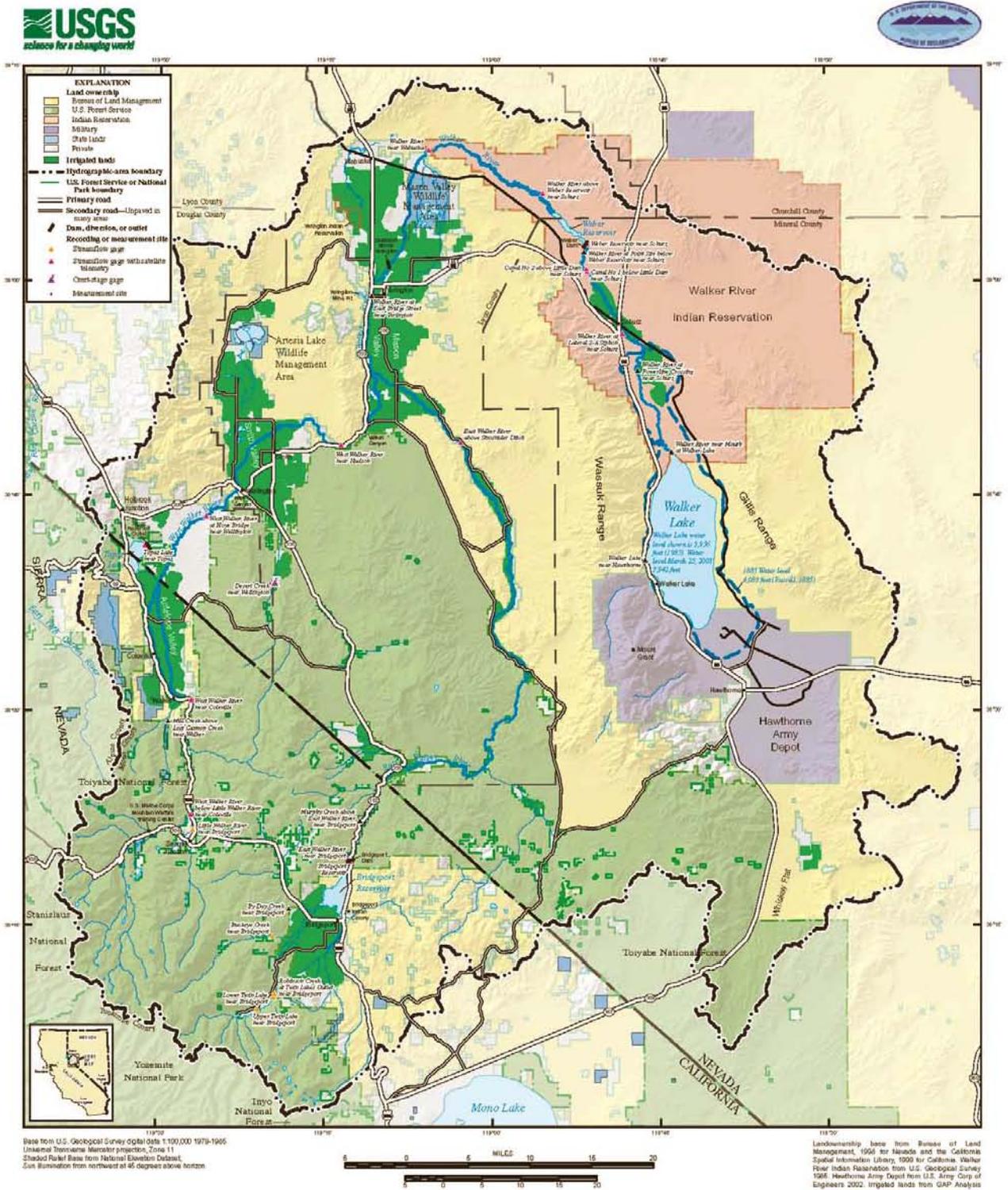


Figure 1. Landownership in the Walker River Watershed (USGS, 2003).

## **1.4 PROJECT LOCATION**

The Walker River Basin is located in portions of Mono County, California and portions of Douglas, Lyon and Mineral Counties in Nevada. Landownership is composed of private citizens, municipalities, Counties, State, Bureau of Land Management (BLM), U.S. Forest Service (USFS), and Tribes (Figure 1).

## **1.5 DECISION TO BE MADE**

Based on the analysis documented in this Environmental Assessment (EA), the Nevada Field Office Supervisor of the U.S. Fish and Wildlife Service would determine whether providing financial and technical assistance for the removal and eradication of invasive weeds in the Basin would have a significant effect on the quality of the human environment. Noxious weed removal would be completed by manual and mechanical removal and hand spraying of herbicides where appropriate.

## **1.6 PUBLIC INVOLVEMENT**

This EA will be available for a 16 day public review period, posted on-line at <http://www.fws.gov/nevada> under "Quick Links!", and available at the Lyon County Library, 20 Nevin Way, Yerington, NV, Smith Valley Library, 22 Day Lane, Smith, NV, Mason and Smith Valley Conservation Districts Office, 215 W Bridge St. Ste, 11A, Yerington, NV, and the USFWS, Nevada Office, 1350 Financial Blvd., Ste. 234, Reno, NV. Comments should be sent to the U.S. Fish and Wildlife Service at 1350 Financial Blvd., Ste. 234, Reno, NV 89502, Attn: Joy Giffin. All comments will become part of the public record and must be received by May 30, 2008.

## **2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION**

### **2.1 ALTERNATIVE A – NO ACTION**

Under the no action alternative the Service would provide no funds for noxious weed removal and eradication in the Basin. Remote areas of the Basin would continue to go untreated and only a limited array of noxious weeds would continue to be treated. Under this alternative noxious weed eradication would be unattainable.

### **2.2 ALTERNATIVE B – PROPOSED ACTION**

Under the proposed action the Service would provide funds and technical support for detailed mapping of noxious weeds throughout the watershed, and weed removal using mechanical and manual removal techniques and herbicide application where appropriate.

## 2.3 ALTERNATIVES CONSIDERED, BUT ELIMINATED FROM ANALYSIS

The use of aerial spraying was considered as a means to eradicate noxious weeds in the Basin. The inability to target individual species and the close proximity of the noxious weeds to the river system prevent aerial spraying from being a viable option, it was not considered further.

## 3.0 AFFECTED ENVIRONMENT

### 3.1 BIOLOGICAL ENVIRONMENT

The **proposed action** would occur within the riparian corridor of the East, West, Main Stem, and Tribal Reach of the Walker River. **Vegetation** currently consists of a mixture of riparian habitats consisting of early succession riparian, riparian shrub, riparian forest, wet meadow, emergent marsh/wetland vegetation (Otis Bay Ecological Consultants, 2007).

Riparian vegetation provides habitat for numerous **wildlife** species including a diversity of bird species, such as the Great Blue Heron, Song Sparrow, White-faced Ibis, and Yellow Warbler (Great Basin Bird Observatory, 2008).

There is one **threatened species**, the Lahontan cutthroat trout (LCT), within the action area. LCT is currently stocked in Topaz Reservoir and the lower portion of the Tribal Reach of the Walker River, approximately 0.25 miles upstream of Walker Lake. LCT is only present in the River system for 8 to 12 hours before entering Walker Lake. The lower section of the Tribal Reach of the Walker River tends to go dry for extended periods of time during the summer months. LCT is currently prevented from moving freely through the system due to impoundments throughout the entire river system and extended periods the lower portions of the Tribal reach of the Walker River is dry.

There are no **endangered** or **candidate species** within the action area.

### 3.2 PHYSICAL ENVIRONMENT

The Walker River (River) watershed is approximately 10,200 km<sup>2</sup> and formed by portions of the Sierra Nevada Mountains in eastern California and Western Nevada. The River has two main tributaries that feed into the system, the East Walker River and the West Walker River. These tributaries drain the high elevations of the eastern face of the Sierra Nevada and flow in a northwesterly and northeasterly direction, respectively, converging in Mason Valley; approximately six miles south of the City of Yerington. The River continues to flow north through Wabuska where it then turns east and southeast through the Walker River Paiute Tribe Reservation ending in Walker Lake, a desert terminal Lake. Discussions of the Walker River system focus on the East, West, Main Stem, and Tribal Reach of the Walker River (Figure 1).

### 3.3 SOCIAL AND ECONOMIC ENVIRONMENT

The Basin encompasses both public and private land. The river provides recreational activities on public land, including camping and fishing, while also providing a source of revenue for private landowners on the river including fishing, camping, and other resort activities. A large portion of the river flows through Mason Valley and Smith Valley, which are agricultural communities. The river is a key source of water for the agricultural communities, supplying water for irrigation of crops and stock water for livestock.

Distribution of **cultural resources** in the Basin have been influenced by the Walker River, which is an important artery, bringing water from the Sierra Nevada Mountains through the desert to Walker Lake. Human habitation of the Great Basin spans at least 10,000 years. Within this period the Walker Lake was once part of Lake Lahontan until dryer conditions prevailed and the lake receded. Native Americans traveled throughout the region collecting food and tool resources in a seasonal round cycle that included riverine, upland, and forest environments. Archaeological investigations suggest the wide use of the environment by native groups. Residential sites are often referred to as winter villages when families gathered together in the lower elevation valleys, during the spring, summer, and fall people traveled to resource specific locations. Temporary camps and isolated features are usually associated with seasonally available resources.

Sources of raw materials were found along the river including soft sandstone for pipes, salt, and chert for tools (Pendleton, et al. 1982). Archaeological evidence of prehistoric and historical land use in the project area may be overprinted by the meandering course of the Walker River, but may include lithic scatters, bedrock mortars, or historic debris scatters, along with homesteads, buildings, roads, trails, ditches, or bridges. For the most part, recorded archaeological sites are located along upper terraces overlooking the river.

### 4.0 ENVIRONMENTAL CONSEQUENCES

The analysis of environmental consequences focuses only on the proposed action of contributing funds toward manual, mechanical, and chemical noxious weed removal and the inventory of noxious weeds in the Basin. Communities that would be affected by this proposed action have independently identified noxious weeds as a problem. Currently, the Walker River Weed Control District (WRWCD) is funded by property tax on individuals in the assessed areas of Lyon County. The WRWCD is responsible for treating whitetop, knapweed, Canada thistle, musk thistle, scotch thistle, yellow-star thistle and puncture vine in the Mason and Smith Valley areas. The WRWCD does not cover the entire watershed, nor does it include all noxious weeds.

Federal grants for noxious weed control may fund activities on private, State, tribal, BLM, and USFS lands. Both the BLM and the USFS completed environmental assessments that analyzed noxious weed control on lands they manage (BLM, 2008; United States Department of Agriculture, Forest Service, 2001a, 2001b, 2002, and 2003). The BLM and USFS environmental assessments are incorporated by reference. These documents sufficiently address noxious weed control on their land and no additional

analysis is necessary in this environmental assessment. The impact analysis below focuses on potential effects to private, State and tribal lands.

#### **4.1 BIOLOGICAL ENVIRONMENT**

Under the **No Action** alternative noxious weed management of designated weeds in accessible areas would continue to be treated. Noxious weeds in the headwaters of the Basin and many other poorly accessible areas would continue to go untreated, thus continuing to add a steady seed source into the river system. Seeds would continue to be transported throughout the Walker River riparian zone, negatively impacting the quality of riparian habitat for species that rely on it for their forage, cover, and reproduction.

Under the **Proposed Action** noxious weed treatments would occur throughout the watershed. Under this alternative riparian habitat would be preserved and enhanced. This action would have **no effect** on any **threatened or endangered species**. LCT is the only threatened species present in the action area. Currently, LCT is stocked in Topaz Reservoir and the lower portion of the Tribal Reach of the Walker River, approximately less than 0.25 miles upstream of Walker Lake. LCT is only present for less than 8 to 12 hours in the lower portion of the Tribal Reach of the river system before entering Walker Lake. Records indicate that LCT has never been stocked in the Nevada portion of the Main and West Stem Walker River, and no stocking has occurred in the Nevada portion of the East Walker River since 1999 (Tisdale, 2008). At the present time no LCT stocking is occurring in the California portions of the Walker River (Becker, 2008). The only location within the action area where LCT is present is during stocking (generally March/April) in the lower section of the Tribal Reach of the Walker River. This lower section of the river goes dry for extended periods of time during the summer months. Herbicide application would only be completed in the lower Walker River, when no LCT is present in the system, and when the river is dry.

The Service would review each separate grant application to ensure it is in compliance with the Endangered Species Act (ESA).

#### **4.2 PHYSICAL ENVIRONMENT**

Under the **No Action alternative** noxious species would continue to spread throughout the Walker River watershed, this could potentially negatively impact the water quality by decreasing the riparian buffer zone, resulting in increased amounts of exposed soil and increasing the potential for soil erosion. Untreated noxious weeds can grow into dense monocultures out competing native plants and reducing wildlife habitat. Costs associated with controlling noxious weeds on agricultural lands would likely increase under this action.

Under the **Proposed Action** the water quality would potentially be positively impacted by an enhanced riparian buffer zone, reducing potential run-off into the Walker River system. It is possible that some herbicides would come into contact with the surface water during application, which is why only herbicides approved for use within a riparian

zone are used. Herbicides are used in accordance with the guidelines on the label, as required by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Herbicides are always applied in accordance with the specified quantity per area, application, and proper protective equipment. Additional best management practices include not spraying in windy conditions, high temperatures (for example over 85 degrees Fahrenheit) or when precipitation is forecasted. Best Management Practices outlined on the labels of each herbicide would always be followed (Appendix B).

A healthy riparian buffer zone can reduce runoff of sediment into the river system. This action would also increase key habitat for birds, mammals, and aquatic species in the riparian corridor. Over time this action would result in decreased noxious weeds in the system and reduce the need and associated cost of treating noxious weeds on agricultural land.

### 4.3 SOCIAL AND ECONOMIC ENVIRONMENT

Under the **No Action** alternative, the local agencies would continue to address the noxious weeds on a localized scale according to regulations set forth in Nevada Revised Statutes (NRS) 555.150 and 555.208 “Noxious Weed Control Laws.” The agricultural community would continue to battle with noxious weeds in the crops, such as alfalfa. This would continue to decrease the ability for local feed grown in Nevada to be exported into California and other states. The Pest Exclusion Code of California prevents contaminated shipments of agricultural commodities into California (California Noxious and Invasive Weed Action Plan, 2005). In addition, Nevada property owners with noxious weed infestations would experience diminished property values due to abatement regulations set in NRS 555.

Under the **Proposed Action**, the Service would provide funds to control and eradicate the noxious species throughout the Basin. In time, this would result in diminished noxious weeds within the agricultural fields, reduce concerns of weeds in local feed and mitigate negative impacts to private property values. It is the policy of the Service to identify, protect, and manage **cultural resources** located on Service lands and affected by Service undertakings for the benefit of present and future generations in accordance with the National Historic Preservation Act (NHPA). An on-line search of the Nevada Cultural Resource Information System (NVCRIS) indicates that very little of the river corridor has been surveyed for **cultural resources**. Surveys have been conducted by the Nevada Department of Transportation, USFS, and Universities. Archaeological studies and surveys have generally not been completed on the privately owned or tribal lands.

The National Historic Preservation Act (NHPA) of 1966 (as amended 2004) establishes the Federal government’s responsibilities for historic preservation. The proposed Walker River Noxious Weed Plan will provide funds and technical assistance for noxious weed control and eradication, beginning in the headwaters of the Walker Basin, and methodically moving down stream identifying and mapping all noxious weeds and treating weeds with appropriate herbicide, manual, and mechanical techniques. The control of weeds with manual and mechanical means is considered an undertaking as per

36 CFR 800.16(y) and has the potential to cause effects to historic properties (36 CFR 800.3). The NHPA requires Federal agencies having direct or indirect jurisdiction over a proposed Federal or federally assisted or permitted undertaking, to consider the potential effects that the undertaking may have on historic properties listed on or eligible for the National Register of Historic Places. Additionally, the NHPA affords the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on such undertakings (16 U.S.C. 470f). The California and Nevada State Historic Preservation Offices (SHPO) and the ACHP are the state and Federal agencies responsible for overseeing the management and protection of historic properties in compliance with the NHPA.

The noxious weed inventory and range of treatment actions that include manual and mechanical removal, and spraying has low potential for effecting cultural resources as defined in the Service's Programmatic Agreement (PA) with the California SHPO and Nevada SHPO. The PA defines the "removal of plants through cutting, mowing, herbicides, manual uprooting with hand tools" as meeting the threshold of an Appendix A project. Appendix A projects are "by definition considered undertakings, but would have negligible potential to affect historic properties, and therefore do not require a field inspection, monitoring, or other form of cultural resource identification". A report of all Appendix A undertakings is prepared and filed with the SHPO as part of an annual Service report.

## **5.0 CUMMULATIVE EFFECTS**

Under the **No Action** alternative noxious weeds would continue to spread throughout the Basin. Lyon County landowners would continue to pay a weed tax, but without addressing noxious weed issues throughout the entire Basin including difficult to access sections there would be no potential to eradicate noxious weeds. This alternative would also result in a decline in riparian habitat for the native species which rely on the riparian vegetation

Under the **Proposed Action** alternative there would be a reduction in noxious weeds overtime. Resulting in decreased costs associated with noxious weed management. The action would result in increased habitat for native species and increased riparian buffer zone.

## **6.0 COMPLIANCE, CONSULTATION, AND COORDINATION**

### **6.1 AGENCIES AND PERSONS CONSULTED**

- Inyo/Mono Agriculture and Weights and Measures Department/Eastern Sierra Weed Management Area, Nathan Reade
- Mason and Smith Valley Conservation Districts, Michelle Langsdorf, District Manager
- Nevada Department of Wildlife, Kim Tisdale
- US Fish and Wildlife Service, California and Nevada Region,

- Patricia Roberson, NEPA Coordinator,
- US Fish and Wildlife Service, Nevada Field Office, Lou Ann Speluda-Drews, Archeologist
  - US Fish and Wildlife Service, Lahontan National Fish Hatchery Complex, Stephanie Byers, Fisheries Biologist
  - US Fish and Wildlife Service, Lahontan National Fish Hatchery Complex, Joy Giffin, Walker River Restoration Coordinator
  - Walker River Basin Cooperative Weed Management Area, Michelle Langsdorf, Chairperson

## **6.2 PERTINENT LEGISLATION AND REGULATIONS ADDRESSED**

- **National Environmental Policy Act (NEPA)** – The draft EA is in compliance with NEPA.
- **Endangered Species Act (ESA)** – The proposed actions would have no effect on any **endangered, threatened, or candidate** species.
- **Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)** - All labels would be followed, and herbicide application will always follow all best management practices.
- **National Historical Preservation Act** – The Service would comply with all applicable cultural resource regulations and policies prior to advancing funds, issuing a permit, or implementing ground disturbing activities. A programmatic agreement (PA) has been developed between the Service and the Nevada State Historic Preservation Officer (SHPO) and the California SHPO. The PA outlines procedures for complying with the NHPA.
- **Nevada Revised Statutes (NRS) 555.150 and 555.208** – The proposed activities are in line with NRS regarding noxious weed eradication.
- **Executive Order 11988, Floodplain management** – Proposed actions would restore native vegetation within the floodplain. These activities would not impact land use within the flood plain.
- **Executive Order 11990, Protection of wetlands** – Proposed actions would not impact wetlands and there would be no destruction, loss or degradation of wetlands.

## 7.0 REFERENCES

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## 8.0 APPENDICES

### APPENDIX A – TARGETED SPECIES

Targeted Species:

#### **Category A**

Common crupina	Crupina vulgaris
Dalmation Toadflax	Linaria dalmatica
Hydrilla	Hydrilla verticillata
Sow Thistle	Sonchus arvensis
Spotted Knapweed	Centaurea masculosa
Yellow Starthistle	Centaurea solstitialis

#### **Category B**

Musk Thistle	Carduus nutans
Russian Knapweed	Acroptilon repens
Scotch Thistle	Onopordum acanthium

#### **Category C**

Canada Thistle	Cirsium arvense
Hoary cress	Cardaria draba
Perennial pepperweed	Lepidium latifolium
Poison Hemlock	Conium maculatum
Puncture vine	Tribulus terrestris
Salt cedar (tamarisk)	Tamarix spp
Water Hemlock	Cicuta maculata

The following are not known to be in the Basin, but are subject to Early Detection/Rapid Response measures:

**Category A**

African Rue	<i>Peganum harmala</i>
Austrian fieldcress	<i>Rorippa austriaca</i>
Austrian peaweed	<i>Sphaerophysa salsula</i> / <i>Swainsona salsula</i>
Camelthorn	<i>Alhagi camelorum</i>
Dyer's woad	<i>Isatis tinctoria</i>
Eurasian water-milfoil	<i>Myriophyllum spicatum</i>
Giant Reed	<i>Arundo donax</i>
Giant Salvinia	<i>Salvinia molesta</i>
Goats rue	<i>Galega officinalis</i>
Houndstongue	<i>Cynoglossum officinale</i>
Iberian Star thistle	<i>Centaurea iberica</i>
Klamath weed	<i>Hypericum perforatum</i>
Leafy spurge	<i>Euphorbia esula</i>
Malta Star thistle	<i>Centaurea melitensis</i>
Mayweed chamomile	<i>Anthemis cotula</i>
Mediterranean sage	<i>Salvia aethiopsis</i>
Purple loosestrife	<i>Lythrum salicaria</i> , <i>L. virgatum</i> and their cultivars
Purple Star thistle	<i>Centaurea calcitrapa</i>
Rush skeletonweed	<i>Chondrilla juncea</i>
Squarrose star thistle	<i>Centaurea virgata</i> Lam. Var. <i>squarrose</i>
Sulfur cinquefoil	<i>Potentilla recta</i>
Syrian Bean Caper	<i>Zygophyllum fabago</i>
Yellow Toadflax	<i>Linaria vulgaris</i>

**Category B**

Carolina Horse-nettle	<i>Solanum carolinense</i>
Diffuse Knapweed	<i>Centaurea diffusa</i>
Medusahead	<i>Taeniatherum caput-medusae</i>
Sahara Mustard	<i>Brassica tournefortii</i>
White Horse-nettle	<i>Solanum elaeagnifolium</i>

**Category C**

Black henbane	<i>Hyoscyamus niger</i>
Green Fountain grass	<i>Pennisetum setaceum</i>
Johnson grass	<i>Sorghum halepense</i>

NAC 555.010

Category A weeds are weeds that are generally not found or that are limited in distribution throughout the State. Such weeds are subject to:

- (a) Active exclusion from the State and active eradication wherever found.
- (b) Active eradication from the premises of a dealer of nursery stock.

Category B weeds are weeds that are generally established in scattered populations in some counties of the State. Such weeds are subject to:

- (a) Active exclusion where possible.
- (b) Active eradication from the premises of a dealer of nursery stock.

Category C weeds are weeds that are generally established and generally widespread in many counties of the State. Such weeds are subject to active eradication from the premises of a dealer of nursery stock.

## APPENDIX B - DIRECTIONS FOR HERBICIDE USE AND MSDS SHEETS

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# Appendix B

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# **AgriSOLUTIONS**™

## **2,4-D Amine 4**

**ACTIVE INGREDIENT:**

Dimethylamine salt of 2,4-Dichlorophenoxyacetic acid\* .....47.3%

**OTHER INGREDIENTS :** ..... 52.7%

**TOTAL**.....100.0%

\* Isomer specific by AOAC Method No. 6.275 (13th Edition) 1980

\* 2,4-Dichlorophenoxyacetic acid equivalent 39.3%. Contains 3.8 lbs. of 2,4-Dichlorophenoxyacetic acid per gallon.

**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 some one to explain it to you in detail.)

#### **PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

#### **DANGER**

Corrosive. Causes irreversible eye damage. May be fatal if absorbed through skin. Harmful if swallowed or inhaled. Do not get in eyes, on skin or on clothing. Avoid breathing spray mist.

#### **FIRST AID**

**NOTE TO PHYSICIAN:** Probable mucosal damage may contraindicate the use of gastric lavage.

**IF SWALLOWED:** Call a poison control center or doctor immediately for treatment advice. Have person sip glass of water if able to swallow. Do not induce vomiting unless told to by a poison control center or doctor.

**IF IN EYES:** Hold eyelids open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.

**IF ON SKIN:** 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 INHALED:** 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. 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.
- For additional information in case of medical emergency call toll free 1-877-424-7452.

For additional Precautionary Statements see inside booklet.

**EPA Reg. No. 1381-103**

**EPA Est. No.**

**Distributed by**

**NET CONTENTS**

**Agriance, LLC**

**P.O. Box 64089, St. Paul MN 55164-0089**

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**Personal Protective Equipment:**

Some of the materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.

Applicators and other handlers must wear:

- Coveralls over short-sleeved shirt and short pants.
- Chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride.
- Chemical-resistant footwear and socks.
- Protective eye wear.
- Chemical-resistant headgear for overhead exposure.
- Chemical-resistant apron when cleaning equipment, mixing, or loading.

Discard clothing or 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 or maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. After each day of use, clothing or PPE must not be reused until it has been cleaned.

**Engineering controls statement:**

If this container contains 5 gallons or more in capacity, do not pour product from this container. A mechanical system (pump and probe or spigot) must be used in transferring the contents of this container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal. If the mechanical system is used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

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

**USER SAFETY RECOMMENDATIONS**

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**ENVIRONMENTAL HAZARDS**

This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and non-target plants. For terrestrial uses, do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

Most cases of groundwater contamination involving phenoxy herbicide such as 2,4-D have been associated with mixing/loading and disposal sites. Caution should be exercised when handling 2,4-D pesticides at such sites to prevent contamination of groundwater supplies. Use of closed systems for mixing and transferring this pesticide will reduce the probability of spills. Placement of mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination.

Use care to avoid spray contact or drift to susceptible plants such as beans and other legumes, flowers, cotton, grapes, ornamental, vegetables, and other plants. Do not permit spray mist containing this product to drift onto them, since even very small quantities of the spray, which may not be visible, can cause severe injury during both growing and dormant periods.

**DIRECTIONS FOR USE**

It is a violation of Federal Law to use this product in a manner inconsistent with its label. 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 statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box apply only to those 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 over short sleeved shirt and short pants.
- Chemical-resistant gloves made of any waterproof material.
- Chemical-resistant footwear plus socks.
- Protective eyewear.
- Chemical-resistant headgear for overhead exposure.

**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 allow people (other than applicator) or pets on treatment area during application. Keep unprotected persons and pets out of treated areas until sprays have dried.

**STORAGE AND DISPOSAL**

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

**STORAGE:** Store pesticides in a secure warehouse or storage building, in original container only. Store at temperatures above 32°F. If allowed to freeze, rewarm to 40°F; remix thoroughly before using. This does not alter this product. Containers should be opened in well ventilated areas. Keep container tightly sealed when not in use. Do not stack cardboard cases more than two pallets high. Do not store near open containers of fertilizer, seed or other pesticides.

**PESTICIDE DISPOSAL:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law and may contaminate groundwater. If these wastes cannot be disposed of according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

**CONTAINER DISPOSAL:** 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. Metal containers: Triple rinse (or equivalent). 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.

**WEED LIST**

2,4-D Amine 4 will control these plants and other 2,4-D susceptible species:

**ANNUAL AND BIENNIAL WEEDS**

Annual fanweed (field pennycress), annual yellow sweet clover, \* beggarticks, bull thistle, burdock, carpetweed, chickweed, cocklebur, coffeeweed, common mullein, common evening primrose, cornflower, croton, galinsoga, goatsbeard, hemp, henbit, jewelweed, jimsonweed \* knotweed, \* kochia, lambsquarters, mallow (Venice, dwarf, little), marshelder, morningglory (common, ivy, woolly) musk thistle, mustards (except blue), pennycress, pepperweed (field), \*\* pigweeds, poorjoe (woolly plantain), \* prickly lettuce, puncturevine, purslane, ragweed (common, giant), rough fleabane, rush, Russian thistle, salsify, sheperdspurse, \* stinkweed, smartweeds (annual), sowthistle (annual or spiny), sunflower, tansymustard, tumbleweed, \* velvetleaf, vetches, water primrose, \* wild carrot, wild lettuce, wild parsnips, wild radish, wild sweet potato.

**PERENNIAL WEEDS**

\* Alfalfa, \* bindweeds (hedge, field and European), blue lettuce, \* broom snakeweed, buckhorn plantain, buttercup, \* Canada thistle, catnip, chamise, chicory, climbing milkweed, common duckweed, curly indigo, dandelion, \* docks, \* dogbanes, \* goldenrod, \* ground ivy, \* hawkweed (orange), \* hoary cress, \* Jerusalem artichoke, locoweed \* many-flowered aster,

milkvetch, \* nettles, nutgrass, plantains, poison ivy, pokeweed, sheep sorrel, sicklepod, sneezeweed (bitter), sowthistle (perennial), \* tansy ragwort, \* vervains, \* wild garlic, \* wild onion, witchweed, wormwood, yellow rocket, yellow starthistle.

#### \* BRUSH

Boxelder, buckbrush, coyotebrush, elderberry, manzanita, rabbitbrush, sagebrush (coastal, big, sand), sand shinnery oak, sumac, willow.

#### AQUATIC WEEDS

Alligatorweed, parrotfeather, waterhyacinth, waterlily, water primrose

\* These species may require repeat treatments and/or the higher rate. \*\* Control of pigweeds in the Texas and Oklahoma High Plains may be difficult.

#### USE DIRECTIONS

Unless noted otherwise under individual **DIRECTIONS** section, for aerial application, apply the recommended amount in a minimum of 2 gallons of water per acre. For ground application, apply the recommended amount in a minimum of 3 gallons of water per acre. Use more water for both methods when adverse growing conditions are present. **DO NOT** apply with high spray pressures, hollow cone or other nozzle types that produce small spray droplets which may drift. Avoid spray drift by making applications when conditions such as wind, air stability and temperature inversions are not a factor. The use of a suitable drift control agent at the proper rate will aid in the reduction of spray drift. Apply when weather is warm and plants are rapidly growing. Cold weather or dry conditions may cause poor results. **DO NOT** apply if rain is expected within 6 hours. Consult your local agronomist or Extension specialist for specific use and crop tolerance situations. Do not apply this product through any type of irrigation system.

#### MIXING INSTRUCTIONS

**WATER BASED SPRAY** -- Fill the equipment half full of water, agitate while adding this product, then add the rest of the water.

**NITROGEN FERTILIZER:** Weed and feed applications for corn, small grains, grasses grown for seed or grass pastures according to label use rates. - Add half the fertilizer to the tank, and then add recommended label amount of **2,4-D AMINE 4** per acre. Agitate constantly and vigorously and finish filling the spray tank with fertilizer. Apply as soon as possible, agitating constantly. Do not hold spray mixture overnight. If incompatibility is a problem, the use of **COMPLETE COMPATIBILITY**<sup>®</sup> agent at the recommended label rate may correct the problem. Fertilize according to the recommendations of your supplier or your Extension specialist. Herbicide foliage contact burning may occur as a result of fertilizer use. Lower use rates and concentrations will reduce this problem.

**Adjuvants for Preemergence and Preplant Applications:** A non-ionic surfactant such as **PREFERENCE**<sup>®</sup> or a crop oil concentrate may be added to the spray solution when this product is applied preemergence or preplant to increase control of large or difficult to control weeds. Crop oil concentrates must contain at least 17% emulsifier, and should be used at 1% volume/volume (1 gallon per 100 gallons of spray solution). Non-ionic surfactants should be used at a 0.25% volume/volume (1 quart per 100 gallons of spray solution). Wash spray equipment thoroughly with **PROTANK**<sup>®</sup> cleaner after using this product. When cleaning, do not pour washwater on the ground; spray or drain over a large area away from wells or other water sources. Apply the recommended amount of 2,4-D per acre regardless of the amount of diluent used.

#### APPLES, PEARS, STONE FRUIT AND NUT ORCHARDS (Do not use in California)

WEEDS	Amount Per Acre	DIRECTIONS
Annual broadleaf weeds	3 pints	Apply to orchard floor using coarse sprays and low pressure in sufficient volume of water to obtain thorough wetting of weeds. Treat when weeds are small and actively growing.

**RESTRICTIONS AND LIMITATIONS FOR USE UNDER ORCHARD CROPS** – Do not use on light, sandy soils. Do not apply to bare ground as crop injury may result, nor apply immediately before irrigation and withhold irrigation for 2 days before and for 3 days after treatment. Do not allow spray to drift onto or contact foliage, fruit, stems, trunks of trees or exposed roots as injury may result. Do not apply to newly established or young orchards. Trees must be at least 1 year old and in vigorous condition. Do not apply during bloom and do not graze or feed cover crops from treated orchards. Make no more than 2 applications per year with a retreatment interval of at least 75 days. Do not harvest apples and pears within 14 days of application, stone fruit within 40 days of application nor harvest nuts within 60 days of application.

**ASPARAGUS**

<b>WEEDS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Annual broadleaf weeds	3 to 4 pints	Apply in 50 - 60 gallons of water per acre for ground application and 12 gallons per acre for aerial application. Apply in the spring on actively growing weeds. If asparagus spears are present, treat immediately after cutting. Make no more than 2 applications during the harvest season and these should be spaced at least one month apart. Spears contacted by the spray may be malformed and off-flavored. If spears are malformed by spray, cut immediately and discard. Post harvest spraying should be only by ground application using drop nozzles to avoid spraying the fern.

**CORN -- FIELD, SWEET AND POP**

<b>WEEDS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Preplant - Annual and biennial broadleaf seedlings Perennial weed seedlings and existing cover crops	1 pint 1 to 2 pints *	Planting of corn must be delayed a minimum of 7 days after application at rates up to 1 pint per acre, and a minimum of 14 days at rates from 1 to 2 pints per acre. Planting sooner after application than specified on this label may result in unacceptable crop injury.
* Use higher rate on hard-to-kill weeds and existing cover crops such as alfalfa. Do not perform tillage for at least 7 days after application. Do not use on sandy soils or unacceptable crop injury may result.		
Preemergence and reduced tillage. Broadleaf weeds and annual grasses suppression	2 to 3 pints *	Apply after corn is planted but before emergence for control of emerged broadleaf weeds. The seed furrow must be completely closed at application or severe crop injury may result.
* Use higher rate on soils high in organic matter. Do not use on sandy soils or unacceptable crop injury may result.		
Postemergence Annual broadleaf weeds  Perennial broadleaf weeds	½ to 1 pint **  1 to 1-1/2 pints **	Apply when corn is less than 8 inches tall, but to avoid crop injury do not apply just after leaves have unfolded. If corn is over 8 inches tall, use drop nozzles to keep spray off of corn foliage as much as possible. See additional restrictions below. Apply when weeds are in bud to bloom stage. If corn is over 8 inches tall, use drop nozzles to keep spray off corn foliage as much as possible.
** DO NOT apply from 2 weeks before tasseling to dough stage. DO NOT apply to open whorls. To avoid injury, do not use with atrazine, oil or other adjuvants. Application during high moisture and temperature conditions may cause injury or brittleness. DO NOT cultivate for a week to 10 days after treatment or stalk breakage may occur.		
Late season weed control Preharvest (Field corn and popcorn only)	1 to 2 pints *	Apply after silks are completely brown to reduce weeds that interfere with harvest and reduce weed seed production. Do not apply preharvest to sweet corn.
* Use lower rate for small annual and biennial weeds. Use the higher rate for perennial and larger hard-to-kill annual and biennial weeds.		
RESTRICTIONS AND LIMITATIONS FOR FIELD CORN AND POPCORN - Do not forage or feed fodder for 7 days following applications. Do not apply more than 6.0 pts./acre of 2,4-D Amine 4 per use season.		
RESTRICTIONS AND LIMITATIONS FOR SWEET CORN – Do not harvest ears within 45 days after application. Do not make a postemergence application any less than 21 days after a prior application. Do not apply more than 3.0 pts./acre of 2,4-D Amine 4 per use season.		

**SOYBEANS**

<b>WEEDS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Preplant - emerged broadleaf weeds	1 to 2 pints *	After applying, plant soybean seed as deep as practical or at least 1-1/2 to 2 inches deep. Seed furrow must be completely closed or severe crop injury will result.
RESTRICTIONS AND LIMITATIONS FOR SOYBEANS*. Planting of soybeans must be delayed a minimum of 15 days after application at rates up to 1 pint per acre, and a minimum of 30 days at rates from 1 to 2 pints per acre. Do not perform tillage for at least 7 days after application. Do not use on sandy soils or unacceptable crop injury may result. Do not replant treated fields in the same growing season with crops that are not labeled for 2,4-D preplant use. Only one application per growing season, regardless of the application rate used, is allowed. Use a minimum spray volume of 10 gallons per acre for ground applications and 2 gallons per acre for aerial applications.		
Do not feed hay, forage or fodder. Restrict livestock from grazing treated fields. Livestock should be restricted from feeding/grazing of treated cover crops. Do not graze or cut soybeans for feed from fields that have had 2,4-D applied as a preplant treatment.		

**SMALL GRAINS** - Not underseeded with legumes

<b>WEEDS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Postemergence Spring wheat, barley, millet and rye Annual and biennial weeds	2/3 to 1-1/3 pints *	Apply when grain is in full tiller stage (4 to 8 inches high) but before boot stage (Zadoks 2 <sub>5</sub> to 4 <sub>0</sub> ) when weeds are small and actively growing. Up to 1-1/3 pints per acre may be used for difficult weed problems, but do not use unless some crop damage is acceptable.
Perennial broadleaf weeds	2 to 3 pints **	Apply only in the spring when crop is fully tilled, but before grain is in boot stage (before Zadoks 4 <sub>0</sub> ). For improved control of difficult weeds, apply up to 3 pints per acre.
<b>** DO NOT USE THE HIGHER RATE IF POSSIBLE CROP INJURY IS NOT ACCEPTABLE.</b>		
Spring and winter wheat and barley Resistant weeds	2,4-D Amine 4 may be used in combination with "Ally"™, "Harmony Extra"™, "Express"™, "Finesse"™, at their earlier application intervals to control resistant weeds such as kochia and Russian thistle. Follow application directions on each product label.	
Winter wheat and rye Annual weeds	1 to 1-1/3 pints **	Apply only in the spring when crop is fully tilled, but before grain is in boot stage (before Zadoks 4 <sub>0</sub> ). For improved control of difficult weeds, apply up to 1-1/3 pints per acre.
<b>** DO NOT USE THE HIGHER RATE IF POSSIBLE CROP DAMAGE IS NOT ACCEPTABLE.</b>		
Emergency weed control in wheat Perennial broadleaf weeds	3 pints **	Apply when weeds are approaching bud stage, after grain dough stage. Do not apply during boot (Zadoks 2 <sub>5</sub> to 4 <sub>0</sub> ) to dough (Zadoks 8 <sub>3</sub> ) stage.
<b>** DO NOT USE THIS RATE UNLESS POSSIBLE CROP DAMAGE CAN BE TOLERATED.</b>		
Spring-seeded oats Fall seeded oats grown for grain (Southern)	1/2 to 1 pint* 1 to 1-1/4 pints*	Apply at full tiller, but before early boot stage (Zadoks 2 <sub>5</sub> to 4 <sub>0</sub> ). Apply at full tiller, but before early boot stage (Zadoks 2 <sub>5</sub> to 4 <sub>0</sub> ).
* Difficult to control weeds may require higher rate, but some injury may occur since oats are less tolerant to 2,4-D than wheat or barley. DO NOT spray during or just after cold weather.		
Preharvest - Cereal grains	1-1/2 to 2 pints **	Apply when grain is in hard dough stage (Zadoks 8 <sub>7</sub> ) to control large weeds that will interfere with harvest. Apply when soil moisture is adequate for weed growth for best results.
* Use the lower rate for small annual and biennial weeds. Use the higher rate for perennial weeds or hard-to-kill annual or biennial weeds. The higher rate should be used only where heavy weed infestation is a problem and increased risk of crop damage is acceptable.		

**RESTRICTIONS AND LIMITATIONS FOR SMALL GRAINS** - Do not feed treated straw to livestock. Do not let dairy animals or animals being finished for slaughter forage or graze treated fields within 2 weeks of treatment.

**GRAIN SORGHUM**

WEEDS	Amount Per Acre	DIRECTIONS
Annual broadleaf weeds	1 pint	Apply to plants that are 5 to 15 inches tall. <b>DO NOT</b> treat plants less than 5 inches tall or from boot to early dough stage. Use drop nozzles when crop is 8 inches or taller.
Perennial broadleaf weeds	1-1/2 pints	The higher rate may be needed for some weeds, but chances of crop injury may increase.

**DO NOT** use oil. Some varieties and hybrids are 2,4-D sensitive. Crop injury may also be increased by high moisture and temperature conditions. Check with your seed company and Extension Service for advice.

**RESTRICTIONS AND LIMITATIONS FOR GRAIN SORGHUM** - Do not forage or feed fodder for 7 days following applications.

**GRASSES GROWN FOR SEED** (Do not use in California)

WEEDS	Amount Per Acre	DIRECTIONS
Annual broadleaf weeds	1 to 1-1/2 pints *	Apply to established stands before the seed head comes into the boot stage. <b>Do not spray in boot stage of growth.</b> For seedling grasses - apply in the spring after grass has at least 5 leaves, but before boot stage. Perennial regrowth may be treated in the fall.
Perennial and biennial weeds	2 to 4 pints *	

\* Use only the low rate on seedling grasses.

**RESTRICTIONS AND LIMITATIONS FOR SEED GRASSES** - Do not graze dairy animals or cut forage for hay within 7 days of applying.

**FALLOW GROUND AND CROP STUBBLE**

WEEDS	Amount Per Acre	DIRECTIONS
Annual broadleaf weeds	1 to 2 pints	Use the lower rate for small actively growing weeds. Use the higher rate on larger or weather-stressed weeds.
Biennial weeds	2 to 4 pints	Use the lower rate in the spring on biennial weeds such as the musk thistle during the rosette stage before stalks have formed. Use the higher rate after stalk formation or in the fall.
Perennial weeds	2 to 6 pints	Apply during the bloom to bud stage while weeds are actively growing. Do not till for 2 weeks after treatment or until the weeds start to die.
Wild onions and garlic	4 to 6 pints	Apply to regrowth in fall after harvest.

**RESTRICTIONS AND LIMITATIONS FOR FALLOW GROUND AND CROP STUBBLE** - Do not graze treated areas for 7 days after treatment. Remove meat animals from treated areas 3 days before slaughter. Do not replant treated areas for 3 months after application or until chemical has disappeared from the soil.

**HOPS**

WEEDS	Amount Per Acre	DIRECTIONS
Annual broadleaf weeds	1 pint (0.5 lbs. ae)	Make directed applications to the row middles. Make up to 3 applications at 30-day intervals with the last application before harvest.

**RESTRICTIONS AND LIMITATIONS FOR HOPS:** Limited to 3 applications per crop cycle. Maximum of 1 pint product/acre (0.5 lbs. ae/A) per application. Maximum of 3 pints product/acre (1.5 lbs. ae/A) per crop cycle. Minimum of 30 days between applications. Observe the preharvest interval (PHI) of 28 days.

**PRECAUTIONS:** Hop foliage, especially new growth, is susceptible to this product. Take care to avoid spray or drift outside target area. The use of shielded or hooded sprayers, coarse sprays and low pressure (30 psi or less) will minimize contact with foliage and plant injury.

**PASTURES, RANGELAND, CONSERVATION RESERVE PROGRAMS AND SET-ASIDE ACRES**

WEEDS AND BRUSH	Amount Per Acre	DIRECTIONS
Annual broadleaf weeds	1 quart	Do not apply after heads for or when grass is in boot to milk stage when a seed crop is desired. <b>DO NOT</b> use on alfalfa, clover, other legumes, or newly seeded pastures. For aerial application, apply the recommended amount in a minimum of 2 gallons of water per acre. For ground application, use a minimum of 10 gallons of water per acre.
Biennial and perennial weeds*	1 to 2 quarts	
Buckbrush, coyotebrush, rabbitbrush, sagebrush, and other chaparral species	2 quarts	Apply in 5 to 10 gallons of water plus 1-2 quarts of a crop oil concentrate with at least 17 % emulsifiers, per acre or a non-ionic surfactant at .25% v/v surfactant to water - (1 quart per 100 gallons of water) per acre.
Sand shinnery oak	2 quarts**	Apply 4 gallons of water plus 1-2 quarts of a crop oil concentrate with at least 17 % emulsifiers, per acre or a non-ionic surfactant at .25% v/v surfactant to water - (1 quart per 100 gallons of water) per acre.
Southern wild rose	1 gallon	On roadsides and fencerows, use one gallon of product plus 4 to 8 fluid ounces of an agricultural surfactant per 100 gallons of water and spray thoroughly as soon as foliage is well developed. Two or more treatments may be required.

\* Deep-rooted perennial weeds may require the higher rate or repeated treatments. \*\* Woody plants and any regrowth may require repeat treatments.

**RESTRICTIONS AND LIMITATIONS FOR PASTURES, RANGELAND, AND PROGRAM AREAS** - Do not allow dairy animals to graze treated areas within 7 days of application. Do not harvest grass for hay within 30 days of application. Remove meat animals from treated pastures or rangeland 3 days before slaughter.

**RICE** (Do not use in California)

WEEDS	Amount Per Acre	DIRECTIONS
Preplant – annual and biennial weeds	1 to 2 pints	Apply 4 or more weeks prior to planting
Postemergence – annual and biennial weeds	1 to 2-1/2 pints	Apply in the late tillering stage of rice development at the time of first joint development (first to second green ring) usually 6 to 9 weeks after emergence. Do not apply after panicle initiation, after rice internodes exceed 1/2 inch, at early seedling, early panicle, boot, flowering or early heading growth stages.
Perennial and hard-to-kill weeds	2 to 3 pints*	

**RESTRICTIONS AND LIMITATIONS FOR RICE** – Some rice varieties under certain conditions can be injured by 2,4-D. Consult with appropriate agencies prior to application of this product for aquatic weed control. \*DO NOT use this rate unless possible crop damage can be tolerated.

**WILD RICE** (For use in Minnesota only)

WEEDS	Amount Per Acre	DIRECTIONS
Common waterplantain	1/2 pint (0.25 lbs. ae)	Broadcast in 4 to 10 gallons total spray volume. Apply after waterplantain has emerged from the water and when wild rice is in the 1 to 2 aerial leaf to early tillering stage. Do not spray after wild rice has reached the boot stage.

**RESTRICTIONS AND LIMITATIONS FOR WILD RICE** – For use only on wild rice grown in commercial paddies. Do not apply to wild rice growing in lakes, rivers or streams. Water that is drained out of wild rice paddies is not to be used to irrigate other crops. In order to protect federally listed endangered or threatened species, the Minnesota Department of Agriculture has a program to pre-notify landowners where pesticide applications may affect federally listed endangered or threatened species. Limited to 1 application per crop cycle. Do not apply more than 1/2 pint/acre of 2,4-D Amine 4 (0.25 lbs. ae/A) per use season.

Observe the preharvest interval (PHI) of 60 days.

**STRAWBERRIES** (Established plantings only)

WEEDS	Amount Per Acre	DIRECTIONS
Annual broadleaf weeds - In established strawberry plantings only	2 to 3 pints	Apply in 25 to 50 gallons of water per acre. Apply in early spring when strawberries are dormant or immediately after the last picking. Do not apply unless possible injury to the crop is acceptable. Follow recommendations of State Extension Horticultural Specialist in the area.

**SUGARCANE**

WEEDS	Amount Per Acre	DIRECTIONS
Preemergence – broadleaf weeds	2 quarts	Apply to emerged weeds before canes appear.
Postemergence – Annual and biennial weeds	2 quarts	Apply in the spring after canes emerge and through layby.

**NON-CROP AREAS** - Drainage Ditch Banks, Fence Rows, Roadsides, Rights-of-Way, Airfields, Railroad, Highway and Utility Rights-of-Way, and Other Non-Crop Areas

**Spot Treatment:** To control broadleaf weeds or brush in small non-cropland areas, apply 6 fl. oz. in 3 gallons of water, mixing thoroughly, and spray to run-off. This high dosage rate may only be used where injury may be tolerated.

WEEDS	Amount Per Acre	DIRECTIONS
Annual broadleaf weeds	2 to 4 pints	Apply when weeds are young and growing vigorously.
Perennial and biennial broadleaf weeds	1 to 2 quarts	Spray perennial weeds when near the bud stage, but not flowering. Do not use on St. Augustine grass. Bentgrass, clover, legumes and dichondra may be injured. Do not apply to newly seeded areas until grass is well established. Deep-rooted perennials may require repeated treatments.
Tansy ragwort and musk thistle		Apply in rosette stage before bolting.
Wild onion and wild garlic		Treat in the early spring and fall when young and actively growing.
TREE, BRUSH, WOODY PLANTS	Amount Per Acre	DIRECTIONS
Southern wild rose	1 gallon	On roadsides and fencerows, apply with 4 to 8 fluid ounces of an agricultural surfactant per 100 gallons of water and spray thoroughly as soon as foliage is well developed.
Woody plants - Ground application	3 quarts	Apply in 20 to 100 gallons of water. For increased effectiveness, add a crop oil concentrate with at least 17 % emulsifiers at 1-2 quarts per acre or a non-ionic surfactant at .25% v/v surfactant to water -- 1 quart per 100 gallons of water. Spray volumes of up to 500 gallons per acre may be needed for control if brush is dense.
Woody plants - Aerial application	2 to 4 quarts	For solid stands of susceptible brush, apply in 3 to 12 gallons volume per acre. 2 to 4 quarts of fuel oil may be included in this mixture.

**RESTRICTIONS AND LIMITATIONS FOR NON-CROP AREAS** - Do not graze dairy animals or cut forage for hay within 7 days of application. The maximum seasonal application rate for weed control in non-crop areas is 2 lbs. 2,4-D acid equivalent (2 qts. of this product) per acre per application site. The maximum seasonal application rate for woody plants is 4 lbs. 2,4-D acid equivalent (4 qts. of this product) per acre per application site.

**GOLF COURSES, PARKS, CEMETERIES, TURF GRASS, AND OTHER LAWN AND GRASS AREAS**

<b>WEEDS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Annual broadleaf weeds	2 pints	Do not apply to newly seeded areas until grass is well established. Where bentgrass predominates, apply 2 times using a 1 pint per acre rate at 3 week intervals. Do not use on susceptible southern grasses such as St. Augustine. Bentgrass, dichondra, legumes and clover may be injured by this treatment.
Biennial and perennial weeds	2 to 4 pints *	
* Deep-rooted perennials may require repeat treatments.		
RESTRICTIONS AND LIMITATIONS FOR GOLF COURSES, PARKS, CEMETERIES, TURF GRASS, AND OTHER LAWN AND GRASS AREAS - The maximum number of broadcast applications per treatment site is 2 per year. Do not graze dairy animals or cut forage for hay within 7 days of application.		

**WEEDS AND BRUSH ON IRRIGATION CANAL DITCH BANKS**

For use in the following seventeen Western States: Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, New Mexico, Nevada, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, Wyoming.

**SPRAYING INSTRUCTIONS**

Low pressure (10 to 40 PSI) power spray equipment should be used and mounted on a truck, tractor, or boat. Apply while traveling upstream to avoid accidental concentration of chemical into water. Spray when air is calm, 5 mph or less. Do not use for small canals (less than 10 CFS) where water will be used for drinking purposes.

Boom spraying onto water surface must be held to a minimum and no cross-stream spraying to opposite banks should be permitted. When spraying shoreline weeds, allow no more than a 2-foot over spray onto water with an average of less than one-foot over spray to prevent introduction of greater than negligible amounts of chemical into water.

<b>WEEDS AND BRUSH</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Annual broadleaf weeds Perennial weeds	1 quart 1 to 2 quarts*	Apply in approximately 20 to 100 gallons of total spray. Treat when weeds are young and actively growing before the bud or early bloom stage.
Brush and patches of perennial weeds	1 gallon	Apply in 150 gallons of water. Spray to thoroughly wet foliage, using about 1 gallon of spray solution per square rod.
* A repeat spray may be needed after 3 to 4 weeks for maximum results, using the same rates. Apply no more than 2 treatments per season.		
RESTRICTIONS AND LIMITATIONS FOR IRRIGATION CANAL DITCH BANKS Do not allow dairy animals to graze on treated areas for at least 7 days after spraying. Do not harvest grass for hay within 30 days of application. Remove meat animals from treated areas 3 days before slaughter. Water within treated banks should not be fished.		

**USES IN FOREST MANAGEMENT**

<b>Conifer Release</b>		
<b>BRUSH, HARDWOODS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Alder	1-1/2 to 2 quarts	Apply in 8 to 25 gallons of water as a foliar spray. Treat when 3/4 of the brush foliage has attained full-sized leaves and before new conifer growth reaches 2 inches in length. This is usually between early May and mid-June. Adjust treatment date depending on stage of growth and brush species. Treatment may cause leader deformation on exposed firs, but firs should overcome this during the second year after spraying.
Ceanothus spp., chinquapin, madrone, manzanita, oak and tanoak	3 quarts	To release Douglas fir, hemlock, Sitka spruce or grand fir, apply in 8 to 25 gallons of water before new growth on Douglas fir is 2 inches long. To control manzanita and ceanothus in ponderosa pine, apply before pine growth begins

		in spring. To increase performance, add suitable approved agricultural surfactant at recommended label rate.
Alder, aspen, birch, willow, other competing hardwood species	1-1/2 to 3 quarts	After northern conifers, jack pine, red pine, black spruce, and white spruce cease growth and "harden off" (usually in mid-July), apply in 8 to 25 gallons of water by air. Since this treatment may cause occasional conifer injury, do not use if such injury cannot be tolerated. Consult regional or extension forester or State herbicide specialist for recommendations to fit local conditions.
<b>Tree Injections (Pine Release)</b>		
<b>HARDWOODS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Oak, hickory, maple, pecan, elm, sumac, sweetgum, hawthorn, dogwood, blue beech, and ash	1 to 2 mL	Apply 1 to 2 mL undiluted product in a concentrate tree injector. Space injections 2 inches apart edge-to-edge, completely around the tree and close to the base. The injector bit must penetrate the inner bark. On hard-to-kill species such as hickory, dogwood, red maple, blue beech and ash, make injections 1 to 1-1/2 inches apart, edge-to-edge. Treatment may be made at any time of the year. For best results, injections should be made during growing season, May 15 to October 15. For dilute injections, mix 1 gallon of product in 19 gallons of water.
<b>Dormant Application (other than pine)</b>		
<b>BRUSH</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Alder, cascara, cherry poplar, and serviceberry	3 quarts	Apply product per acre in sufficient diesel, fuel oil or kerosene for good coverage. Application may be made by ground or air and should be made before conifer budbreak
<b>Pine Only</b>		
<b>BRUSH, HARDWOODS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Alder, cascara, cherry poplar and serviceberry	2 quarts	Make application while pine buds are still dormant. Apply in sufficient water for good coverage by air or ground equipment. Do not use this application unless some pine injury is acceptable. Use of diesel, kerosene, or other oil, or addition of surfactants to spray mix may cause unacceptable pine injury.
<b>Herbaceous Weed Control</b>		
<b>WEEDS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
False dandelion, kiamath weed, plantain, tansy ragwort	1 to 3 quarts	To control over-wintering weeds, apply in sufficient water for good coverage. Make application at rates and timing indicated above if pines are present.
Hazel brush and similar species (Lake States area)	2 quarts	Apply in 8 to 25 gallons of water when new shoot growth of hazel is complete (usually mid-July).
<b>Site Preparation</b>		
<b>BRUSH</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Alder	2 to 4 quarts	As budbreak spray: Prior to planting seedlings, apply 2 to 4 quarts in 8 to 25 gallons of water after alder budbreak but before foliage is 1/4 full size. Application may be made by air or ground. As foliage spray: Prior to planting seedlings, apply 2 quarts in 8 to 25 gallons of water after most alder leaves are full size. To increase penetration, a suitable approved agricultural surfactant at recommended label rates may be added to spray mixture. Do not exceed a combined application rate of 4 quarts of this product per acre per site per season.

**RESTRICTIONS AND LIMITATIONS FOR ALL FORESTRY USES:** The maximum seasonal application rate is 4 lbs. 2,4-D acid equivalent (4 qts. of this product) per acre per application site.

**POPLAR/COTTONWOOD TREES GROWN FOR PULP IN OREGON AND WASHINGTON**

<b>WEEDS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
See the general weeds controlled list	1/2 to 3 pints	Apply through wick applicators or conventional ground sprayers. Note: When irrigating with overhead sprinklers, do not apply this product before an irrigation and withhold irrigation for 2 days before and 3 days after treatment. Do not allow product to contact leaves or green bark of the tree. Apply in enough water to provide uniform coverage prior to or after planting of poplar/cottonwood trees. Application during warm weather is preferred. Apply when weeds are actively growing, preferably before bud stage. Repeat treatment may be necessary for less susceptible weeds. Reapply as needed. Accord® may be mixed with this product to increase weed control. Follow both labels to determine correct rates. Two quarts or more of Preference Spreader Activator per 100 gallons of spray solution may be added to improve herbicide performance.  Accord® is a trademark of Monsanto Company.

**AQUATIC WEEDS, SUCH AS WATER HYACINTH, IN QUIESCENT OR SLOW-MOVING WATERS (RIVERS, STREAMS, LAKES, PONDS, RESERVOIRS, DRAINAGE DITCHES, CANALS AND MARSHES)**

<b>WEEDS</b>	<b>Amount Per Acre</b>	<b>DIRECTIONS</b>
Surface Application	2-1/2 to 4-1/4 pints	Apply in 50 to 100 gallons of water per acre. Use power sprayers operated with a boom or spray gun mounted on a boat, tractor or truck. Spray to wet foliage thoroughly. Application should be made when leaves are fully developed, above water line and plants are actively growing. Avoid spray drift to sensitive crops with low pressure and large nozzles or by using drift control or thickening agents.
Aerial Application	1 gallon	Apply in 5 to 15 gallons of water to cover one surface acre. Use drift control spray equipment or thickening agents mixed into the spray solution. Apply through standard boom systems with a minimum of 5 gallons of spray mix per acre.

**DO NOT** apply to more than 1/3 to 1/2 of the water area in any one month because excessive decaying vegetation may deplete oxygen content of water and kill fish. Begin treatments along the shore and proceed outwards in bands to allow fish to move into untreated areas. For large bodies of weed infested waters, leave buffer strips of at least 100 feet wide and delay treatment of these strips for 4 to 5 weeks or until the dead vegetation has decomposed. Repeat as necessary to kill regrowth and plants missed in previous application.

**RESTRICTIONS AND LIMITATIONS FOR RIVERS, STREAMS, LAKES, PONDS, RESERVOIRS, DRAINAGE DITCHES, CANALS AND MARSHES** - Your State Conservation Department or Fish and Game Commission may require permits for aquatic applications. Check with appropriate agencies. Do not contaminate water used for irrigation or domestic purposes except as indicated in directions for irrigation ditch banks. Delay use of treated waters for domestic purposes or irrigation for three weeks after treatment unless testing shows that the water does not contain more than 0.1 ppm 2,4-D acid. Do not use water from treated irrigation ditches to overhead sprinkle irrigate susceptible crops such as grapes, tomatoes, and cotton.

**Notice of Warranty**

Seller warrants that the product conforms to its chemical description and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use. SELLER MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, NOR IS ANY REPRESENTATIVE OF SELLER AUTHORIZED TO MAKE ANY SUCH WARRANTY OR MODIFY THESE TERMS. This warranty does not extend to the storage, handling or use of this product contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to Seller, and Buyer assumes the risk of any such storage, handling or use. Seller shall not be responsible for incidental or consequential damages, if any, resulting from a breach of warranty.

"Ally", "Harmony Extra", "Express", and "Finesse" are registered trademarks of E.I. duPont de Nemours and Company.  
"Preference," "COMPLETE COMPATIBILITY" and "PROTANK" are registered trademarks of Agrilience, LLC.

**NOTES TO THE FILE**

October 23, 2003: Changed waterproof gloves to chemical-resistant under PPE and in early re-entry, added "Some of the materials that are chem.-resistant..." revised aquatic applications to include rivers and streams, added uses in forest management, cottonwood/poplar trees grown for pulp, and southern wild rose control.

August 25, 2004: Revised label per EPA's letter dated August 16, 2004.

November 3, 2004: Revised label (forestry and non-crop uses) per Larry Hammond's letter dated Oct. 14, 2004.

January 6, 2005: Add popcorn to the section "Corn – Field and Sweet." Prohibit preharvest application to sweet corn. Expand "Restrictions and Limitations for Corn."

August 19, 2005: Added hops and wild rice.

On next amendment, add horseweed to weed list and plantback restriction under Fallowland and Crop Stubble, to wit:  
"All Other Crops: Those not listed on any 2,4-D product label may be planted 30 or more days after application without concern for illegal residues in the planted crop. However, under certain conditions, there may be a risk of injury to these crops. Degradation factors described below should be considered in weighing this risk. Under average conditions, any crop may be planted without risk of injury if at least 90 days of soil temperatures above freezing have elapsed since application.  
Degradation Factors: When planting into treated areas, the risk of crop injury is less if lower rates of product were applied and conditions following application have included warm, moist soil conditions that favor rapid breakdown of 2,4-D. Risk is greater if higher rates of product were applied and soil temperatures have been cold and/or soils have been excessively wet or dry in the days following application. Consult your local agricultural extension service for information about susceptible crops and risk of crop injury prior to planting into treated fields in your area." From Dow's DMA 6 Weed Killer, 62719-2.

**MATERIAL SAFETY DATA SHEET****I. COMPANY/PRODUCT IDENTIFICATION**

Winfield Solutions, LLC  
 P.O. Box 64589  
 St. Paul, MN 55164-0589

In Case of Medical Emergency Call:  
 (877) 424-7452 [US]  
 (800) 424-9300 [CHEMTREC, 24 hours]

PRODUCT NAME: 2,4-D Amine 4  
 Product Class: Herbicide  
 Synonyms: 2,4-D  
 Active Ingredient(s) and/  
 or Primary Component(s) : 2,4-Dichlorophenoxyacetic  
 acid, dimethylamine salt  
 EPA #: 1381-103  
 Chemical Family: Phenoxy herbicide

**2. COMPOSITION/INFORMATION OF HAZARDOUS INGREDIENTS**

CHEMICAL NAME (INGREDIENTS)	CAS NUMBERS	HAZARD	% BY WEIGHT
2, 2,4-Dichlorophenoxyacetic acid, dimethylamine salt, isooctyl esters	25168-26-7 & 2008-39-1		47.3
Inert ingredients*			52.7

\*Trade secret information available as provided in 29 CFR 1910.1200 (i)

For EXPOSURE GUIDELINES, See page 3, section 8 of this MSDS

**3. HAZARDS IDENTIFICATION****EFFECTS OF OVEREXPOSURE****ACUTE (SHORT TERM EXPOSURE):**

EYE: May cause severe irritation with corneal injury and may result in permanent impairment of vision, even blindness. SKIN CONTACT: Prolonged exposure may cause skin irritation. SKIN ABSORPTION: A single prolonged skin exposure may result in the materials being absorbed in harmful amounts. Ingestion may cause gastrointestinal irritation. INHALATION: Single exposure to vapors is not likely to be hazardous.

**CHRONIC (LONG TERM EXPOSURE):**

Excessive exposure may cause liver, kidney, gastrointestinal and muscular effects. Signs and symptoms of excessive exposure may be nausea and/or vomiting and abdominal cramps and/or diarrhea. Various animal cancer tests have shown no reliable positive association between 2,4-D exposure and cancer. Epidemiology studies have been both positive and negative with the majority being negative. Birth defects are unlikely. Exposures having no effect on the mother should have no effect on the fetus. Did not cause birth defects in animals; other effects were seen in the fetus only at doses which caused toxic effects to the mother. High dietary levels of 2,4-D caused toxic effects (weight and viability reduction) in rats on a reproduction test. Has been shown to be negative in some vitro ("test tube") mutagenicity tests and positive in others. Results of mutagenicity tests in animals have been inconclusive.

**GENERAL PRECAUTIONS:**

Always practice good industrial hygiene; handle with care; avoid personal contact. Do not get into eyes or on skin; do not breathe mist or vapor of product. Do not swallow. Wash hands with soap and water and rinse after handling product. Shower after each shift. Wash all work clothing and completely clean all PPE (personal protective equipment) after each shift.

**MEDICAL CONDITIONS GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE:**

None known

**PRIMARY ROUTE OF ENTRY:**       INHALATION     INGESTION       ABSORPTION

**4. FIRST AID MEASURES**

Have the product container or label with you when calling a Poison Control Center or doctor, or going for treatment.

**IF IN EYES:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses after the first 5 minutes, then continue rinsing eye. Call a Poison Control Center or doctor for treatment advice.

**IF ON SKIN:** 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 INHALED:** 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. Call a Poison Control Center or doctor for further 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. Contains petroleum distillate – vomiting may cause aspiration hazard.

**NOTE TO PHYSICIAN: (ANTIDOTE)**    N/E

**5. FIRE FIGHTING MEASURES**

FLASH POINT	FLAMMABLE LIMITS	LOWER EXPLOSIVE LIMIT (LEL)	UPPER EXPLOSIVE LIMIT (UEL)
N/E	N/E	N/E	N/E

**EXTINGUISHING MEDIA:**

FOAM       CO<sub>2</sub>                       DRY CHEMICAL                       WATER SPRAY                       OTHER (SPECIFY):

**SPECIAL FIRE FIGHTING PROCEDURES:**

If water is used, use a soft fog to avoid spreading contamination. Use self-contained breathing apparatus and full protective gear in confined areas of buildings. Contain water to prevent entry into water supplies.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:**

Noxious vapors under high temperature conditions.

**6. ACCIDENTAL RELEASE MEASURES****STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:**

Absorb spill in inert material. Dike area in case of large spills.

**REPORTABLE QUANTITY (RQ) UNDER CERCLA:**

For 2,4-D – 211.4 lbs. (21.9 gallons) or more of this material contains a 100 lb. RQ of 2,4-D Salt.

**7. HANDLING AND STORAGE****STORAGE TEMPERATURES:**

INDOOR       OUTDOOR       REFRIGERATED

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:**

Store in area designated specifically for pesticides. Do not store near any material intended for use or consumption by humans or animals. Store in a cool place. Do not store in direct sunlight. Do not contaminate water, food, or feed by storage, disposal, or by cleaning of equipment. Do not reuse empty container. Open dumping is prohibited.

**OTHER PRECAUTIONS:** N/A

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****CHEMICAL NAME****EXPOSURE LIMITS**

2,4-Dichlorophenoxyacetic acid

- OSHA PEL 10 mg/m<sup>3</sup>, ACGIH TLV – 20 mg/m<sup>3</sup>

*\*Trade secret information available as provided in 29 CFR 1910.1200 (i)*

VALUES ARE 8-HR. TIME-WEIGHTED-AVERAGES UNLESS OTHERWISE SPECIFIED

**ENGINEERING CONTROLS:**

Local exhaust or general ventilation.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)****EYE/FACE PROTECTION:**

Safety glasses or goggles.

**HAND/SKIN PROTECTION:**

Long-sleeved shirt and long pants. Shoes plus socks. Chemical-resistant gloves, such as neoprene or nitrile rubber or barrier laminate, or viton. Mixers and loaders who do not use a mechanical system (pump and probe or spigot) to transfer this compound must wear coveralls or a chemical-resistant apron.

**RESPIRATORY PROTECTION:**

Not normally required during use.

**WORK PRACTICES:**

Minimize exposure. Wear appropriate PPE to prevent the probability of exposure and personal contact. Wash with soap and rinse thoroughly after handling material and before eating, drinking, smoking or using restroom facilities. Shower after each shift. Deluge safety shower and eye wash should be located in work area.

**NOTE TO END-USERS:** *The employee protection recommendations on this MSDS may differ from those on the product label. For normal use of this product, always refer to the personal protective equipment requirements on the product label.*

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>APPEARANCE:</b>	Clear amber to dark brown liquid	<b>pH (AS IS):</b>	N/E
<b>BOILING POINT (°F):</b>	(212°F) 100° C	<b>SOLUBILITY (WATER):</b>	Infinite
<b>BULK DENSITY:</b>	N/E.	<b>SPECIFIC GRAVITY:</b>	1.157
<b>COLOR:</b>	Amber to dark brown	<b>VAPOR DENSITY (Air = 1):</b>	N/E
<b>EVAP. RATE (BuAc=01):</b>	N/E	<b>VAPOR PRESSURE (mmHg):</b>	N/E
<b>FREEZING POINT (°F):</b>	N/E	<b>VISCOSITY:</b>	N/E
<b>ODOR:</b>	fish phenolic odor.	<b>% VOLATILE BY VOLUME:</b>	N/E

**10. STABILITY AND REACTIVITY**

<b>CONDITIONS TO AVOID:</b>	Avoid exposure to heat or flame.
<b>INCOMPATIBILITY (MATERIALS TO AVOID):</b>	Acids and oxidizing materials.
<b>HAZARDOUS DECOMPOSITION PRODUCTS:</b>	Hydrogen chloride, nitrogen oxide under fire conditions.
<b>STABILITY:</b>	<input checked="" type="checkbox"/> STABLE <input type="checkbox"/> UNSTABLE
<b>HAZARDOUS POLYMERIZATION:</b>	<input type="checkbox"/> WILL OCCUR <input checked="" type="checkbox"/> WILL NOT OCCUR

**11. TOXICOLOGICAL INFORMATION**

**ORAL LD<sub>50</sub>**  
Male Rat = 1492 mg/kg and  
837mg/kg for Femal Rat

**DERMAL LD<sub>50</sub>**  
Rabbit = 2871 mg/kg

**INHALATION LC<sub>50</sub>**  
N/D

**EFFECTS TO EYES:**

May cause severe irritation with corneal injury and may result in permanent impairment of vision, even blindness.

**EFFECTS TO SKIN:** Prolonged exposure may cause skin irritation.

**11. TOXICOLOGICAL INFORMATION (cont.)****CARCINOGENICITY REFERENCE SOURCES:**

<b>I.A.R.C.</b>	Yes	<b>N.T.P.</b>	Yes	<b>O.S.H.A.</b>	<input type="checkbox"/> Yes
	X No		X No		<input checked="" type="checkbox"/> No

**12. ECOLOGICAL INFORMATION****13. DISPOSAL CONSIDERATIONS**

**RCRA – FEDERAL HAZARDOUS WASTE INFORMATION:** N/A\*

\* See 40 CFR Part 261 and contact your local regulatory agency for additional information and requirements.

**PESTICIDE DISPOSAL:**

Dispose of waste at an approved disposal facility.

**CONTAINER DISPOSAL:**

Completely empty container into application equipment. This dispose of empty container in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**14. TRANSPORT INFORMATION**

**REGULATED BY:** X Domestic Road/Rail (DOT)  
 Export Water (IMO)  
 Air (ICAO/IATA)  
 Not regulated as a hazardous material by any mode of transportation.

**DOMESTIC ROAD/RAIL (DOT)**

**For Package Sizes:** Greater than 30 gallons  
**Proper Shipping Name:** RQ, UN3082, Environmentally Hazardous substance, liquid, n.o.s., (2,4-D, salts and esters), 9, PG III  
**ERG Number:**  
**Placard (>119 gallons):** Class 9 3082  
**Other Information:** N/A  
**Marine Pollutant?**  Yes  No **Chemical (s):** NA

**EXPORT WATER (IMO)** *Contact Winfield Solutions LLC Environmental Health & Safety for additional information.*

**AIR (ICAO/IATA)** *Contact Winfield Solutions LLC Environmental Health & Safety for additional information.*

**FREIGHT TARIFF DESCRIPTION**

**Rate As:** N/A

**15. REGULATORY INFORMATION**

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

**CERCLA/SARA:** CHEMICAL - 2,4-Dichlorophenoxyacetic acid CAS #:25168-26-7  
**TPQ:** N/A  
**RQ:** 100 lbs. (Equivalent amount of this product would be 26 gallons)

**SARA 313 INFORMATION** This product contains the following substances subject to the reprint requirements of SARA Title III, Section 313 and 40 CFR Part 372:

<u>CHEMICAL NAME</u>	<u>CAS NUMBERS</u>	<u>CONCENTRATION</u>
2,4-Dichlorophenoxyacetic acid	25168-26-7 & 2008-39-1	39.3%

**16. OTHER INFORMATION**

<b>HMIS RATINGS</b>		<b>NFPA RATING</b>	
HEALTH	2	HEALTH	2
FLAMMABILITY	1	FLAMMABILITY	1
REACTIVITY	0	REACTIVITY	0
PERSONAL PROTECTION	B	CORROSIVENESS	0

<i>ABBREVIATION KEY</i>	
N/A = Not Applicable	C = Ceiling Limit
STEL = Short Term Exposure Limit	N/D = Not Determined
rf = Respirable Fraction	SKIN = Skin Notation
N/E = Not Established	td = Total Dust

Revision:

Date: 09/18/07

Supersedes:

**THIS INFORMATION IS FURNISHED WITHOUT WARRANTY, EXPRESSED OR IMPLIED, EXCEPT THAT IT IS ACCURATE TO THE BEST KNOWLEDGE OF WINFIELD SOLUTIONS LLC. THE DATA ON THIS SHEET RELATE ONLY TO THE SPECIFIC MATERIAL DESIGNATED HEREIN. WINFIELD SOLUTIONS LLC ASSUMES NO LEGAL RESPONSIBILITY FOR USE OR RELIANCE UPON THESE DATA.**

Nufarm Americas

# Riverdale<sup>®</sup> 2,4-D L.V. 4 Ester

## A SELECTIVE WEED KILLER

FOR CONTROL OF MANY BROADLEAF WEEDS AND BRUSH CONTROL IN CORN, SMALL GRAINS, SOYBEAN (PREPLANT ONLY) AND OTHER LISTED CROPS AND IN NON-CROP AREAS SUCH AS FENCE ROWS, LAWNS, PASTURES, RANGELANDS, AND RIGHTS-OF-WAY.

**ACTIVE INGREDIENT:**

Isocetyl (2-ethylhexyl) Ester of 2,4-Dichlorophenoxyacetic Acid\* . . . . 67.2%

**OTHER INGREDIENTS:** . . . . . 32.8%

**TOTAL:** . . . . . 100.0%

Contains Petroleum Distillates

Isomer Specific AOAC Method, Equivalent to:

\*2,4-Dichlorophenoxyacetic Acid . . . . . 44.6%, 3.84 lbs./gal.

EPA REG. NO. 228-139

EPA EST. NO. 228-IL-1

MANUFACTURED BY  
NUFARM AMERICAS INC.  
BURR RIDGE, IL 60527-0866

### KEEP OUT OF REACH OF CHILDREN CAUTION/CAUCION

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 BOOKLET FOR FIRST AID AND ADDITIONAL PRECAUTIONARY STATEMENTS

For Chemical Spill, Leak, Fire, or Exposure, Call CHEMTREC (800) 424-9300

For Medical Emergencies Only, Call (877) 325-1840

### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

##### CAUTION—CAUCION

Harmful if swallowed, inhaled or absorbed through skin. Avoid inhalation of vapors or spray mist, and contact with skin, eyes and clothing. Remove saturated clothing as soon as possible and shower. If this container is over one gallon and less than five gallons, then persons engaged in open pouring of this product must also wear coveralls or a chemical-resistant apron. If this container is five gallons or more in capacity, do not open pour product from this container. A mechanical system (such as a probe and pump or spigot) must be used for transferring the contents of this container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal.

**NON-WPS TURF USES:** Applicators and other handlers who handle this pesticide for any use NOT covered by the Worker Protection Standard (40 CFR Part 170) in general, only agricultural-plant uses are covered by the WPS—must wear: long pants, long-sleeved shirt, socks, shoes and chemical-resistant gloves. After using this product, rinse gloves before removing, remove clothing and launder separately before reuse, and promptly and thoroughly wash hands and exposed skin with soap and water. The maximum number of broadcast applications to turf per treatment site is 2 per year.

**NON-WPS INDUSTRIAL USES:** When mixing, loading or applying this product or repairing or cleaning equipment used with this product, wear face shield, goggles or safety glasses and chemical-resistant gloves, long-sleeved shirt, long pants, socks and shoes. It is recommended that safety glasses include front, brow and temple protection. For aerial applicators in an enclosed cockpit and applicators applying this product from a tractor that has a completely enclosed cab, eye protection is not required. Wash hands, face and arms with soap and water as soon as possible after mixing, loading or applying this product. After work, remove all clothing and shower using soap and water. Do not reuse clothing worn during the previous day's mixing and loading or application of this product without cleaning first. Clothing must be kept and washed separately from other household laundry.

**WPS USES:** Personal Protective Equipment—Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category E on an EPA chemical-resistance category selection chart.

Applicators and other handlers who handle this pesticide for any use covered by the Worker Protection Standard (40 CFR Part 170) in general, agricultural-plant uses are covered—must wear: long-sleeved shirt and long pants; chemical-resistant gloves such as Barrier Laminate, Nitrile Rubber ≥ 14 mils, Neoprene Rubber ≥ 14 mils and Viton ≥ 14 mils; shoes plus socks, and protective eyewear. Follow manufacturer's instructions for cleaning/maintaining Personal Protective Equipment (PPE). If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. After each day of use, clothing of PPE must not be reused until it has been cleaned. If this container is over one gallon and less than five gallons, mixers and loaders who do not use a Database and format copyright © by Vance Communication Corporation.

mechanical system (such as a probe and pump or spigot) to transfer contents of this container must wear coveralls or a chemical-resistant apron in addition to the other required PPE.

**Engineering Controls Statements:** If this container is five gallons or more in capacity, do not open pour product from this container. A mechanical system (such as a probe and pump or spigot) must be used for transferring the contents of this container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal. If the mechanical system is used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

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

### USER SAFETY RECOMMENDATIONS

#### Users Should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### FIRST AID

<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"> <li>• Call poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by the poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</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 to 20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for 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 to 20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>

### HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment  
You may also contact 1-877-325-1840 for emergency medical treatment information.

### NOTE TO PHYSICIAN

Contains petroleum distillate vomiting may cause aspiration pneumonia.

### ENVIRONMENTAL HAZARDS

This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and non-target plants. For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Vapors from this product may injure susceptible plants in the immediate vicinity. Use care to avoid spray contact or drift to 2,4-D susceptible plants such as cotton, flowers, fruit trees, grapes, okra, ornamentals and tomatoes. Do not permit spray mist containing this product to drift onto them. Do not spray when the wind is blowing towards susceptible crops or ornamental plants. Use coarse sprays and/or low spray pressure to minimize spray drift. Do not apply with hollow cone type insecticide or other nozzles that produce fine spray droplets. Spray drift can be lessened by keeping the spray boom as low as possible by spraying when wind velocity is low, by decreasing the pounds of pressure of the nozzle tips, and by stopping all spraying when wind exceeds 6 to 7 miles per hour. On cropland and along roadsides, do not exceed 20 psi pressure. Do not apply when a temperature air inversion exists. If questions exist pertaining to the existence of an inversion, consult with local weather services before making an application. Do not use the same spray equipment for applying other materials to 2,4-D susceptible crops as injury may result. It is best to use a separate sprayer for application of insecticides and fungicides. Clean and rinse spray equipment using soap or detergent and water or suitable chemical cleaner, and rinse thoroughly before reuse for other spraying. Do not contaminate water when disposing of equipment washwaters. Do not apply this product through any type of irrigation system. Do not contaminate domestic or irrigation waters. However, treated water may be used for watering turf grasses immediately after application. Do not use in or near a greenhouse. Excessive amounts of this product in the soil may temporarily inhibit seed germination and plant growth.

Most cases of groundwater contamination involving phenoxy herbicides such as 2,4-D have been associated with mixing/loading and disposal sites.

Caution should be exercised when handling 2,4-D pesticides at such sites to prevent contamination of groundwater supplies.

Use of closed systems for mixing or transferring this pesticide will reduce the probability of spills. Placement of the mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination. When using

on Pastures and Rangeland Grasses there is a (1) 7-day pre-grazing interval for dairy cattle; (2) 30-day preharvest interval for grass cut for hay; and (3) 3-day pre-slaughter interval for meat animals.

**DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. READ ENTIRE LABEL BEFORE USING THIS PRODUCT. USE STRICTLY IN ACCORDANCE WITH LABEL PRECAUTIONARY STATEMENTS AND DIRECTIONS.

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

**AGRICULTURAL USE REQUIREMENTS**

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

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

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: Coveralls, chemical-resistant gloves such as Barrier Laminate, Nitrile Rubber ≥ 14 mils, Neoprene Rubber ≥ 14 mils and Viton ≥ 14 mils; shoes plus socks, and protective eyewear.

**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 allow people (other than applicator) or pets on treatment areas during application. Do not enter treatment areas until spray has dried.

**GENERAL INFORMATION**

This product is a low volatile ester especially prepared for use on crops and weeds where a susceptible crop in the near vicinity may be injured by a more volatile product. It is recommended for control of numerous broadleaf weeds and certain 2,4-D susceptible woody plants without injury to most established grasses. In cropland, 2,4-D is more effective than amines for controlling hard-to-kill weeds such as Bindweed, Curly dock, Smartweeds, Tansy ragwort, Thistle, Wild garlic, and Wild onions. For best results, apply this product as a water or oil spray during warm weather when young succulent weeds or brush are actively growing. Application under drought conditions often will give poor results. The lower recommended rates will be satisfactory on susceptible, annual weeds. For perennial weeds and conditions such as the very dry areas of the Western States where control is difficult, the higher recommended rates should be used. Deep-rooted perennial weeds such as Canada thistle and Field bindweed and many woody plants usually require repeated applications for maximum control.

Unless otherwise recommended, suggested application rates may be 1 to 10 gallons of total spray by air or 5 to 25 gallons by ground application equipment. If band treatment is used, base the dosage rate on the actual area to be sprayed. Although water quantities may vary due to different types of application equipment, sufficient water must be used to provide for complete and uniform coverage. Higher water gallonage may be used if desired to improve spray coverage. In all cases, use the same recommended amount of 2,4-D per acre. When product is used for weed control in crops, the growth stage of the crop must be considered. For crop uses, do not mix with oil or other adjuvants unless specifically recommended on label. To do so may reduce herbicide's selectivity and could result in crop damage. If you are not prepared to accept some degree of crop injury, do not use this product.

Crop varieties vary in response to 2,4-D and some are easily injured. Apply this product to varieties known to be tolerant to 2,4-D. If you are uncertain concerning tolerant varieties or local use situations that may affect crop tolerance to 2,4-D, consult your seed company, State Agricultural Extension Service or qualified crop consultant for advice.

Aerial applications should be used only when there is no danger of drift to susceptible crops. Many states have regulations concerning aerial application of 2,4-D formulations. Consult local regulatory authorities before making applications. Although this product is a low volatile formulation, at temperatures above 90° F vapors may damage susceptible crops growing nearby.

**TO PREPARE THE SPRAY:** (1) Fill the spray tank about half full with water, then add the required amount of this product with agitation, and finally the rest of the water.

**NOTE:** This product in water forms an emulsion which tends to separate unless the mixture is kept agitated. Continue agitation during application until spray tank is empty. (2) If oil is added, first mix this product and the oil and then add this mixture to the water. However, with adequate agitation, the oil can be added after the product is mixed in water. (3) If straight oil is used, a solution is formed and Database and format copyright © by Vance Communication Corporation. All rights reserved.

separation does not occur. Do not allow any water to get into the oil-herbicide mixture to avoid formation of an invert emulsion.

**WEEDS CONTROLLED**

This product will kill or control the following weeds in addition to many other noxious plants susceptible to 2,4-D.

Alder	Goatsbeard	Rabbitbrush
Alfalfa	Goldenrod	Ragweed
Archoke	Goosefoot	Redstem
Aster	Ground ivy	Russian thistle
Austrian fieldcress	Gunweed	Sagebrush
Beggartick	Halogeton	Salsify
Biden	Hawkweed	Sand shinnery oak
Bindweed	Healall	Sheepspurse
Bitterweed	Hemp	Sicklepod
Bitter wintercress	Henbit	Smartweed
Blackeyed Susan	Hoary cress	Sneezeweed
Blessed thistle	Honeysuckle	Southern wild rose
Blue lettuce	Horsetail	Sowthistle
Box elder	Indiana mallow	Spanishneedle
Broomweed	Indigo	St. Johnswort
Buckbrush	Ironweed	Starthistle
Buckhorn	Jerusalem artichoke	Stinging nettle
Bull thistle	Jewelweed	Stinkweed
Bur ragweed	Jimsonweed	Sumac
Burdock	Klamathweed	Sunflower
Burhead	Knotweed	Sweet clover
Buttercup	Kochia	Tansymustard
Canada thistle	Lambsquarter	Tansy ragwort
Carpetweed	Locoweed	Tanweed
Catnip	Lupines	Tarweed
Chamise	Mallow	Texas blueweed
Cherokee rose	Manzanita	Thistle
Chickweed	Marijuana	Toadflax
Chicory	Many flowered aster	Tumbleweed
Cinquefoil	Marshelder	Velvetleaf
Coastal redstem sage	Mexican weed	Vervain
Cockle	Milkvetch	Vetch
Cocklebur	Morningglory	Virginia creeper
Coffee bean	Musk thistle	Wild buckwheat
Cofficeeed	Mustard	Wild carrot
Common sowthistle	Nettle	Wild garlic
Cornflower	Nutgrass	Wild lettuce
Coyotebrush	Orange hawkweed	Wild onion
Creeping Jenny	Parsnip	Wild parsnip
Croton	Pennycress	Wild radish
Curly Indigo	Pennywort	Wild rape
Dandelion	Peppergrass	Wild strawberry
Devil's claw	Pepperweed	Wild sweet potato
Dock	Pigweed	Willow
Dogbane	Plantain	Witchweed
Dogfennel	Poison hemlock	Wormseed
Elderberry	Poison ivy	Wormwood
Fanweed	Pokeweed	Yellow rocket
Fiddle neck	Poorjoe	Yellow starthistle and other broadleaf weeds which may be listed elsewhere on this label.
Flea bane (Daisy)	Povertyweed	
Flixweed	Prickly lettuce	
Florida pusley	Primrose	
Frenchweed	Puncture vine	
Galinsoga	Purslane	

Some of these species may require repeat applications and/or use of higher rate recommended on this product label even under ideal conditions for applications.

Control of Pigweeds in the High Plains area of Texas and Oklahoma may not be satisfactory with this product.

**SELECTIVE WEEDING IN CROPS**

**USE IN LIQUID NITROGEN FERTILIZER:** This product may be combined with liquid nitrogen fertilizer suitable for foliage application on corn, grass, pastures, or small grains in one operation. Use product according to directions on this label for those crops. Use liquid nitrogen fertilizer at rates recommended by supplier or Extension Service Specialist. Mix the product and fertilizer according to the following instructions: Fill the spray tank approximately half full with the liquid nitrogen fertilizer. Add the product while agitating the tank. Add the remainder of the fertilizer while continuing to agitate. Apply immediately, maintaining agitation during application until tank is empty. Do not apply during cold (near freezing) weather. Spray mixture must be used immediately and may not be stored. Do not allow mixture to stand overnight.

**NOTE:** If good, continuous agitation is not maintained, separation of the spray mixture and/or clogging of the nozzles is likely to occur. Fertilizers can increase foliage contact burn of herbicides. Reducing the fertilizer rate and concentration will reduce the hazard of leaf burn.

CORN (Field, Sweet and Popcorn):	Pre-plant	1 to 2 pints
	Pre-emergent	Average Conditions 2 to 4 pints
	Emergent—	1 pint
	Post-emergent	Average Conditions ½ pint
		Dry Conditions ¼ to ½ pint
	Pre-harvest	1 to 2 pints

\*For Western States-- Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington and Wyoming

Use with recommended amounts of water to make per acre applications. Use lower rates of product for easily-killed weeds, on inbreds, and when corn is growing rapidly. Do not cultivate for about 2 weeks after treatment while corn is brittle.

**Pre-plant:** To control emerged broadleaf weed seedlings or existing cover crops prior to planting corn, apply 7 to 14 days before planting. Do not use on light, sandy soil, or where soil moisture is inadequate for normal weed growth. Use high rate for control of less susceptible weeds or cover crops such as alfalfa.

**Pre-emergent:** Apply product to emerged weeds from 3 to 5 days after planting but before corn emerges. Do not use on very light, sandy soils. Use the higher rates on heavy soils. Plant corn as deep as practical. Product will not control weeds which have not emerged.

**Emergent:** Apply in 5 to 30 gallons of water per acre ground application. 1 to 5 gallons of water by air, just as corn plants are breaking ground.

**Post-emergent:** Best results are usually obtained when weeds are small and corn is 4 to 18 inches tall. As soon as corn is over 8 inches tall, use drop nozzles to keep spray off corn foliage as much as possible; direct spray over tops of weeds but not over the corn. Do not apply from tasseling to dough stage. If corn is growing rapidly and temperature and soil moisture is high, use 1/2 pint per acre to reduce possibility of crop damage. Delay cultivation for 8 to 10 days to prevent stalk breakage due to temporary brittleness caused by 2,4-D. Application rates of up to 1 pint per acre may be used to control some hard-to-control weeds. However, the possibility of injury to the corn is increased.

Do not use with atrazine, oil or other adjuvants. Since the tolerance to 2,4-D of individual hybrids varies, consult your seed supplier, local Extension Service, Agricultural Experiment Station, or University Weed Specialist for information.

**Pre-harvest:** After the hard dough or denting stage, apply 1 to 2 pints in 1 to 5 gallons of water per acre by air or 5 to 30 gallons of water by ground equipment to suppress perennial weeds, decrease weed seed production, and control tall weeds such as Bindweed, Cocklebur, Dogbane, Jimsonweed, Ragweed, Sunflower, Velvetleaf and vines that interfere with harvesting. The high rate will be needed for tough weeds under stress.

**SMALL GRAINS (barley, oats, wheat, rye), not underseeded with a legume:**

Wheat, Barley, Rye	Annual weeds	Average Conditions - 1/2 to 1 pint Dry Conditions (Western States)- 1 to 2 pints
	Perennial weeds	Average Conditions 1 pint Dry Conditions (Western States)- 1 1/2 to 2 pints
	Pre-harvest	Average Conditions 1 to 2 pints

Oats—spring— 1/2 pint and fall— 1/2 to 3/4 pint

For aerial application on grain, it is suggested to use this product in 1 or more gallons of water per acre, and for ground application, use a minimum of 10 gallons of water per acre. Make application in the spring when the grain is fully tillered or stooled (usually about 4 to 8 inches high), but before jointing. Do not spray before the tiller stage nor from early boot to dough stage.

Use lower rate of product for easily-killed seedling weeds, and higher rate for older and more tolerant weeds. Do not treat grains under-seeded with legumes, and do not spray winter grains in the fall. To control large weeds that will interfere with harvest or to suppress perennial weeds, pre-harvest treatment can be applied when grain is in the dough stage. Higher rates may be needed to handle difficult weed problems in certain areas such as under dry conditions especially in Western areas. However, do not use unless possible crop injury will be acceptable. For the high rates on barley and spring wheat as well as rye and winter wheat, consult State Agricultural Experiment Station or Extension Service weed specialist for recommendations or suggestions to fit local conditions.

**For emergency weed control in wheat:** Perennial broadleaf weeds. Apply 3 pints per acre when weeds are approaching bud stage. Do not spray grain in the boot to dough stage. The 3 pint per acre application can produce injury to wheat. Balance the severity of your weed problem against the possibility of crop damage. Where perennial weeds are scattered, spot treatment is suggested to minimize the extent of crop injury. Use lower rate if small annual and biennial weeds are the major problem. Use the higher rate if perennial weeds or annual and biennial weeds are present which are in the hard-to-kill categories as determined by local experience.

The higher rates increase the risk of grain injury and should be used only where the weed control problem justifies the grain damage risk. Do not apply this product to grain in the seedling stage. For aerial application on grain, apply this product in 1 to 5 gallons of water per acre. For ground application, use a minimum of 5 gallons of water per acre.

**Spring Seeded Oats:** Use 1/2 pint per acre with recommended amount of water to give good coverage. Apply after the fully tillered stage, except during the boot to dough stage.

**Fall Seeded Oats (Southern):** Apply 1/2 to 1 1/4 pints per acre with recommended amount of water after full tillering but before early boot stage. Some difficult weeds may require the higher rates of 3/4 to 1 1/4 pints per acre for maximum control but injury may result. Do not spray during or immediately following cold weather.

**Pre-harvest Treatment:** Apply 1 to 2 pints with recommended amount of water per acre when grains are in the hard dough stage to control large weeds that may interfere with harvest. Best results will be obtained when soil moisture is sufficient to cause succulent weed growth.

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**NOTE:** Oats are less tolerant to 2,4-D than wheat or barley and more likely to be injured.

**Barley and Wheat: Control of Wild Garlic and Wild Onion**

For improved control of difficult weeds including Wild Garlic and Wild Onion, apply 1 to 2 pints of product per acre. Since these rates may injure the crop, do not use unless possible crop damage is acceptable. For the higher rates on barley and spring wheat, consult your local State Agricultural Experiment Station or Extension Service weed specialist for recommendations or suggestions to fit local conditions.

**Control of Wild Garlic in Stubble Grain and Corn Fields:**

Following the harvest of small grains and corn, Wild Garlic often produces new fall growth. This should be sprayed with 4 to 6 pints of product in 10 to 40 gallons of water per acre. This is a useful practice as one part of Wild Garlic control program. Do not plant any crop for three months after treatment.

**SORGHUM (Milo):** For Post-emergent control in average conditions, use 1/2 pint; dry conditions (Western States), use 3/4 to 1 pint with suggested volume of 5 gallons of water by air or 5 to 20 gallons with ground equipment to make per acre applications. Apply to sorghum when crop is 5 to 15 inches high to top of canopy with secondary roots well established. If sorghum is taller than 8 inches, use drop nozzles to keep the spray off the foliage as much as possible. Do not apply during boot, flowering or early dough stage. Rates of up to 1 pint per acre may be used to control some hard-to-control weeds. However, the chance of crop injury is increased with the higher rates. Do not use with oil. Because temporary injury may occur if conditions of high temperature and high soil moisture exist, use lower rate. Varieties vary in tolerance to 2,4-D and some hybrids are quite sensitive. Spray only varieties known to be tolerant to 2,4-D. Contact seed company or your Agricultural Experiment Station or Extension Service weed specialist for this information.

**RED POTATOES (Grown for fresh market):** Properly timed applications of this product generally enhance red color, aid in storage retention of red color, improve skin appearance, increase tuber set, and improve tuber size uniformity (fewer jumbos). Crop response may vary depending on variety, stress factors, and local conditions. Consult with Agricultural Extension Service and other qualified crop advisors for local recommendations. Varieties with naturally dark red color generally benefit less from treatment. Apply 2.3 fluid ounces of this product per acre in 5 to 25 gallons of water using ground or aerial equipment. The specific spray volume selected should be sufficient for good coverage of plants. Make first application when potatoes are in the pre-bud stage (about 7 to 10 inches high) and make a second application about 10 to 14 days later. Do not exceed two applications per crop. Do not harvest within 45 days of application. Uneven application, or mixture with other pesticides and additives, may increase the risk of crop injury.

**GRASS SEED CROPS:** Apply 1 to 4 pints of product in up to 30 gallons of water per acre by air or ground equipment in the spring or fall to control broadleaf weeds in grass being grown for seed. Do not apply from early boot to milk stage. Spray seedling grass only after the five leaf stage, using 1/2 to 1 pint per acre to control small seedling weeds. After the grass is well established, higher rates of up to 4 pints per acre can be used to control hard-to-control annual or perennial weeds. For best results, apply when soil moisture is adequate for good growth. Do not use on Bent unless injury can be tolerated.

**NO-TILL APPLICATION:** This product may be used in the broadcast method with a normal boom or with direct pipes set 12" apart in 36" rows. When using this product, apply at a rate of 13 1/2 ounces in 10 gallons of water per acre. Maintain uniform pressure and speed when applying.

**ESTABLISHED PASTURES AND RANGELANDS:** The rates of application for pastures and rangelands are per acre per application per site. Use 1 to 4 pints of product in sufficient water to give good coverage to one acre depending on type of weeds and stage of growth. Use only on established stands of perennial grasses. Do not use on alfalfa, bentgrass, clover, or other legumes. Do not use on newly seeded areas until grass is well established. Do not use from early boot to milk stage when grass seed production is desired.

**Bitterweed, Broonweed, Croton, Ducks, Kochia, Marshelder, Musk thistle and Other Broadleaf Weeds:** Use 4 to 4.2 pints of this product in 1 to 30 gallons of water per acre. If weeds are young and growing actively, 2 pints per acre will provide control of some species. Deep-rooted perennial weeds may require repeated treatments in the same year or in subsequent years.

**Weed Control in Newly Sprigged Coastal Bermudagrass:** Apply 2 to 4 pints of this product in 20 to 100 gallons of water per acre pre-emergence and or post-emergence.

**Wild Garlic and Wild Onion Control:** Apply 4 to 4.2 pints of product per acre making three applications, fall-spring-fall or spring-fall-spring, starting in the late fall or early spring.

**CROP RESIDUE MANAGEMENT SYSTEMS IN SOYBEANS (Preplant only)**

**GENERAL INFORMATION:** This product is a herbicide that provides control of many emerged susceptible annual and perennial broadleaf weeds. It may be applied prior to planting soybeans to provide foliar burndown control of susceptible annual and perennial broadleaf weeds and certain broadleaf cover crops such as those listed on this label. This product should only be applied preplant to soybeans in situations such as reduced tillage production systems, where emerged weeds are present. Apply only according to the application instructions given below. Do not use any tillage operations between application of this product and planting soybeans.

**MIXING INSTRUCTIONS:** Compatible crop oil concentrates, agricultural surfactants and fluid fertilizers approved for use on growing crops may increase the

herbicidal effectiveness of 2,4-D on certain weeds and may be added to the spray tank. Read and follow all directions and precautions on this label and on all labels of adjuvants or fertilizers mixed with this product.

**APPLICATION PROCEDURES:** Apply using air or ground equipment in sufficient gallonage to obtain adequate coverage of weeds. Use 2 or more gallons of water per acre in aerial equipment and 10 or more gallons of water per acre in ground equipment.

**APPLICATION TIMING AND USE RATES**

2,4-D FORMULATION USED	MAXIMUM RATE (PER ACRE)	WHEN TO APPLY (DAYS PRIOR TO PLANTING SOYBEANS)
2,4-D I.V. 4 ESTER	1 pint (16.6 fluid ounces) (0.5 pound a.c./acre)	NOT LESS THAN 7 DAYS
	2 pints (33.3 fluid ounces) (1.0 pound a.c./acre)	NOT LESS THAN 30 DAYS

**WEEDS CONTROLLED**

- |                             |                         |
|-----------------------------|-------------------------|
| Alfalfa*                    | Mousetail               |
| Bindweed*                   | Mustard - wild          |
| Bittercress—smallflowered   | Onion—wild*             |
| Bullnettle                  | Pennycress field        |
| Buttercup smallflowered     | Peppergrass*            |
| Carolina geranium           | Purslane—common         |
| Cinquefoil—common and rough | Ragweed common          |
| Clover red*                 | Ragweed—giant           |
| Cocklebur—common            | Shepherdspurse          |
| Dandelion*                  | Smartweed—Pennsylvania* |
| Evening primrose cutleaf    | Sowthistle annual       |
| Garlic -wild*               | Speedwell               |
| Horseweed or marestail      | Thistle—Canada*         |
| Ironweed                    | Thistle bull            |
| Lambsquarters —common       | Velvetleaf              |
| Lettuce—prickly             | Vetch—hairy*            |
| Morningglory annual         | Virginia copperleaf     |

\*These species are only partially controlled.

For best weed control at time of treatment, weeds should be small, actively growing and free of stress caused by extremes in climatic conditions, diseases, or insect damage. The response of individual weed species to this product is variable. Consult your local county or State Agricultural Extension Service or crop consultant for advice.

**APPLICATION RESTRICTIONS AND PRECAUTIONS**

**Important Notice—**Unacceptable injury to soybeans planted fields treated with this product may occur. Whether or not soybean injury occurs and the extent of the injury will depend on weather (temperature and rainfall) from herbicide applications until soybean emergence and agronomic factors such as the amount of weed vegetation and previous crop residue present. Injury is more likely under cool rainy conditions and where there is less weed vegetation and crop residue present.

Do not use on low organic sandy soil (<1.0%).

Apply a maximum of one application per growing season regardless of the treatment rate.

**Livestock Grazing Restriction:** Do not feed hay, forage or fodder. Restrict livestock from grazing treated fields. Livestock should be restricted from feeding/grazing of treated cover crops.

In fields treated with this product, plant soybean seed as deep as practical or at least 1.0 inch deep. Adjust the planter, if necessary, to ensure that planted seed is completely covered.

Do not apply this product prior to planting soybeans, if you are not prepared to accept the results of soybean injury, including possible loss of stand and yield.

Do not replant fields treated with this product in the same growing season with crops other than those labeled for 2,4-D use.

**SELECTIVE WEEDING IN NON-CROP AREAS**

**ORNAMENTAL TURF** such as Cemeteries, Golf Courses (Aprons, Fairways, Roughs and Tees), Lawns, Parks, and Sod Farms:

Use 2 to 4.2 pints of product in 40 to 180 gallons of water to give good coverage to one acre on established stands of perennial grasses. Usually 4 pints per acre provides good weed control under average conditions. On turf, apply a maximum of 4.2 pints of this product per acre per application per site. Treat when weeds are young and actively growing. Do not apply to newly seeded grasses until well established.

Use higher rate for hard-to-kill weeds. Use higher rate when using higher volume of water per acre. Do not exceed specified application dosages for any area. Deep-rooted perennial weeds may require repeated treatments in the same season or in subsequent years. Spray when air temperature is between 50° and 85° F. Avoid applying during excessively dry or hot periods unless irrigation (watering) is used before treatment. For optimum results: (1) Do not apply if rainfall is expected within 48 hours, nor should lawns be irrigated for 48 hours following application. (2) Turf should not be mowed for 1 to 2 days before and after application. Reseed no sooner than 3 to 4 weeks after application of this product. Adding oil, wetting agent, or other surfactant to the spray may be used to increase effectiveness on weeds but doing so may reduce selectivity to turf resulting in turf damage. Maximum kill of weeds will be obtained by applying in spring and early fall when weeds are actively growing. Do not use on golf greens nor on Database and format copyright © by Vance Communication Corporation.

dichondra or other broadleaf herbaceous ground covers. Do not use on creeping grasses such as bent and St. Augustine except for spot treating, nor on newly seeded turf until grass is well established.

**GENERAL WEED CONTROL**

(Airfields, Fencerows, Industrial Sites, Rights-of-Way, Roadsides, Vacant Lots, and similar areas)

Use 2 to 6 pints of product per acre. Apply when most annual broadleaf weeds are still young and growing vigorously. Apply when perennial and biennial weeds are actively growing and near the bud stage, but before flowering. For best results on Musk thistle and Tansy ragwort, treat in rosette stage, before bolting. A second application is usually needed for best results on Bindweed, Nettle, and Thistle. Treat Garlic or Wild onion in early spring and in fall when they are young and growing actively. Mix 4 pints of this product in 2 quarts kerosene or diesel oil, then add this mixture to 100 gallons of water. Apply 200 to 500 gallons of spray per acre, depending on the stand. The addition of a wetting agent (spray adjuvant) is suggested. Usually 4 pints per acre will give adequate control. Do not use on herbaceous ground covers or creeping grass such as Bent. Legumes will usually be damaged or killed. Deep-rooted perennials may require repeat applications. Do not use on freshly seeded turf until grass is well established. Delay reseeding for 30 days.

**Bitterweed, Broomweed, Croton, Docks, Kochia, Marshelder, Musk thistle and Other Broadleaf Weeds:** Use 4 to 4.2 pints of this product in 1 to 30 gallons of water per acre. If weeds are young and growing actively, 2 pints per acre will provide control of some species. Deep-rooted perennial weeds may require repeated treatments in the same year or in subsequent years.

**Weed Control in Newly Sprigged Coastal Bermudagrass:** Apply 2 to 4 pints of this product in 20 to 100 gallons of water per acre pre-emergence and/or post-emergence.

**Wild Garlic and Wild Onion Control:** Apply 4 to 6 pints of product per acre making three applications, fall-spring-fall or spring-fall-spring, starting in the late fall or early spring.

**CONTROL OF SOUTHERN WILD ROSE:** On roadsides and fencerows, use 1 gallon of this product plus 4 to 8 ounces of an agricultural surfactant per 100 gallons of water and spray thoroughly as soon as foliage is well developed. Two or more treatments may be required. On rangeland, apply a maximum of 4.2 pints of this product per acre per application.

**SPOT TREATMENT IN NON-CROP AREAS:** To control broadleaf weeds in small areas with a hand or back pack sprayer, use 4 fluid ounces of this product per gallon of water and spray to thoroughly wet all foliage.

**GRASSES IN CONSERVATION RESERVE PROGRAM AREAS:** To control annual broadleaf weeds, apply when weeds are actively growing. Use ½ to 1 pint per acre when weeds are small; use higher rates on older weeds. Excessive injury may result if applied to young grasses with fewer than 6 leaves or prior to grasses being well established. To control biennial and perennial broadleaf weeds in established grasses, apply at a rate of 2 to 4 pints per acre. Apply to actively growing weeds. Treat when biennial weeds are in the seedling to rosette stage and before flower stalks become apparent. Treat perennial weeds in the bud to bloom stage.

**NOTE:** Suggest at least 2 gallons of water per acre by air and 5 gallons of water per acre by ground. Do not harvest or graze treated Conservation Reserve Program areas. Do not apply to grasses in the boot to dough stage if grass seed production is desired.

**FALLOW LAND:** Use 1 to 6 pints of this product in a recommended minimum of 10 gallons of water per acre for ground application and recommended minimum of 2 gallons for aerial application of water per acre on annual broadleaf weeds and up to 6 pints per acre on established perennial species such as Canada thistle and Field bindweed. Use lower rate when annual weeds are small (2" to 3" tall) and growing actively. Use the higher rate on older and drought-stressed plants. Spray musk thistles and other biennial species while in seedling to rosette stage, and before flower stalks are initiated. The lower rate can be used in spring during rosette stage. In fall or after flower stalks have developed, use highest rate. Spray perennial weed in bud to bloom stage, or in good vegetative growth. Do not disturb treated area for at least 2 weeks after treatment or until weed tops are dead. Do not plant any crop for 3 months after treatment or until chemical has disappeared from soil.

**BRUSH CONTROL**

The maximum application rate for forestry site preparation is 1 gallon 6 ounces per acre per application per site.

**WOODY PLANT CONTROL:** To control woody plants susceptible to 2,4-D such as Alder, Buckbrush, Cherokee rose, Elderberry, Japanese honeysuckle, Sumac, Virginia creeper, Wild grape and Willow on non-crop areas such as rights-of-way, fence rows, roadsides and along ditchbanks, use 2 to 3 quarts of product per acre in 30 to 100 gallons of water. Lower volume of water can be used unless applying through such equipment as Directa-Spra, Wobbler, Mini Wobbler, Spirometer. Spray brush 5 to 8 feet tall after spring foliage is well developed. Wet all parts of the plant thoroughly, including stem and foliage, to the point of runoff. Higher volumes of up to 300 to 500 gallons of spray per acre may be necessary where the brush is very dense and over 6 to 8 feet high.

Spraying can be effective at any time up to 3 weeks before frost as long as soil moisture is sufficient for active growth of the brush. Control will be less effective in mid-summer during hot dry weather when soil moisture is deficient and plants are not actively growing. Oil or wetting agent may be added to the spray if needed for increased effectiveness. Hard-to-control species may require re-treatment next season. In general, it is better to cut tall woody plants and spray sucker growth when 2 to 4 feet tall.

**SAND SHINNERY OAK AND SAND SAGEBRUSH:** On the oak, use 2 pints of this product in 5 gallons of oil or in 4 gallons of water plus 1 gallon of oil per acre. Apply by aircraft between May 15 and June 15. On the Sagebrush, use 2 pints in 3 gallons of oil per acre and apply by aircraft when foliage is fully expanded and the brush is actively growing.

**BIG SAGEBRUSH AND RABBITBRUSH (For Pastures and Rangelands See Note Below):** Use 2 to 6 pints in 2 to 3 gallons of oil or in 3 to 5 gallons of oil-water emulsion spray. For Rabbitbrush, the 6 pints rate is usually required. Brush should be leafed out and growing actively when treated. Retreatment may be needed.

**Buckbrush, Chamise, Coastal Sage, Coyotebrush, Manzanita and certain other Chaparral Species:** Use 2 to 6 pints per acre in 5 to 10 gallons of water. One gallon of fuel oil may be included in the spray mixture for added effectiveness. Make applications by aircraft or ground equipment to obtain uniform spray coverage. For effective control, the brush must be fully leaved out and growing actively when sprayed. Retreatment may be needed. Consult State or local brush control specialists for most effective rate, volume and timing of spray application.

**NOTE:** May be applied to Pastures and Rangelands at a maximum rate of 4.2 pints per acre per application per site.

**USES IN FOREST MANAGEMENT**

**Conifer Release:** For control of Alder, apply 1 1/2 to 2 quarts of product per acre in 8 to 25 gallons of water, and apply as a foliage spray. Treat when 1/3 of the brush foliage has attained full size leaves and before new conifer growth reaches 2" in length. This is usually between early May and mid-June. Adjust treatment date depending on stage of growth and brush species. This may cause leader deformation on exposed firs, but they should overcome this during the second year after spraying. To control susceptible brush species such as *Ceanothus* spp., Chinquapin, Madrone, Manzanita, Oak and Tanoak and to release Douglas fir, Grand fir, Hemlock, or Sitka spruce, apply 3 quarts of product per acre before new growth on Douglas fir is 2" long. To control Manzanita and *Ceanothus* in Ponderosa pine, apply 3 quarts of this product before pine growth begins in spring.

To increase performance, add 2 to 4 quarts of diesel, fuel oil, kerosene, or a suitable approved agricultural surfactant at recommended label rate.

After Black spruce, Jack pine, Northern conifers, Red pine and White spruce cease growth and "harden off" (usually in mid-July), a spray of 1 1/2 to 3 quarts of product in 8 to 25 gallons of water per acre may be applied by air to control certain competing hardwood species such as Alder, Aspen, Birch, and Willow. Since this treatment may cause occasional conifer injury, do not use if such injury cannot be tolerated. Consult your Regional or Extension Forester or State herbicide specialist for recommendations to fit local conditions.

**Tree Injections (Pine Release):** To control hardwoods, such as Elm, Hawthorn, Hickory, Maple, Oaks, Pecan, Sumac and Sweetgum in forest and other non-crop areas, apply this product undiluted in a concentrate tree injector calibrated to apply 1 mL per injection. Space injections 2" apart, edge to edge, completely around the tree and close to the base. The injector bit must penetrate the inner bark. On hard-to-kill species such as Ash, Blue beech, Dogwood, Hickory, and Red maple, make injections 1 to 1 1/2" apart, edge to edge. Treatment may be made at any time of the year. For best results, injections should be made during growing season, May 15 to October 15. For dilute injections, mix 1 gallon of this product in 19 gallons of water. No Worker Protection Standard worker entry restrictions or worker notification requirements apply when this product is directly injected into agricultural plants.

**Dormant Application (other than pine):** For the control of susceptible deciduous brush species such as Alder, Cascara, Cherry poplar and Serviceberry, apply up to 3 quarts of product per acre in sufficient diesel, fuel oil or kerosene for good coverage.

Application may be made by ground or air and should be made before conifer bud break.

**Pine Only:** Make application while pine buds are still dormant. Apply 2 quarts of product per acre in sufficient water for good coverage by air or ground equipment. Do not use this application unless some pine injury is acceptable. Use of diesel, kerosene, or other oil, or addition of surfactants to spray mix may cause unacceptable pine injury.

**Christmas Tree Plantations:** For control of labeled broadleaf weeds in Douglas Fir Christmas trees, use 1 to 2 pints of this product per acre.

Apply over the top of Douglas Fir by ground or aerial application equipment only when the trees are dormant, prior to bud break. Do not spray over the top of pine or true firs (*Abies* spp.).

Directed Sprays may be made to weeds in Christmas tree plantations of all conifer species, but the spray must not contact tree foliage as injury may occur. Do not apply to weakened, diseased, or stressed seedlings since unacceptable injury can occur. This product may be mixed with Atrazine for Christmas tree application. (See Tank Mix section.)

**Herbaceous Weed Control:** To control over-wintering susceptible weeds such as False dandelion, Klamath weed, Plantain, Tansy ragwort, apply 1 to 3 quarts of product in sufficient water for good coverage. Make application at rates and timing indicated above if Pines are present. For control of Hazel brush and similar species in the Lake States area, apply 2 quarts of product per acre in 8 to 25 gallons of water when new shoot growth of Hazel is complete (usually mid-July).

**Site Preparation: (As Budbreak Spray)—**For control of Alder prior to planting seedlings, apply 2 to 4 quarts of product per acre in 8 to 25 gallons of water, after Alder budbreak but before foliage is 1/4 full size. Application may be made by air or ground. If desired, diesel, fuel oil or kerosene may be substituted for water

as diluent. (As Foliage Spray)— For control of Alder prior to planting seedlings, apply 2 quarts of product per acre in 8 to 25 gallons of water, after most Alder leaves are full size. To increase penetration, 2 to 4 quarts per acre of diesel, fuel oil, kerosene, or a suitable approved agricultural surfactant at recommended label rates may be added to the spray mixture.

**TANK MIXES**

Read and follow the label of each tank mix product used for precautionary statements, directions for use, geographic and other restrictions.

**Using this product and Buctril® ME4 for weed control on cereal grains (barley, rye and wheat):** Buctril ME4 Broadleaf Herbicide will control some annual weeds that are resistant to this product and may be tank mixed with this product for broader spectrum weed control on small grains. In cereal areas except Idaho, Oregon and Washington, use 1/2 to 1 pint of this product plus 1/2 to 3/4 pint of Buctril ME4 per acre. In Idaho, Oregon and Washington: use 1/2 to 1 pint of this product plus 1/2 to 1 pint Buctril ME4 per acre. First mix this product in water, then add the Buctril ME4. Use the higher rates for larger weeds or where weed growth is slow due to dry or cold weather. Apply before weeds are 6 inches high. Use 10 to 20 gallons total spray volume per acre with ground equipment or 5 to 10 gallons total spray volume with air application. Use higher volume on larger weeds.

**Using this product with Banvel SGF and Ally (or Express) or Diablo to provide more complete Kochia control:** Offers quick burndown. Provides residual activity with Ally to control later weed flushes making harvesting easier and reducing post-harvest weed control needs. Controls broader weed spectrum while offering better control of Flixweed, Mustards, Russian thistle, and Wild buckwheat. Controls large weeds. Allows for early treatment. Apply 8 ounces of this product with 0.1 ounce of Ally plus either 2 to 3 ounces of Diablo or 4 to 6 ounces of Banvel SGF per acre. The tank mix can be applied to Winter wheat and the four-leaf stage (tillering) to prior to joint. It can be applied to spring wheat from the four-leaf stage through the five-leaf stage. Growers who want to rotate to a sensitive crop following wheat and are concerned about carryover from Ally, can substitute Express in the tank mix which allows crop rotation 60 days after application. The recommended rate of Express is 1/2 oz. per acre.

**Using this product and Sencor as knockdown herbicides for no till:** This product with Sencor DF alone or in combination with Dual, Lasso, Surflan or Provil may be applied as an early preplant surface application for the control of certain broadleaf weeds and grasses in soybeans in minimum or no-till products. Application is recommended 30 days prior to planting. Apply at rate of 2 pints of this product (1 pound a.i.) per acre with labeled rates of Sencor. Where grass herbicide is used in tank mix, apply at the rates specified on that product's label.

**Using this product and Aatrex for weed control in Christmas tree and forest plantings:** A tank mix of these two products can be used to control weeds and thus aid in the establishment of young transplants of Austrian pine, Bishop pine, Blue spruce, Douglas fir, Grand fir, Jeffrey pine, Knobcone pine, Loblolly pine, Lodgepole pine, Monterey pine, Nobel fir, Ponderosa pine, Scotch pine, Sitka spruce, Slash pine, and White fir.

The mix should be applied between fall and early spring, preferably in February or March, while trees are still dormant, or soon after transplanting. Weeds should not be more than 1 1/2" high. It can be applied with either ground or air equipment. Helicopters have been highly effective for reforestation applications on steep terrain. Uniform application is the key to good weed control. Use 20 to 40 gallons of water per acre for ground applications; a minimum of five gallons of water when applying by air. Be sure equipment is properly calibrated. All screens in the spray system—nozzles, and in-line and suction strainers—should be 15 mesh or coarser. Use a pump with capacity to maintain a nozzle pressure of 35 to 40 psi, and sufficient agitation to keep the mixture in suspension in the spray tank. If a nurse tank is used, keep the mixture agitated while awaiting transfer to the spray tank. Mix 2 to 4 quarts Aatrex 4 L or 2 1/2 to 5 pounds Aatrex 80W with 1 to 3 quarts of this product. The actual rate of Aatrex used should depend on soil type. Soils high in organic matter require higher rates than light to medium soils. Band application to Christmas Trees—Calculate the amount to be applied per acre. The band width in inches, divided by the rows spacing in inches, times the rate per acre for broadcast treatment will equal the amount needed per acre for band treatment. For example, when treating a 4-foot band over trees planted in rows 8 feet apart, apply 1 1/2 to 2 1/2 pounds of Aatrex per acre. Please read Aatrex label(s) for additional instructions.

**Using this product and Turbo 8EC in reduced-tillage or no-till systems:** This product may be applied in combination with Turbo 8EC for the control of annual grasses and broadleaf weeds and the suppression of emerged perennial weeds when soybeans are directly seeded into a stale seedbed, cover crop or in previous crop residues. Special precautions: poor weed control and/or crop injury may result if directions are not followed. Do not use a rib-type press wheel on your no-till planter or crop injury may result. Apply at a rate of 2 pints of this product (1 pound a.i.) per acre with labeled rates of Turbo 8EC. Application is recommended 30 days prior to planting.

**Using this product and Poast as a burndown prior to planting soybeans:** For broad spectrum post-emergence weed control, a tank mix application of this product with Poast may be made for control of emerged broadleaf and grass weeds before planting soybeans. Apply at a rate of 1 pint of this product (1/2 pound a.i.) per acre with labeled rates of Poast.

**Using this product with Scepter, Scepter 70 DG or Squadron in preplant applications in no-till soybeans:** For broad spectrum post-emergence weed control, a tank mix application of this product with Scepter, Scepter 70 DG or Squadron herbicides may be made for the control of emerged broadleaf and grass weeds before planting soybeans. Apply at a rate of 1 pint of this product (1/2 pound a.i.) per acre up to 7 days prior to planting, or 2 pints (1 pound a.i.) per acre up to 30

days prior to planting, with labeled rates of Scepter, Scepter 70 DG or Squadron herbicides.

**Using this product and Tahoe 4E or Tahoe 3A tank mixtures for Non-Crop Areas:** Broadleaf Weed Control: Use 2 to 4 pints of this product plus 2 to 6 pints Tahoe 4E (or 3 to 8 pints Tahoe 3A) per acre. For wider spectrum control of broadleaf weeds and woody plants, apply as a broadcast spray in enough water to deliver 20 to 100 gallons total spray per acre. Apply when broadleaf weeds are actively growing. Woody Plant Control Broadcast Foliar Spray: Use 1 to 2 gallons of this product plus 1 1/2 to 3 quarts Tahoe 4E (or 2 to 4 quarts Tahoe 3A) per acre. Apply as a broadcast spray in enough water to deliver 20 to 100 gallons total spray per acre. Apply when woody plants are actively growing. Woody Plant Control High Volume Leaf-Stem Treatment with Ground Equipment: Use 1 to 8 quarts of this product plus 1 1/2 to 12 pints Tahoe 4E (or 2 to 16 pints Tahoe 3A) per acre. Mix 2 1/2 to 2 quarts this product plus 1 1/2 to 3 pints Tahoe 4E (or 2 to 4 pints Tahoe 3A) in enough water to make 100 gallons of spray. Apply at a volume of 100 to 400 gallons of total spray per acre depending on size and density of woody plants. Thoroughly wet all leaves, stems, and root collars of plants to be controlled. Woody Plant Control Aerial Application (Helicopter only): Use 1 to 2 gallons of this product plus 3 to 4 quarts Tahoe 4E (or 4 to 6 quarts Tahoe 3A) per acre. Apply in a total spray volume of 10 to 30 gallons per acre using drift control equipment such as Microfoil boom or an effective drift control agent such as Lo-Drift Spray Additive. Use the higher rates and volumes when plants are dense or under drought conditions.

**Using this product and Diablo Herbicide tank mixtures for Non-Crop Areas:** Annual broadleaf weeds: Use 2 to 4 pints of this product plus 1/2 to 1 1/2 pints Diablo. For wider spectrum control of broadleaf weeds and woody plants, apply as a broadcast spray in enough water to deliver 20 to 100 gallons total spray per acre. Apply when broadleaf weeds are actively growing. Use the higher rates when treating dense or tall vegetative growth. Perennial and Biennial Broadleaf Weeds: Use 3 to 6 pints of this product plus 1/2 to 6 pints Diablo. Apply as a broadcast spray in enough water to deliver 20 to 100 gallons total spray per acre. Apply when broadleaf weeds are actively growing but prior to flowering. Use the lower rates for biennials less than 3 inches rosette diameter. Use the higher rates for perennial weeds or for biennial weeds past the 3 inch rosette stage. Woody Plant Control Broadcast, High Volume, Stem Foliage or Aerial Application: Use 1 to 2 gallons of this product plus 2 to 8 quarts Diablo. Apply as a broadcast spray in enough water to deliver 20 to 100 gallons total spray per acre or apply as a high volume stem foliage spray in enough volume to thoroughly wet leaves, stems and root collars (100 to 400 gallons per acre) or apply aerially in enough water to deliver total spray volume of 10 to 30 gallons per acre using drift control equipment such as the Microfoil Boom or an effective drift control agent such as Lo-Drift Spray Additive. Use the higher rates and volumes when plants are dense or under drought conditions.

**Using this product and Escort<sup>®</sup>, Oust<sup>®</sup> and Telar<sup>®</sup>:** To improve control of some target species, this product may also be tank mixed with Escort, Oust, and Telar herbicides for post-emergent weed control. Tank mixes have shown improved control where resistant bio-types are present.

**NOTE:** All intended tank mix combinations should be used only in recommended areas on the same broadleaf weed species found on both labels.

For application methods and other use specifications, use the most restricted limitations from labeling of both products.

#### STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE:** Always use original container to store pesticides in a secured warehouse or storage building. Containers should be opened in well ventilated areas. Keep container tightly sealed when not in use. Do not stack cardboard cases more than two pallets high. Do not store near open containers of fertilizer, seed or other pesticides.

**PESTICIDE DISPOSAL:** Pesticide wastes are toxic. If container is damaged or if pesticide has leaked, contain all spillage. Absorb and clean up all spilled material with granules or sand. Place in a closed labeled container for proper disposal. Improper disposal of excess pesticide, spray mixtures, or rinsate is a violation of Federal law and may contaminate groundwater. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**CONTAINER DISPOSAL:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other approved State and local procedures. Plastic containers are also disposable by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Local conditions may affect the use of this chemical. Consult State Agricultural Experiment Station or Extension Service weed specialist for specific recommendations for local weed problems and for information on possible lower dosages.

#### WARRANTY

Follow directions carefully. Timing and method of application, weather and crop conditions, mixtures with other chemicals not specifically recommended, and other influencing factors in the use of this product are beyond the control of the seller. Buyer assumes all risk of use, storage or handling of this material not in strict accordance with directions given herewith.

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### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** 2,4-D L.V. 6 Ester  
**Synonyms:** 2,4-D 2EHE; 2,4-D IOE; 2,4-Dichlorophenoxyacetic acid, Isooctyl (2-ethylhexyl ester); 2,4-D Ethylhexyl Ester  
**EPA Reg. No.:** 228-95  
**Company Name:** Nufarm Americas Inc.  
 150 Harvester Drive, Suite 200  
 Burr Ridge, IL 60527  
**Date of Issue:** March 21, 2007 **Supersedes:** February 16, 2005  
**Sections Revised:** New or updated information all sections

### 2. HAZARDS IDENTIFICATION

**Emergency Overview:**

**Appearance and Odor:** Dark amber liquid with typical phenolic odor.

**Warning Statements:** Keep out of reach of children. CAUTION. Harmful if swallowed, inhaled or absorbed through skin. Avoid inhalation of vapors or spray mist, and contact with skin, eyes and clothing.

**Potential Health Effects:**

**Likely Routes of Exposure:** Inhalation, eye and skin contact.

**Eye Contact:** Minimally irritating based on toxicity studies.

**Skin Contact:** Slightly irritating based on toxicity studies. Overexposure by skin absorption may cause nausea, vomiting, abdominal pain, decreased blood pressure, muscle weakness, muscle spasms. May cause allergic reaction in sensitive individuals.

**Ingestion:** Harmful if swallowed. May cause nausea, vomiting, abdominal pain, decreased blood pressure, muscle weakness, muscle spasms.

**Inhalation:** Harmful if inhaled. May cause symptoms similar to those from ingestion.

**Medical Conditions Aggravated by Exposure:** Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

See Section 11: TOXICOLOGICAL INFORMATION for more information.

**Potential Environmental Effects:**

This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and non-target plants.

See Section 12: ECOLOGICAL INFORMATION for more information.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	% BY WEIGHT
2,4-Dichlorophenoxyacetic Acid, isooctyl (2-ethylhexyl) ester	1928-43-4	87.3
Other Ingredients Including Emulsifier (may contain) Naphthalene	91-20-3	12.7

**4. FIRST AID MEASURES**

**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 the poison control center or doctor. Do not give anything by mouth to an unconscious person.

**If in Eyes:** Hold eye open and rinse slowly and gently with water for 15 to 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:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice. Do not give anything by mouth to an unconscious person.

**If Inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

**5. FIRE FIGHTING MEASURES**

**Flash Point:** 220°F (104°C) by tag closed cup method

**Autoignition Temperature:** Not determined

**Flammability Limits:** Not determined

**Extinguishing Media:** Recommended for large fires: foam or water spray. Recommended for small fires: dry chemical or carbon dioxide.

**Special Fire Fighting Procedures:** Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

**Unusual Fire and Explosion Hazards:** If water is used to fight fire, contain runoff, using dikes to prevent contamination of water supplies. Dispose of fire control water later.

**Hazardous Decomposition Materials (Under Fire Conditions):** May produce gases such as hydrogen chloride and oxides of carbon and nitrogen.

**National Fire Protection Association (NFPA) Hazard Rating:**

**Rating for this product:** Health: 2    Flammability: 1    Reactivity: 0

Hazards Scale: 0 = Minimal    1 = Slight    2 = Moderate    3 = Serious    4 = Severe

**6. ACCIDENTAL RELEASE MEASURES**

**Personal Precautions:** Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

**Environmental Precautions:** Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

**Methods for Containment:** Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

**Methods for Clean-Up and Disposal:** Pump any free liquid into an appropriate closed container. Collect washings for disposal. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

**Other Information:** Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

**7. HANDLING AND STORAGE**

**Handling:**

Avoid inhalation of vapors or spray mist, and contact with skin, eyes and clothing. 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 Personal

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

If the container is over one gallon and less than five gallons, then persons engaged in open pouring of the product must also wear coveralls or a chemical-resistant apron. If the container is five gallons or more in capacity, do not open pour product from the container. A mechanical system (such as a probe and pump or spigot) must be used for transferring the contents of the container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal.

#### Storage:

Always use original container to store pesticides in a secured warehouse or storage building. Containers should be opened in well-ventilated areas. Keep container tightly sealed when not in use. Do not stack cardboard cases more than two pallets high. Do not store near open containers of fertilizer, seed or other pesticides. Do not contaminate water, food, or feed by storage or disposal.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

#### Engineering Controls:

Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

#### Personal Protective Equipment:

**Eye/Face Protection:** To avoid contact with eyes, wear chemical goggles or shielded safety glasses. An emergency eyewash or water supply should be readily accessible to the work area.

**Skin Protection:** To avoid contact with skin, wear long pants, long-sleeved shirt, socks, shoes and chemical-resistant gloves. When open pouring the product, also wear coveralls or a chemical-resistant apron. An emergency shower or water supply should be readily accessible to the work area.

**Respiratory Protection:** Not normally required. If vapors or mists exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.

**General Hygiene Considerations:** Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) Do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored. 2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

#### Exposure Guidelines:

Component	OSHA		ACGIH		Unit
	TWA	STEL	TWA	STEL	
2,4-D 2EHE	10*	NE	10*	NE	mg/m <sup>3</sup>
Naphthalene	10	NE	10 (Skin)	15 (Skin)	ppm

\*Based on adopted limit for 2,4-D

NE = Not Established

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance and Odor:** Dark amber liquid with typical phenolic odor

<b>Boiling Point:</b>	Not available	<b>Solubility in Water:</b>	Emulsifiable in water
<b>Density:</b>	9.48 pounds/gallon	<b>Specific Gravity:</b>	1.138 @ 20°C
<b>Evaporation Rate:</b>	Not determined	<b>Vapor Density:</b>	Not available
<b>Freezing Point:</b>	Not available	<b>Vapor Pressure:</b>	Not available
<b>pH:</b>	4.4	<b>Viscosity:</b>	Not available

**Note:** Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

<b>10. STABILITY AND REACTIVITY</b>
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**Chemical Stability:** This material is stable under normal handling and storage conditions.

**Conditions to Avoid:** Excessive heat. Do not store near heat or flame.

**Incompatible Materials:** Strong oxidizing agents: bases and acids.

**Hazardous Decomposition Products:** Under fire conditions may produce gases such as hydrogen chloride and oxides of carbon and nitrogen.

**Hazardous Reactions:** Hazardous polymerization will not occur.

<b>11. TOXICOLOGICAL INFORMATION</b>
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**Toxicological Data:**

Data from laboratory studies conducted on a similar, but not identical, formulation:

**Oral:** Rat LD<sub>50</sub>: 1,380 mg/kg

**Dermal:** Rabbit LD<sub>50</sub>: >2,020 mg/kg

**Inhalation:** Rat 4-hr LC<sub>50</sub>: >5.12 mg/l

**Eye Irritation:** Rabbit: Minimally irritating

**Skin Irritation:** Rabbit: Slightly irritating

**Subchronic (Target Organ) Effects:** Repeated overexposure to phenoxy herbicides may cause effects to liver, kidneys, blood chemistry, and gross motor function. Rare cases of peripheral nerve damage have been reported, but extensive animal studies have failed to substantiate these observations, even at high doses for prolonged periods.

**Carcinogenicity / Chronic Health Effects:** Prolonged overexposure to phenoxy herbicides can cause liver, kidney and muscle damage. The International Agency for Research on Cancer (IARC) lists exposure to chlorophenoxy herbicides as a class 2B carcinogen, the category for limited evidence for carcinogenicity in humans. However, more current 2,4-D lifetime feeding studies in rats and mice did not show carcinogenic potential. The U.S. EPA has given 2,4-D a Class D classification (not classifiable as to human carcinogenicity). The emulsifier component may contain naphthalene, which is listed by IARC as a class 2B and the U.S. National Toxicology Program as reasonably anticipated to be a human carcinogen.

**Reproductive Toxicity:** No impairment of reproductive function attributable to 2,4-D have been noted in laboratory animal studies.

**Developmental Toxicity:** Studies in laboratory animals with 2,4-D have shown decreased fetal body weights and delayed development in the offspring at doses toxic to mother animals

**Genotoxicity:** There have been some positive and some negative studies, but the weight of evidence is that 2,4-D is not mutagenic.

**Assessment Carcinogenicity:**

This product contains substances that are considered to be probable or suspected human carcinogens as follows:

Component	Regulatory Agency Listing As Carcinogen			
	ACGIH	IARC	NTP	OSHA
Chlorophenoxy Herbicides	No	2B	No	No
Naphthalene	No	2B	Yes*	No

\*Reasonably anticipated to be a human carcinogen

See Section 2: HAZARDS IDENTIFICATION for more information.

<b>12. ECOLOGICAL INFORMATION</b>
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**Ecotoxicity:**

Data on 2,4-D 2EHE:

96-hour LC <sub>50</sub> Bluegill:	>5 mg/l	Bobwhite Quail Oral LD <sub>50</sub> :	>5,620 mg/kg
96-hour LC <sub>50</sub> Rainbow Trout:	7.2 mg/l	Mallard Duck 8-day Dietary LC <sub>50</sub> :	>5,620 ppm
48-hour EC <sub>50</sub> Daphnia:	>5 mg/l		

**Environmental Fate:**

In laboratory and field studies, 2,4-D 2-ethylhexyl ester rapidly de-esterified to parent acid in the environment. The typical half-life of the resultant 2,4-D acid ranged from a few days to a few weeks.

<b>13. DISPOSAL CONSIDERATIONS</b>
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**Waste Disposal Method:**

Pesticide wastes are toxic. If container is damaged or if pesticide has leaked, contain all spillage. Absorb and clean up all spilled material with granules or sand. Place in a closed labeled container for proper disposal. Improper disposal of excess pesticide, spray mixtures, or rinsate is a violation of Federal law and may contaminate groundwater. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**Container Handling and Disposal:**

Triple rinse (or equivalent). 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. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

<b>14. TRANSPORTATION INFORMATION</b>
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Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this MSDS.

**DOT****< 30 gallons per completed package**

Non Regulated - See 49 CFR 173.132(b)(3) & 172.101 Appendix A

**≥ 30 gallons per completed package**

RQ, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(2,4 DICHLOROPHENOXYACETIC ESTER), 9, UN 3082, III

See 49 CFR 172.101 Appendix A

**IMDG**

Non Regulated – See IMDG 2.6.2.1.3

**IATA**

Non Regulated – See IATA 3.6.1.5.3

<b>15. REGULATORY INFORMATION</b>
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**U.S. Federal Regulations:**

**TSCA Inventory:** This product is exempted from TSCA because it is solely for FIFRA regulated use.

**SARA Hazard Notification/Reporting:****Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370):**

Immediate and Delayed

**Section 313 Toxic Chemical(s):**

2,4-D 2-ethylhexyl ester (CAS No. 1928-43-4)- 87.3% by weight in product

Naphthalene (CAS No. 91-20-3), &lt; 0.14% by weight in product

**Reportable Quantity (RQ) under U.S. CERCLA:**

Acetic Acid, (2,4-Dichlorophenoxy)- (CAS No. 94-75-7) 100 pounds

Naphthalene (CAS No. 91-20-3) 100 pounds

**RCRA Waste Code:**

Acetic Acid, (2,4-Dichlorophenoxy)- (CAS No. 94-75-7) U240

Naphthalene (CAS No. 91-20-3) U165

**State Information:**

Other state regulations may apply. Check individual state requirements.

**California Proposition 65:** WARNING. This product contains chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.

<b>16. OTHER INFORMATION</b>
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This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof Nufarm Americas Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Nufarm Americas Inc. be responsible for damages of any nature whatsoever resulting from the use or of reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.



The Chemical Company

SPECIMEN

# ARSENAL®

herbicide

For the control of undesirable vegetation in grass pasture, rangeland and noncropland areas such as railroad, utility, pipeline and highway rights-of-way, utility plant sites, petroleum tank farms, pumping installations, fence rows, storage areas, nonirrigation ditchbanks and other similar areas and for the establishment and maintenance of wildlife openings.

**ACTIVE INGREDIENT:**

Isopropylamine salt of imazapyr(2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid)\* . . . . . 28.7%

**INERT INGREDIENTS:** . . . . . 71.3%

**TOTAL:** . . . . . 100.0%

\*Equivalent to 22.6% 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid or 2 pounds acid per gallon.

EPA Reg. No. 241-346

U.S. Patent No. 4,798,619

EPA Est. No. \_\_\_\_\_

**KEEP OUT OF REACH OF CHILDREN.**

## CAUTION/PRECAUCIÓN

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.)

In case of an emergency endangering life or property involving this product, call day or night, 1-800-832-HELP (4357).

See next page for additional **First Aid, Precautionary Statements, Directions For Use, Conditions of Sale and Warranty,** and state-specific crop and/or use site restrictions.

Net Contents: \_\_\_\_\_

BASF Corporation,  
Agricultural Products  
26 Davis Drive,  
Research Triangle Park, NC 27709

## Appendix B - Arsenal Label

<b>FIRST AID</b>	
<b>If on skin</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 first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If inhaled</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>HOT LINE NUMBER</b>	
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).	

### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS CAUTION

Avoid contact with skin, eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

#### Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for **Category A** on an EPA chemical-resistant category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants.
- Chemical-resistant gloves made of any 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.

#### PHYSICAL AND CHEMICAL HAZARDS

Spray solutions of **Arsenal® herbicide** should be mixed, stored and applied only in stainless steel, fiberglass, plastic and plastic-lined steel containers.

**DO NOT** mix, store or apply **Arsenal** or spray solutions of **Arsenal** in unlined steel (except stainless steel) containers or spray tanks.

### 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 disposing of equipment washwaters or rinsate.

### DIRECTIONS FOR USE

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

**Arsenal** should be used only in accordance with recommendations on the leaflet label attached to the container. Keep containers closed to avoid spills and contamination.

### 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.
- Chemical-resistant gloves made of any waterproof material.

## Appendix B - Arsenal Label

### 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: DO NOT** store below 10° 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 FOR 2.5 GALLON AND 30 GALLON:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in an approved sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**CONTAINER DISPOSAL FOR FIELD KEG, MINIBULK AND BULK:** When this container is empty, replace the cap and seal all openings that have been opened during use, and return the container to the point of purchase, or to a designated location. This container must only be refilled with the pesticide product. **DO NOT** reuse the container for any other purpose. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transport. **DO NOT** transport if this container is damaged or leaking. If the container is damaged or leaking, or obsolete and not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling. Disposal of container must be in compliance with state and local regulations.

### IMPORTANT

**DO NOT** use on food crops. Keep from contact with fertilizers, insecticides, fungicides and seeds. **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 chemical may be washed or moved into contact with their roots. **DO NOT** use on lawns, walks, driveways, tennis courts, or similar areas where roots of desirable vegetation may extend and be exposed to potential injury and/or mortality from root uptake of **Arsenal® herbicide** unless this risk is acceptable. **DO**

**NOT** side trim desirable vegetation with this product unless severe injury or plant death can be tolerated. Prevent drift of spray to desirable plants.

Clean application equipment after using this product by thoroughly flushing with water.

### GENERAL INFORMATION

**Use Sites: Arsenal** is an aqueous solution to be mixed with water and a surfactant and applied as a spray solution to grass pasture and rangeland and noncropland areas such as railroad, utility, pipeline and highway rights-of-way, utility plant sites, petroleum tank farms, pumping installations, fence rows, storage areas, nonirrigation ditch-banks including grazed or hayed areas within these sites.

**Arsenal** is recommended for the establishment and maintenance of wildlife openings. **Arsenal** may also be used for the release of unimproved bermudagrass (see specific directions) and for use under certain paved surfaces (see specific directions).

**Application Methods: Arsenal** will control most annual and perennial grasses and broadleaf weeds in addition to many brush and vine species, and **Arsenal** will provide residual control of labeled weeds which germinate in the treated areas. This product may be applied either pre-emergence 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 application, and the spray solution should include a surfactant (see **ADJUVANT** section for specific recommendations). These solutions may be applied selectively by using low-volume techniques or may be applied broadcast by using ground equipment or aerial equipment. In addition, **Arsenal** may also be used for stump and cut stem treatments (see specific directions).

**Herbicidal Activity: Arsenal** 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 until two weeks after application. Complete kill of plants may not occur for several weeks. Applications of **Arsenal** are rainfast one hour after treatment.

### PRECAUTIONS FOR AVOIDING INJURY TO NONTARGET PLANTS

Untreated trees can occasionally be affected by root uptake of **Arsenal** through movement into the top soil. Injury or loss of desirable trees or other plants may result if **Arsenal** is applied on or near desirable trees or other plants, on areas where their roots extend, or in locations where the treated soil may be washed or moved into contact with their roots.

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### MANAGING OFF-TARGET MOVEMENT

The following information is provided as general guidance for managing off-target movement. Specific use recommendations for **Arsenal® herbicide** may differ depending on the application technique used and the vegetation management objective.

**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 nontarget 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

## Appendix B - Arsenal Label

the outermost nozzles on the boom must not exceed  $\frac{3}{4}$  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.

### ADJUVANTS

**Postemergence applications of Arsenal® herbicide require the addition of a spray adjuvant for optimum herbicide performance.**

**Nonionic Surfactants:** Use a nonionic surfactant at the rate 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 an HLB (hydrophilic to lipophilic balance) ratio between 12 and 17 with at least 70% 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).

**Methylated Seed Oils or Vegetable Oil Concentrates:** Instead of a surfactant, a methylated seed oil or vegetable-based seed oil concentrate may be used at the rate of 1.5 to 2 pints per acre. 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 above. Research indicates that these oils may aid in **Arsenal** deposition and uptake by plants under moisture or temperature stress.

**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.

**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, methylated seed oil or vegetable/seed oil concentrate. The use of fertilizers in a tank mix without a nonionic surfactant, methylated seed oil or vegetable/seed oil concentrate is not recommended.

### BRUSH CONTROL

#### AERIAL APPLICATIONS:

All precautions should be taken to minimize or eliminate spray drift. Fixed wing aircraft and helicopters can be used to apply **Arsenal**. However, **DO NOT** make applications by fixed wing aircraft unless appropriate buffer zones can be maintained to prevent spray drift out of the target area or, when treating open tracts of land, spray drift as a result of fixed wing aircraft application can be tolerated. Aerial equipment designed to minimize spray drift, such as a helicopter equipped with a **Microfoil™ boom, 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 any other conditions which allow drift. Side trimming is not recommended with **Arsenal** unless death of treated tree can be tolerated.

Uniformly apply the recommended amount of **Arsenal** in 5 to 30 gallons of water per acre; include in the spray solution a nonionic surfactant or methylated seed oil or manufacturer's label rate of a silicone-based surfactant (see the **ADJUVANT** section of this label for specific recommendations). A foam-reducing agent may be added at the recommended label rate, if needed.

**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.

#### GROUND APPLICATIONS:

**IMPORTANT:** To minimize spray drift, select proper nozzles to avoid spraying a fine mist. Use pressures less than 50 psi, and **DO NOT** spray under gusty or windy conditions. Add a foam-reducing agent, if needed, and a spray pattern indicator, if desired, at the recommended label rates. Clean application equipment after using this product by thoroughly flushing with water.

When making applications to rights-of-way corridors where desirable tree roots may extend, use 1 to 3 pints of **Arsenal** per acre in combination with recommended tank mixes. It is not recommended to use rates higher than 3 pints per acre in these situations, as injury or death of desirable trees may occur when their roots extend into treated zones.

#### Side Trimming:

**DO NOT** side trim with **Arsenal** unless severe injury or death of the treated tree can be tolerated. **Arsenal** is readily translocated and can result in death of the entire tree.

#### Low Volume:

Use equipment calibrated to deliver 5 to 20 gallons of spray solution per acre. To prepare the spray solution, thoroughly mix in water 0.5 to 5% **Arsenal** plus surfactant

## Appendix B - Arsenal Label

(see the **ADJUVANT** section of this label for specific recommendations). A foam-reducing agent may be applied at the recommended label rate, if needed. For control of difficult brush species (see **WEEDS CONTROLLED** section for relative susceptibility of weed species), use the higher concentrations of herbicide and/or spray volumes, but **DO NOT** apply more than 6 pints of **Arsenal® herbicide** per acre. Excessive wetting of foliage is not recommended. See the mixing guide below for some suggested volumes of **Arsenal** and water.

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### SUGGESTED TANK MIXES AND APPLICATION RATES\*

Target Vegetation	Rate of Arsenal® herbicide	Tank Mix
Mixed hardwoods without elm, locust, or pine	1.0 - 1.5% by volume	Surfactant
Mixed hardwoods containing elm, locust, and pine	0.5 - 1.0% by volume	<b>Accord®</b> at 2 - 3% by volume plus surfactant
Mixed hardwoods with locust and pine but no elm	0.5 - 1.0% by volume	<b>Krenite®</b> at 2 - 5% by volume plus surfactant
Mixed hardwoods with locust and elm but no pine	0.5 - 1.0% by volume	<b>Escort®</b> at 2 oz/Acre or 2.3 grams/gallon plus surfactant

\*Tank mixes with 2,4-D or products containing 2,4-D have resulted in reduced efficacy of **Arsenal**.

### MIXING CHART

% Solution	Amount Arsenal per Gallon of Mix (oz)	Amount Arsenal per 4-Gallon Backpack (oz)
0.5%	0.6	2.6
1.0%	1.3	5.1
2.0%	2.6	10.2
3.0%	3.8	15.4
5.0%	6.4	25.6

### MEASURING CHART

128 ounces	=	1 gallon
16 ounces	=	1 pint
8 pints	=	1 gallon
4 quarts	=	1 gallon
2 pints	=	1 quart

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**Application Tips:** For low volume, select proper nozzles to avoid over-application. Proper application is critical to ensure desirable results. Best results are achieved when the spray covers the crown and approximately 70 percent of the plant. The use of an even flat fan tip with a spray angle of 40 degrees or less will aid in proper deposition.

Recommended tip sizes include 4004E or 1504E. For a straight stream and cone pattern, adjustable cone nozzles, such as 5500 X3 or 5500 X4, may be used. Attaching a roll-over valve onto a Spraying Systems Model 30 gunjet or other similar spray guns allows for the use of both a flat fan and cone tips on the same gun.

**Proper Spray Pattern:** Moisten but **DO NOT** drench target vegetation causing spray solution to run off.

### Low Volume with Backpacks:

For brush up to 4-feet tall, spray down on the crown covering crown and penetrating approximately 70% of the plant.

For brush 4- to 8-feet tall, swipe the sides of target vegetation by directing spray to at least two sides of the plant in smooth vertical motions from the crown to the bottom. Make sure to cover the crown whenever possible.

For brush over 8-feet tall, lace sides of the brush by directing spray to at least two sides of the target in smooth zigzag motions from crown to bottom.

### Low Volume with Hydraulic Handgun Application Equipment:

Use same technique as described above for **Low Volume with Backpacks**.

For broadcast applications, simulate a gentle rain near the top of target vegetation allowing spray to contact the crown and penetrate the target foliage without falling to the understory. Herbicide spray solution which contacts the understory may result in severe injury or death of plants in the understory.

**SPRAY SOLUTION MIXING GUIDE FOR LOW-VOLUME APPLICATIONS**

Amount Of Spray Solution Being Prepared (gallons)	Desired Concentration (fluid volume)				
	0.5%	0.75%	1%	1.5%	5%
	(amount of Arsenal® herbicide to use)				
1	0.6 oz	0.9 oz	1.3 oz	1.9 oz	6.5 oz
3	1.9 oz	2.8 oz	3.8 oz	5.8 oz	1.2 pints
4	2.5 oz	3.8 oz	5.1 oz	7.7 oz	1.6 pints
5	3.2 oz	4.8 oz	6.5 oz	9.6 oz	2 pints
50	2 pints	3 pints	4 pints	6 pints	10 quarts
100	4 pints	6 pints	8 pints	6 quarts	5 gallons

2 tablespoons = 1 fluid ounce

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### High Volumes:

For optimum performance when spraying medium- to high-density brush, use equipment calibrated to deliver up to 100 gallons of spray solution per acre (GPA). Spray solutions exceeding 100 GPA may result in excessive spray run-off causing increased ground cover injury and injury to desirable species. To prepare the spray solution, thoroughly mix **Arsenal® herbicide** at a rate of 2 to 6 pints per acre (see **IMPORTANT** section under **GROUND APPLICATIONS**) in water and add a surfactant (see **ADJUVANT** section for specific recommendations and rates of surfactants). A foam-reducing agent may be added at the recommended label rate, if needed. For control of difficult species (see **WEEDS CONTROLLED** section for relative susceptibility of weed species), use the higher concentrations of herbicide and/or spray volumes, but **DO NOT** apply more than 6 pints of **Arsenal** per acre. Uniformly cover the foliage of the vegetation to be controlled, but **DO NOT** apply to run-off. Excessive wetting of foliage is not recommended.

### TANK MIXES FOR BRUSH CONTROL:

**Arsenal** may be tank mixed with **Accord®**, **Roundup®**, **Krenite®**, **Escort®**, **Telar®**, **Tordon® K**, **Garlon® 3A**, **Banvel®** and **Vanquish®** to provide control of **Arsenal**-tolerant species.

Consult manufacturer's labels for specific rates and weeds controlled. Always follow the more restrictive label when making an application involving tank mixes. Tank mixing with 2,4-D or products which contain 2,4-D has resulted in reduced performance of **Arsenal**.

### INVERT EMULSIONS:

**Arsenal** can be applied as an invert emulsion. The spray solution results in an invert (water-in-oil) spray emulsion designed to minimize spray drift and spray run-off resulting in more herbicide on the target foliage. The spray emulsion may be formed in a single tank (batch mixing) or injected (in-line mixing). Consult the invert chemical label for proper mixing directions.

### CUT STUBBLE:

**Arsenal** can be applied within 2 weeks after mechanical mowing or cutting of brush. To suppress or control resprouting, uniformly apply a spray solution of **Arsenal** at the rate of 1 to 2 pints per acre to the cut area. **Arsenal** may be tank mixed with **Tordon K** or picloram to aid in control or suppression of brush. The addition of 5% (v/v) or more of a penetrating agent can aid in uptake through the bark or exposed roots.

Cut stubble applications are made to the soil and cut brush stumps. This type of application may increase ground cover injury. However, vegetation will recover. Making applications of **Arsenal** directly to the soil can increase potential root uptake causing injury or death of desirable trees.

Efficacy can be increased, and root uptake by desirable vegetation can be decreased, if the brush is allowed to regrow and the foliage is treated. See the **BRUSH CONTROLLED** section of this label.

### STUMP AND CUT STEM TREATMENTS:

**Arsenal** may be used to control undesirable woody vegetation on noncropland by applying the **Arsenal** solution to the cambium area of freshly cut stump surfaces or to fresh cuts on the stem of the target woody vegetation. Applications can be made at any time of the year except during periods of heavy sap flow in the spring. **DO NOT** over apply solution causing runoff or puddling.

**Mixing:** **Arsenal** may be mixed as either a concentrated or dilute solution for stump and cut stem treatments. The dilute solution may be used for applications to the surface of the stump or to cuts on the stem of the target woody vegetation. Concentrated solutions may be used for applications to cuts on the stem. Use of the concentrated solution permits application to fewer cuts on the stem, especially for large-diameter trees. Follow the application instructions to determine proper application techniques for each type of solution.

To prepare a dilute solution, mix 8 to 12 fluid ounces of **Arsenal** with one gallon of water. If temperatures are such that freezing of the spray mixture may occur, antifreeze (ethylene glycol) may be used according to manufacturer's label to prevent freezing. The use of a surfactant or penetrating agent may improve uptake through partially callused cambiums. To prepare a concentrated solution, mix 2 quarts of **Arsenal** with no more than 1 quart of water.

### APPLICATION WITH DILUTE SOLUTIONS:

**For cut stump treatments:** Spray or brush the solution onto the cambium area of the freshly cut stump surface. Insure that the solution thoroughly wets the entire cambium area (the wood next to the bark of the stump).

**For tree-injection treatments:** Using standard injection equipment, apply 1 milliliter of solution at each injection site around the tree with no more than one-inch intervals between cut edges. Insure that the injector completely penetrates the bark at each injection site.

**For frill or girdle treatments:** Using a hatchet, machete, or similar device, make cuts through the bark at intervals around the tree with no more than two-inch intervals between cut edges. Spray or brush the solution into each cut until thoroughly wet.

### APPLICATION WITH CONCENTRATED SOLUTIONS:

**For tree injection treatments:** Using standard injection equipment, apply 1 milliliter of solution at each injection site. Make at least one injection cut for every 3 inches of Diameter at Breast Height (DBH) on the target tree. For example, a 3-inch DBH tree will receive 1 injection cut, and a 6-inch DBH tree will receive 2 injection cuts. On trees requiring more than one injection site, place the injection cuts at approximately equal intervals around the tree.

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**For frill or girdle treatments:** Using a hatchet, machete, or similar device, make cuts through the bark at approximately equal intervals around the tree. Make at least one cut for every 3 inches of DBH on the target tree. For example, a 3-inch DBH tree will receive 1 cut, and a 6-inch DBH tree will receive 2 cuts. Spray or brush the solution into each cut until thoroughly wet.

**NOTE:** Injury may occur to desirable woody plants if the shoots extend from the same root system or their root systems are grafted to those of the treated tree.

### FOR CONTROL OF UNDESIRABLE WEEDS UNDER PAVED SURFACES

**Arsenal® herbicide** can be used under asphalt, pond liners and other paved areas ONLY in industrial sites or where the pavement has a suitable barrier along the perimeter that prevents encroachment of roots of desirable plants.

**Arsenal** should be used only where the area to be treated has been prepared according to good construction practices. If rhizomes, stolons, tubers or other vegetative plant parts are present in the site, they should be removed by scalping with a grader blade to a depth sufficient to insure their complete removal.

**IMPORTANT:** Paving should follow **Arsenal** applications as soon as possible. **DO NOT** apply where the chemical may contact the roots of desirable trees or other plants.

The product is not recommended for use under pavement on residential properties such as driveways or parking lots, nor is it recommended for use in recreational areas such as under bike or jogging paths, golf cart paths, or tennis courts, or where landscape plantings could be anticipated. Injury or death of desirable plants may result if this product is applied where roots are present or where they may extend into the treated area. Roots of trees and shrubs may extend a considerable distance beyond the branch extremities or so-called drip line.

#### APPLICATION DIRECTIONS FOR PAVED SURFACES:

Applications should be made to the soil surface only when final grade is established. **DO NOT** move soil following **Arsenal** application.

Apply **Arsenal** in sufficient water (at least 100 gal per acre) to ensure thorough and uniform wetting of the soil surface, including the shoulder areas. Add **Arsenal** at a rate of 6 pints per acre (2.2 fluid ounce per 1000 square feet) to clean water in the spray tank during the filling operation. Agitate before spraying.

If the soil is not moist prior to treatment, incorporation of **Arsenal** is needed for herbicide activation. **Arsenal** can be incorporated into the soil to a depth of 4 to 6 inches using a rototiller or disc. Rainfall or irrigation of 1 inch will also provide uniform incorporation. **DO NOT** allow treated soil to wash or move into untreated areas.

**FOR CONTROL OF UNDESIRABLE WEEDS IN UNIMPROVED BERMUDAGRASS AND BAHIAGRASS**  
**Arsenal** may be used on unimproved bermudagrass and

bahiagrass turf such as roadsides, utility rights-of-way and other noncropland industrial sites. The application of **Arsenal** on established common and coastal bermudagrass and bahiagrass provides control of labeled broadleaf and grass weeds. Competition from these weeds is eliminated, releasing the bermudagrass and bahiagrass. Treatment of bermudagrass with **Arsenal** results in a compacted growth habit and seedhead inhibition.

Uniformly apply with properly calibrated ground equipment using at least 10 gallons of water per acre with a spray pressure 20 to 50 psi.

**IMPORTANT:** Temporary yellowing of grass may occur when treatment is made after growth commences. **DO NOT** add surfactant in excess of the recommended rate (1 oz per 25 gallons of spray solution). **DO NOT APPLY** to grass during its first growing season. **DO NOT APPLY** to grass that is under stress from drought, disease, insects, or other causes.

#### DOSAGE RATES AND TIMING:

**Bermudagrass** - Apply **Arsenal** at 6 to 12 oz per acre when the bermudagrass is dormant. Apply **Arsenal** at 6 to 8 oz per acre after the bermudagrass has reached full green-up. Applications made during green-up will delay green-up. Include a surfactant in the spray solution (see **IMPORTANT** statement above).

For additional preemergence control of annual grasses and small seeded broadleaf weeds, add **Pendulum® herbicide** at the rate of 3.3 to 6.6 lbs per acre. Consult the **Pendulum** label for weeds controlled and for other use directions and precautions.

For control of Johnsongrass in bermudagrass turf, apply **Arsenal** at 8 oz per acre plus **Roundup® herbicide** at 12 oz per acre plus surfactant. For additional control of broadleaves and vines, **Garlon® 3A** may be added to the above mix at the rate of 1-2 pints per acre. Observe all precautions and restrictions on the **Garlon 3A** and **Roundup** labels.

**Bahiagrass** - Apply **Arsenal** at 4 to 8 oz per acre when the bahiagrass is dormant or after the grass has initiated green-up but has not exceeded 25% green-up. Include in the spray solution a surfactant (see **ADJUVANT** section for specific recommendations on surfactants).

#### WEEDS CONTROLLED:

Bedstraw (*Galium* spp.)  
Bishopweed (*Ptilimnium capillaceum*)  
Buttercup (*Ranunculus parviflorus*)  
Carolina geranium (*Geranium carolinianum*)  
Fescue (*Festuca* spp.)  
Foxtail (*Setaria* spp.)  
Little barley (*Hordeum pusillum*)  
Seedling Johnsongrass (*Sorghum halepense*)  
White clover (*Trifolium repens*)  
Wild carrot (*Daucus carota*)  
Yellow woodsorrel (*Oxalis stricta*)

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### GRASS GROWTH AND SEEDHEAD SUPPRESSION

**Arsenal® herbicide** may be used to suppress growth and seedhead development of certain turfgrass in unimproved areas. When applied to desirable turf, **Arsenal** may result in temporary turf damage and/or discoloration. Effects to the desirable turf may vary with environmental conditions. For optimum performance, application should be made prior to culm elongation. Applications may be made before or after mowing. If applied prior to mowing, allow at least three days of active growth before mowing. If following a mowing, allow sufficient time for the grasses to recover before applying this product or injury may be amplified.

**DO NOT APPLY** to turf under stress (drought, cold, insect damaged, etc.) or severe injury or death may occur.

**Bermudagrass** - Apply **Arsenal** at 6 to 8 oz per acre from early green-up to prior to seed head initiation. **DO NOT** add a surfactant for this application.

**Cool Season Unimproved Turf** - Apply **Arsenal** at 2 oz per acre plus 0.25% nonionic surfactant. For increased suppression, **Arsenal** may be tank mixed with such products as **Campaign®** (24 oz per acre) or **Embark®** (8 oz per acre).

Tank mixes may increase injury to desired turf. Consult each product label for recommended turf species and other use directions and precautions. Tank mixes with 2,4-D or products containing 2,4-D may decrease the effectiveness of **Arsenal**.

### TOTAL VEGETATION CONTROL WHERE BAREGROUND IS DESIRED

**Arsenal** is an effective herbicide for preemergence or postemergence control of many annual and perennial broadleaf and grass weeds where bareground is desired. **Arsenal** is particularly effective on hard-to-control perennial grasses. **Arsenal** at 1.5 to 6 pints per acre can be used alone or in tank mix with **Roundup®**, **Finale®**, MSMA, **Karmex®**, **Pendulum®**, simazine, **Banvel®**, **Vanquish®**, or **Oust®** herbicides. The degree and duration of control are dependent on the rate of **Arsenal** used, tank mix partner, the volume of carrier, soil texture, rainfall and other conditions.

Consult manufacturer's labels for specific rates and weeds controlled. Always follow the more restrictive label when making an application involving tank mixes.

### TANK MIX RECOMMENDATIONS FOR BAREGROUND

#### Herbicide Rates per Acre\*

<b>Arsenal herbicide</b>	<b>Pendulum® WDG</b>	<b>Pendulum 3.3 EC</b>	<b>Diuron</b>
Rate in pints	in lbs	in Quarts	in lbs ai
1.5 - 3	6.6	4.8	4 - 6
2 - 4	6.6	4.8	6 - 10
3 - 6	6.6	4.8	8 - 12

\* Use higher rates for fall applications and in areas that have not been previously treated or that feature heavy infestations.

Applications of **Arsenal** may be made anytime of the year. Use equipment calibrated to deliver desired gallons per acre spray volume and uniformly distribute the spray pattern over the treated area.

**Postemergence Applications:** Always use a spray adjuvant (see **ADJUVANT** section of this label) when making a postemergence application. For optimum performance on tough to control annual grasses, applications should be made at a total volume of 100 gallons per acre or less. For quicker burndown or brown-out of target weeds, **Arsenal** may be tank mixed with products such as **Roundup®**, **Finale**, or MSMA. Tank mixes with 2,4-D or products containing 2,4-D have reduced performance of **Arsenal**. Always follow the more restrictive label when tank mixing.

**Spot Treatments:** **Arsenal** may be used as a follow-up treatment to control escapes or weed encroachment in a bareground situation. To prepare the spray solution, thoroughly mix in each gallon of water 0.5 to 5% **Arsenal** plus an adjuvant. For increased burndown, include **Roundup®**, **Finale**, MSMA, or similar products. For added residual weed control or to increase the weed spectrum, add **Pendulum** or diuron. Always follow the more restrictive label when tank mixing.

### FOR SPOT TREATMENT WEED CONTROL IN GRASS PASTURE AND RANGELAND

For the control of undesirable vegetation in grass pasture and rangeland, **Arsenal** may be applied as a spot treatment at a rate of 2 to 48 fluid oz of product per treated acre using any of the described ground application methods. Spot applications to grass pasture and rangeland may not exceed more than one-tenth of the area to be grazed or cut for hay. See appropriate sections of this label for specific use directions for the application method and vegetation control desired. **DO NOT** apply more than 48 fluid oz per acre per year.

**Grazing and Haying Restrictions:** There are no grazing restrictions following **Arsenal** application. **DO NOT** cut forage grass for hay for seven days after **Arsenal** application.

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### GUIDELINES FOR RANGELAND USE

**Arsenal® herbicide** 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 **Arsenal** 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.

**Arsenal** should only be applied to a given rangeland acre as specific weed problems arise. 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.

### ROTATIONAL CROP GUIDELINE

Rotational crops may be planted twelve months after applying **Arsenal** at the recommended pasture and rangeland rate. Following twelve months after an **Arsenal** application and before planting any crop, a successful field bioassay must be completed. The field bioassay consists of a test strip of the intended rotational crop planted in the previously treated area in the grass pasture/rangeland and grown to maturity. The test strip should include low areas and knolls, and include variations in soil type and pH within the treated area. If no crop injury is evident in the test strip, the intended rotational crop may be planted the following year.

Use of **Arsenal** in accordance with label directions is expected to result in normal growth of rotational crops in most situations; however, various environmental and agro-

nomic factors make it impossible to eliminate all risks associated with the use of this product and, therefore, rotational crop injury is always possible.

### WEEDS CONTROLLED BY ARSENAL

**Arsenal** will provide preemergence or postemergence control with residual control of the following target vegetation species at the rates listed. Residual control refers to control of newly germinating seedlings in both annuals and perennials. In general, annual weeds may be controlled by preemergence or postemergence applications of **Arsenal**. **For established biennials and perennials, postemergence applications of Arsenal are recommended.** The rates shown below pertain to broadcast applications and indicate the relative sensitivity of these weeds. The relative sensitivity should be referenced when preparing low-volume spray solutions (see **Low-Volume** section of **GROUND APPLICATIONS**); low-volume applications may provide control of the target species with less **Arsenal** per acre than is shown for the broadcast treatments. **Arsenal** should be used only in accordance with the recommendations on this label and the leaflet label.

**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, **Arsenal** should be tank mixed or applied sequentially with an appropriate registered herbicide having a different mode of action to ensure control.

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COMMON NAME	GRASSES	GROWTH HABIT <sup>2</sup>
	SPECIES	
<b>Apply 2-3 pints per acre<sup>1</sup></b>		
Annual bluegrass	( <i>Poa annua</i> )	A
Broadleaf signalgrass	( <i>Brachiaria platyphylla</i> )	A
Canada bluegrass	( <i>Poa compressa</i> )	P
Downy brome	( <i>Bromus tectorum</i> )	A
Fescue	( <i>Festuca</i> spp.)	A/P
Foxtail	( <i>Setaria</i> spp.)	A
Italian ryegrass	( <i>Lolium multiflorum</i> )	A
Johnsongrass	( <i>Sorghum halepense</i> )	P
Kentucky bluegrass	( <i>Poa pratensis</i> )	P
Lovegrass	( <i>Eragrostis</i> spp.)	A/P
Orchardgrass	( <i>Dactylis glomerata</i> )	P
Paragrass	( <i>Brachiaria mutica</i> )	P
Quackgrass	( <i>Agropyron repens</i> )	P
Sandbur	( <i>Cenchrus</i> spp.)	A
Sand dropseed	( <i>Sporobulus cryptandrus</i> )	A
Smooth brome	( <i>Bromus inermis</i> )	P
Vaseygrass	( <i>Paspalum urvillei</i> )	P
Wild oats	( <i>Avena fatua</i> )	A
Witchgrass	( <i>Panicum capillare</i> )	A
<b>Apply 3-4 pints per acre<sup>1</sup></b>		
Barnyardgrass <sup>3</sup>	( <i>Echinochloa crus-galli</i> )	A
Beardgrass	( <i>Andropogon</i> spp.)	P
Bluegrass, annual <sup>3</sup>	( <i>Poa annua</i> )	A
Cheat	( <i>Bromus secalinus</i> )	A
Crabgrass	( <i>Digitaria</i> spp.)	A
Crowfootgrass <sup>3</sup>	( <i>Dactyloctenium aegyptium</i> )	A
Fall panicum	( <i>Panicum dichotomiflorum</i> )	A
Giant reed	( <i>Arundo donax</i> )	A
Goosegrass	( <i>Eleusine indica</i> )	A
Itchgrass <sup>3</sup>	( <i>Rottboellia exaltata</i> )	A
Junglerice <sup>3</sup>	( <i>Echinochloa colonum</i> )	A
Lovegrass <sup>3</sup>	( <i>Eragrostis</i> spp.)	A
Maidencane	( <i>Panicum hemitomon</i> )	A
Panicum, browntop <sup>3</sup>	( <i>Panicum fasciculatum</i> )	A
Panicum, Texas <sup>3</sup>	( <i>Panicum texanum</i> )	A
Prairie threeawn	( <i>Aristida oligantha</i> )	P
Reed canarygrass	( <i>Phalaris arundinacea</i> )	P
Sandbur, field <sup>3</sup>	( <i>Cenchrus incertus</i> )	A
Signalgrass <sup>3</sup>	( <i>Brachiaria</i> spp.)	A
Torpedograss	( <i>Panicum repens</i> )	P
Wild barley	( <i>Hordeum</i> spp.)	A
Woolly cupgrass <sup>3</sup>	( <i>Eriochloa villosa</i> )	A

## Appendix B - Arsenal Label

### GRASSES (continued)

COMMON NAME	SPECIES	GROWTH HABIT <sup>2</sup>
<b>Apply 4-6 pints per acre<sup>1</sup></b>		
Bahiagrass	( <i>Paspalum notatum</i> )	P
Bermudagrass <sup>4</sup>	( <i>Cynodon dactylon</i> )	P
Big bluestem	( <i>Andropogon gerardii</i> )	P
Cattail	( <i>Typha</i> spp.)	P
Cogongrass	( <i>Imperata cylindrica</i> )	P
Dallisgrass	( <i>Paspalum dilatatum</i> )	P
Feathertop	( <i>Pennisetum villosum</i> )	P
Guineagrass	( <i>Panicum maximum</i> )	P
Phragmites	( <i>Phragmites australis</i> )	P
Prairie cordgrass	( <i>Spartina pectinata</i> )	P
Saltgrass <sup>5</sup>	( <i>Distichlis stricta</i> )	P
Sand dropseed	( <i>Sporobolus cryptandrus</i> )	P
Sprangletop <sup>3</sup>	( <i>Leptochloa</i> spp.)	A
Timothy	( <i>Phleum pratense</i> )	P
Wirestem muhly	( <i>Muhlenbergia frondosa</i> )	P

### BROADLEAF WEEDS

**Apply 2-3 pints per acre<sup>1</sup>**

Alligatorweed	( <i>Alternanthera philoxeroides</i> )	A/P
Burdock	( <i>Arctium</i> spp.)	B
Carolina geranium	( <i>Geranium carolinianum</i> )	A
Carpetweed	( <i>Mollugo verticillata</i> )	A
Clover	( <i>Trifolium</i> spp.)	A/P
Common chickweed	( <i>Stellaria media</i> )	A
Common ragweed	( <i>Ambrosia artemisiifolia</i> )	A
Dandelion	( <i>Taraxacum officinale</i> )	P
Dogfennel	( <i>Eupatorium capillifolium</i> )	A
Filaree	( <i>Erodium</i> spp.)	A
Fleabane	( <i>Erigeron</i> spp.)	A
Hoary vervain	( <i>Verbena stricta</i> )	P
Indian mustard	( <i>Brassica juncea</i> )	A
Kochia <sup>6</sup>	( <i>Kochia scoparia</i> )	A
Lambsquarters	( <i>Chenopodium album</i> )	A
Lespedeza	( <i>Lespedeza</i> spp.)	P
Miners lettuce	( <i>Montia perfoliata</i> )	A
Mullein	( <i>Verbascum</i> spp.)	B
Nettleleaf goosefoot	( <i>Chenopodium murale</i> )	A
Oxeye daisy	( <i>Chrysanthemum leucanthemum</i> )	P
Pepperweed	( <i>Lepidium</i> spp.)	A
Pigweed	( <i>Amaranthus</i> spp.)	A
Puncturevine	( <i>Tribulus terrestris</i> )	A
Russian thistle	( <i>Salsola kali</i> )	A
Smartweed	( <i>Polygonum</i> spp.)	A
Sorrell	( <i>Rumex</i> spp.)	P
Sunflower	( <i>Helianthus</i> spp.)	A
Sweet clover	( <i>Melilotus</i> spp.)	A
Tansymustard	( <i>Ambrosia psilostachya</i> )	P
Wild carrot	( <i>Daucus carota</i> )	B
Wild lettuce	( <i>Lactuca</i> spp.)	A/B
Wild parsnip	( <i>Pastinaca sativa</i> )	B

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**BROADLEAF WEEDS** (continued)

COMMON NAME	SPECIES	GROWTH HABIT <sup>2</sup>
<b>Apply 2-3 pints per acre<sup>1</sup></b>		
Wild turnip	( <i>Brassica campestris</i> )	B
Woollyleaf bursage	( <i>Franseria tomentosa</i> )	P
Yellow woodsorrel	( <i>Oxalis stricta</i> )	P
<b>Apply 3-4 pints per acre<sup>1</sup></b>		
Broom snakeweed <sup>9</sup>	( <i>Gutierrezia sarothrae</i> )	P
Bull thistle	( <i>Cirsium vulgare</i> )	B
Burclover <sup>3</sup>	( <i>Medicago</i> spp.)	A
Chickweed, mouseear <sup>6</sup>	( <i>Cerastium vulgatum</i> )	A
Clover, hop <sup>9</sup>	( <i>Trifolium procumbens</i> )	A
Cocklebur	( <i>Xanthium strumarium</i> )	A
Cudweed <sup>5</sup>	( <i>Gnaphalium</i> spp.)	A
Desert camelthorn	( <i>Alhagi pseudalhagi</i> )	P
Diffuse knapweed	( <i>Centaurea diffusa</i> )	A
Dock	( <i>Rumex</i> spp.)	P
Fiddleneck <sup>2</sup>	( <i>Amsinckia intermedia</i> )	A
Goldenrod	( <i>Solidago</i> spp.)	P
Henbit <sup>3</sup>	( <i>Lamium alexicaule</i> )	A
Knotweed, prostrate <sup>3</sup>	( <i>Polygonum aviculare</i> )	A/P
Pokeweed	( <i>Phytolacca americana</i> )	P
Purple loosestrife <sup>6</sup>	( <i>Lythrum salicaria</i> )	P
Purslane	( <i>Portulaca</i> spp.)	A
Pusley, Florida <sup>3</sup>	( <i>Richardia scabra</i> )	A
Rocket, London <sup>3</sup>	( <i>Sisymbrium irio</i> )	A
Rush skeletonweed <sup>6</sup>	( <i>Chondrilla juncea</i> )	B
Saltbush	( <i>Atriplex</i> spp.)	A
Shepherdspurse <sup>3</sup>	( <i>Capsella bursa-pastoris</i> )	A
Spurge, annual <sup>9</sup>	( <i>Euphorbia</i> spp.)	A
Stinging nettle <sup>6</sup>	( <i>Urtica dioica</i> )	P
Velvetleaf <sup>9</sup>	( <i>Abutilon theophrasti</i> )	A
Yellow starthistle	( <i>Centaurea solstitialis</i> )	A
<b>Apply 4-6 pints per acre<sup>1</sup></b>		
Arrowwood	( <i>Pluchea sericea</i> )	A
Canada thistle	( <i>Cirsium arvense</i> )	P
Giant ragweed	( <i>Ambrosia trifida</i> )	A
Grey rabbitbrush	( <i>Chrysothamnus nauseosus</i> )	P
Japanese bamboo/knotweed	( <i>Polygonum cuspidatum</i> )	P
Little mallow	( <i>Malva parviflora</i> )	B
Milkweed	( <i>Asclepias</i> spp.)	P
Primrose	( <i>Oenothera kunthiana</i> )	P
Russian knapweed	( <i>Centaurea repens</i> )	P
Silverleaf nightshade	( <i>Solanum elaeagnifolium</i> )	P
Sowthistle	( <i>Sonchus</i> spp.)	A
Texas thistle	( <i>Cirsium texanum</i> )	P

## Appendix B - Arsenal Label

### VINES AND BRAMBLES

COMMON NAME	SPECIES	GROWTH HABIT <sup>a</sup>
	<b>Apply 1 pint per acre</b>	
Field bindweed	( <i>Convolvulus arvensis</i> )	P
Hedge bindweed	( <i>Calystegia sepium</i> )	A
	<b>Apply 2-3 pints per acre<sup>1</sup></b>	
Wild buckwheat	( <i>Polygonum convolvulus</i> )	P
	<b>Apply 3-4 pints per acre<sup>1</sup></b>	
Greenbriar	( <i>Smilax</i> spp.)	P
Honeysuckle	( <i>Lonicera</i> spp.)	P
Morningglory	( <i>Ipomoea</i> spp.)	A/P
Poison ivy	( <i>Rhus radicans</i> )	P
Redvine	( <i>Brunnichia cirrhosa</i> )	P
Wild rose	( <i>Rosa</i> spp.)	P
Including: Multiflora rose	( <i>Rosa multiflora</i> )	P
Macartney rose	( <i>Rosa bractreata</i> )	P
	<b>Apply 4-6 pints per acre<sup>1</sup></b>	
Kudzu <sup>4</sup>	( <i>Pueraria lobata</i> )	P
Trumpet creeper	( <i>Campsis radicans</i> )	P
Virginia creeper	( <i>Parthenocissus quinquefolia</i> )	P
Wild grape	( <i>Vitis</i> spp.)	P

### BRUSH SPECIES

	<b>Apply 4-6 pints per acre<sup>1</sup></b>	
American beech	( <i>Fagus grandifolia</i> )	P
Ash	( <i>Fraxinus</i> spp.)	P
Bald cypress	( <i>Taxodium distichum</i> )	P
Bigleaf Maple	( <i>Acer macrophyllum</i> )	P
Blackgum	( <i>Nyssa sylvatica</i> )	P
Black Locust <sup>7</sup>	( <i>Robinia pseudoacacia</i> )	P
Boxelder	( <i>Acer negundo</i> )	P
Brazilian peppertree	( <i>Schinus terebinthifolius</i> )	P
Cherry	( <i>Prunus</i> spp.)	P
Chinaberry	( <i>Melia azadarach</i> )	P
Chinese tallow-tree	( <i>Sapium sebiferum</i> )	P
Dogwood	( <i>Cornus</i> spp.)	P
Elm <sup>6</sup>	( <i>Ulmus</i> spp.)	P
Hawthorn	( <i>Crataegus</i> spp.)	P
Hickory	( <i>Carya</i> spp.)	P
Honeylocust <sup>8</sup>	( <i>Gleditsia triacanthos</i> )	P
Maple	( <i>Acer</i> spp.)	P
Melaleuca	( <i>Melaleuca quiquenervia</i> )	P
Mulberry	( <i>Morus</i> spp.)	P
Oak	( <i>Quercus</i> spp.)	P
Persimmon	( <i>Diospyros virginiana</i> )	P
Pine <sup>5</sup>	( <i>Pinus</i> spp.)	P
Poplar	( <i>Populus</i> spp.)	P
Privet	( <i>Ligustrum vulgare</i> )	P
Red Alder	( <i>Alnus rubra</i> )	P
Red Maple	( <i>Acer rubrum</i> )	P
Russian Olive	( <i>Eleagnus angustifolia</i> )	P
Saltcedar	( <i>Tamarix ramosissima</i> )	P
Sassafras	( <i>Sassafras albidum</i> )	P

## Appendix B - Arsenal Label

### BRUSH SPECIES *(continued)*

Apply 4-6 pints per acre<sup>1</sup>

COMMON NAME	SPECIES	GROWTH HABIT <sup>2</sup>
Sourwood	<i>(Oxydendrum arboreum)</i>	P
Sumac	<i>(Rhus spp.)</i>	P
Sweetgum	<i>(Liquidambar styraciflua)</i>	P
Willow	<i>(Salix spp.)</i>	P
Yellow poplar	<i>(Liriodendron tulipifera)</i>	P

<sup>1</sup> The higher rates should be used where heavy or well-established infestations occur.

<sup>2</sup> Growth Habit:- A = Annual, B = Biennial, P = Perennial

<sup>3</sup> For preemergence control, tank mix with **Pendulum® herbicide**.

<sup>4</sup> Use a minimum of 75 GPA - control of established stands may require repeat applications.

<sup>5</sup> For preemergence control, tank mix with **Pendulum**, **Karmex®** or diuron.

<sup>6</sup> For best results, early postemergence applications are required.

<sup>7</sup> Tank mix with **Roundup®**, **Accord®**, **Escort®**, **Krenite®**, **Garlon® 3A** or **Tordon® K**.

<sup>8</sup> Tank mix with **Roundup**, **Accord**, or **Escort**.

<sup>9</sup> Tank mix with **Roundup**, **Accord**, **Garlon 3A** or **Tordon K**.

<sup>10</sup> Tank mix with **Accord**, **Roundup**, **Garlon 3A**, **Tordon K** or **Krenite**.

### Conditions of Sale and Warranty

The **Directions For Use** of this product reflects 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 BASF CORPORATION ("BASF") or the Seller. 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.

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BASF Corporation  
Agricultural Products  
26 Davis Drive  
Research Triangle Park, NC 27709



# BASF

The Chemical Company



The Chemical Company

## Safety data sheet

### ARSENAL®

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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:	000000063383
Molecular formula:	C(13) H(15) N(3) O(3). C(3) H(9) N
Molecular weight:	320.4 g/mol
Chemical family:	imidazole derivative
Synonyms:	Isopropylamine salt of imazapyr

#### 2. Composition/information on ingredients

<u>CAS Number</u>	<u>Content (W/W)</u>	<u>Chemical name</u>
81510-83-0	71.3 % 28.7 %	Proprietary ingredients 3-Pyridinecarboxylic acid, 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-, compd. with 2-propanamine (1:1)

#### 3. Hazard identification

##### Emergency overview

CAUTION: KEEP OUT OF REACH OF CHILDREN.

Avoid contact with the skin, eyes and clothing.

Avoid inhalation of mists/vapours.

##### 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. Slightly toxic after short-term skin contact. Relatively nontoxic after short-term inhalation.

##### Irritation:

May cause slight but temporary irritation to the eyes. May cause slight irritation to the skin.

##### Sensitization:

Skin sensitizing effects were not observed in animal studies.

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**Repeated dose toxicity:**  
No other known chronic effects.

### Potential environmental effects

**Aquatic toxicity:**  
There is a high probability that the product is not acutely harmful to fish.  
There is a high probability that the product is not acutely harmful to aquatic invertebrates.  
Acutely harmful for aquatic plants.

**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:	> 210 °F
Self-ignition temperature:	93 °C

**Suitable extinguishing media:**  
foam, dry extinguishing media, carbon dioxide, water spray

**Hazards during fire-fighting:**  
carbon monoxide, carbon dioxide, nitrogen oxide, nitrogen dioxide, Hydrocarbons,  
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.

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**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.

---

## 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:**

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**

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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.

**9. Physical and chemical properties**

Form:	liquid	
Odour:	ammonia-like, faint odour	
Colour:	blue, clear	
pH value:	6.6 - 7.2	
Density:	1.04 - 1.09 g/ml	
Relative density:	1.04 - 1.09	
Partitioning coefficient n-octanol/water (log Pow):		Not applicable
Solubility in water:		miscible

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#### 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:**

oxidizing agents, reducing agents

**Hazardous reactions:**

The product is chemically stable.

**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

Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released. If product is heated above decomposition temperature hazardous fumes may be released.

**Corrosion to metals:**

Corrosive effect on: mild steel brass

---

#### 11. Toxicological information

Acute toxicity

**Oral:**

LD50/rat/male/female: > 5,000 mg/kg

**Inhalation:**

LC50/rat: > 4.62 mg/l / 4 h

**Dermal:**

LD50/rabbit/male/female: > 2,000 mg/kg

**Skin irritation:**

rabbit: mildly irritating (Primary skin irritation test)

**Eye irritation :**

rabbit: non-irritant

**Sensitization:**

Skin sensitization test/guinea pig: Skin sensitizing effects were not observed in animal studies.

**Genetic toxicity:**

*Information on: imazapyr*

*No mutagenic effect was found in various tests with microorganisms and mammals.*

**Carcinogenicity:**

*Information on: imazapyr*

*In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed.*

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-----  
**Reproductive toxicity:**

*Information on: imazapyr*

*The results of animal studies gave no indication of a fertility impairing effect.*

-----

**Developmental toxicity/teratogenicity:**

*Information on: imazapyr*

*No indications of a developmental toxic / teratogenic effect were seen in animal studies.*

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## 12. Ecological information

*Information on: imazapyr*

**Environmental toxicity**

*Information on: imazapyr*

*Acute and prolonged toxicity to fish:*

*Rainbow trout/LC50 (96 h): > 100 mg/l*

-----

*Information on: imazapyr*

*Acute toxicity to aquatic invertebrates:*

*Daphnia magna/EC50 (48 h): > 100 mg/l*

-----

*Information on: imazapyr*

*Toxicity to aquatic plants:*

*green algae/EC50: 71 mg/l*

-----

*Information on: imazapyr*

*Other terrestrial non-mammals:*

*mallard duck/LC50: > 5,000 ppm*

*With high probability not acutely harmful to terrestrial organisms.*

*Honey bee/LD50: > 100 ug/bee*

*With high probability not acutely harmful to terrestrial organisms.*

-----

**Other ecotoxicological advice:**

The ecological data given are those of the active ingredient. Do not release untreated into natural waters.

---

## 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.

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## 14. Transport information

Reference Bill of Lading

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## 15. Regulatory information

### Federal Regulations

Registration status:  
TSCA, US released / exempt

OSHA hazard category: Chronic target organ effects reported, ACGIH TLV established

SARA hazard categories (EPCRA 311/312): Acute

### State regulations

CA Prop. 65:  
There are no listed chemicals in this product.

---

## 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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END OF DATA SHEET

# Specimen Label



**Herbicide**

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**For selective control of broadleaf weeds in wheat and barley not underseeded with a legume, fallow cropland, grasses grown for seed, rangeland and permanent grass pastures, conservation reserve program (CRP) acres and non-cropland**

Active Ingredients:	
clopyralid MEA salt: 3,6-dichloro-2-pyridinecarboxylic acid, monoethanolamine salt.....	5.1%
2,4-dichlorophenoxyacetic acid, triisopropanolamine salt <sup>1</sup> .....	39.0%
Inert Ingredients .....	55.9%
Total .....	100.0%

Acid Equivalents:  
 clopyralid: 3,6-dichloro-2-pyridinecarboxylic acid - 3.9% - 0.38 lb/gal  
 2,4-dichlorophenoxyacetic acid - 20.9% - 2.0 lb/gal  
<sup>1</sup>Isomer Specific by AOAC Method No. 978.05 (15th Ed.)

EPA Reg. No. 62719-48

**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

### Hazards to Humans and Domestic Animals

**Corrosive • Causes Irreversible Eye Damage • Harmful If Absorbed Through Skin Or Inhaled • Harmful If Swallowed**

Do not get in eyes, on skin, or on clothing. Wear protective eyewear (goggles or face shield). Avoid breathing spray mist.

### Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material
- Shoes plus socks
- Protective eyewear
- For containers of over 1 gallon, but less than 5 gallons: Mixers and loaders who do not use a mechanical system (such as probe and pump) to transfer the contents of this container must wear coveralls or a chemical-resistant apron in addition to other required PPE.

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

### Engineering Controls Statements

**For containers of 5 gallons or more:** A mechanical system (such as probe and pump) must be used for transferring the contents of this container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal. If the mechanical system is used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4)], the handler PPE requirements may be reduced or modified as specified in the WPS.

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

### User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

## Appendix B - Curtail Label

### 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.

**If inhaled:** 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. Call a poison control center or doctor for further treatment advice.

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

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

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters. Drift or runoff may adversely affect non-target plants.

Clopyralid is a chemical which can travel (seep or leach) through soil and under certain conditions contaminate groundwater which may be used for irrigation or drinking purposes. Users are advised not to apply clopyralid where soils have a rapid to very rapid permeability throughout the profile (such as loamy sand to sand) and the water table of an underlying aquifer is shallow, or to soils containing sinkholes over limestone bedrock, severely fractured surfaces, and substrates which would allow direct introduction into an aquifer. Your local agricultural agencies can provide further information on the type of soil in your area and the location of groundwater.

**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.

Sale and use of this product in Suffolk and Nassau counties in the state of New York is prohibited. Use of this product in the state of New York is limited to postemergence application with a maximum use of 20.9 fl oz (0.062 lb of clopyralid) per acre per year providing that no other product containing clopyralid has been applied pre-plant or post-plant.

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
- Chemical-resistant gloves made of any waterproof material
- Shoes plus socks
- Protective eyewear

### 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 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 follow cropland, rangeland, pasture, and non-crop areas, do not enter treated areas until sprays have dried. For early entry to treated areas, wear eye protection, chemical-resistant gloves made of any waterproof material, long-sleeved shirt, long pants, shoes and socks.

### Storage and Disposal

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

**Pesticide Storage:** Store above 40°F or warm and agitate before use.

**Pesticide Disposal:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**Metal Container Disposal:** Do not reuse container. Triple rinse (or equivalent). 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.

**Container Disposal (Plastic):** Do not reuse container. Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**General:** Consult federal, state, or local disposal authorities for approved alternative procedures.

# Appendix B - Curtail Label

## General Information

Curtail\* herbicide is recommended for selective, postemergence control of broadleaf weeds in wheat and barley not underseeded with a legume, fallow cropland (including summer fallow, post-harvest, and set-aside acres) rangeland and permanent grass pastures, land in the Conservation Reserve Program (CRP) and non-cropland.

### Precautions and Restrictions

- Use directions in Dow AgroSciences supplemental labeling may supersede directions or limitations in this labeling.
- Do not exceed a cumulative amount of 0.25 lb active ingredient (a.i.) of clopyralid per acre per single crop year.
- Do not contaminate irrigation ditches or water used for irrigation or domestic purposes.
- Do not use in greenhouses.
- **Chemigation:** Do not apply this product through any type of irrigation system.
- Many forbs (desirable broadleaf forage plants) are susceptible to Curtail. Do not spray pastures containing desirable forbs, especially legumes, unless injury can be tolerated. However, the stand and growth of established perennial grasses is usually improved after spraying, especially when rainfall is adequate and grazing is deferred.
- Do not use on newly seeded areas until grass is well established as indicated by vigorous growth and development of tillers and secondary roots.
- Do not use on bentgrass.
- Apply only once per crop cycle, except for grasses grown for seed (see specific use directions). An application to fallow cropland preceding or following an application to small grains (wheat or barley) is allowed.
- **Pasture/Grazing/Haying Restrictions:** Do not graze lactating dairy cattle in treated areas for 14 days after application. Remove meat animals from freshly treated areas 7 days before slaughter. Withdrawal is not needed if 2 weeks or more have elapsed since application. Do not cut treated grass for hay within 30 days after application.
- **Do not transfer livestock** from treated grazing areas (or feeding of treated hay) to sensitive broadleaf crop areas without first allowing 7 days of grazing on an untreated pasture (or feeding of untreated hay). If livestock are transferred within less than 7 days of grazing untreated pasture or eating untreated hay, urine and manure may contain enough clopyralid to cause injury to sensitive broadleaf plants.

- **Field Bioassay Instructions:** In fields previously treated with this product, plant short test rows of the intended rotational crop across the original direction of application in a manner to sample field conditions such as soil texture, soil pH, drainage, and any other variable that could affect the seed bed of the new crop. The field bioassay can be initiated at any time between harvest of the treated crop and the planting of the intended rotational crop. Observe the test crop for herbicidal activity, such as poor stand (effect on seed germination), chlorosis (yellowing), and necrosis (dead leaves or shoots), or stunting (reduced growth). If herbicidal symptoms do not occur, the test crop can be grown. If there is apparent herbicidal activity, do not plant the field to the test rotational crop; plant only a labeled crop or crop listed in the table below for which the rotational interval has clearly been met.

### Crop Rotation Intervals

Residues of Curtail in treated plant tissues, including the treated crop or weeds, which have not decayed may affect succeeding susceptible crops.

### Crop Rotation Intervals for All States, Except Idaho, Nevada, Oregon, Utah and Washington

**Note:** Numbers in parenthesis and <sup>1</sup> refer to footnotes following tables.

Rotation Crops (1)	Rotation Interval <sup>1</sup> (Soils greater than 2% organic matter AND rainfall more than 15 inches during 12 months following application)	Rotation Interval <sup>1</sup> (Soils less than 2% organic matter AND rainfall less than 15 inches during 12 months following application)
barley, field corn, grasses, oats, wheat	30 days	30 days
canola (rapeseed), flax, sugar beets	5 months	5 months
alfalfa, asparagus, cole crops, dry beans, grain sorghum, mint, onions, popcorn, safflower, soybeans, strawberries, sunflowers, sweet corn	10.5 months	18 months (2)
lentils, peas, potatoes (including potatoes grown for seed), and broadleaf crops grown for seed (excluding Brassica species)	18 months (2, 3)	18 months (2, 3)

1. A field bioassay is recommended prior to planting any broadleaf crops that are not listed. Do not rotate to unlisted crops prior to 10.5 months following application.
2. An 18-month crop rotation is recommended due to the potential for crop injury. **Note:** For these crops, a minimum 10.5 month rotation interval must be observed to avoid illegal residues in the harvested crop.
3. The potential for injury may be reduced by burning, removal, or incorporation of treated crop residues followed by a minimum of 2 supplemental fall irrigations.

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### Crop Rotation Intervals for Idaho, Nevada, Oregon, Utah and Washington Only

Rotation Crop	Rotation Interval † (Soils greater than 2% organic matter AND rainfall more than 15 inches during 12 months following application)	Rotation Interval † (Soils less than 2% organic matter AND rainfall less than 15 inches during 12 months following application)
barley, field corn, grasses, oats, wheat	30 days	30 days
canola (rapeseed), flax, sugar beets	5 months	5 months
asparagus, <i>Brassica</i> species grown for seed, cole crops, grain sorghum, mint, onions, popcorn, strawberries, sweet corn	12 months	12 months
alfalfa, dry beans, soybeans, sunflowers	12 months	18 months (2)
lentils, peas, potatoes (including potatoes grown for seed), safflower, and broadleaf crops grown for seed (excluding <i>Brassica</i> species)	18 months (2)	18 months (2, 3)

1. A field bioassay is recommended prior to planting any broadleaf crops that are not listed. Do not rotate to unlisted crops prior to 12 months following application.
2. An 18-month crop rotation is recommended due to the potential for crop injury. **Note:** For these crops, a minimum 12 month rotation interval must be observed to avoid illegal residues in the harvested crop.
3. Crop injury and/or yield loss may occur up to 4 years after application. A field bioassay is also recommended prior to planting these sensitive crops. See instructions below.

† **Note:** The above intervals are based on average annual precipitation, regardless of irrigation practices. Observance of recommended crop rotation intervals should result in adequate safety to rotational crops. However, Curtail is dissipated in the soil by microbial activity and the rate of microbial activity is dependent on several interrelating factors including soil moisture, temperature and organic matter. Therefore, accurate prediction of rotational crop safety is not possible. In areas of low organic matter (<2.0%) and less than 15 inches average annual precipitation, potential for crop injury may be reduced by burning or removal of plant residues, supplemental fall irrigation and deep moldboard plowing prior to planting the sensitive crop.

### Avoiding Injury to Non-Target Plants

This product can affect susceptible broadleaf plants directly through foliage and indirectly by root uptake from treated soil. Therefore, do not apply Curtail directly to, or allow spray drift to come in contact with, flowers, grapes, tomatoes, potatoes, beans, lentils, peas, alfalfa, sunflowers, soybeans, safflower, or other desirable broadleaf crops and ornamental plants or soil where these sensitive crops will be planted the same season.

**Residues in Plants or Manure:** Do not use plant residues, including hay or straw from treated areas, or manure or bedding straw from animals that have grazed or consumed forage from treated areas, for composting or mulching, where susceptible plants may be grown the following season. Do not spread manure from animals that have grazed or consumed forage or hay from treated areas on land used for growing susceptible broadleaf crops. To promote herbicidal decomposition, plant residues should be evenly incorporated or burned. Breakdown of clopyralid in crop residues or manure is more rapid under warm, moist soil conditions and may be enhanced by supplemental irrigation.

### Avoid Movement of Treated Soil

Avoid conditions under which soil from treated areas may be moved or blown to areas containing susceptible plants. Wind-blown dust containing clopyralid may produce visible symptoms, such as epinasty (downward curving or twisting of leaf petioles or stems) when deposited on susceptible plants; however, serious injury is unlikely. To minimize potential movement of clopyralid on wind-blown dust, avoid treatment of powdery dry or light sandy soils until soil is settled by rainfall or irrigation or irrigation shortly after application.

### Avoid Spray Drift

Avoid spray drift since very small quantities of the spray, which may not be visible, may severely injure susceptible crops during active growth or dormant periods. Use coarse sprays to minimize drift. To aid in further reducing drift, a drift control or deposition agent suitable for agricultural use may be used with this product. If used, follow all use recommendations and precautions on the product label.

**Ground Application:** With ground equipment, spray drift can be lessened by keeping the spray boom as low as possible, by applying 10 gallons or more of spray per acre, by keeping the operating spray pressures at the manufacturer's minimum recommended pressures for the specified nozzle type used (low pressure nozzles are available from spray equipment manufacturers), and by spraying when the wind velocity is low (follow state regulations). Avoid application under completely calm conditions which may be conducive to air inversion. In hand-gun applications, select the minimum pressure required to obtain adequate plant coverage without forming a mist. **Do not** apply with a mist blower.

**Aerial Application:** With aircraft, drift can be lessened by using straight stream nozzles directed straight back; by using a spray boom no longer than 3/4 the wing span of the aircraft; by using drift control systems or drift control additives; and, by keeping spray pressures low enough to provide coarse spray droplets. Do not use a thickening agent with the Microfoil or Thru-Valve booms, or other systems that cannot accommodate thick sprays. Spray only when wind velocity is low (follow state regulations). Avoid calm conditions which may be conducive to air inversions.

**Do not apply by aircraft when an air temperature inversion exists.** Such a condition is characterized by little or no wind and lower air temperature near the ground than at higher levels. The use of a smoke device on the aircraft or continuous smoke column at or near site of application will indicate air direction and velocity, and whether a temperature inversion is present, as indicated by horizontal layering of the smoke.

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### Sprayer Clean-Out

To avoid injury to desirable plants, equipment used to apply Curtail should be thoroughly cleaned before re-using to apply any other chemicals.

1. Rinse and flush application equipment thoroughly at least 3 times with water after use. Dispose of rinse water by application to treatment area or in non-cropland area away from water supplies.
2. During the second rinse, add 1 qt of household ammonia for every 25 gallons of water. Circulate the solution through the entire system so that all internal surfaces are contacted (15-20 minutes). Let the solution stand for several hours, preferably overnight.
3. Flush the solution out of the spray tank through the boom.
4. Rinse the system twice with clean water, recirculating and draining each time.
5. Remove nozzles and screens and clean separately.

### Mixing and Loading

Most cases of groundwater contamination involving phenoxy herbicides, such as 2,4-dichlorophenoxyacetic acid, have been associated with mixing/loading and disposal sites. Caution should be exercised when handling 2,4-dichlorophenoxyacetic acid pesticides at such sites to prevent contamination of groundwater supplies. Use of closed systems for mixing or transferring this pesticide will reduce the probability of spills. Placement of the mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination.

### Mixing Instructions

1. Add 3/4 of the required spray volume to the spray tank and start agitation.
2. Add the required amount of Curtail.
3. Add any surfactants, adjuvants or drift control agents according to manufacturer's label.
4. Agitate during final filling of the spray tank and maintain sufficient agitation during application to ensure uniformity of the spray mixture.

**Note:** Allow time for thorough mixing of each spray ingredient before adding the next. If allowed to stand after mixing, agitate spray mixture before use.

### Tank Mixing

This product may be applied in tank mix combination with labeled rates of other products 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.

### 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. Do not tank mix with another pesticide product that contains the same active ingredient as this product unless the label of either tank mix partner specifies the maximum dosages that may be used.
- For products packaged in water soluble packaging, do not tank mix with products containing boron or mix in equipment previously used to apply a product mixture containing boron unless the tank and spray equipment has been adequately cleaned. (See instructions for Sprayer Clean-Out.)
- Always perform a (jar) test to ensure the compatibility of products to be used in tank mixture.

**Tank Mix Compatibility Testing:** A jar test is recommended prior to tank mixing to ensure compatibility of Curtail and other pesticides. 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, gels, oily films or layers, or other precipitates, it is not compatible and the tank mix combination should not be used.

### Application Directions

#### Application Timing

Apply to actively growing weeds. Extreme growing conditions such as drought or near freezing temperatures prior to, at or following application may reduce weed control and increase the risk of crop injury at all stages of growth. Only weeds that have emerged at the time of application will be affected. If foliage is wet at the time of application, control may be decreased. Applications of Curtail are rainfast within 6 hours after application.

#### Application Rates

Generally, application rates at the lower end of the recommended rate range will be satisfactory for young, succulent growth of susceptible weed species. For less sensitive species, perennials, and under conditions where control is more difficult (plant stress conditions such as drought or extreme temperatures, dense weed stands and/or larger weeds), the higher rates within the rate range will be needed. Weeds in fallow land or other areas where competition from crops is not present will generally require higher rates for control or suppression.

#### Use of Surfactants

Addition of wetting and/or penetration agents is not usually necessary when using Curtail; however, if a surfactant will be added to the spray solution, use a non-ionic surfactant suitable for use in growing crops of at least 80% active ingredient and do not exceed 4 pints per 100 gallons of spray solution (0.5% w/v). Use of a surfactant in the spray mixture may increase weed control effectiveness but may reduce crop safety, particularly under conditions of plant stress.

#### Spray Coverage

Use sufficient spray volume to provide thorough coverage and a uniform spray pattern. Do not broadcast apply in less than 2 gallons of total spray volume per acre. For best results and to minimize spray drift, apply in a spray volume of 10 gallons or more per acre. As vegetative canopy and weed density increase, spray volume should be increased to obtain equivalent weed control. Use only nozzle types and spray equipment designed for herbicide application. To reduce spray drift, follow precautions under Avoiding Injury to Non-Target Plants.

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### Use with Sprayable Liquid Fertilizer Solutions

Curtail is compatible with most non-pressurized liquid fertilizer solutions; however, a compatibility test (jar test) should be made prior to mixing. Jar tests are particularly important when a new batch of fertilizer or pesticide is used, when the water source changes, or when tank mixture ingredients or concentrations are changed. A compatibility test is performed by mixing the spray components (in the desired order and proportions) into a clear glass jar before mixing in the spray tank. Use of a compatibility aid such as Unite or Compex may help obtain and maintain a uniform spray solution during mixing and application. Agitation in the spray tank must be vigorous to compare with jar test agitation. For best results, liquid fertilizer should not exceed 50% of the total spray volume. Premix Curtail with water and add to the liquid fertilizer/water mixture while agitating contents of the spray tank. Apply the spray the same day it is prepared while maintaining continuous agitation. **Note:** Foliar-applied liquid fertilizers can cause yellowing or leaf burn of crop foliage.

### Spot Treatments

To prevent misapplication, it is recommended that spot treatments be applied only with a calibrated boom or with hand sprayers according to directions provided below.

**Hand-Held Sprayers:** Hand-held sprayers may be used for spot applications. Care should be taken to apply the spray uniformly and at a rate equivalent to a broadcast application. Application rates in the table are based on an area of 1000 sq ft. Mix the amount of Curtail (fl oz or ml) corresponding to the desired broadcast rate in 1 or more gallons of spray. To calculate the amount of Curtail required for larger areas, multiply the table value (fl oz or ml) by the area to be treated in "thousands" of square feet, e.g., if the area to be treated is 3500 sq ft, multiply the table value by 3.5 (calc. 3500 ÷ 1000 = 3.5). An area of 1000 sq ft is approximately 10.5 x 10.5 yards (strides) in size.

Amount of Curtail per Gallon of Spray to Equal Specified Broadcast Rate				
1 pt/acre	2 pt/acre	2 2/3 pt/acre	3 pt/acre	4 pt/acre
3/8 fl oz (11 ml)	3/4 fl oz (22 ml)	1 fl oz (30 ml)	1 1/8 fl oz (33 ml)	1 1/2 fl oz (44 ml)

<sup>1</sup> 1 fl oz = 29.6 (30) ml

### Broadleaf Weeds Controlled

**Note:** The letter in parentheses (-) after the listed weed indicates if life cycle is annual (a), biennial (b), or perennial (p).

alfalfa (from seed only) (p)	mustard, tumble (Jim Hill) (a)
artichoke, Jerusalem (p)	mustard, wild (a)
buckwheat, wild (a)	nightshade, black (a)
buffalobur (a) <sup>1</sup>	nightshade, cutleaf (a)
burdock, common (b)	nightshade, eastern black (a)
chamomile, false (scentless) (a)	nightshade, hairy (a)
chamomile, mayweed (dogfennel) (a)	pennycress, field (fanweed) (a)
clover, black medic (a)	pigweed, redroot (a)
clover, hop (a)	pineappleweed (a)
clover, sweet (b)	plantain (p)
clover, red (p)	radish, wild (a)
clover, white (p)	ragweed, common (a)
cocklebur, common (a)	ragweed, giant (a)
coffeedweed (a)	salsify, meadow (goatsbeard) (b)

cornflower (bachelor button) (a)	shepherdspurse (a)
dandelion (p)	sicklepod (a)
dock, curly (p)	smartweed, Pennsylvania (a)
flixweed (a) <sup>1</sup>	sorrel, red (p)
groundsel, common (b)	sowthistle, annual (a)
hawksbeard, narrowleaf (a)	sowthistle, perennial (p) <sup>1</sup>
hawkweed, orange (p)	starthistle, yellow (a)
hawkweed, yellow (p)	sunflower, common (a)
horseweed (a)	teasel, common (b)
jimsonweed (a)	thistle, bull (b)
knapweed, diffuse (b)	tansymustard, pinnate (a) <sup>1</sup>
knapweed, Russian (p) <sup>1</sup>	thistle, Canada (p)
knapweed, spotted (b)	thistle, musk (b)
kochia (2-4 leaf) (a) <sup>1</sup>	thistle, Russian (1-3 leaf) (a)
ladysthumb (a)	velvetleaf (a)
lambsquarters, common (a)	vetch (a)
lettuce, prickly (a)	volunteer beans (a)
locweed, Lambert (p)	volunteer lentils (a)
locweed, white (p)	volunteer peas (a)
marshelder (a)	wormwood, biennial (a, b)

<sup>1</sup> These weeds may only be suppressed. Suppression is a visual reduction in weed competition (reduced population or vigor) as compared to untreated areas. The degree and duration of weed control will vary with weed size and density, application rate and coverage, and growing conditions before, during and after treatment. For perennial weeds, Curtail will control the initial top growth and inhibit regrowth during the season of application (season-long control). At higher rates shown on this label, Curtail may cause a reduction in shoot regrowth in the season following application; however, plant response may be inconsistent due to inherent variability in shoot regrowth from perennial root systems.

### Crop Uses

**Agricultural Use Requirements for Crops:** For the following crop uses, follow PPE and Reentry instructions in the "Agricultural Use Requirements" section of this label.

### Barley and Wheat

#### Application Timing

Apply Curtail in the spring to actively growing wheat or barley once 4 leaves have unfolded on the main stem and tillering has begun up to the jointing stage (first node of main stem detectable). To control or suppress listed weeds, make application after maximum emergence of the target weeds but before they exceed 3 inches in height or diameter (for rosettes). To obtain season-long control of perennial weeds, such as Canada thistle, apply after the majority of the weed's basal leaves have emerged from the soil up to bud stage. A later application when the crop is between the jointing and boot stage of growth may be used to control later-emerging weeds; however, do not apply unless the risk of injury is acceptable. Do not apply after the boot stage.

#### Application Rate

Apply 2 to 2 2/3 pints per acre of Curtail. The higher rate may be used when the condition of the weeds and/or crop at the time of treatment may prevent optimum control. **Note:** Higher rates of Curtail or any application of Curtail following a spring postemergence treatment with 2,4-D or MCPA, may increase the risk of crop injury.

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### Specific Use Restrictions:

- Do not permit lactating dairy animals or meat animals being finished for slaughter to forage or graze treated grain fields within 1 week after treatment.
- Do not harvest hay from treated grain fields.

### Tank Mixtures for Wheat and Barley

Curtail may be applied in tank mix combination with labeled rates of other products registered for postemergence application in wheat, barley, and oats. See Tank Mixing Precautions under Mixing Instructions. When tank mixing, do not exceed recommended application rates and use only in accordance with the most restrictive precautions and limitations on the respective product labels.

### Specific Use Precautions:

- Buctril or Banvel tank mixes with Curtail may be useful in broadening the annual weed control spectrum but may reduce control of perennials, such as Canada thistle.
- Do not tank mix Curtail with 2,4-D or dicamba unless the risk of crop injury is acceptable.

## Fallow Cropland

### Application Timing

Curtail may be applied either post-harvest or in the spring/summer (during fallow period), or to set-aside acres to control or suppress listed weeds (refer to rotation restrictions). Apply to young, emerged weeds under conditions that promote active growth. For best results on tough perennial weeds such as Canada thistle, apply after the majority of the basal leaves have emerged up to bud stage. Later applications may result in less consistent control. Extreme growing conditions (such as drought or near freezing temperatures) prior to, at, or following application may reduce weed control.

For best results, wait 14 to 20 days after application before cultivating or fertilizing with shank-type applicators to allow for thorough translocation. To avoid potential phytotoxicity, allow at least 30 days after application before seeding to wheat, barley or grasses.

### Application Rate

Apply 2 to 4 pints per acre of Curtail. Applications of Curtail to fallow cropland made either before or after an application to small grains in a 12 month period are restricted to 2 pints per acre. The lower rate should not be used in fallow cropland unless it is a part of a planned sequential treatment.

### Tank Mixtures for Fallow Cropland

To improve control of certain broadleaf weeds, Curtail at 2 pints per acre may be applied with up to 1.5 lb acid equivalent per acre additional 2,4-D. See Tank Mixing Precautions under Mixing Instructions. When tank mixing, do not exceed recommended application rates and use only in accordance with the most restrictive precautions and limitations on the respective product labels.

## Grasses Grown for Seed

### Application Timing

Apply only to established grasses before the boot stage of growth. Applications in the boot stage and beyond will result in increased potential for injury. Do not apply to bentgrass unless injury can be tolerated. For control of late-emerging Canada thistle, a preharvest treatment may be made after grass seed is fully developed. Treatment of Canada thistle in the bud stage and later may result in less consistent control. Post-harvest fall treatments may be made to actively growing Canada thistle after the majority of basal leaves have emerged.

### Application Rate

Use 2 to 4 pints per acre of Curtail for control of annual weeds and Canada thistle. The potential for crop injury exists due to the 2,4-D component of this product and must be balanced against the benefits of improved weed control. Potential for crop injury increases with higher rates. Re-treat as necessary, but do not exceed 4 pints per acre of Curtail per season.

### Tank Mixtures for Grasses Grown for Seed

Curtail at 1 3/4 pints per acre may be tank mixed with Banvel or Buctril to improve the control of certain weeds. See Tank Mixing Precautions under Mixing Instructions. When tank mixing, do not exceed recommended application rates and use only in accordance with the most restrictive precautions and limitations on the respective product labels.

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## Rangeland, Pasture and Non-Crop Uses

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**Rotation to Broadleaf Crops:** Do not plant broadleaf crops in treated areas until an adequately sensitive bioassay shows that no detectable clopyralid is present in the soil (see field bioassay instructions).

## Rangeland and Permanent Grass Pastures

Apply 2 to 4 quarts per acre of Curtail when weeds are actively growing. For weeds such as biennial thistles, spotted and diffuse knapweed, yellow starthistle and Canada thistle, apply the 2 quart per acre rate on light to moderate infestations under good growing conditions. Use 3 quarts per acre for dense infestations or under poor growing conditions such as drought. For control of Russian knapweed, apply 3 to 4 quarts per acre at the early bud to mid-flowering stage or on fall regrowth. **Note:** Review Pasture/Haying/Grazing/Restrictions under Precautions and Restrictions.

## Conservation Reserve Program (CRP) for Seeding to Permanent Grasses Only

Do not use Curtail if legumes or bentgrass are a desired cover crop during CRP.

Conditions of plant stress, such as drought, will increase potential for injury to grasses at all stages of growth. Do not apply to newly seeded areas until grass is established.

## Appendix B - Curtail Label

### Application Timing

Curtail can be applied when perennial grasses are well established as indicated by vigorous growth and development of tillers and secondary roots. For control of weeds such as musk thistle, Canada thistle and knapweed (diffuse, spotted and Russian), apply to actively growing weeds after the majority of the basal leaves have emerged up to bud stage. Later applications may result in less consistent control.

In fields with heavy weed density that are to be planted to CRP grasses, a pre-seeding application may be made. In general, cropland to be planted to CRP in the spring should be treated during the previous fall and cropland to be planted to CRP in the fall should be treated during the previous spring or summer. A pre-seeding treatment with Curtail may cause visible injury and reduced seed production in some newly planted grass stands; however, grass stand establishment should be improved because of reduced weed competition. Wait at least 30 days after treating with Curtail before seeding grasses.

### Application Rate

Apply 2 to 4 quarts per acre of Curtail. Do not exceed 2 quarts per acre for pre-seeding treatment.

### Non-Cropland

Curtail may be applied in non-cropland areas such as fencerows, around farm buildings and equipment pathways. Apply 2 to 4 quarts per acre of Curtail when weeds are actively growing. Where Canada thistle or knapweed (spotted or diffuse only) is the primary pest, best results are obtained by applying Curtail when the majority of basal leaves have emerged up to bud stage. Later applications may result in less consistent control. **Note:** Curtail is not registered for use in landscaping or on turfgrass or lawns.

### 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.

### Inherent Risks of Use

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

### Limitation of Remedies

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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Dow AgroSciences LLC • Indianapolis, IN 46268 U.S.A.

Label Code: D02-033-013  
Replaces Label: D02-033-012  
LOES Number: 010-00030

EPA-Accepted 10/30/03

Revisions:

1. Added Note statement to Non-Cropland section.

# MATERIAL SAFETY DATA SHEET



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

Effective Date: 8/1/01  
Product Code: 08103  
MSDS: 003053

## CURTAIL\* HERBICIDE

### 1. PRODUCT AND COMPANY IDENTIFICATION:

**PRODUCT:** Curtail\* Herbicide

#### COMPANY IDENTIFICATION:

Dow AgroSciences  
9330 Zionsville Road  
Indianapolis, IN 46268-1189

### 2. COMPOSITION/INFORMATION ON INGREDIENTS:

2,4-Dichlorophenoxyacetic acid, Triisopropanolamine salt	CAS# 000094-75-7	39.0%
Clopyralid Monoethanolamine salt	CAS# 057754-85-5	5.1%
Other Ingredients, Total, Including Triisopropanolamine <sup>1)</sup>	CAS# 000122-20-3	55.9%
Ethylenediaminetetraacetic Acid	CAS# 000060-00-4	

<sup>1)</sup> Listed as 2-Propanol, 1,1',1"-nitritoltris by the Pennsylvania Right-to-Know Law.

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

### 3. HAZARDOUS IDENTIFICATIONS:

#### EMERGENCY OVERVIEW

Hazardous chemical. Dark, amber liquid with a phenolic odor. May cause severe eye irritation with corneal injury. May cause skin irritation. The LD<sub>50</sub> for skin irritation in rabbits is >4000 mg/kg. Oral LD<sub>50</sub> for rats is 3730 mg/kg (males) and 2830 mg/kg (females). Toxic to aquatic organisms.

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

**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.

**SKIN:** Prolonged or repeated exposure may cause skin irritation. May cause more severe response if skin is abraded (scratched or cut). A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. The LD<sub>50</sub> for skin absorption in rabbits is >4000 mg/kg.

**INGESTION:** Single dose oral toxicity is low. The oral LD<sub>50</sub> for rats is 3730 mg/kg (males) and 2830 mg/kg (females). Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

**INHALATION:** Single exposure to vapors is not likely to be hazardous.

**SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:** In animals, effects have been reported on the following organs: gastrointestinal tract, kidney, liver, and muscular system. Signs and symptoms of excessive exposure may be nausea and/or vomiting, abdominal cramps and/or diarrhea. Lethargy may be a sign or symptom of excessive exposure.

**CANCER INFORMATION:** Clopyralid did not cause cancer in laboratory animals. Various animal cancer tests have shown no reliably positive association between 2,4-D exposure and cancer. Epidemiology studies on herbicide use have been both positive and negative with the majority being negative.

**TERATOLOGY (BIRTH DEFECTS):** Has caused birth defects in lab animals only at doses producing severe toxicity in the mother (2,4-D TIPA). Clopyralid caused birth defects in test animals, but only at greatly exaggerated doses that were severely toxic to the mothers. No birth defects were observed in animals given clopyralid at doses several times greater than those expected during normal exposure. The chelating agent component has been reported to cause birth defects in laboratory animals only at exaggerated doses that were toxic to the mother. These effects are likely associated with zinc deficiency due to chelation. Exposures having no effect on the mother should have no effect on the fetus.

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**REPRODUCTIVE EFFECTS:** In animal studies, clopyralid and the chelating agent have been shown not to interfere with reproduction. Excessive dietary levels of 2,4-D acid have caused decreased weight and survival in offspring in a rat reproduction study.

### 4. FIRST AID:

**EYES:** 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:** 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.

**INGESTION:** 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 the poison control center or doctor. Do not give anything by mouth to an unconscious person.

**INHALATION:** Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably by mouth to mouth. Call a poison control center or doctor for further treatment advice.

**NOTE TO PHYSICIAN:** No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

### 5. FIRE FIGHTING MEASURES:

**FLASH POINT:** >200°F (93°C)  
**METHOD USED:** SCC

#### FLAMMABLE LIMITS

LFL: Not determined  
UFL: Not determined

**HAZARDOUS COMBUSTION PRODUCTS:** Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Hazardous combustion products may include and are not limited to nitrogen oxides, hydrogen chloride, carbon monoxide, and carbon dioxide.

**OTHER FLAMMABILITY INFORMATION:** This material will not burn until the water has evaporated. Residue can burn.

**EXTINGUISHING MEDIA:** To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical, or foam.

**FIREFIGHTING INSTRUCTIONS:** Keep people away. Isolate fire area and deny unnecessary entry. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical, or foam. Contain firewater run-off if possible. Fire water run-off, if not contained may cause environmental damage. Review the "Accidental Release Measures" and "Ecological Information" sections of this MSDS.

**PROTECTIVE EQUIPMENT FOR FIREFIGHTERS:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

### 6. ACCIDENTAL RELEASE MEASURES:

**ACTION TO TAKE FOR SPILLS:** Absorb small spills with materials such as Zorball or sand. Dike area in case of large spills and report 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. Harmful if swallowed, inhaled, or absorbed through skin. Causes eye irritation. Avoid contact with eyes, skin and clothing. Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

**STORAGE:** Do not store below temperature of 40°F (7°C). If frozen (crystallized), warm to 80-90°F (27-32°C) and re-dissolve before using by rolling or shaking the container. Store in a safe manner. Store in cool, dry place in original container only. Keep container tightly closed when not in use. Reduce stacking height where local conditions can affect packaging strength. Avoid elevated temperatures and direct sunlight.

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### 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):

2,4-D: ACGIH TLV and OSHA PEL are 10 mg/M<sup>3</sup>.  
ACGIH classification is A4.

Clopyralid: Dow AgroSciences Industrial Hygiene Guide is 10 mg/M<sup>3</sup>.

Diethanolamine: ACGIH TLV is 2 mg/M<sup>3</sup>, Skin; OSHA PEL is 3 ppm.

PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.

A "skin" notation following the exposure guideline refers to the potential for dermal absorption of the material. 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 guideline.

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

**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 for organic vapors.

**SKIN PROTECTION:** Use gloves impervious to this material when prolonged or frequently repeated contact could occur. If hands are cut or scratched, use gloves impervious to this material even for brief exposures.

**EYE/FACE PROTECTION:** Use chemical goggles. Eye wash fountain should be located in immediate work area.

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

### 9. PHYSICAL AND CHEMICAL PROPERTIES:

**BOILING POINT:** 212°F (100°C) (water)

**VAPOR PRESSURE:** Not determined

**VAPOR DENSITY:** Not determined

**SOLUBILITY IN WATER:** Miscible

**SPECIFIC GRAVITY:** 1.154 (68/68)

**FREEZING POINT:** 10°F (-12°C)

**APPEARANCE:** Dark amber liquid

**ODOR:** Phenolic

### 10. STABILITY AND REACTIVITY:

**STABILITY:** Stable under recommended storage conditions.

**CONDITIONS TO AVOID:** Some components of this product can decompose at elevated temperatures.

**HAZARDOUS DECOMPOSITION:** Hazardous decomposition products depend upon temperature, air supply and the presence of other materials. Hazardous decomposition products may include and are not limited to chlorinated pyridine, hydrogen chloride, or nitrogen oxides.

**INCOMPATIBLE MATERIALS:** Avoid contact with metals such as brass, copper, aluminum, acids, halogenated organics, and oxidizers.

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

### 11. TOXICOLOGICAL INFORMATION:

#### MUTAGENICITY (EFFECTS ON GENETIC MATERIAL):

In-vitro and animal mutagenicity studies were negative for clopyralid. In-vitro and animal mutagenicity studies for 2,4-Dichlorophenoxyacetic acid were predominantly negative.

### 12. ECOLOGICAL INFORMATION:

#### ENVIRONMENTAL FATE:

#### MOVEMENT AND PARTITIONING:

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

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**DEGRADATION & PERSISTENCE:** Based largely or complete on information for 2,4-D.  
Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD is greater than 40%).  
Based largely or completely on information for clopyralid.  
Biodegradation under aerobic laboratory conditions is below detectable limits (<2.5%).

**ECOTOXICOLOGY:** Based largely or completely on information for 2,4-D.

Material is moderately toxic to aquatic organisms on an acute basis (LC<sub>50</sub>/EC<sub>50</sub> is between 1 and 10 mg/L in most sensitive species).

Based largely or completely on information for clopyralid.  
Materials is practically non-toxic to aquatic organisms on an acute basis (LC<sub>50</sub>/EC<sub>50</sub> is >100 mg/L in most sensitive species).

### 13. DISPOSAL CONSIDERATIONS:

**DISPOSAL METHOD:** Improper disposal of excess product is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional office for guidance.

### 14. TRANSPORT INFORMATION:

#### United States DOT Information:

For 2x2-1/2 and 4x1/2 gallon containers:

**Land:** Not regulated

**Air:** Not regulated

**Marine:** ENVIRONMENTALLY HAZARDOUS  
SUBSTANCE, LIQUID, N.O.S. (2,4-D  
ACID)/9/UN3082/ PGIII/MARINE POLLUTANT

#### 30 gallon containers:

**Land:** ENVIRONMENTALLY HAZARDOUS  
SUBSTANCE, LIQUID, N.O.S. (2,4-D  
ACID)/9/UN3082/PGIII/RQ (2,4-D ACID)

**Air:** ENVIRONMENTALLY HAZARDOUS  
SUBSTANCE, LIQUID, N.O.S. (2,4-D  
ACID)/9/UN3082/PGIII/RQ (2,4-D ACID)

**Marine:** ENVIRONMENTALLY HAZARDOUS  
SUBSTANCE, LIQUID, N.O.S. (2,4-D  
ACID)/9/UN3082/PGIII/RQ (2,4-D  
ACID)/MARINE  
POLLUTANT

#### Bulk containers:

**Land:** ENVIRONMENTALLY HAZARDOUS  
SUBSTANCE, LIQUID, N.O.S. (2,4-D ACID)/9/  
UN3082 /PGIII/RQ (2,4-D ACID)/MARINE  
POLLUTANT

**Air:** ENVIRONMENTALLY HAZARDOUS  
SUBSTANCE, LIQUID, N.O.S. (2,4-D ACID)/9/  
UN3082 /PGIII/RQ (2,4-D ACID)/MARINE  
POLLUTANT

**Marine:** ENVIRONMENTALLY HAZARDOUS  
SUBSTANCE, LIQUID, N.O.S. (2,4-D ACID)/9/  
UN3082 /PGIII/RQ (2,4-D ACID)/MARINE  
POLLUTANT

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### 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
2,4-D ACID	000094-75-7	39%

**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

**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
2-Propanol, 1,1,1"-Nitrilotris-Ethylenediamine-tetraacetic Acid	000122-20-3	PA1
2,4-D Acid	000060-00-4	NJ3 PA1 PA3
	000094-75-7	NJ2 NJ3 PA1 PA3

NJ2=New Jersey Environmental Hazardous Substance (present at greater than or equal to 1.0%).  
NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).  
PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).  
PA3=Pennsylvania Environmental Hazardous Substance (present at greater than or equal 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:**

Health	3
Flammability	1
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
2,4-D Acid	000094-75-7	100	39%
Ethylenediamine-tetraacetic Acid	000060-00-4	5000	2%

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# MATERIAL SAFETY DATA SHEET



## CURTAIL\* HERBICIDE

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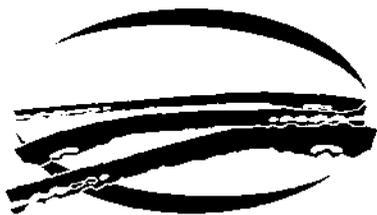
Effective Date: 8/1/01  
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### 16. OTHER INFORMATION:

**MSDS STATUS:** Revised Section: 4 & 14  
Reference: DR-0158-0821  
Replaces MSDS dated: 7/27/00  
Document Code: D03-033-005  
Replaces Document Code: D03-033-004

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

\*Trademark of Dow AgroSciences



# DIURON 80 WDG

## WEED KILLER

### WATER DISPERSIBLE GRANULE

<b>ACTIVE INGREDIENT:</b>		
Diuron [3-(3,4-dichlorophenyl)-1,1-dimethylurea]	80%	
<b>INERT INGREDIENTS:</b>	20%	
<b>TOTAL</b>	<b>100%</b>	

**KEEP OUT OF REACH OF CHILDREN**  
**CAUTION**

See Below For Additional Precautionary Statements.

EPA REG. NO. 34704-648

EPA EST. NO. 34704-MS-1

NET WEIGHT \_\_\_\_\_ POUNDS ( \_\_\_\_\_ KG)

IHT

05P04

### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

## CAUTION

**CAUSES EYE IRRITATION.** Do not get in eyes, on skin, or on clothing. Harmful if swallowed, inhaled, or absorbed through skin. Avoid breathing dust or spray mist.

**Personal Protective Equipment:**

Some of the materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.

**Applicators and other handlers must wear:** long-sleeved shirt and long pants, chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinylchloride, and 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.

**Engineering controls statements:**

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

#### USER SAFETY RECOMMENDATIONS

Users should:

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

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

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

#### FIRST AID

<b>If swallowed:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have a person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by the poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</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 eye.</li> <li>• Call a poison control center or doctor for 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 inhaled:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

**FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL:**  
**1-800-301-7976.**

#### ENVIRONMENTAL HAZARDS

For terrestrial uses, 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 by cleaning of equipment or disposal of wastes.

**IMPORTANT:** Injury to or loss of desirable trees or other plants may result from failure to observe the following: do not apply (except as recommended for crop use), 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 chemical may be washed or moved into contact with their roots. Do not use on home plantings of trees, shrubs or herbaceous plants, nor on lawns, walks, driveways, tennis courts, or similar areas. Avoid drift of granules or spray to desirable plants. Do not contaminate any body of water. Keep from contact with fertilizers, insecticides, fungicides and seeds.

Thoroughly clean all traces of this herbicide from application equipment immediately after use. Flush tank, pump, hoses and boom with several changes of water after removing nozzle tips and screens (clean these parts separately).

#### 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.

#### 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, and shoes plus socks.

This herbicide should be used only in accordance with recommendations on this label, or in separate published Loveland Products Inc. recommendations available through local dealers.

Loveland Products Inc. will not be responsible for losses or damages resulting from use of this product in any manner not specifically recommended by Loveland Products Inc. User assumes all risk associated with such non recommended use.

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

#### STORAGE AND DISPOSAL

**PESTICIDE STORAGE:** Store product in original container only, away from other pesticides, fertilizer, food or feed.

**PESTICIDE DISPOSAL:** Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**CONTAINER DISPOSAL:** 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 bag is burned, stay out of smoke.

#### GENERAL INFORMATION

This product is a dispersible granule to be mixed in water and applied as a spray for selective control of weeds in certain crops and for nonselective weed control

on non cropland areas. It is noncorrosive to equipment, nonflammable and non-volatile.

This product may be applied to soil prior to emergence of weeds to control susceptible weed seedlings for an extended period of time; the degree of control and duration of effect will vary with the amount of chemical applied, soil texture, rainfall and other conditions. Soils high in clay or organic matter require higher dosages than soil low in clay or organic matter to obtain equivalent herbicide performance. Moisture is required to activate the chemical; best results occur if rainfall (or sprinkler irrigation) occurs within 2 weeks of application.

This herbicide applied preemergence, before emergence of crop and weeds, is an effective procedure because susceptible weeds are controlled in an early, vulnerable seedling state before they compete with the crop. With favorable moisture conditions, this herbicide continues to control weeds for some time as the crop becomes better able to compete. Should weed seedlings begin to break through the preemergence treatment in significant numbers, secondary weed control procedures should be implemented, these include cultivation and postemergence herbicide application.

This product may also be used to control emerged weeds. Results vary with rate applied and environmental conditions; best results are obtained on succulent weeds growing under conditions of high humidity and temperatures of 70°F or higher. Addition of a surfactant, such as DuPont Surfactant WK or other similar herbicide surfactant approved for use on crops, to the spray (where recommended) increases contact effects of this product.

This herbicide may be used as a directed postemergence application, where spray nozzles are adjusted so the weeds are sprayed but the crop is not, on the following crops: artichoke, corn (field), cotton, sorghum (grain), sugarcane, and established plantings of apples, bananas, plantains, blueberries, caneberries, gooseberries, citrus, grapes, macadamia nuts, olives, papayas, peaches, pears, pecans, walnuts and certain tree plantings.

Under specified conditions (see Directions for Use), this herbicide without surfactant may be applied over the top of alfalfa (established, dormant or semidormant), asparagus (established), birdsfoot trefoil (established, dormant), grass seed crops (established), oats, red clover (established, dormant), sugarcane, wheat, pineapple and plumosus fern (established, mowed).

Weed species vary in susceptibility to this product and they may be more difficult to control when under stress. Combinations of this product with other herbicides (as registered) increase the number of weed species controlled; consult labels of the companion product for this and other information.

Since the effect of this herbicide varies with soils, uniformity of application, and environmental conditions, it is suggested that growers limit their first use to small areas. Observe all cautions and limitations on labeling of all products used in mixtures.

**SELECTIVE USE IN CROPS**

**PREEMERGENCE USE (Germinating Weeds):** This herbicide, at recommended rates, controls annual weeds such as:

**Broadleaves**

¼ to 1 Lb./Acre	1½ to 2 Lbs./Acre	2 to 6 Lbs./Acre
Lambsquarters	Annual groundcherry	Ageratum
Pigweed	Annual morningglory	Annual smartweed
Purslane	Chickweed	Annual sowthistle
Ragweed	Corn spurry	Corn speedwell
	Dogfennel	Dayflower
	Fiddleneck	Flora's paintbrush
	(amsinckia)	Hawksbeard
	Gromwell	Horseweed
	Knawel	Kochia
	Pennycress	Marigold
	Shepherdspurse	Mexican clover
	Tansy-mustard	Pineappleweed
	Wild buckwheat	Pokeweed
	Wild lettuce	Rabbit tobacco
	Wild mustard	Spanishneedles
		Velvetleaf (butterweed)
		Wild radish

**Grasses**

¼ to 1 Lb./Acre	1½ to 2 Lb./Acre	2 to 6 Lb./Acre
arnyardgrass	Annual bluegrass	Annual lovegrass
(watergrass)	Annual sweet	Annual ryegrass
Crabgrass	vernalgrass	Kylinga
	Foxtail	Orchardgrass
	Rattail fescue	Peppergrass
	Red sprangletop	Ricegrass
	Velvetgrass	Sandbur
		Seedling johnsongrass

Partial control of the following weeds usually occurs at rates stated:

**Broadleaves**

1 Lb./Acre	4 Lbs./Acre
Annual morningglory	Horsenettle
Cocklebur	
Prickly sida	
(teaweed)	
Sesbania	
Sicklepod	

**Grasses**

4 Lbs./Acre	8 to 10 Lbs./Acre
Quackgrass	Guineagrass
	Maidencane
	Pangolagrass

**POSTEMERGENCE USE (Emerged Seedling Weeds)**

This product at recommended rates, controls annual weeds such as annual morningglory, barnyardgrass (watergrass), crabgrass, crowfoot, goosegrass, pigweed and purslane. Addition of surfactant to the spray (where recommended) increases contact effects of this product. Best results are obtained on succulent weeds growing under conditions of high humidity and temperatures of 70° F or higher.

**EQUIPMENT-SPRAY VOLUMES AND PRESSURES**

Use a boom power sprayer properly calibrated to a constant speed and rate of delivery. Openings in screens should be equal to or larger than 50 mesh. Continuous agitation in the spray tank is required to keep the material in suspension. Agitate by mechanical or hydraulic means; if by-pass or return line is used, it should terminate at bottom of tank to minimize foaming. Avoid overlapping, and shut off spray booms while starting, turning, slowing or stopping, or injury to the crop may result.

For preemergence application, use 25 to 40 gals. per acre and spray pressure of 30 to 40 psi. For postemergence application, use sufficient volume (min. 25 gals. per acre) for thorough coverage of weed foliage; use spray pressure of 20 to 25 psi to keep spray drift to a minimum.

**Aerial:** For alfalfa, asparagus, barley (winter), cotton (preplant or preemergence only), grass seed crops, pineapple, sugarcane and wheat (winter), application may be made by aircraft (5 to 10 gals. per acre); avoid overlapping of spray swath and avoid application under conditions where excessive drift may occur. Where land is bedded, make application parallel to rows.

**NOTE:** With fixed-wing aircraft or helicopter application, an exactly even swath deposition cannot be achieved, and consequently crop injury or herbicide nonperformance may result wholly or in part. Do not apply by air during periods of thermal inversion.

**SPRAY PREPARATION**

Mix proper amount of this product into necessary volume of water; where use of surfactant is recommended, dilute with 10 parts of water and add as last ingredient to nearly full tank.

**USE RATES**

All dosages of this herbicide are expressed as broadcast rates; for band treatment, use proportionally less. For example, use 1/3 of the broadcast rate when treating a 14" band where row spacing is 42". Where a range of dosage is given, use the lower rate on coarse textured soils (low in clay or organic matter) and the higher rate on the fine textured soils (high in clay or organic matter); for postemergence application, use the lower rate on smaller weeds and the higher rate on larger weeds.

**SOIL LIMITATIONS**

Crop injury may result from failure to observe the following: Unless otherwise directed, do not use on sand, loamy sand, gravelly soils or exposed subsoils; nor on pecans where organic matter is less than 1/2%, nor on alfalfa, apples, artichoke, barley (winter), bermudagrass pasture, citrus, cotton, grapes, oats, olives, papayas, peaches, pears, plumosus fern, sorghum, sugarcane, walnuts and wheat (winter) where organic matter is less than 1%; nor on blueberries, birdsfoot trefoil, caneberries, gooseberries, macadamia nuts and peppermint where organic matter is less than 2%. Preemergence weed control will be reduced on high organic matter soils (greater than 5%, such as peat or muck).

**REPLANTING**

Unless otherwise directed, do not replant treated areas to any crop within 2 years after last application as injury to subsequent crops may result.

**FIELD CROPS (See Soil Limitations)**

A good seedbed must be prepared before preemergence use of this product as crop injury may result if application is made to ground which is cloddy or compacted resulting in improperly planted seed. Plant seed to depth specified. Unless otherwise directed, surface of the soil should not be cultivated or disturbed after application of this herbicide and before emergence of the crop as weed control may be reduced and crop injury may result. However, if moisture is insufficient to activate the herbicide, a shallow cultivation (rotary hoe preferred) should be made after emergence of crops while weeds are small enough to be controlled by mechanical means.

**ALFALFA**

Treat only strands established 1 year or more. Do not apply to seedling alfalfa nor to alfalfagrass mixtures; do not apply to alfalfa under stress from disease, insect damage, shallow root penetration (such as on shallow hard pans), alkali spots; nor to flooded fields as crop injury may result. Do not spray on snow-covered or frozen ground.

**Idaho, Oregon, Washington:** Use 1½ to 3 lbs. per acre; for control of volunteer alfalfa, use 4 lbs. per acre. Apply in fall after alfalfa becomes dormant but no later than mid-December.

**California (Dormant and Semi-Dormant Varieties):** Use 1½ to 3 lbs. per acre; for control of volunteer alfalfa, use 4 lbs. per acre. Apply in fall or winter after alfalfa becomes dormant or semi-dormant, but before growth begins in the spring. Crop injury may result if application is made to actively growing alfalfa. For best results, apply before weeds have emerged or become established (2" in height or diameter). Control of established weeds is improved by applying this product with a suitable contact herbicide registered for such use. Sufficient rainfall for soil activation of this product is unlikely in California after February 1. Treated areas may be replanted to any crop after one year from last application if rate does not exceed 2 lbs. per acre.

**Arizona, Nevada:** Use 1½ to 3 lbs. per acre; apply in fall after alfalfa becomes dormant but no later than January.

**Eastern Colorado, Kansas:** For control of tansymustard, apply 1 lb. per acre shortly after emergence of mustard in fall or winter; use 2 lbs. per acre if weeds are 2" to 4" in height. Alternatively, if other annual weeds are present, apply 2 to 3 lbs. per acre in February or March.

**Other Areas Where Alfalfa Becomes Winter Dormant:** Use 1½ to 3 lbs. per acre (1½ to 2 lbs. per acre East of Appalachian Mountains). Apply in March or early April, but before spring growth begins.

**ARTICHOKE—California**

Apply 2 to 4 lbs. per acre in late fall or early winter after the last cultivation. Apply before weeds germinate or to emerging seedlings. Direct spray to cover the area between the rows and at the base of artichoke plants, keeping contact with crop plants at a minimum.

**ASPARAGUS**

Apply as a band or broadcast treatment. Do not apply to young plants during the first growing season (except as noted below), nor to newly seeded asparagus, nor on plants with exposed roots as severe injury may result. Preemergence weed control will be reduced on high organic matter soils (greater than 5%).

**Established Plantings:** On light sandy soils and other soils low in clay or organic matter, apply 1 to 2 lbs. per acre. On soil high in clay or organic matter, use 2 to 4 lbs. per acre. Two applications may be used; the first application should be made before weeds become established but no earlier than 4 weeks before spear emergence and no later than the early cutting period (if weeds are controlled into the cutting period by cultural practices, application may be delayed until immediately after the last cultivation); a second application may be made immediately following completion of harvest provided rainfall is expected. When two applications are used in one session, do not exceed 3 lbs. per acre per application. In Washington (irrigated crop), apply a single treatment of 4 lbs. per acre. If treatment is delayed until late winter or early spring, incorporation of the chemical in the top 1" to 2" of soil may substitute for lack of rain to activate the herbicide.

**Newly Planted Crowns—California (San Joaquin Delta):** Make a single application of 2 to 4 lbs. per acre on soils high in clay or organic matter; use the lower rate on clay loams and the higher rate on peat soils. Do not use on soils containing less than 2% organic matter. Soil must be settled by rainfall or irrigation prior to treatment. Do not treat crowns planted to a depth of less than 2".

**BARLEY, WINTER (Drill-Planted)—Western Oregon and Western Washington:** Make a single application of 1½ to 2 lbs. per acre as soon as possible after planting but before emergence of barley. Do not replant treated areas to any crop within 1 year after last application as injury to subsequent crops may result.

**BIRDSFOOT TREFLOIL (Lotus)—Western Oregon**

Treat only strands established for at least 1 year; do not apply to seedling trefoils as injury may result. Make a single application of 2 lbs. per acre when trefoil is dormant (October 15 to December 15). Do not replant treated areas to any crop within 1 year after last application as injury to subsequent crops may result.

**CORN (Field)**

**Postemergence—**Make a single application of ¾ lb. per acre in combination with non pressure nitrogen solution. If nitrogen solution is not used, apply 1 lb. per acre; add 1 pt. surfactant per 25 gals. of spray. Apply as a directed spray when corn is at least 20" high and weeds are no taller than 3". **DO NOT APPLY OVER TOP OF CORN.** Do not replant to any crop within 1 year, except that cotton, corn and grain sorghum may be planted the spring following treatment.

**Preemergence—Arkansas, Louisiana, Mississippi and Tennessee:** Make a single application of ¼ to 1 lb. per acre as a broadcast or band treatment after planting but before corn emerges. Plant corn at least 1½" deep. Do not replant treated areas to crops other than corn or cotton within 4 months following band treatment and 6 months following broadcast treatment as crop injury may result.

**COTTON**

During a single crop season, do not exceed the following amounts of this product per acre as injury to subsequent crops may result: 1 lb. on loamy sand; 1½ lbs. on sandy loam; 2 lbs. on clay loam; 2½ lbs. on clay. Injury may occur if this herbicide is used in conjunction with soil-applied organic phosphate pesticides. Do not allow livestock to graze treated cotton.

**Preplant—Arizona and California:** Use this product alone, or apply as a separate operation following preplant broadcast treatment with TREFLAN® or Trifluralin (incorporated according to directions on TREFLAN or Trifluralin label) Apply DIURON 80 WDG WEED KILLER as a broadcast spray after beds are formed, preirrigated, and final seedbeds prepared. Prior to planting, drag-off the tops of the beds and plant in moist soil not treated with this product. Treated soil is returned to the bed after planting when irrigation furrows are reformed after cotton has emerged. If more than two furrowing-out operations are made prior to lay-by, or deep furrows are made early, weed control may be reduced in furrow bottoms. Use at the following rates:

**DIURON 80 WDG Alone:** 1 to 2½ lbs. per acre.

**DIURON 80 WDG Following TREFLAN or Trifluralin:**

Soil Texture	Product Per Acre—Preplant	
	TREFLAN or Trifluralin 4 lbs./gal.	DIURON 80 WDG 5 lbs./gal.
Sandy loam, loam, silt loam, silt ... 1 pt. ....	0.8 pt. ....	¾ to 1 lb.
Sandy clay loam, clay loam, silty clay loam, sandy clay, clay ... 1½ pts. ....	1.2 pts. ....	1 to 1½ lbs.

**Note:** Seedling disease may weaken plants and increase the possibility of injury from the use of TREFLAN or Trifluralin followed by DIURON 80 WDG WEED KILLER. These treatments should be used only in conjunction with a standard fungicide seed treatment plus a good supplemental soil fungicide program such as Captan-PCNB mixture.

**Preemergence—U.S., except Arizona, California, and areas west of Interstate 35 or 35W in Texas and Oklahoma:** Use this product alone or apply as a separate operation following preplant treatment with TREFLAN or Trifluralin. Apply DIURON 80 WDG WEED KILLER after planting but before cotton emerges. Do not treat cotton in deep furrows as crop injury may result; use only where cotton is planted on flat or raised seedbeds.

Shallow incorporation (no deeper than ¼") with a rotary hoe or similar equipment following planting usually improves results especially during dry weather. A wide press wheel should be used on the planter to provide a level seedbed for subsequent early season postemergence treatments. If moisture is insufficient to activate this product or if soil becomes crusted before crop emerges, a shallow rotary hoeing (no deeper than ¼") should be made before weeds become established.

**DIURON 80 WDG Alone:** Make a single application as a broadcast or band spray, using the following broadcast rates; for band treatment, use proportionately less.

Soil Texture**	Lbs. DIURON 80 WDG Per Acre
Loamy sand	¾
Sandy loam, loam, silt loam, silt	1
Sandy clay loam, clay loam, silty clay loam, sandy clay	1½
Silty clay, clay	2

\*\* Do not use on soils with less than 1% organic matter as crop injury may result.

**DIURON 80 WDG Following TREFLAN or Trifluralin Preplant:** Apply TREFLAN or Trifluralin prior to planting as a broadcast or band treatment; incorporate according to directions on TREFLAN or Trifluralin label. As a separate operation, apply this product as a band treatment (14" to 20" wide) after planting but before cotton emerges. Use at the following broadcast rates; for band treatment, use proportionately less. See "Note" under Preplant above.

Soil Texture**	Product Per Acre	
	TREFLAN or Trifluralin 4 lbs./gal.	Preplant DIURON 80 WDG 5 lbs./gal.
Loamy sand	¾ pt. ....	0.4 pt. ....
Sandy loam, loam, silt loam, silt ... 1 pt. ....	0.8 pt. ....	1 lb.
Sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, clay ... 1½ pts. ....	1.2 pts. ....	1½-2 lbs.

\*\* Do not use on soils with less than 1% organic matter as crop injury may result.

**Postemergence—U.S.:** Apply only as a directed spray to cover weed foliage; adjust nozzles to minimize contact of cotton leaves with spray or drill or crop injury may result. **DO NOT SPRAY OVER TOP OF COTTON.**

# DIURON 80 WDG

## Appendix A—REQUIREMENTS

**Early Season**—Apply when cotton is at least 6" tall and when weeds are actively growing and do not exceed 2" in height. Apply as a band treatment as following rates; for each 25 gals. of spray, add 1 pt. of surfactant. Two applications may be made if needed.

**Early Season—Arizona:** Apply when cotton is at least 6" tall, and when seedling annual morningglory and Wright groundcherry are actively growing and do not exceed 2" in height. Apply as a band treatment at the rate of ¼ to ½ lb. per acre; for each 25 gals. of spray, add 1 pt. of surfactant. Two applications may be made if necessary.

Weed Problem (Up to 2" Tall)	Lbs. DIURON 80 WDG Per Acre (Broadcast Basis)
Annual grasses	¼
Pigweed	¼

For control of seedling perennial grasses such as johnsongrass and partial control of nutsedge or when weed growth is under drought stress or as high as 4", add 2 to 3½ lbs. disodium methanearsonate (DSMA; 63% anhydrous or equivalent) to above spray mixture. If DSMA is used, do not apply after first bloom.

**Late Season (Lay-By)**—Apply 1 to 1½ lbs. per acre (1 to 2 lbs. in Arizona and California) when cotton is at least 12" tall (at least 20" tall for Pima S-2). For control of germinating weed seedlings, apply to soil beneath cotton plants and between rows immediately after last cultivation. In irrigated cotton, best weed control is obtained if the field is irrigated within 3 to 4 days after application; thoroughly wet the surface of the ground over the row to carry the herbicide into the root zone of germinating weeds. Alternatively, for control of emerged annual weeds (up to 4" in height) at lay-by time, make a single application in combination with surfactant (1 pt. per 25 gals. spray), or use ½ to ¾ lb. DIURON 80 WDG WEED KILLER (plus surfactant) per acre and repeat later if needed.

**Replanting:** If initial seeding fails to produce a stand, cotton may be replanted in soil treated preplant or preemergence with this product, alone or following TRIFLALIN or Trifluralin. Whenever possible, avoid disturbing original bed. If necessary to rework soil before replanting, use shallow cultivation such as disking; do not relift nor move soil into the original drill area. Plant seed at least 1" deep. Do not retreat field with a second preplant or preemergence application during the same crop year as injury to the crop may result.

### Subsequent Crops:

DIURON 80 WDG-Type of Application	Crops That May Follow Treated Cotton
Band preemergence or postemergence	Any crop 4 months after last application.
Band preemergence plus postemergence —or—	Cotton, soybeans, corn or grain sorghums (not sorghos or forage sorghums, nor grass sorghums) the next spring. Do not replant treated areas to any other crop within one year after last application as injury to subsequent crops may result.
Broadcast preemergence (and preplant) —or—	
Broadcast preemergence plus band postemergence	

DIURON 80 WDG Type of Application	Crops That May Follow Treated Cotton
Broadcast postemergence (lay-by)	Cotton, corn, grain sorghums (not sorghos or forage sorghums nor grass sorghums) the next spring. Do not replant treated areas to any other crop within one year after last application as injury to subsequent crops may result.

For subsequent crops in fields where TRIFLALIN or Trifluralin is used, follow instructions on the TRIFLALIN or Trifluralin label.  
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**GRASS SEED CROPS (Perennial):** Except as noted, apply only to established plantings at least 1 yr. old.

**Colorado, Kansas, New Mexico, and Oklahoma:** On sand bluestem, side oats grama and switchgrass, apply 2 to 3 lbs. per acre during the dormant period shortly before weed seedlings emerge. Do not apply after crop begins growth in the spring as crop injury may result. In fields where ash residues have accumulated from burning straw, use 3 lbs. per acre; spread unburned chaff or straw with a harrow or chopper before application.

**Western Oregon:** On alta fescue, Astoria bentgrass, Highland bentgrass, Kentucky bluegrass (Merion bluegrass) and orchardgrass, apply 2 to 4 lbs. per acre between October 1 and November 15. In fields where ash residues have accumulated from burning straw, use 3 to 4 lbs. per acre; spread unburned chaff or straw with a harrow or chopper before application. If perennial velvetgrass (*Holcus lanatus*) is a problem, use 4 lbs. per acre. For best results, apply as soon as possible after fall rains start. Established weeds (beyond 2 to 4 leaf stage) should be removed prior to treatment.

Well established vigorous stands of spring-planted alta fescue, Kentucky bluegrass, and orchardgrass may be treated the following fall provided the crop is planted before April 1 and treatment is not applied before October 15; use 2 lbs. per acre.

**Oregon:** For use in newly planted bentgrass, Chewing fescue, Kentucky bluegrass, perennial ryegrass, orchardgrass and tall fescue. During planting operation, spray AQUA NU-CHAR<sub>2</sub> or GRO-SAFE<sub>3</sub> or other suitable brands of activated charcoal as a 1" band on soil surface at rate of 300 lbs. per acre (broadcast basis; equivalent to 15 lbs. per acre of crop where row spacing is 20"). Mount nozzles to apply directly over seed rows to prevent crop injury. Follow with this herbicide as a single broadcast spray at rate of 2½ to 3 lbs. per acre; apply as soon as possible after planting but before crops or weeds emerge and before rains or sprinkler irrigation. Fall or spring plantings may be treated; best results usually occur with early fall plantings. Treatment will not control downy brome or wild oats.

**Washington:** For preemergence weed control in newly seeded perennial grass seed crops.

DIURON 80 WDG WEED KILLER is recommended for use in newly planted bentgrass, perennial ryegrass, tall fescue, chewing fescue, Kentucky bluegrass, and orchardgrass fields for the selective control of weeds such as annual ryegrass, rat-tail fescue, annual bluegrass (Poa annual), groundset, and mustard in western Washington. Treatment will not control wild oats or downy brome.

**Before Herbicide Treatment**—Prepare a smooth, firm clod-free seed bed before planting. During the planting operation, spray AQUA NU CHAR or GRO-SAFE (activated charcoal) as a 1" band on soil surface at rate of 300 lbs. per acre (broadcast basis; equivalent to 15 lbs. per acre of crop where row spacing is 20"). Mount nozzles to apply the activated charcoal directly over seed rows to prevent crop injury.

**Herbicide Treatment**—Make a single application of this herbicide as a broadcast spray at the rate of 2½ to 3 lbs. per acre; use the lower rate on lighter soils. Apply as soon as possible after planting but before crop or weeds emerge, and before rains or sprinkler irrigation. Use a fixed-boom power sprayer properly calibrated to a constant speed and rate of delivery. Avoid overlapping of spray swath, and shut off boom while starting, turning, slowing, or stopping or injury to the crop may result. Continuous agitation is required to keep the material in suspension. Treatment may be applied to fall or spring plantings of grass seed crops; best results usually occur with early fall plantings. At least 1" of overhead moisture (rain-fall or sprinkler agitation) is necessary within 2 weeks after treatment to activate the herbicide.

**NOTES:** Do not replant treated areas to any crop within 2 years after last application as injury to subsequent crops may result.  
2 Reg. trademark of Westvaco Corp  
3 Reg. trademark of ICI Americas, Inc.

### OATS (Drill-Planted)

Do not replant treated areas to any crop within one year after last application as injury to subsequent crops may result.

**Spring Oats—Idaho, Eastern Oregon, Eastern Washington:** Use in areas where average annual rainfall exceeds 16". Make a single application of 1 to 1½ lbs. per acre after planting, either before or after oats emerge but within 6 weeks of planting. Best results are usually obtained when application is made 3 to 4 weeks after planting. Apply before weeds are 3" to 4" tall.

**Winter Oats and Mixtures with Peas or Vetch—Western Oregon and Western Washington:** Make a single application of 1½ to 2 lbs. per acre as soon as possible after planting but before emergence of the crop.

### AUSTRIAN FIELD PEAS—WESTERN OREGON

For selective control of certain weeds in Austrian field peas in western Oregon. Apply 1½ to 2 lbs. per acre as broadcast spray with air on ground equipment as soon as possible after planting but before crop emerges for control of weeds such as chickweed, shepherdspurse, wild mustard, fiddleneck, lambsquarters, pigweed and annual bluegrass. Use the lower rate on coarse-textured soils and the higher rate on fine-textured soils.

**NOTES:** Do not use this herbicide on sand, sandy loam, gravelly soils or exposed subsoils or on soils having less than 1% organic matter as crop injury may result. Do not replant treated area to another crop within one year of application. Crop injury may result if severe winter stress, disease or insect damage to the crop follows application.

### PEPPERMINT—Pacific Northwest

Apply 3 lbs. per acre just after the last cultivation in the spring prior to emergence of peppermint. Do not apply to newly planted (less than 1 year) nor to emerged peppermint as injury may result.

### RED CLOVER—Western Oregon

Make a single application of two pounds per acre on established red clover stands (at least 9 months). Apply this product when red clover is dormant (October 15 to December 15). Do not apply to seedling red clover, and do not replant treated area to any crop within one year after last application.

Treatment will control annual weeds such as bluegrass, chickweed, hawksbeard, rattail fescue, rye grass, and velvetgrass.

### SORGHUM (GRAIN)—Southwestern States

Apply ¼ to ½ lb. per acre, add 1 pt. surfactant per 25 gals. of spray. Apply as directed postemergence broadcast or band spray after sorghum is 15" tall to control weeds 2" to 4" in height. DO NOT SPRAY OVER TOP OF SORGHUM. Use the

Appendix B **DIURON 80 WDG**  
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lower rate on broadleaved weeds up to 2" tall; use the higher rate on grasses up to 2" and broadleaved weeds up to 4" tall. When the lower rate is used, a second application may be made if needed provided the amount applied in one crop year does not exceed ½ lb. per acre. Treatment of weeds under drought stress is usually ineffective.

Do not replant treated areas to crops other than cotton or corn within 4 months following band treatment and 6 months following broadcast treatment as crop injury may result.

#### SUGARCANE

To prevent possible crop injury on new cane varieties, tolerance to this herbicide should be determined prior to adoption as field practice. Do not treat sugarcane growing on thinly covered subsoils or rocky areas as crop injury may result. Temporary chlorosis of the crop may result from application over emerged cane; to minimize chlorosis, use directed postemergence sprays.

**Florida: Preemergence**—For high organic soils, apply 2 to 4 lbs. per acre as a broadcast or band spray prior to weed emergence after planting or after harvesting plant crop (for ratoon crop). **Postemergence**—Make 1 to 2 applications of 2 lbs. per acre as needed by directed spray inter-row. Alternatively, for panicum control, make up to 3 applications of ½ to 1 lb. per acre as directed spray after cane has emerged but before panicum exceeds 2" in height; add 1 qt. surfactant per 100 gals. of spray. Adjust nozzle to spray beneath cane plants and beneath rows to cover weed foliage and to minimize contact of cane leaves with spray drift. Do not apply more than 6 lbs. total per acre between planting (or ratooning) and harvest.

**Hawaii:** For selective control of weeds, such as crabgrass, foxtail, ryegrass, pigweed, purslane, Spanish needle, ragweed, chickweed, mustard and lambsquarter.

Apply 4 to 8 lbs. per acre as a broadcast spray prior to weed emergence after planting or after harvesting plant crop (for ratoon crop). A second and third application of 2 to 4 lbs. per acre may be made as a broadcast spray over emerged cane or by directed spray inter-row. Additional applications of 4 to 6 lbs. per acre may be made as directed spray inter-row.

If weeds are emerged, add a surfactant (such as Surfactant WK, "OSAMUL" 95 or "STEROX" SK) to the spray at the rate of 1 to 2 qts. per 100 gals. and apply as a directed spray DO NOT SPRAY OVER THE TOP OF CANE.

**NOTE:** To prevent possible crop injury on new cane varieties, tolerance to DIURON 80 WDG WEED KILLER should be determined prior to adoption as field practice. Do not treat sugarcane growing on thinly covered subsoils or rocky areas as crop injury may result. Do not apply more than 20 lbs. per acre total between planting (or ratooning) and harvest. Do not apply within 8 months of harvest.

**Puerto Rico:** Apply 4 to 8 lbs. per acre as a broadcast spray prior to weed emergence after planting or after harvesting plant crop (for ratoon crop). A second and third application of 2 to 4 lbs. per acre may be made as a broadcast spray over emerged cane or by directed spray inter-row.

If weeds are emerged, add a surfactant (such as Surfactant WK, "OSAMUL" 95 or "STEROX" SK) to the spray at the rate of 1 to 2 qts. per 100 gals. and apply as directed spray. DO NOT SPRAY OVER THE TOP OF CANE.

Do not apply more than 3 treatments nor more than 10 lbs. total per acre between planting (or ratooning) and harvest. Treated areas may be planted to sugarcane or pineapple one year after last application.

**Louisiana:** Use on plant cane seeded on fallowed ground. Make a single application of 3 to 3½ lbs. per acre at either of the following times. Fall Treatment (August through October)—Treat a 2 ft. band over the row after planting of cane, but before weeds or cane emerge. Spring Treatment (January through April)—if shaving and off-barring are practiced, treat a 2 ft. band over the row before weeds or cane emerge.

**Texas:** A tank mixture of DuPont VELPAR® Weed Killer + DIURON 80 WDG WEED KILLER is recommended for selective weed control in sugarcane. Since the effect on sugarcane varies with soils, uniformity of application, and environmental conditions, it is suggested that growers limit their first use to small areas. Tolerance of new cane varieties should be determined prior to adoption as field practice. Moisture is necessary to activate these herbicides. Best results are obtained when weeds are less than 2 inches in height or diameter and actively growing, soil is moist at time of application, and ½ to 1 inch of rainfall occurs within 2 weeks after application. Foliar application to weeds is most effective under conditions of high temperature (above 80°F), high humidity, and good soil moisture. Symptoms usually occur within 2 weeks after application under these conditions, while 4 to 6 weeks may be required when weather is cool. If rainfall after treatment is inadequate to promote root uptake, weeds may recover from foliar effects and continue to grow. Extremely heavy rainfall after application may result in poor weed control and/or crop injury, especially if the application is made to dry soil.

**Preemergence Use (Germinating Weeds):** VELPAR® plus DIURON 80 WDG WEED KILLER tank mixture at the recommended rates controls barnyardgrass (watergrass), Colorado grass (Texas panicum), crabgrass, lambsquarters, morningglory, pigweed, purslane, and sunflower, and provides partial control of ageratum, foxtail, goosegrass, guineagrass, hairy threeleaf, johnsongrass (from seed), junglerice, mustard (wild), panicum (broadleaf and browntop), aaspalum (dallis-

grass), popolo, signalgrass, sowthistle, sprangletop, and spurge (prostrate and graceful).

**Postemergence Use (Emerging Seedling Weeds):** VELPAR® plus DIURON 80 WDG WEED KILLER tank mixture at recommended rates controls amaranth, crabgrass, Colorado grass (Texas panicum), Flora's paintbrush, junglerice, morningglory, pigweed, popolo, purslane, and spurge, and provides partial control of ageratum, guineagrass, mustard (wild), panicum (broadleaf and browntop), signalgrass, sowthistle, and sunflower.

Make a single tank mix application of ½ lb. VELPAR® plus 1½ to 2 lbs. DIURON 80 WDG WEED KILLER per acre as a preemergence or directed postemergence application. For plant cane, apply before the cane emerges (preemergence) or as directed lay-by treatment. For stubble cane, apply preemergence, early postemergence (sugarcane up to 3-leaf stage), or as directed lay-by treatment.

#### SPRAY PREPARATION

Prior to treatment, calibrate equipment to insure uniform application. Continuous agitation in the spray tank is required to keep the material in suspension. Avoid overlapping and shut off spray booms while starting, turning, slowing and stopping or injury to the crop may result.

Apply in at least 25 gals. of spray per acre using ground equipment or 5 to 10 gals. per acre using aerial equipment. Add the proper amount of VELPAR® to the necessary volume of water in the spray tank using agitation vigorous enough to prevent settling for approximately 10 minutes to dissolve the product, then add the proper amount of DIURON 80 WDG WEED KILLER. For directed postemergence applications, add 1 quart of a nonionic surfactant per 100 gals. of water as the last ingredient.

**NOTE:** Because of injury to sugarcane may result, do not use on cane which shows poor vigor because of insect, disease or winter injury, or shows symptoms of other stress conditions such as drought stress; do not add surfactant if applied over the top of cane; do not use on gravelly or rocky soils, thinly-covered subsoils, nor on coarse-textured soils (sands to sandy loams) with less than 2% organic matter nor on any soils with less than 1% organic matter. Temporary chlorosis of the crop may result from application over emerged cane. Do not apply over the top of actively growing cane. Applications during active cane growth should be directed to cover the weeds and soil while minimizing crop contact. Do not use on varieties which are known to be susceptible to weed killers. Do not plant any crop other than sugarcane within 18 months of the last application. Do not feed sugarcane forage to livestock. **IMPORTANT: BEFORE USING VELPAR® OR DIURON 80 WDG WEED KILLER, READ AND CAREFULLY OBSERVE THE CAUTIONARY STATEMENTS AND ALL OTHER INFORMATION APPEARING ON THE PRODUCT LABELS.**

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#### WHEAT, WINTER (Drill-Planted)

Crop injury may result where severe winter stress, disease or insect damage follows application; winter-sensitive varieties such as McDermid and Hyslop may be less tolerant of this product than winter-hardy varieties such as Gaines and Nugaines. Crop injury may also result from failure to observe the following. Do not use on sand or loamy sand soils, nor on gravelly or sandy loams low in organic matter (less than 1%), nor on thinly covered or exposed subsoil areas (clay knobs); do not treat wheat planted less than 1" deep; do not treat wheat where winter climatic conditions have caused "heaving" of plants; do not treat wheat plants lacking in vigor due to poor emergence, insect damage, disease, high alkalinity or other causes; do not apply after wheat has reached the "boot" stage of maturity; do not use with surfactants. Do not replant treated areas to any other crop within 1 year after last treatment (except as noted) as injury to subsequent crops may result.

**Idaho, Oregon and Washington—East of Cascade Range:**

**Areas Where Average Annual Rainfall Exceeds 16 inches:** Make a single application of 1 to 1½ lbs. per acre.

**Fall Treatment:** For early fall-planted wheat (seeded before September 10), apply 3 to 6 weeks after planting but before weeds are 3" to 4" tall. Treatment after October 1 has generally given best results. Application should not be made after soil freezes in the fall. Wheat planted in late October should not be treated until the following spring.

**Spring Treatment:** Apply as soon as wheat starts to grow in the spring. Treatment made prior to April 10 will usually give good results provided weed growth is less than 4" tall. Application later than May 1 may give poor results.

Alternatively, make a single application of ½ to 1 lb. of this product plus ¼ lb. bromoxynil per acre as a tank mixture, either in the fall after wheat has emerged but before soil freezes or in the spring as soon as soil thaws; apply before weeds are 2" tall or across.

**Areas where Average Annual Rainfall is 10 to 16 inches:** After wheat is planted in the fall, make a single application of 1 to 1½ lbs. per acre when sufficient moisture is available to germinate wheat seed. Apply before soil freezes and before weeds are 2" tall. Application later than March 1 may give poor results.

**NOTE:** If fall-planted wheat fails to grow due to winter kill or adverse growing conditions after fall treatment, only fields treated before November 1 may be replanted to spring wheat. Spring wheat should not be planted before April 1, and only after deep discing and plowing to a depth of 4" to 6" prior to planting. Do not retreat field with a second application during the same crop year as injury to the crop may result.

**Oregon and Washington—West of Cascade Range:** Make a single application of 1½ to 2 lbs. per acre as soon as possible after planting; if wheat and weeds have emerged, apply before weeds are 3" to 4" tall. Alternatively, apply a tank of mixture

of this product plus bromoxynil as detailed above for "East of Cascade Range."

**Other Areas:** Make a single application in the spring as soon as wheat (fall-planted) starts to grow and before weeds are 2" tall. Application later than May 1 may give poor results.

**Central Plains and Midwest:** Use 1 to 2 lbs. per acre.

**Kansas, Oklahoma and Texas:** Do not use on sand or sandy loam soils. Use 1 lb. per acre on silt and silt loam soils and 1½-2 lbs. per acre on clay, clay loam, and silty clay loam soils.

**Northeast:** Use 1 to 1½ lbs. per acre.

**FRUIT AND NUT CROPS (See Soil Limitations)**

Unless otherwise directed, make a single application per year as a directed spray, avoiding contact of foliage and fruit with spray or drift. Do not graze livestock in treated orchards or groves.

**APPLES:**

Use this herbicide alone, or apply as a tank mixture with Du Pont SINBAR® Herbicide.

**DIURON 80 WDG Alone**—Use only under trees established in the orchard for at least 1 year; do not treat varieties grafted on full-dwarf root stocks. Apply 4 lbs. per acre in the spring (March through May), in the Far West, treatment may be made in winter (December through February), or apply 2 lbs. per acre as a postharvest treatment followed by 2 lbs. in the spring.

**DIURON 80 WDG + SINBAR**—Use only under trees established in the orchard for at least 2 years. Apply either in the spring or after harvest in the fall before weeds emerge or during early seedling stage of weed growth.

Soil Texture	Lbs. Product Per Acre	
	1 to 2% Organic Matter	More than 2% Organic Matter
	DIURON 80 WDG + SINBAR	DIURON 80 WDG + SINBAR
Sandy loam	1 + 1	1½ + 1½
Loam, silt loam, silt	1½ + 1½	2 + 2
Clay loam, clay	2 + 2	2 + 2

Where crop is grown under furrow irrigation or under raised-berm flood irrigation (trees 4" to 6" above waterline), apply only as a band treatment. Do not treat trees planted in the bottom of irrigation furrows, nor trees grown under flat or basin irrigation, as injury to trees may result. Where complete weed control to harvest is desired, additional weed control measures may be required during the growing season.

**Georgia**—Apply 2 to 3 lbs. per acre in the spring. Repeat application in the fall but do not use more than 4 lbs. per acre per year. Add surfactant at 1 pt. per 25 gals. spray mixture to improve control of small, emerged weeds.

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**BANANAS AND PLANTAINS—New Plantings**

To control annual weeds, apply 1½ to 3 lbs. per acre after planting but before weeds emerge. Do not apply to loose soil directly over the planting material.

**Established Plantings:** For control of annuals and for top-kill of perennials such as bermudagrass, birdseed grass and guineagrass, apply 3 to 6 lbs. per acre plus 1 pt. surfactant per 25 gals. of spray; avoid contact of plants with spray or drift as injury may result. When tall, dense weed growth is present, remove weed growth before application. If application is made to soil free of weeds, omit the surfactant from the spray. Repeat treatment as needed, but do not apply more often than 6-week intervals nor more than a total of 12 lbs. per acre (broadcast basis) in a 12-month period.

**NOTE:** Do not replant treated areas to any crop within 2 years after last application as injury to subsequent crops may result, except that sugarcane or pineapple may be planted one year after last application.

**Arkansas**—Make a single band or broadcast application of 2 lbs. per acre, either in the spring after burning of dried vegetation or in the fall after harvest. For spring application, apply just prior to germination and growth of annual weeds.

Best results are obtained if the herbicide is moved into the soil by moisture (rainfall or sprinkler irrigation) within 2 weeks of application.

Apply uniformly with a fixed-boom sprayer, properly calibrated to a constant speed and rate of delivery. Use sufficient water to provide thorough and uniform coverage of the ground. Spray booms must be shut off while starting, turning, slowing, or stopping, or injury to the crop may result. Avoid contact of foliage and fruit with spray or mist.

**NOTE:** Do not replant treated areas to any crop within two years after last application, as injury to subsequent crops may result.

**BLUEBERRIES, CANEBERRIES AND GOOSEBERRIES**

Use only in fields which have been established for at least 1 year. Do not apply to berries interplanted with fruit trees; do not apply to plants whose roots are exposed as injury may result. Apply as a band treatment at base of canes or bushes: for spring application, apply before germination and growth of annual weeds.

**Georgia—Blueberries:** Apply 1½ to 2 lbs. per acre in the spring and repeat treatment after harvest in the fall. Add surfactant at 1 pt. per 25 gals. spray mixture to improve control of small, emerged weeds.

**Indiana, Michigan and Ohio—Blueberries:** Apply 2 to 4 lbs. per acre in late spring; alternatively, apply 2 lbs. per acre in the fall and repeat at same rate in the spring.

**Raspberries:** Apply 3 lbs. per acre in the spring.

**Massachusetts—Blueberries:** Apply 2 lbs. per acre in late spring.

**New Jersey—Blueberries:** For control of winter annuals, apply 2 lbs. per acre in October, November or December, or a single application of 2½ lbs. per acre may be applied in early to mid spring.

**California-Raspberries, Blackberries, Boysenberries, Dewberries and Loganberries:** For control of winter annuals, apply 2 lbs. per acre in October or November; repeat at same rate in late spring to control summer annuals. A single application of 3 lbs. per acre in January or February will control both winter and summer annuals in some areas, but the separate fall and spring schedule is preferred.

**Western Oregon and Western Washington—Blueberries, Caneberries and Gooseberries:** Use same schedule as recommended for California.

**DIURON 80 WDG WEED KILLER + SINBAR (New Jersey & Maine)—Blueberries**—For control of annual and perennial weeds such as cinquefoil, crabgrass, dogfennel, fall panicum, hawkweed, panicgrass, red root (*Lachnanthes caroliniana*), red sorrel, annual sedge, perennial ryegrass, and quackgrass.

Use only in blueberry plantings that have been established in the field for at least one year. Make a single band or broadcast application, either in the spring after burning of dried vegetation or in the fall after harvest. Apply before weeds emerge or during the early seedling stage of weed growth at the following broadcast rates:

**SINBAR + DIURON 80 WDG WEED KILLER - TANK MIXTURE**

Soil Texture	Lbs. Product Per Acre	
	1 to 3% Organic Matter	More than 3% Organic Matter
	SINBAR + DIURON 80 WDG	SINBAR + DIURON 80 WDG
Sand, Loamy Sand	Do Not Use	2 + 2
Sandy Loam	2 + 2	2½ + 2
Loam, Silt Loam, Silt, Sandy Clay, Silty Clay	2½ + 2	3 + 2
Clay Loam	3 + 2	3 + 2

Apply uniformly by air or with a fixed-boom sprayer properly calibrated to a constant speed and rate of delivery. Use sufficient water (minimum of 25 gals. per acre with ground equipment or 5 to 10 gals. per acre by aircraft) to provide thorough and uniform coverage of ground. Spray booms must be shut off while starting, turning, slowing, or stopping, or injury to the crop may result. Avoid contact of foliage and fruit with spray or mist.

**NOTE:** Do not use on soils containing less than 1% organic matter, nor on gravelly soils or eroded areas where subsoil or roots are exposed, nor on plants that are diseased or lacking in vigor, as injury to the plants may result. SINBAR-treated areas may be planted to alfalfa, apples, blueberries, citrus, mint, peaches, strawberries, and sugarcane one year after last application. Do not replant to other crops within two years after last application as injury to those crops may result. Do not replant areas treated with SINBAR + DIURON 80 WDG WEED KILLER to crops other than blueberries within two years after application, as injury to those crops may result.

**CITRUS**

Use only under trees established in the grove for at least 1 year. Time application as indicated for specific areas, except application may be made any time of the year where sprinkler or flood irrigation can be timed to activate the herbicide. Established perennial weeds require other special control procedures. Do not apply under citrus trees that have been subjected to freezing within 6 months.

**Arizona (except Yuma area) and California (except Imperial and Coachella Valleys):** Apply 3 to 4 lbs. per acre shortly after grove has been laid-up in final form (nontillage program) in late fall or early winter. Alternatively, apply 2 lbs. per acre in

October or November and repeat at the same rate in March or April. Subsequent annual applications of 2 to 3 lbs. per acre will usually give adequate weed control.

**Florida and Puerto Rico:** Make a single application of 4 to 8 lbs. per acre, or apply 3 to 4 lbs. per acre followed by the same rate 4 to 6 months later. On bearing citrus, apply any time when seasonal rains are expected; on nonbearing trees, apply when winter banks are pulled down.

For control of guineagrass, loostrate, maidencane, paragrass, primrose willow and seamyrtle in ditches adjacent to citrus groves, use 1 lb. per 1000 sq. ft. (40 lbs. per acre) in sufficient water (min. 4 gals. per 1000 sq. ft.) to provide thorough and uniform coverage. Apply in the spring before weed growth starts or after removal of vegetation. Repeat treatment on spot basis to control hard-to-kill species such as guineagrass. In bedded groves, do not treat water furrows between the beds as injury to the trees may result.

**Texas:** Apply 2 to 4 lbs. per acre for annual weeds; use 4 to 6 lbs. per acre for control of johnsongrass seedlings. Best results accompany application in the spring; well-established weeds should be eliminated by cultivation prior to treatment.

**FILBERTS**

DIURON 80 WDG WEED KILLER is recommended for control of certain weeds in filbert orchards established for at least one year.

Apply as a directed spray, avoiding contact on the foliage and fruit with spray or drift. Make an initial treatment of 4 to 5 lbs. per acre in the late fall or early winter after harvest. Repeat annually with 3 to 4 lbs. per acre, or apply 2 lbs. per acre in October or November after harvest and repeat the same rate in March or April.

Do not apply when nuts are on the ground. Do not graze livestock in treated orchards. Do not use on light sandy soils. If trees are planted on hillsides, the elimination of weeds and ground cover may cause excessive soil erosion. Under these conditions strip applications (at proportionately lower rates) may be made near the trees or to the tree rows perpendicular to the slope.

**GRAPES**

Apply only to established vineyards (at least 3 years old) as a band treatment to grape rows. On soils low in clay or organic matter (1 to 2%), severe plant injury may result if heavy rainfall or more than one inch of irrigation occurs soon after treatment. This risk must be assumed by the user.

**East of the Rocky Mountains:** On soils low in clay or organic matter (1 to 2%), apply 2 to 3 lbs. per acre; on soils high in clay or organic matter, apply 3 to 6 lbs. per acre. Apply in the spring just prior to germination and growth of annual weeds.

**West of the Rocky Mountains:** Apply in November, December or January. For initial treatment, apply 3 to 4 lbs. per acre; subsequent annual applications of 2 lbs. per acre will usually give adequate weed control. Do not apply to vines with trunks less than 1½" in diameter as injury may result.

**New York and Pennsylvania—Perennial Grasses:** Use only in established vineyards (at least 4 years old) for spot control of perennial grasses such as orchardgrass, quackgrass and ryegrass. Apply in the spring as a band treatment to ridged soil (2" to 4" high) under the trellis at the rate of 8 to 12 lbs. per acre. Band width should not exceed 30". Do not apply more than once every 4 years. Use only on heavy soils such as loams, silt loams, clay loams. Do not use in areas where grape roots are shallow or exposed because of high bedrock, poor drainage, or erosion as injury to grapes may result.

**MACADAMIA NUTS—Hawaii**

Use only under trees established in the orchard for at least 1 year. Apply 2 to 6 lbs. per acre immediately after harvest, preferably before weeds emerge; if weeds have emerged, add 1 pt. surfactant per 25 gals. of spray. Retreat as needed but do not exceed 10 lbs. per acre per year.

**OLIVES—California**

Use only under trees established in the orchard for at least 1 year. Apply 2 lbs. per acre after grove has been laid-up in final form in late October or November; repeat at same rate in March or April. Remove weed growth prior to treatment.

**PAPAYAS**

Use only under trees established in the orchard for at least 1 year. Apply 2½ to 5 lbs. per acre, preferably before weeds emerge; if weeds have emerged, add 1 pt. surfactant per 25 gals. of spray.

**PAPAYAS—Hawaii**

DIURON 80 WDG WEED KILLER is recommended as a preplant application to control certain annual weeds such as buttongrass, crabgrass, foxtail, Flora's paintbrush, pigweed (Amaranth), ricegrass and sandbur.

Apply 1 lb. of DIURON 80 WDG WEED KILLER per acre as a preplant application. Using sufficient water to provide uniform coverage (100 gals. per acre), apply DIURON 80 WDG WEED KILLER as an interrow broadcast, hand knapsack spray or stroller spray. Be sure to avoid spraying on designated planting holes.

**NOTE:** Do not replant treated areas to any other crops within two years after last application as injury may result. Do not use on home plantings or in areas in which the roots of other plants or trees may extend as plant injury may result.

**PEACHES**

Use this product alone, or apply as a tank mixture with SINBAR.

**DIURON 80 WDG Alone—**Use only under trees established in the orchard for at least 3 years. Apply 2 to 5 lbs. per acre in the early spring before weeds emerge or during the early seedling stage of weed growth. Do not apply within 3 months of harvest. In the Far West, do not apply within 8 months of harvest.

**DIURON 80 WDG + SINBAR—**Use only under trees established in the orchard for at least 2 years. Apply either in the spring or after harvest in the fall before weeds emerge or during early seedling stage of weed growth.

Soil Texture	Lbs. Product Per Acre	
	1 to 2% Organic Matter	More than 2% Organic Matter
	DIURON 80 WDG + SINBAR	DIURON 80 WDG + SINBAR
Sandy loam	1 + 1	1½ + 1½
Loam, silt loam, silt	1½ + 1½	2 + 2
Clay loam, clay	2 + 2	2 + 2

Where crop is grown under furrow or under raised-berm flood irrigation (trees 4" to 6" above waterline), apply only as a band treatment. Do not treat trees planted in the bottom of irrigation furrows, nor trees grown under flat floor or basin irrigation, as injury to trees may result. Where complete weed control to harvest is desired, additional weed control measures may be required during the growing season.

**Georgia—**On trees established for at least 2 years, apply 2 to 3 lbs. per acre in the spring. Repeat application in the fall but do not exceed 5 lbs. per acre per year. Add surfactant at 1 pt. per 25 gals. spray mixture to improve control of small, emerged weeds.

Where crop is grown under furrow irrigation or under raised-berm flood irrigation (trees 4" to 6" above waterline), apply only as a band treatment. Do not treat trees planted in the bottom of irrigation furrows, nor trees grown under flat flood or basin irrigation, as injury to trees may result. Where complete weed control to harvest is desired, additional weed control measures may be required during the growing season.

**PEARS**

Use only under trees established in the orchard for at least 1 year; do not treat varieties grafted on full-dwarf root stocks. Apply 4 lbs. per acre in the spring (March through May). In the Far West, treatment may be made in winter (December through February), or apply 2 lbs. per acre as a postharvest treatment followed by 2 lbs. in the spring.

**PECANS**

Use this product alone or apply as a tank mixture with SINBAR. Make a single band or broadcast application as a directed spray using a minimum of 30 gals. of water per acre. Apply in the spring before weeds emerge or during the early seedling stage of growth.

Soil Texture	Lbs. Product Per Acre	
	DIURON 80 WDG Alone*	Tank Mixture DIURON 80 WDG + SINBAR**
Sandy loam	2	1½ + 1½
Loam, silt loam, silt	3	1½ + 1½
Clay loam, clay	4	2 + 2

\* Use only on trees established in grove for at least 3 years and on soils with at least ½% organic matter.

\*\* Use on trees established in the grove for at least 1 year and on soils with at least 1% organic matter.

**NOTE:** Do not use on eroded areas where subsoil or roots are exposed, nor on trees that are diseased or lacking in vigor or on trees planted in irrigation furrows as injury to the trees may result.

**PINEAPPLE**

**Hawaii and Florida—**Apply 4 to 8 lbs. per acre as a broadcast spray just before or immediately after planting but prior to weed emergence. Use 4 lbs. per acre after harvesting plant crop (for ratoon crop). For plant crop only, a second and third broadcast or interspace application may be made prior to differentiation at a rate of 2 lbs. per acre at intervals of not less than 2 months. Additional applications to plant crop may be made as needed to interspace only using 2 lbs. per acre. Do not apply more than 3 broadcast sprays (maximum 12 lbs. per acre) prior to differentiation nor more than 16 lbs. total per acre per plant crop. Treated areas may be planted to pineapple or sugarcane 1 year after last application.

**Puerto Rico—**Apply 3.75 to 6.25 lbs. per acre as a broadcast spray before or immediately after planting but prior to weed emergence.

**WALNUTS (English)**—California, Washington and Oregon  
Use only under trees established in the orchard for at least 1 year. As an initial treatment, apply 3 to 5 lbs. per acre after the orchard has been laid up in final form (non-illage program) in late fall or early winter; retreat annually with 2 to 3 lbs. per acre. Alternatively, apply 2 lbs. per acre in October or November and repeat at same rate in March or April.

**NOTE:** Do not use on sand, loamy sand, gravelly soils or exposed subsoils, nor where organic matter is less than 1%. Do not graze livestock in treated orchards and groves.

**ORNAMENTAL CROPS (See Soil Limitations)**

**ORNAMENTAL BULB CROPS (Bulbous Iris, Narcissus)**—Western Washington  
Make a single application of 4 lbs. per acre. Apply after planting but no later than 4 weeks prior to bulb emergence (usually late September or October). Do not replant treated areas to any crop within 1 year after last application as injury to subsequent crops may result.

**PLUMOSUS FERN**—Florida  
Hand weed and mow fern; then make a single application of 3 lbs. per acre within 3 to 5 days. Do not cultivate or disturb soil after application as crop injury may result. Treat only established stands at least 1 year old.

**TREE PLANTINGS**—Colorado, Montana, Nebraska, North Dakota, South Dakota, Wyoming  
Use only under established plantings (1 year or older) of American elm, caragana, cottonwood, Douglas fir, green ash, honeysuckle, Ponderosa pine, redcedar, Russian olive and Siberian elm. Use 2½ to 5 lbs. per acre; apply as a band 4 ft. wide in the tree row (2 ft. on each side of row).  
For example, 1 oz. of this product treats 135 ft. of tree row (2 ft. on each side of row) at the rate of 5 lbs. per acre. Apply as a directed spray in early spring before weeds emerge and before trees leaf out. Do not apply to foliage of trees, nor under trees growing in low areas as injury to the trees may result.

**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 treated area until sprays have dried.

**PASTURES (See Soil Limitations)**  
**BERMUDAGRASS PASTURES (Newly Sprigged)**  
Apply 1 to 3 lbs. after planting and before emergence of bermudagrass or weeds. Alternatively, for control of emerged annual weeds up to 4 in height, apply ½ to 1 lb. per acre; add 1 pt. surfactant per 25 gals. of spray. If bermudagrass has emerged at time of treatment, temporary burn of exposed plant parts may occur. Plant sprigs (stolons) 2" deep in a well-prepared seedbed; do not treat areas where sprigs are planted less than 2" deep as crop injury may result. Do not graze or feed foliage from treated areas to livestock within 70 days after application.

**BERMUDAGRASS PASTURES (Established)**—Arkansas  
Use in bermudagrass pastures in Arkansas to control barnyardgrass, annual bluegrass, chickweed, crabgrass, foxtail, morningglory, pigweed, purslane, ragweed, sandbur, and wild mustard.  
Apply 1 to 3 lbs. per acre in early spring before weed emergence. Alternatively for control of emerged annual weeds up to 4" in height, apply ½ to 1 lb. per acre; add 1 pt. of surfactant per 25 gals. of spray solution.  
For ground preemergence application, use 25 to 40 gals. spray mixture per acre. For ground postemergence application use sufficient volume (25 gals. per acre minimum) for thorough coverage of weed foliage.  
For preemergence application by air, use 5 to 10 gals. spray mixture per acre. Avoid overlapping of spray swath and avoid application under conditions where excessive drift may occur.  
Do not graze or feed foliage from treated areas to livestock within 2 months after application.

**NON-CROP WEED CONTROL**

This product is an effective herbicide for the control of many annual and perennial grasses and herbaceous weeds of non-cropland area where bare ground is desired. The degree of control and duration of effect will vary with the amount of chemical applied, soil texture, rainfall and other conditions.

This herbicide may be used as a preemergence treatment at any time of the year except when ground is frozen, provided adequate moisture is supplied by rainfall or artificial means to activate the herbicide. Best results are obtained if application is made to the soil shortly before weed growth begins. If dense growth is present, remove tops and spray the ground.

Increased contact activity on established weeds may be obtained by the addition of surfactant at the rate of 2 qts. per 100 gals. of spray mixture. Apply as a drenching spray to actively growing weeds during warm weather when daily temperature will exceed 70°F.

Except for small areas, use a fixed-boom power sprayer properly calibrated to insure a constant rate of application. Mix proper amount of this product into volume of water necessary to obtain uniform coverage; if surfactant is used, dilute with 10 parts of water and add as last ingredient to nearly full tank. Material must be kept in suspension at all times. Agitate by mechanical or hydraulic means in the spray tank; if bypass or return line is used, it should terminate at bottom of tank to minimize foaming. Openings in screen should be equal to or larger than 50 mesh.

**General Weed Control:** To control most weeds for an extended period of time on non-cropland such as utility, highway, pipeline and railroad right of ways, petroleum tank farms, lumberyards, storage areas, industrial plant sites, and around farm buildings—apply 5 to 20 lbs. per acre to control most annual weeds. Use 20 to 60 lbs. per acre for perennial weeds; additional treatment may be required where a longer period of control is desired or when hard-to-kill, deep-rooted perennial weeds such as johnsongrass are present. In low rainfall areas, this product may not provide satisfactory control of deep-rooted perennial weeds.  
For control on small areas, use 1½ ounces of this product per 100 sq. ft. for a dosage of approximately 50 lbs. per acre.

**Irrigation and Drainage Ditches:** Apply 5 to 20 lbs. per acre to control most annual weeds; use 20 to 60 lbs. per acre to control both annual and perennial weeds. Apply only when water is not in the ditch. For irrigation ditches, apply during the non-crop season, and when ditch is not in use. To minimize movement of this herbicide with irrigation water (to avoid possible crop injury), it is essential that the herbicide be fixed in the soil by moisture. Apply before expected season rainfall (if possible) when soil in the ditch is still moist. Following treatment, if rainfall has not totaled at least 4 inches, fill ditch with water and allow to stand for 72 hours; drain off and waste remaining water before using ditch. Do not treat any ditch into which roots of trees or other desirable plants may extend as injury may result.

**ROADSIDE BERMUDAGRASS**—Oklahoma  
DIURON 80 WDG WEED KILLER is recommended for use in bermudagrass on highway right-of-ways for control of annual weeds such as barnyardgrass, crabgrass, Kochia, lambsquarters, pigweed, and ragweed.  
Make a single application of DIURON 80 WDG WEED KILLER either preemerge or postemergence to the weeds. Apply as a broadcast treatment with a properly calibrated boom sprayer using sufficient amount of water (25 to 40 gallons per acre) to provide thorough and uniform coverage. Avoid overlapping and shut off spray boom while starting, turning, slowing, or stopping or injury to the bermudagrass may result. Continuous agitation as directed on the package label is required to keep the material in suspension.

**Preemerge Treatment:** Apply 2 to 4 lbs. DIURON 80 WDG WEED KILLER per acre before emergence of bermudagrass or weeds.

**Postemerge Treatment:** Apply 2 to 4 lbs. DIURON 80 WDG WEED KILLER per acre when seedling weeds up to 4" in height are present. Add surfactant at rate of 1 pt. per 25 gals. of spray mixture. Use the lower rate on weeds up to 2" tall and the higher rate on weeds 2" to 4" tall.

Use the lower rates on light soils (sandy loam and loam) and the higher rates on heavy soils (clay loam and clays). Best results are obtained if the herbicide is moved into the root zone of germinating weeds by rainfall or irrigation within two weeks of application.

- NOTES:**
- If bermudagrass is exposed at time of treatment, temporary burn of exposed plant parts may occur.
  - DIURON 80 WDG WEED KILLER controls weeds early in the season and supplemental mowing may be required later.
  - Do not graze or feed foliage from treated areas to livestock within 70 days after application

**WARRANTY DISCLAIMER AND NOTICE**

IT IS IMPOSSIBLE TO ELIMINATE ALL RISKS INHERENTLY ASSOCIATED WITH THE USE OF THIS PRODUCT. CROP INJURY, INEFFECTIVENESS, OR OTHER UNINTENDED CONSEQUENCES MAY RESULT DUE TO SUCH FACTORS AS WEATHER CONDITIONS, PRESENCE OR ABSENCE OF OTHER MATERIALS, OR THE MANNER OF USE OR APPLICATION, ALL OF WHICH ARE BEYOND THE CONTROL OF LOVELAND PRODUCTS INC., THE MANUFACTURER OR SELLER.

THE PRODUCTS SOLD TO YOU ARE FURNISHED "AS IS" BY LOVELAND PRODUCTS INC., THE MANUFACTURER OR SELLER, AND ARE SUBJECT ONLY TO THE MANUFACTURER'S WARRANTIES, IF ANY, WHICH APPEAR ON THE LABELS TO THE PRODUCTS SOLD TO YOU. EXCEPT AS EXPRESSLY PROVIDED HEREIN, LOVELAND PRODUCTS INC., THE MANUFACTURER OR SELLER MAKES NO WARRANTIES, GUARANTEES, OR REPRESENTATIONS OF ANY KIND TO BUYER OR USER, EITHER EXPRESS OR IMPLIED, OR BY USAGE OF TRADE, STATUTORY OR OTHERWISE, WITH REGARD TO THE PRODUCT SOLD OR USE OF THE PRODUCT, INCLUDING, BUT NOT LIMITED TO, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, USE OR ELIGIBILITY OF THE PRODUCT FOR ANY PARTICULAR TRADE USAGE. EXCEPT AS EXPRESSLY STATED HEREIN, LOVELAND PRODUCTS INC., THE MANUFACTURER OR SELLER MAKES NO WARRANTY OF RESULTS TO BE OBTAINED BY USE OF THE PRODUCT. BUYER'S OR USER'S EXCLUSIVE REMEDY, AND LOVELAND PRODUCTS INC.'S, THE MANUFACTURER'S OR SELLER'S TOTAL LIABILITY, SHALL BE LIMITED TO DAMAGES NOT EXCEEDING THE COST OF THE PRODUCT. NO AGENT OR EMPLOYEE OF LOVELAND PRODUCTS INC. OR SELLER IS AUTHORIZED TO AMEND THE TERMS OF THIS WARRANTY DISCLAIMER OR THE PRODUCT'S LABEL OR TO MAKE A

Appendix B ~~DDURON~~ **80 WDG**  
EPA REG. NO. 34704-648

REPRESENTATION OR RECOMMENDATION DIFFERENT FROM OR INCONSISTENT WITH THE LABEL OF THIS PRODUCT.

IN NO EVENT SHALL LOVELAND PRODUCTS INC., THE MANUFACTURER OR SELLER BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE, HANDLING, APPLICATION, STORAGE OR DISPOSAL OF THIS PRODUCT OR FOR DAMAGES IN THE NATURE OF PENALTIES AND THE BUYER AND USER WAIVE ANY RIGHT THEY MAY HAVE TO SUCH DAMAGES.

FORMULATED FOR



P.O. BOX 1286, GREELEY, COLORADO 80632-1286

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

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**FORMULATED FOR:**

Loveland Products, Inc.  
P.O. Box 1286 - Greeley, CO 80632-1286

24-Hour Emergency Phone: 1-800-424-9300  
Medical Emergencies: 1-800-301-7976  
U.S. Coast Guard National Response Center: 1-800-424-8802

**PRODUCT NAME:** DIURON 80 WDG WEED KILLER  
**CHEMICAL NAME:** Diuron; [3-(3,4-dichlorophenyl)-1,1-dimethylurea]  
**CHEMICAL FAMILY:** Substituted Urea Herbicide  
**EPA REG. NO.:** 34704-648  
**MSDS Number:** 000648-04b-LPI      **MSDS Revisions:** See section 16      **Date Of Issue:** 07/07/04      **Supersedes:** 05/12/04

**2. HAZARDS IDENTIFICATION SUMMARY**

**KEEP OUT OF REACH OF CHILDREN – CAUTION – CAUSES EYE IRRITATION.** Do not get in eyes, on skin, or on clothing. Harmful if swallowed, inhaled, or absorbed through skin. Avoid breathing dust or spray mist.

This product is off-white to light brown granules with virtually no odor.

**3. COMPOSITION, INFORMATION ON INGREDIENTS**

<u>Chemical Ingredients:</u>	<u>Percentage by Weight:</u>	<u>CAS No.</u>	<u>TLV Units</u>
Diuron	80.00	330-54-1	10 mg/m <sup>3</sup>
Inert Ingredients	20.00		

**4. FIRST AID MEASURES**

**If swallowed:** Call a poison control center or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

**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 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 inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

**NOTE TO PHYSICIAN:** Adsorption of Diuron into the body may lead to the formation of methemoglobin that, in sufficient concentration, causes cyanosis. Since reversal of methemoglobin occurs spontaneously after termination of exposure, moderate degrees of cyanosis need be treated only by supportive measures such as bed rest and oxygen inhalation. Thorough cleansing of the entire contaminated area of the body, including scalp and nails is of utmost importance. If cyanosis is severe IV injection of methylene blue @ 1 mg/kg of body weight, may be of value. Cyanocobalamin (Vitamin B<sub>12</sub>) @ 1 mg intramuscularly may speed recovery. IV fluids and blood transfusions may be indicated in very severe exposures.

**FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL: 1-800-301-7976.** Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

**5. FIRE FIGHTING MEASURES**

**FLASH POINT (°F/Test Method):** Does not flash.  
**FLAMMABLE LIMITS (LFL & UFL):** None established  
**EXTINGUISHING MEDIA:** Dry chemical, carbon dioxide, foam, water spray or fog.  
**HAZARDOUS COMBUSTION PRODUCTS:** Oxides of nitrogen and other unknown hazardous material may be formed in a fire situation. Oxides of carbon and/or other asphyxiants may be formed from incomplete combustion.  
**SPECIAL FIRE FIGHTING PROCEDURES:** Wear self-contained breathing apparatus and full protective clothing.  
**UNUSUAL FIRE AND EXPLOSION HAZARDS:** If water is used to fight fire, contain runoff, using dikes to prevent contamination of water supplies.

**6. ACCIDENTAL RELEASE MEASURES**

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:**

Control the spill at its source. Sweep up material and place in a container for possible land application according to label use or for proper disposal. Check local, state and federal regulations for proper disposal.

**CAUTION:** Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

**7. HANDLING AND STORAGE**

**HANDLING:** 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.

**STORAGE:** Store product in original container only, away from other pesticides, fertilizer, food or feed. Do not contaminate water, food or feed by storage or disposal.

**Personal Protective Equipment: Applicators and other handlers must wear:** long sleeved shirt and long pants, chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride, and 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.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

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

**RESPIRATORY PROTECTION:** Not normally required, if dusts or mists exceed acceptable levels, wear a NIOSH approved respirator with cartridges and dust pre-filters for pesticides.

**EYE PROTECTION:** Chemical goggles or shielded safety glasses.

**SKIN PROTECTION:** Wear protective clothing: long-sleeved shirts and pants, shoes plus socks. Wear waterproof gloves.

	OSHA PEL 8 hr TWA	ACGIH TLV-TWA
Diuron	not listed	10 mg/m <sup>3</sup>
Nuisance Particulates	15 mg/m <sup>3</sup> (total dust)	not established

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**APPEARANCE AND ODOR:** Off-white to light brown granules with virtually no odor. **SOLUBILITY:** Disperses

**SPECIFIC GRAVITY (Water = 1):** 0.48-0.64 g/ml **BULK DENSITY:** 30-40 lbs/ft<sup>3</sup> **pH:** Not established

**VAPOR PRESSURE:** Not applicable **BOILING POINT:** Not applicable

**PERCENT VOLATILE (by volume):** Not applicable **EVAPORATION RATE:** Not applicable

**Note:** These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

**10. STABILITY AND REACTIVITY**

**STABILITY:** Stable **CONDITIONS TO AVOID:** Excessive heat and moisture.

**INCOMPATIBILITY:** Strong acids.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Oxides of nitrogen and other unknown hazardous material may be formed in a fire situation. Oxides of carbon and/or other asphyxiants may be formed from incomplete combustion.

**HAZARDOUS POLYMERIZATION:** Will not occur.

**11. TOXICOLOGICAL INFORMATION**

**Acute Oral LD<sub>50</sub> (rat):** 2900 mg/kg **Acute Dermal LD<sub>50</sub> (rabbit):** >2000 mg/kg

**Eye Irritation (rabbit):** Moderate eye irritant **Skin Irritation (rabbit):** Mild skin irritant

**Inhalation LC<sub>50</sub> (rat):** >5.27 mg/L (4 hr). **Skin Sensitization (guinea pig):** Not established

**Carcinogenic Potential:** None listed in OSHA, NTP or IARC; ACGIH (TLV-A4): Not classifiable as Human Carcinogen

**Target Organs:** Diuron: eyes, skin, respiratory system, and blood.

**12. ECOLOGICAL INFORMATION**

For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Runoff and drift from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not apply when weather conditions favor drift from target area as desirable trees or other plants may be lost. Do not contaminate any body of water. Keep from contact with fertilizers, insecticides, fungicides and seeds.

**13. DISPOSAL CONSIDERATIONS**

Do not reuse product containers. 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 bag is burned, stay out of smoke. Open dumping is prohibited. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Do not contaminate water, food or feed by storage or disposal.

**14. TRANSPORT INFORMATION**

**DOT Shipping Description:** NOT REGULATED BY USDOT

**U.S. Surface Freight Classification:** COMPOUND, TREE OR WEED KILLING, NOI (NMFC 50320, SUB 2:CLASS: 60)

Consult appropriate ICAO/IATA and IMDG regulations for shipment requirements in the Air and Maritime shipping modes.

15. REGULATORY INFORMATION

NFPA & HMIS Hazard Ratings:		NFPA		HMIS
2	Health	0	Least	2 Health
0	Flammability	1	Slight	0 Flammability
0	Instability	2	Moderate	0 Reactivity
		3	High	H PPE
		4	Severe	

SARA Hazard Notification/Reporting

SARA Title III Hazard Category: Immediate Y Fire N Sudden Release of Pressure N  
 Delayed Y Reactive N

Reportable Quantity (RQ) under U.S. CERCLA: Diuron (CAS: 330-54-1) 100 pounds

SARA, Title III, Section 313: Diuron (CAS: 330-54-1) 80.0%

RCRA Waste Code: Not listed

CA Proposition 65: **WARNING:** This product contains chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.

16. OTHER INFORMATION

MSDS STATUS: Format modified to address changes in ANSI Standard Z400.1-2004

PREPARED BY: Registrations and Regulatory Affairs

REVIEWED BY: Environmental/ Regulatory Services

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct, Loveland Products, Inc., the manufacturer or the seller makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving it will make their own determination as to its suitability for their purposes prior to use.

The product covered by this information sheet is furnished "as is" by Loveland Products, Inc., the manufacturer or the seller, and is subject only to the warranties, if any, that appear on the product's label or are otherwise expressly provided herein.

Except as expressly provided on the product's label or otherwise provided herein, no warranties, guarantees, or representations of any kind, either express or implied, or by usage of trade, statutory or otherwise, are made by Loveland Products, Inc., the manufacturer or the seller with regard to the product or use of the product, including, but not limited to, merchantability, fitness for a particular purpose, use or eligibility of the product for any particular trade usage.

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# 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%
<i>Inert Ingredients</i>	40%
TOTAL	100%

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 affected from drift and run-off.

## Appendix B - Escort Label

### 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.

## Appendix B - Escort Label

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.

## Appendix B - Escort Label

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.

## Appendix B - Escort Label

### NOTE:

DuPont™ 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.

## Appendix B - Escort 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, sidecoats 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
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.

## Appendix B - Escort Label

### 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.

## Appendix B - Escort Label

### Other Grasses:

Varieties and species of forage grasses differ in their tolerance to herbicides. When using DuPont™ 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.

### Rotation Intervals for Overseeding and Renovation

Location	Crop or Grass Species	Maximum 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
	Alkali sacaton, mountain brome, blue grama thickspike wheatgrass	1/10 to 1	1
ALL AREAS WITH SOIL PH OF 7.9 OR LESS	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

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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
Bahia grass	Marestail/horseweed****
Beebalm	Maximillion sunflower
Bittercress	Miners lettuce
Bitter suzezweed	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	Wooly croton
Field pennycress	Wood sorrel
Flixweed	Yankweed

#### 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
Gunweed	Salsify
Houndstongue	Snowberry
Lupine	St. Johnswort
Old world climbing fern (Lygodium)	Sulphur cinquefoil
Perennial pepperweed	Western salsify
Poison hemlock	Whitetop (hoary cress)
	Wild Iris

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

Canada thistle**	Tall larkspur
Dalmation toadflax**	Wild parsnip
Duncecap 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

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.

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

Turf Type	Rate of DuPont™ ESCORT® XP (ounces/acre)
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 ESCORT® XP per 100 gallons of spray solution.

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### Application Timing

Make a foliar application of the recommended rate of DuPont™ 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 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

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- 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 DuPont™ 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 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.

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- **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.

## Appendix B - Escort Label

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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.

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

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

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**SUPPLEMENTAL  
LABELING**

**DuPont Crop  
Protection**

**DUPONT™ ESCORT® XP  
HERBICIDE  
FOR PASTURE AND  
RANGELAND**

**DUPONT™ ESCORT® XP HERBICIDE**

EPA REG. NO. 352-439

**FOR USE ON PASTURE AND RANGELAND**

**DIRECTIONS FOR USE**

DUPONT™ ESCORT® XP is recommended for the control of broadleaf weeds, brush and several woody vine species in forage grasses growing in pasture and rangeland.

ESCORT® XP may be tank mixed with other pesticides labeled for use in pasture and rangeland. Read and follow the labels on all products used in the tank mix. Observe the most restrictive precautions on each of the product's labels.

Application of ESCORT® XP to pasture and rangeland may be made by ground or air. Use a sufficient volume of water to ensure thorough coverage of the targeted weeds with the equipment being used. In Idaho, Oregon and Washington use a minimum application volume of 3 gallons of spray solution per acre.

**APPLICATION INFORMATION FOR GRASS  
ESTABLISHMENT IN PASTURE AND RANGELAND**

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 planted in pasture and rangeland:

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

Maximize potential for grass establishment by consulting with the Natural Resource and Conservation Service or other government agencies or local experts concerning planting techniques and other cultural practices.

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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 in pasture and rangeland Preplant (prior to planting) or Preemergence (after planting but before grass emergence)**

Do not use more than 1/10 ounce/acre of ESCORT® XP for grass establishment in pasture and rangeland.

Apply ESCORT® XP at 1/10 ounce/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/acre, plus a non-ionic surfactant at the rate of 2 to 4 pints/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/acre plus a non-ionic surfactant at the rate of 2 to 4 pints/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.

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### APPLICATION INFORMATION FOR ESTABLISHED GRASSES IN PASTURE AND RANGELAND

#### Use Rates for Established Grasses in Pasture and Rangeland

Apply up to 1 ounce ESCORT® XP per acre as a broadcast application to established grasses in pasture and rangeland. 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 the section 3 label for a listing of the weeds controlled by ESCORT® XP and the appropriate use rate to obtain control.

#### Application Timing – Established Grasses in Pasture and Rangeland

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:

<u>Grass</u>	<u>Minimum time from Grass establishment ESCORT® XP application</u>
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/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 DuPont™ 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/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.

#### Other Pasture and Rangeland 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.

#### SPOT TREATMENTS

DuPont™ ESCORT® XP Herbicide is recommended for use as spot treatment to control noxious and troublesome weeds on pasture, rangeland, non-crop areas, such as, roadsides and industrial sites including government and private lands.

#### Application Information

ESCORT® XP is recommended to control many species of weeds, including noxious weeds, in certain established grasses growing on non-crop areas and forage grasses growing on pasture and rangeland. Refer to the "Weeds Controlled" section of the package label or supplemental labeling for a listing of susceptible weed species. If the sprayer is calibrated, consult the package label or other supplemental labeling to select the application rate per acre of ESCORT® XP appropriate for the target weeds. Or mix one gram of ESCORT® XP per one gallon of water along with a suitable surfactant. Spray to the point of wetting the entire surface of the target weeds, approximately 40 gallons of solution per acre. When applied in this manner there is no grazing restrictions following the use of ESCORT® XP. Applications may be made at anytime of the year, except when the soil is frozen.

#### CROP ROTATION

Before using ESCORT® XP, carefully consider your crop rotation plans and options. For rotational flexibility, do not treat all of your pasture, rangeland or CRP acres at the same time.

#### 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.

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Location	Crop or Grass Species	Maximum ESCORT®XP Rate on Pasture (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 bromc, smooth bromc, 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 bromc, blue grama thickspike wheatgrass	1/10 to 1	1
	Sidecoats grama, switchgrass	1/10 to 1/2	2
	Western wheatgrass	1/10 to 1	2
	Sidecoats grama, switchgrass, big bluestem	1/10 to 1	3

### 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.

### GRAZING/HAYING

When used as directed, there is no grazing or haying restriction for use rates of 1 2/3 ounces per acre and less.

Coveralls, shoes plus socks must be worn if cutting within 4 hours of treatment.

### IMPORTANT PRECAUTIONS

- Do not apply more than 1 2/3 ounces of ESCORT® XP per acre per year on pasture or rangeland.
- Grass species or varieties may differ in their response to various herbicides. DuPont recommends that you first consult your state experiment station, university, or extension agent as to sensitivity to any herbicide. 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. DuPont™ 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 pasture and rangeland 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.

## Appendix B - Escort Supplemental Label

- Applications made to some established grasses may cause temporary stunting, yellowing or seedhead suppression (i.e. fescue, timothy).
- Applications made to newly established grasses less than 2 years from seeding may result in injury or loss.
- Do not apply to forage grasses known to be sensitive to ESCORT® XP such as ryegrass (Italian and perennial), bahia or Garrison's creeping foxtail.
- Broadleaf forage species, such as alfalfa and clover, are highly sensitive to ESCORT® XP and will be severely injured or killed.
- 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.
- 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.

**IMPORTANT NOTICE  
BEFORE BUYING OR USING DUPONT PRODUCT(S)  
COVERED BY THIS LABEL, READ THIS LABEL AND  
THE LABELS FOR ALL PRODUCTS REFERENCED IN  
THIS LABEL, IN THEIR ENTIRETY. FOLLOW ALL  
APPLICABLE DIRECTIONS, RESTRICTIONS AND  
PRECAUTIONS.**

This label contains supplemental instructions for use of the referenced DuPont product. Follow these instructions carefully. This label must be in the possession of the user at the time of application.

Read the Limitation of Warranty and Liability on the Section 3 Federal product label before buying or using THIS product. If terms are not acceptable, return the unopened package at once to Seller for full refund of purchase price paid. Otherwise, use by Buyer or any other User constitutes acceptance of the terms of the Limitation of Warranty and Liability on the Section 3 Federal product label.

R-718 072407 11-08-07  
(Ref: SL-1252 MSTR 082807 11-08-07)

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

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-----  
 "DuPont" "ESCORT" XP HERBICIDE  
 M0000459 Revised 1-JUN-2005  
 -----

-----  
 CHEMICAL PRODUCT/COMPANY IDENTIFICATION  
 -----

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)

-----  
 COMPOSITION/INFORMATION ON INGREDIENTS  
 -----

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.

-----  
FIRE FIGHTING MEASURES  
-----

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  
-----

## 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

-----  
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

-----  
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.

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TRANSPORTATION INFORMATION  
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## 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 : 0NPCA-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

# Appendix B - Escort MSDS

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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® 3A

## Specialty Herbicide

©Trademark of Dow AgroSciences LLC

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%
Inert 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.

## Appendix B - Garlon 3A Label

### 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.

**Container Disposal for Refillable Containers:** Seal all openings which have been opened during use. Return the empty container to a collection site designated by Dow AgroSciences. If the container has been damaged and cannot be returned according to the recommended procedures, contact Dow AgroSciences Customer Service Center at 1-800-258-1470 to obtain proper handling instructions.

**Container Disposal (Metal):** Do not reuse container. Triple rinse (or equivalent). 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.

**Container Disposal (Plastic):** Do not reuse container. Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**General:** Consult federal, state, or local disposal authorities for approved alternative procedures.

## Appendix B - Garlon 3A Label

### 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.

In Arizona: The state of Arizona has not approved Garlon 3A 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.

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, qt/acre			
	2 qt/acre	4 qt/acre	6 qt/acre	8 qt/acre
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.

## Appendix B - Garlon 3A Label

**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 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.

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**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 by Garlon 3A

#### Woody Plant Species

alder	dogwood	salt cedar <sup>1</sup> **
arrowwood	elderberry	salmonberry
ash	elm	sassafras
aspen	gallberry	scotch broom
Australian pine	hazel	sumac
bear clover (bearmat)	hornbean	sweetbay magnolia
beech	kudzu <sup>1</sup>	sweetgum
birch	locust	sycamore
blackberry	madrone	tanoak
blackgum	maples	thimbleberry
Brazilian pepper	mulberry	tulip poplar
casacara	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 ( <i>Baccharis</i> spp.)	
Douglas fir		

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

\*\*Use cut surface treatments for best results.

#### Annual and Perennial Broadleaf Weeds

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

#### 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<sup>®</sup> 3A specialty herbicide 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.

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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>**</sup> (gal/100 gal of spray)	Other Non-Cropland Sites <sup>***</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>\*\*</sup> Do not exceed the maximum use rate of 6 lb ae of triclopyr (2 gal of Garlon 3A)/acre/year.

<sup>\*\*\*</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.

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### 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

To control unwanted trees of hardwood species such as elm, maple, oak and conifers in labeled sites, apply Garlon® 3A specialty herbicide, 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.

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### 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 off, 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	bindweed, field (TG)	arrowwood (SDL)
dandelion	blackberry <sup>†</sup>	aspen
dock, curly	chicory (s)	beech (SDL)
lambquarters	fireweed	birch (SDL)
lespedeza	ivy, ground	chinquapin
plantain, broadleaf	lettuce, wild	cottonwood (SDL)
plantain, buckhorn	oxalis	elderberry
ragweed, common	poison ivy	grape, wild
vetch	smartweed (TG)	mulberry (SDL)
	thistle, Canada (TG)	poplar (SDL)
	violet, wild	sassafras (SDL)
	Virginia creeper <sup>†</sup>	sumac (SDL)
		sycamore (SDL)

(TG) Top growth control, retreatment may be necessary

(S) Suppression

(SDL) Seedlings less than 2 to 3 years old

<sup>†</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<sup>®</sup> 3A specialty herbicide 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.

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### 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.

### Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Plant injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperature, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, 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.

### Limitation of Remedies

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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Dow AgroSciences LLC • Indianapolis, IN 46268 U.S.A.

Label Code: D02-101-038  
Replaces Label: D02-101-037  
LOES Number: 010-00084

EPA-Accepted 01/03/06

### Revisions:

1. Added New York restriction.
2. Revised Personal Protective Equipment section.
3. Revised grazing and haying restrictions.
4. Added seasonal irrigation waters.
5. Added aquatic uses.
6. Added Australian pine, and salt cedar to woody plant species.
7. Added Mexican petunia, Spanish needles/common beggarthicks, tropical soda apple, and wedelia to annual and perennial broadleaf weeds species.

# Supplemental Labeling



Dow AgroSciences LLC

9330 Zionsville Road

Indianapolis, IN 46268-1054 USA

## Garlon\* 3A

EPA Reg. No. 62719-37

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

#### ATTENTION

- It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
- This labeling must be in the possession of the user at the time of application.
- Read the label affixed to the container for Garlon\* 3A specialty herbicide before applying. Carefully follow all precautionary statements and applicable use directions.
- Use of Garlon 3A according to this supplemental labeling is subject to all use precautions and limitations imposed by the label affixed to the container for Garlon 3A.

#### Directions for Use

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 terrestrial non-cropland sites.

#### Plants Controlled by Garlon 3A

##### Woody Plant Species

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

†For complete control, retreatment may be necessary.

## Appendix B - Garlon 3A Supplemental Information

### Annual and Perennial Broadleaf Weeds

bindweed	dandelion	ragweed
burdock	field bindweed	smartweed
Canada thistle	lambsquarter	tansy ragwort
chicory	plantain	vetch
curly dock	Purple loosestrife	wild lettuce

### Maximum Labeled Rate versus Spray Volume per Acre

Total Spray Volume (gal/acre)	Maximum Rate of Garlon 3A	
	Forestry Sites <sup>†</sup> (gal/100 gal of spray)	Other Non-Cropland Sites <sup>††</sup> (gal/100 gal of spray)
400	0.5	0.75
300	0.67	1
200	1	1.5
100	2	3
50	4	6
40	5	7.5
30	6.65	10
20	10	15
10	20	30

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

<sup>††</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.

### 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, qt/acre			
	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.

### Use Precautions and Restrictions:

- 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 used to transport irrigation water. It is permissible to treat 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.
- On forestry sites, Garlon 3A may be used at rates up to 6 lb ae of triclopyr (2 gallons of Garlon 3A) per

## Appendix B - Garlon 3A Supplemental Information

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.
- 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.
- Consult local public water control authorities before applying this product in and around public water. Permits may be required to treat such areas.

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D06-101-002  
EPA-accepted 12/03/02  
Initial printing

# Supplemental Labeling



Dow AgroSciences LLC

9330 Zionsville Road

Indianapolis, IN 46268-1054 USA

## Garlon\* 3A

EPA Reg. No. 62719-37

24(c) Special Local Need Registration SLN CA 010001  
(For Distribution and Use Only in the State of California)

### Cut Stump Treatment following Orchard Tree Removal

#### ATTENTION

- It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
- This labeling must be in the possession of the user at the time of application.
- Read the label affixed to the container for Garlon 3A before applying. Carefully follow all precautionary statements and applicable use directions.
- Except as directed in this supplemental labeling, use of Garlon 3A according to this supplemental labeling is subject to all use precautions and limitations imposed by the label affixed to the container for Garlon 3A.

#### Directions for Use

Garlon\* 3A herbicide may be applied to the cut surfaces of stumps following tree removal in orchards to kill existing root systems which serve as harborage for obligate nematode parasites. This treatment prevents regrowth and hastens the death of the root systems following tree removal. **Do not use this treatment in orchards being thinned due to the potential for damage to surrounding trees as a result of root grafting.**

**Mixing:** Use Garlon 3A undiluted or a 1:3 mixture of Garlon 3A and Mor-Act or equivalent surfactant.

**Application:** Apply by spraying or painting the surfaces of freshly cut stumps, making sure the cambium area next to the bark is uniformly wetted. Use low-pressure spray equipment or brush and apply only to cut surfaces and adjacent bark, avoiding runoff. For best results, apply as soon as possible following tree removal.

**Grazing/Haying Restrictions:** Planting a cover crop in treated areas is permissible. Refer to product label for restrictions that may be applicable to grazing or harvest of green forage or hay.

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D06-101-001  
Approved 01/17/01  
Initial printing.

# Product Bulletin



Dow AgroSciences LLC

9330 Zionsville Road

Indianapolis, IN 46268-1054 USA

## Garlon<sup>®</sup> 3A

EPA Reg. No. 62719-37

For Distribution and Use in the States of Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming

### Control of Salt Cedar (*Tamarix* spp.) Using Cut Surface Treatments

Garlon<sup>®</sup> 3A specialty herbicide is recommended for control of salt cedar (*Tamarix* spp.) using cut surface treatment methods. See Cut Surface Treatments section of the container label for Garlon 3A.

<sup>®</sup>Trademark of Dow AgroSciences LLC

R101-001

Issued: 08/29/05

Initial printing.

# MATERIAL SAFETY DATA SHEET



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

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

## GARLON\* 3A HERBICIDE

### 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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**MATERIAL SAFETY DATA SHEET**

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**GARLON\* 3A HERBICIDE**

**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.

**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.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION:**

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

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

**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.

**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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# MATERIAL SAFETY DATA SHEET



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## GARLON\* 3A HERBICIDE

**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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**MATERIAL SAFETY DATA SHEET**

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 Dow AgroSciences LLC  
 Indianapolis, IN 46268

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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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# MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994  
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Indianapolis, IN 46268

## GARLON\* 3A HERBICIDE

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

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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# Specimen Label



# Garlon<sup>®</sup> 4

## Specialty Herbicide

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For the control of woody plants and annual and perennial broadleaf weeds in non-crop areas, including industrial manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides, railroads, fence rows, non-irrigation ditch banks, 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%
Inert 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)

**WPS Uses:** Applicators and other handlers who handle this pesticide for any use covered by the Worker Protection Standard (40 CFR Part 170) – for this product, forestry sites -- must wear:

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

**Non-WPS Uses:** Applicators and other handlers who handle this pesticide for any use NOT covered by the Worker Protection Standard (40 CFR Part 170) – for this product, non-forestry sites -- 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.

### 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.

## Appendix B - Garlon 4 Label

**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 (that cannot be used according to label instructions) may be disposed of on site or at an approved waste disposal facility.

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

### General Information

Use Garlon® 4 specialty herbicide for the control of woody plants and annual and perennial broadleaf weeds in non-crop areas, including 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; forests and in the establishment and maintenance of wildlife openings. Use on these sites may include application to grazed areas.

### 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.

Do not apply Garlon 4 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 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).

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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.

- Apply no more than 1/2 gallon of Garlon 4 (2 lb ae of triclopyr) 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 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 areas including 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.

### 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 (Helicopter Only):** 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. 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).

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### 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. 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.

### Plants Controlled by Garlon 4

#### Woody Plant Species

alder	dogwood	poplar
arrowwood	Douglas-fir	salmonberry
ash	elderberry	salt-bush ( <i>Braccharis</i> spp.)
aspen	elm	salt-cedar <sup>1</sup>
bear clover (bearmat)	gallberry	sassafras
beech	gorse	scotch broom
birch	hazel	sumac
blackberry	hickory	sweetbay magnolia
blackgum	hornbeam	sweetgum
boxelder <sup>1</sup>	kudzu <sup>1</sup>	sycamore
Brazilian pepper	locust	tanoak
buckthorn	madrone	thimbleberry
casara	maples	tree-of-heaven ( <i>Ailanthus</i> ) <sup>1</sup>
Ceanothus	mulberry	tulip poplar
cherry	oaks	wax myrtle
chinquapin	persimmon	wild rose
choke cherry	pine	willow
coltonwood	poison ivy	winged elm
Crataegus (hawthorn)	poison oak	

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

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

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### Annual and Perennial Broadleaf Weeds

black medic	goldenrod	ragweed
bull thistle	ground ivy	smartweed
burdock	lambsquarters	sweet clover
Canada thistle	lespedeza	vetch
chicory	matchweed	wild carrot
clover	mustard	(Queen Anne's lace)
creeping beggarweed	Oxalis	wild lettuce
curly dock	plantain	wild violet
dandelion	purple loosestrife	yarrow
field bindweed		

### 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

#### 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 mixture. Do not apply more than 2 gallons of Garlon 4 per acre. 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. 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.

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)/acre/year.

<sup>2</sup> Do not exceed the maximum use rate of 8 qt of Garlon 4 (8 lb ae of triclopyr)/acre/year.

#### 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.

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**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 Ground Equipment

Apply using equipment that will assure thorough and uniform coverage of the spray volumes applied. See Table 1 for relationship between mixing rate, spray volume and maximum application rate.

#### Woody Plant Control

**Foliage Treatment:** Use 4 to 8 quarts of Garlon 4 in enough water to make 5 gallons or more of total spray per acre, 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 of total spray per acre. 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.

### Aerial Application (Helicopter Only)

Aerial sprays should be applied using suitable drift control. (See General Use Precautions and Restrictions.)

#### 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.

### Basal Bark and Dormant Brush Treatments

#### Mixing Directions

To control susceptible woody plants in rights-of-way other non-crop areas, and forests, use Garlon 4 in oil or oil-water mixtures prepared and applied as described below. Prepare oil-based 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. See Table 1 for relationship between mixing rate, spray volume and maximum application rate.

**Note:** All basal bark and dormant brush treatment methods may be used to treat susceptible woody species on range and permanent pasture land provided that no more than 2 quarts of Garlon 4 are applied per acre. Large plants or species requiring higher rates of Garlon 4 may not be completely controlled.

#### Oil Mixture Sprays

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, reagitiation 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.

#### Oil-Water Mixture Sprays

Prepare a premix of oil, surfactant and Garlon 4 in a separate container. 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.

#### 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.

#### 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 in a manner which 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.

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**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. Apply with a backpack or knapsack sprayer using equipment which provides a directed straight stream spray. Apply sufficient spray to one side of stems less than 3 inches in basal diameter to form a treated zone that is 6 inches in height. 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. Best results are achieved when applications are made to young vigorously growing stems which have not developed the thicker bark characteristic of slower growing, understory trees in older stands. This technique is not recommended for scrub and live oak species, including blackjack, turkey, post, live, bluejack and laurel oaks, or bigleaf maple. Apply from approximately 6 weeks prior to hardwood leaf expansion in the spring until approximately 2 months after leaf expansion is completed. Do not apply when snow or water prevent spraying at the desired height above ground level.

### **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.

### **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.

### **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 Radiarc, OC or equivalent nozzles, or handgun using 70 to 100 gallons of spray per acre to ensure uniform coverage of stems. 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. In western states, apply anytime after woody plants are dormant. In other areas apply anytime within 10 weeks of budbreak, generally February through April. 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.

### **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. Use an applicator which can be calibrated to deliver the small amounts of material required.

## **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.

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### 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.

**Note:** 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.

### 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 any time 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.

**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.

## Appendix B - Garlon 4 Label

**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**

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**

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**

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**

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.

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.

<sup>®</sup>Trademark of Dow AgroSciences LLC  
Dow AgroSciences LLC • Indianapolis, IN 46268 USA

Label Code: D02-102-025  
Replaces: D02-102-024  
Loes Number: 010-00085

EPA-Accepted 01/12/06

### **Revisions:**

1. Revised grazing and haying restrictions.
2. Added spray drift management guidance.

**MATERIAL SAFETY DATA SHEET**

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

**FORESTRY GARLON\* 4 HERBICIDE**

Effective Date: 19-Jun-07  
 Product Code: 36138  
 MSDS: 004788

**1. PRODUCT AND COMPANY IDENTIFICATION:**

**PRODUCT:** Forestry Garlon\* 4 Herbicide

**COMPANY IDENTIFICATION:**

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

**2. HAZARDOUS IDENTIFICATIONS:****EMERGENCY OVERVIEW**

Amber liquid. Combustible. Kerosene-like odor. May cause eye and skin irritation. Toxic to aquatic organisms.

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

**3. COMPOSITION/INFORMATION ON INGREDIENTS:**

COMPONENT	CAS NUMBER	W/W%
Triclopyr Butoxy Ethyl Ester	064700-56-7	61.6
Kerosene	008008-20-6	31.0
Balance		7.4

**4. FIRST AID:**

**EYES:** Flush eyes thoroughly with water for several minutes. Remove contact lenses after initial 1-2 minutes and continue flushing for several minutes. If affects occur, consult a physician, preferably an ophthalmologist.

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

**INGESTION:** Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

**INHALATION:** Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

**NOTE 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.

**5. FIRE FIGHTING MEASURES:**

**FLASH POINT:** 147°F (64C)  
**METHOD USED:** TCC

**FLAMMABLE LIMITS**

LFL: Not determined  
 UFL: Not determined

**EXTINGUISHING MEDIA:** Water fog, foam, CO<sub>2</sub>, and dry chemical.

**FIRE & EXPLOSION HAZARDS:** Combustible. Toxic, irritating vapors may be produced if product is involved in fire.

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

**6. ACCIDENTAL RELEASE MEASURES:**

**ACTION TO TAKE FOR SPILLS/LEAKS:** Keep out of streams and domestic water supplies. Absorb small spills in inert material such as sand. For large spills, dike the area and contact Dow AgroSciences at 800-992-5994.

**7. HANDLING AND STORAGE:**

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** Keep out of reach of children. Do not use near heat or open flame. Harmful if swallowed, inhaled, or absorbed through skin. Avoid contact with eyes, skin and clothing. Avoid breathing mists and vapors. Avoid contamination of food. Store above 28°F or agitate before use. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. For handling relative to end-use of this product, read the product label for further information concerning the use of personal protective equipment (PPE) under the Worker Protection Standard of 1993. Store in the original container.

# MATERIAL SAFETY DATA SHEET



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

Effective Date: 19-Jun-07  
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## FORESTRY GARLON\* 4 HERBICIDE

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

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

#### EXPOSURE GUIDELINE(S):

Triclopyr: Dow AgroSciences Industrial Hygiene Guide is 2 mg/M<sup>3</sup> as acid equivalent, DSEN.

Kerosene: Dow AgroSciences Industrial Hygiene Guide is 10 mg/M<sup>3</sup>.

A D-SEN notation following the exposure guideline refers to the potential to produce dermal sensitization, as confirmed by human or animal data.

**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:

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

**SKIN PROTECTION:** Use protective clothing chemically resistant to this material. Selection of specific items such as faceshield, gloves, boots, apron, or full body suit will depend on operation. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly.

**EYE/FACE PROTECTION:** Use safety glasses.

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

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**BOILING POINT:** >302°F (150C) initial  
**VAPOR PRESSURE:** 0.1 mm @ 37.8C (kerosene)  
**VAPOR DENSITY:** >1  
**SOLUBILITY IN WATER:** Emulsifies  
**SPECIFIC GRAVITY:** 1.08  
**APPEARANCE:** Amber liquid  
**ODOR:** Kerosene-like

### 10. STABILITY AND REACTIVITY:

**STABILITY:** (CONDITIONS TO AVOID) Combustible. Avoid sources of ignition if temperature is near or above flash point. Stable under normal storage conditions.

**INCOMPATIBILITY:** (SPECIFIC MATERIALS TO AVOID) Acid, base, and oxidizing material.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Nitrogen oxides, hydrogen chloride, and phosgene may result 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 slight temporary eye irritation. Corneal injury is unlikely.

**SKIN:** Prolonged or repeated contact may cause skin irritation. 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. Repeated skin contact may result in absorption of harmful amounts. The LD<sub>50</sub> for skin absorption is >2000 mg/kg (rabbits) and >5000 mg/kg (rats).

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**INGESTION:** Low toxicity if swallowed. The oral LD<sub>50</sub> for rats is 1581 mg/kg (males) and 1338 mg/kg (females). Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

**INHALATION:** Excessive exposure may cause irritation to upper respiratory tract (nose and throat). Kerosene may cause central nervous system effects.

**SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:**

Triclopyr BEE, in animals, effects have been reported on the following organs: blood, kidney, and liver.

**CANCER INFORMATION:** Triclopyr BEE 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, exposures should not pose a carcinogenic risk to man.

**TERATOLOGY (BIRTH DEFECTS):** For triclopyr BEE, birth defects are unlikely. Exposures having no effect on the mother should have no effect on the fetus. Did not cause birth defects in animals; other effects were seen in the fetus only at doses which caused toxic effects to the mother.

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

**MUTAGENICITY:** For triclopyr BEE, in-vitro and animal mutagenicity studies were negative.

### 12. ECOLOGICAL INFORMATION:

**ENVIRONMENTAL FATE:**

**MOVEMENT & PARTITIONING:**

Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).  
Measured log octanol/water partition coefficient (Log Pow) is 4.09.  
Log air/water partition coefficient (Log Kaw) is -4.0.

**DEGRADATION & PERSISTENCE:**

Biodegradation under aerobic static laboratory conditions is moderate (BOD<sub>20</sub> or BOD<sub>28</sub>/ThOD between 10 and 40%).

**ECOTOXICOLOGY:**

Material is highly toxic to aquatic organisms on an acute basis (LC<sub>50</sub>/EC<sub>50</sub> is between 0.1 and 1 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.

# MATERIAL SAFETY DATA SHEET



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## FORESTRY GARLON\* 4 HERBICIDE

### 14. TRANSPORT INFORMATION:

#### U.S. DEPARTMENT OF TRANSPORTATION INFORMATION

#### FOR ALL NON-BULK PACKAGES SHIPPED BY AIR, LAND OR WATER:

This material is not regulated for transport.

#### FOR BULK PACKAGES SHIPPED BY LAND: COMBUSTIBLE LIQUID, N.O.S. (CONTAINS KEROSENE)/COMBUSTIBLE LIQUID/NA1993/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:** To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

**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
Kerosene	008008-20-6	PA1 NJ3

NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).  
PA1=Pennsylvania Hazardous Substance (present at greater than or equal 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:

Health	2
Flammability	2
Reactivity	1

**COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND):** To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

### 16. OTHER INFORMATION:

**MSDS STATUS:** Revised Sections: 8  
Reference: DR-0196-5102  
Replaces MSDS dated: 11-Oct-06  
Document Code: D03-100-005  
Replaces Document Code: D03-100-004

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

# Specimen Label



# Milestone<sup>TM</sup>

## Specialty Herbicide

<sup>TM</sup>Trademark of Dow AgroSciences LLC

- For control of susceptible broadleaf weeds, including invasive and noxious weeds, on rangeland, permanent grass pastures, Conservation Reserve Program (CRP) acres, non-cropland areas (such as roadsides), non-irrigation ditch banks, natural areas (such as wildlife management areas, wildlife openings, wildlife habitats, recreation areas, campgrounds, trailheads and trails), and grazed areas in and around these sites.

GROUP	4	HERBICIDE
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**Active Ingredient:**

aminopyralid: 2-pyridine carboxylic acid, 4-amino-3,6-dichloro-2-pyridinecarboxylic acid, triisopropanolammonium salt of aminopyralid.....	40.6%
Inert Ingredients .....	59.4%
Total.....	100.0%

Acid Equivalent: aminopyralid (4-amino-3,6-dichloropyridine-2-carboxylic acid) - 21.1% - 2 lb/gal

EPA Reg. No. 62719-519

**Container Use Directions**

**1 - Tip**



Tilt container to angle as shown and fill head to desired amount - use vertical scale for measuring. Container should be closed.

**2 - Level**



Hold container up-right and check the amount for accuracy. Add or subtract as needed, using pour-back scale as guide.

**3 - Dispense**



Remove cap on head and pour into sprayer or other devices. No fluid will pour from the main container. Replace cap for storage in sealed condition.

Keep Out of Reach of Children

## CAUTION

### Precautionary Statements

Hazard to Humans and Domestic Animals

Causes Moderate Eye Irritation

Avoid contact with eyes or clothing.

### Personal Protective Equipment (PPE)

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.
- 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. Call a poison control center or doctor for treatment advice.

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

### Environmental Hazards

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

**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.

## Appendix B - Milestone Label

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

### Agricultural Use Requirements

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

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

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

- Coveralls
- Chemical-resistant gloves made of any waterproof material as polyethylene or polyvinyl chloride
- Shoes plus socks

### Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for Agricultural Pesticides (40 CFR Part 170). The WPS does not pertain to non-agricultural use on sites, such as, rangeland, permanent grass pastures, or non-cropland. See the Agricultural Use Requirements section below for information where the WPS applies.

**Entry Restrictions for Non-WPS Uses:** For applications on rangeland and permanent grass pastures (not harvested for hay) and non-cropland areas, do not enter or allow worker entry into treated areas until sprays have dried.

### Storage and Disposal

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

**Pesticide Storage:** If this product is exposed to subfreezing temperatures, the active ingredient may crystallize and settle out of solution. Under these conditions the product should be warmed to at least 40°F and agitated well to dissolve any crystallized active ingredient prior to use.

**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 (Metal):** Do not reuse container. Triple rinse (or equivalent). Puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

**Container Disposal (Plastic):** Do not reuse container. Triple rinse (or equivalent). Puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**General:** Consult federal, state or local disposal authorities for approved alternative procedures.

### Resistance Management Guidelines

- Development of plant populations resistant to this herbicide mode of action is usually not a problem on rangeland, permanent grass pastures, Conservation Reserve Program (CRP), or non-cropland sites since these sites receive infrequent pesticide applications.
- Similar looking biotypes of a given weed species occurring in a treated area may vary in their susceptibility to a herbicide. Application of a herbicide below its recommended rate may allow more tolerant weeds to survive and a shift to more tolerant biotypes within the treated area.
- Where identified, spreading of resistant weeds to other fields may be prevented by cleaning harvesting and tillage equipment before moving to other areas and by planting weed-free seed.
- Contact your extension specialist, certified crop consultant, or Dow AgroSciences representative for the latest resistance management information.

### Rangeland, Permanent Grass Pastures and Non-Cropland Areas

Milestone™ specially herbicide controls susceptible broadleaf weeds, including invasive and noxious weeds on rangeland, permanent grass pastures, CRP acres, non-cropland areas (such as roadsides), non-irrigation ditch banks, natural areas (such as wildlife management areas, wildlife openings, wildlife habitats, recreation areas, campgrounds, trailheads and trails), and grazed areas in and around these sites without injury to most grasses.

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.

### Use Precautions and Restrictions

- **Avoiding Injury to Non-Target Plants:** Do not aerially apply Milestone within 50 feet of a border downwind (in the direction of wind movement), or allow spray drift to come in contact with, any broadleaf crop or other desirable broadleaf plants, including, but not limited to, alfalfa, cotton, dry beans, flowers, grapes, lettuce, potatoes, radishes, soybeans, sugar beets, sunflowers, tobacco, tomatoes or other broadleaf or vegetable crop, fruit trees, ornamental plants, or soil where sensitive crops are growing or will be planted. Avoid application under conditions that may allow spray drift because very small quantities of spray may seriously injure susceptible crops. Follow Precautions for Avoiding Spray Drift and Spray Drift Advisory under General Mixing and Application Instructions to minimize the potential for spray drift.
- **Milestone is highly active against broadleaf plants.** Do not use this product on areas where loss of broadleaf plants, including legumes, cannot be tolerated.
- **Chemigation:** Do not apply this product through any type of irrigation system.
- **Do not contaminate water intended for irrigation or domestic purposes.** Do not treat inside banks or bottoms of irrigation ditches, either dry or containing water, or other channels that carry water that may be used for irrigation or domestic purposes.
- **Crop Rotation:** Do not rotate to any crop from rangeland, permanent pasture or CRP acres within one year following treatment. Do not plant a broadleaf crop until an adequately sensitive field bioassay shows that the level of aminopyralid present in the soil will not adversely affect that broadleaf crop.

## Appendix B - Milestone Label

- **Seeding Legumes:** Do not plant forage legumes until a soil bioassay has been conducted to determine if aminopyralid concentration remaining in the soil will adversely affect the legume establishment.
- **Field Bioassay Instructions:** In fields previously treated with this product, plant short test rows of the intended rotational crop across the original direction of application in a manner to sample variability in field conditions such as soil texture, soil organic matter, soil pH, rainfall pattern or drainage. The field bioassay can be initiated at any time between harvest of the treated crop and the planting of the intended rotational crop. Observe the test crop for symptoms of herbicidal activity, such as poor stand (effect on seed germination), chlorosis (yellowing), and necrosis (dead leaves or shoots), or stunting (reduced growth). If herbicidal symptoms do not occur, the test crop can be grown. If there is apparent herbicidal activity, do not plant the field to the intended rotational crop; plant only to a labeled crop.
- **Aminopyralid in Plant Residues or Manure:**
  - Do not use aminopyralid-treated plant residues, including hay or straw from treated areas, or manure from animals that have grazed forage or hay harvested from treated areas within the previous 3 days, in compost or mulch that will be applied to areas where susceptible broadleaf plants may be grown.
  - Do not spread manure from animals that have grazed or consumed forage or hay from treated areas within the previous 3 days on land used for growing susceptible broadleaf crops.
  - Manure from animals that have grazed forage or hay harvested from aminopyralid-treated areas within the previous 3 days may only be used on pasture grasses, grass grown for seed, and wheat.
  - Do not plant a broadleaf crop in fields treated in the previous year with manure from animals that have grazed forage or hay harvested from aminopyralid-treated areas until an adequately sensitive field bioassay is conducted to determine that the aminopyralid concentration in the soil is at level that is not injurious to the crop to be planted.
  - To promote herbicide decomposition, plant residues should be evenly incorporated in the surface soil or burned. Breakdown of aminopyralid in plant residues or manure is more rapid under warm, moist soil conditions and may be enhanced by supplemental irrigation.
- **Grazing and Haying Restrictions:** There are no restrictions on grazing or hay harvest following application of Milestone at labeled rates. Do not transfer grazing animals from areas treated with Milestone to areas where sensitive broadleaf crops occur without first allowing 3 days of grazing on an untreated pasture. Otherwise, urine and manure may contain enough aminopyralid to cause injury to sensitive broadleaf plants.
- **Maximum Application Rate:** On rangeland, permanent grass pastures, CRP acres, and non-cropland areas, do not apply more than 7 fl oz (0.11 lb acid equivalent) per acre of Milestone per year. The total amount of Milestone applied broadcast, as a re-treatment, and/or spot treatment per year, cannot exceed 7 fl oz per acre.

## Application Methods

### (Broadcast Equipment)

**Ground Broadcast Application:** Apply the recommended rate of Milestone as a coarse low-pressure spray. Spray volume should be sufficient to uniformly cover foliage. Increase spray volume to ensure thorough and uniform coverage when target vegetation is tall and/or dense. Higher volumes (greater than 10 gallons per acre) generally provide better coverage and better control, particularly in dense and/or tall foliage canopies situations. To enhance foliage wetting and coverage, an approved non-ionic agricultural surfactant may be added to the spray mixture as recommended by the surfactant manufacturer.

Do not apply this product with mist blower systems that deliver very fine spray droplets. Use of mist blower equipment can reduce control achieved with the herbicide and increase spray drift potential.

**Aerial Broadcast Application:** Apply the recommended rate of Milestone as a coarse low-pressure spray. Spray volume should be sufficient to uniformly cover foliage. Increase spray volume to ensure thorough and uniform coverage when target vegetation is tall and/or dense. Spray volumes greater than 2 gallons per acre generally provide better coverage and better control, particularly when the foliage canopy is dense and/or tall. To enhance foliage wetting and coverage, an approved non-ionic agricultural surfactant may be added to the spray mixture as recommended by the surfactant manufacturer.

### (Hand-Held Equipment)

**High-Volume Foliar Application:** High volume foliar treatments may be applied at rates equivalent to broadcast up to a maximum of 7 fl oz per acre per annual growing season. Use sufficient spray volume to thoroughly and uniformly wet foliage and stems. To ensure thorough wetting of high volume treatments, a high quality non-ionic agricultural surfactant may be added to the spray mixture as recommended by the surfactant manufacturer. Repeat treatments may be made, but the total amount of Milestone applied must not exceed 7 fl oz per acre per year.

**Spot Application:** Spot treatments may be applied at rates equivalent to broadcast-applied rate of up to a maximum of 7 fl oz per acre per annual growing season. Spray volume should be sufficient to thoroughly and uniformly wet weed foliage. Use of a high quality non-ionic agricultural surfactant may be added to the spray mixture as recommended by the surfactant manufacturer. Repeat treatments may be made, but the total amount of Milestone applied must not exceed 7 fl oz per acre per year. To prevent misapplication, spot treatments should be applied with a calibrated boom, boomless spray system, hand-held, or backpack sprayers.

Spot treatments may be applied at an equivalent broadcast rate of up to 0.22 lb active ingredient (14 fl oz of Milestone) per acre per annual growing season; however, not more than 50% of an acre may be treated. Do not apply more than a total of 0.11 lb active ingredient (7 fl oz per acre of Milestone) per annual growing season as a result of broadcast, spot or repeat applications.

## Appendix B - Milestone Label

Application rates in the table below are based on treating an area of 1000 sq ft. An area of 1000 sq ft is about 10.5 by 10.5 yards in size. Mix the amount of Milestone (fl oz or milliliters) corresponding to the desired broadcast rate in 0.5 to 2.5 gallons of water, depending upon the spray volume required to treat 1000 sq ft. A delivery volume of 0.5 to 2.5 gallons per 1000 sq ft is equivalent to 22 to 109 gallons per acre.

Amount of Milestone per 1000 sq ft to Equal Broadcast Rate		
Broadcast Rate (fl oz/acre)	Amount of Milestone per 1000 sq ft	
	(fl oz)	(Milliliters)
3	0.069	2
5	0.115	3.4
7	0.161	4.8

**Note:** 1 fluid ounce (fl oz) = 29.6 milliliters (ml) = 2 tablespoons = 6 teaspoons

To calculate the amount of Milestone for areas larger than 1000 sq ft: Multiply the table value (fl oz or milliliters) by the area to be treated in "thousands" of square feet. For example, if the area to be treated is 3500 sq ft, multiply the table value by 3.5 (3500 sq ft divided by 1000 sq ft = 3.5).

### Broadleaf Weed Control

#### Rangeland, Permanent Grass Pastures and CRP Acres

Milestone may be applied to rangeland, permanent pasture or CRP acres seeded to permanent grasses as an aerial or ground broadcast treatment, as a spot application, or as a high volume foliar application (see Application Methods section) to control susceptible broadleaf weeds, including invasive and noxious weeds (see Broadleaf Weeds Controlled section). Milestone may be applied alone or in tank mix combinations 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) mixing is not prohibited by the label of the registered tank mixed products. When tank mixing, use only in accordance with the most restrictive precautions and limitations on the respective product labels. Follow Mixing Instructions under the General Mixing and Application Instructions section.

**Do not use Milestone if loss of legumes species or other broadleaf species cannot be tolerated.**

During the season of establishment, Milestone should be applied only after perennial grasses are well established (have developed a good secondary root system and show good vigor). Most perennial grasses are tolerant to Milestone at this stage of development.

Milestone may suppress certain established grasses, such as smooth brome grass (*Bromus inermis*), especially when plants are stressed by adverse environmental conditions. Plants should recover from this transient suppression with the onset of environmental conditions favorable to grass growth and upon release from weed competition.

### Non-Cropland Areas

Milestone may be applied to non-cropland areas as an aerial or ground broadcast treatment, as a spot application, or as a high volume foliar application (see Application Methods section). Milestone may be applied alone or in tank mix combinations 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) mixing is not prohibited by the label of the registered tank mixed products. When tank mixing, use only in accordance with the most restrictive precautions and limitations on the respective product labels. Follow Mixing Instructions under the General Mixing and Application Instructions section.

Milestone, alone or in tank mix combination, is recommended for control of susceptible broadleaf weeds, including invasive and noxious weeds (see Broadleaf Weeds Controlled section) on non-cropland areas (such as roadsides), non-irrigation ditch banks, natural areas (such as wildlife management areas, wildlife openings, wildlife habitats, recreation areas, campgrounds, trailheads and trails), and grazed areas in and around these sites and where these non-cropland sites cross rangeland and pastures or other grazed areas.

### Broadleaf Weed Management Practices

Milestone may be applied postemergence as a broadcast spray or as a spot application to control broadleaf weeds including, but not limited to, those listed on this label. Postemergence applications should be made before bud stage or early flowering, unless otherwise specified. When a rate range is given, use a higher rate in the range to control weeds at advanced growth stages or under less than favorable growing conditions (e.g., drought stress). Best weed control results are obtained when spray volume is sufficient to provide uniform coverage of treated plants. For optimum uptake and translocation of the herbicide, avoid mowing, haying, shredding, burning or soil disturbance in treated areas for at least 7 days following application.

Milestone also provides preemergence control of germinating seeds or emerging seedlings of susceptible broadleaf weeds following application. Preventing establishment of susceptible weeds will depend upon application rate, season of application, and growing condition effects after application on weed seed germination and seedling emergence.

Milestone can provide long-term control of susceptible weeds. The length of control is dependent upon the application rate, condition and growth stage of target weeds, environmental conditions at and following application, and the density and vigor of competing desirable vegetation. Long-term broadleaf weed control is most effective where grass vegetation is allowed to recover from overgrazing, drought, etc., and compete with broadleaf weeds.

Milestone can be an important component of integrated vegetation management programs designed to renovate or restore desired plant communities. To maximize and extend the benefits of weed control provided by Milestone, it is important that other vegetation management practices, including proper grazing management, fertilization, prescribed fire, etc., be used in appropriate sequences and combinations to further alleviate the adverse effects of weeds on desirable plant species and to promote development of desired plant communities. Agricultural and natural resources specialists with federal and state government agencies can provide guidance on best management practices and development of integrated vegetation management programs.

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### Broadleaf Weeds Controlled

The following weeds will be controlled with the rates of Milestone indicated in the table. For best results, most weeds should be treated when they are actively growing and under conditions favorable for growth. Use a higher rate in the rate range when growing conditions are less than favorable or when weed foliage is tall and dense. Milestone also provides preemergence control of germinating seeds and control of emerged seedlings of susceptible broadleaf weeds following application.

Note: Numbers in parentheses (-) refer to specific use directions for a particular weeds species.

Common Name	Scientific Name	Rate Range (fl oz/acre)	Life Cycle	Plant Family
amaranth, spiny	<i>Amaranthus spinosus</i>	4 to 7	annual	Amaranthaceae
broomweed, annual	<i>Amphiachyris dracunculoides</i>	4 to 7	annual	Asteraceae
burdock, common*, **	<i>Arctium minus</i>	4 to 6	biennial	Asteraceae
buttercup, hairy*	<i>Ranunculus sardous</i>	4 to 6	annual	Ranunculaceae
buttercup, tall*, **	<i>Ranunculus acris</i>	4 to 6	perennial	Ranunculaceae
chicory*	<i>Cichorium intybus</i>	4 to 6	perennial	Asteraceae
cinquefoil, sulfur (1)*, **	<i>Potentilla recta</i>	4 to 6	perennial	Rosaceae
cocklebur	<i>Xanthium strumarium</i>	3 to 5	annual	Asteraceae
croton, tropic	<i>Croton glandulosus</i>	3 to 5	annual	Euphorbiaceae
cudweed, purple	<i>Gamochaeta purpurea</i>	4 to 6	annual	Asteraceae
daisy, oxeye (1)*, **	<i>Leucanthemum vulgare</i>	4 to 6	perennial	Asteraceae
dock, curly*	<i>Rumex crispus</i>	4 to 6	perennial	Polygonaceae
evening primrose, cutleaf	<i>Oenothera laciniata</i>	4 to 7	annual	Onagraceae
fiddleneck, common	<i>Amsinckia intermedia</i>	7	annual	Boraginaceae
fireweed	<i>Epilobium angustifolium</i>	5 to 7	perennial	Onagraceae
fleabane, flax-leaf	<i>Conyza bonariensis</i>	4 to 7	annual	Asteraceae
hawkweed, orange (2)*, **	<i>Hieracium aurantiacum</i>	4 to 6	perennial	Asteraceae
hawkweed, yellow (2)*, **	<i>Hieracium caespitosum</i>	4 to 6	perennial	Asteraceae
henbit*	<i>Lamium amplexicaule</i>	4 to 6	annual/biennial	Lamiaceae
horsenettle, Carolina**	<i>Solanum carolinense</i>	4 to 7	perennial	Solanaceae
horseweed	<i>Conyza canadensis</i>	4 to 6	annual	Asteraceae
ironweed, tall	<i>Vernonia gigantea</i>	5 to 7	perennial	Asteraceae
ironweed, western	<i>Vernonia baldwinii</i>	7	perennial	Asteraceae
knapweed, diffuse (3)*, **	<i>Centaurea diffusa</i>	5 to 7	biennial/perennial	Asteraceae
knapweed, Russian (4)*, **	<i>Acroptilon repens</i>	4 to 6	perennial	Asteraceae
knapweed, spotted (3)*, **	<i>Centaurea stoebe</i>	5 to 7	biennial/perennial	Asteraceae
kudzu*, **	<i>Pueraria montana</i>	7	perennial	Fabaceae
lady's thumb*	<i>Polygonum persicaria</i>	3 to 5	annual	Polygonaceae
lambsquarters	<i>Chenopodium album</i>	5 to 7	annual	Chenopodiaceae
marshelder, annual	<i>Iva annua</i>	7	annual	Asteraceae
mayweed, scentless*	<i>Tripleurospermum perforata</i>	4 to 6	annual	Asteraceae
mayweed, stinking*, **	<i>Anthemis cotula</i>	7	annual	Asteraceae
medic, black*	<i>Medicago lupulina</i>	4 to 6	perennial	Fabaceae
ragweed, common**	<i>Ambrosia artemisiifolia</i>	3 to 5	annual	Asteraceae
ragweed, western	<i>Ambrosia psilostachya</i>	4 to 7	perennial	Asteraceae
ragwort, lansy*, **	<i>Senecio jacobaea</i>	4 to 5	perennial	Asteraceae
smartweed, Pennsylvania	<i>Polygonum pennsylvanicum</i>	3 to 5	annual	Polygonaceae
sneezeweed, bitter	<i>Helenium amarum</i>	4 to 6	annual	Asteraceae

\*Invasive plants are introduced species that are indicated to be invasive in the USDA-NRCS, PLANTS Database (<http://plants.usda.gov/index.html>).

\*\*Plants designated as noxious weeds in at least one state (PLANTS Database, USDA-NRCS, <http://plants.usda.gov/index.html>).

- (1) **Sulfur cinquefoil or oxeye daisy:** Apply Milestone at 4 to 6 fl oz per acre to plants in the prebud stage of development.
- (2) **Orange or yellow hawkweeds:** Apply Milestone at 4 to 6 fl oz per acre to plants in the bolting stage of development.
- (3) **Diffuse and spotted knapweeds:** Apply Milestone at 5 to 7 fl oz per acre when plants are actively growing with the optimum time of application occurring from rosette to the bolting stages of development or in the fall.
- (4) **Russian knapweed:** Apply Milestone at 4 to 6 fl oz per acre to plants in the spring and summer that are in the bud to flowering stage and to dormant plants in the fall.

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Common Name	Scientific Name	Rate Range (fl oz/acre)	Life Cycle	Plant Family
soda apple, tropical (5)*, **	<i>Solanum viarum</i>	5 to 7	perennial	Solanaceae
sowthistle, perennial*, **	<i>Sonchus arvensis</i>	3 to 5	perennial	Asteraceae
star thistle, yellow (6)*, **	<i>Centaurea solstitialis</i>	3 to 5	annual	Asteraceae
sunflower, common	<i>Helianthus annuus</i>	4 to 6	annual	Asteraceae
teasel, fuller's*	<i>Dipsacus sativus</i>	4 to 7	biennial	Dipsacaceae
thistle, bull (7)*, **	<i>Cirsium vulgare</i>	3 to 5	biennial	Asteraceae
thistle, Canada (8)*, **	<i>Cirsium arvense</i>	5 to 7	perennial	Asteraceae
thistle, musk (7)*, **	<i>Carduus nutans</i>	3 to 5	biennial	Asteraceae
thistle, plumeless (7)*, **	<i>Carduus acanthoides</i>	3 to 5	biennial	Asteraceae
wormwood, absinth*, **	<i>Artemisia absinthium</i>	6 to 7	perennial	Asteraceae
yarrow, common	<i>Achillea millefolium</i>	7	perennial	Asteraceae

\*Invasive plants are introduced species that are indicated to be invasive in the USDA-NRCS, PLANTS Database (<http://plants.usda.gov/index.html>).

\*\*Plants designated as noxious weeds in at least one state (PLANTS Database, USDA-NRCS, <http://plants.usda.gov/index.html>).

- (5) **Tropical soda apple:** Apply Milestone at 5 to 7 fl oz per acre at any growth stage, but application by flowering will reduce seed production potential.
- (6) **Yellow starthistle:** Apply Milestone at 3 to 5 fl oz per acre to plants at the rosette through bolting growth stages.
- (7) **Bull, musk and plumeless thistles:** Apply Milestone at 3 to 5 fl oz per acre in the spring and early summer to rosette or bolting plants or in the fall to seedlings and rosettes. Apply at 4 to 5 fl oz when plants are at the late bolt through early flowering growth stages.
- (8) **Canada thistle:** Apply Milestone at 5 to 7 fl oz per acre either in the spring to plants in the prebud growth stage or in the fall to plant regrowth.

### General Mixing and Application Instructions

#### Mixing Instructions

**Mixing with Water:** To prepare the spray, add about half the required amount of water in the spray tank. Then, with agitation, add the recommended amount of Milestone and other registered tank mix herbicides. Finally, with continued agitation, add the rest of the water and additives such as surfactants or drift control and deposition aids.

**Tank Mixing with Other Herbicides:** Milestone at rates of up to 7 fl oz per acre may be mixed with labeled rates of other herbicides registered for application on rangeland, permanent grass pastures, CRP acres, and non-cropland areas to broaden the spectrum of weeds controlled or to improve control of certain weeds. Milestone 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) mixing is not prohibited by the label of the registered tank mixed products. When tank mixing, use only in accordance with the most restrictive precautions and limitations on the respective product labels.

- 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 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.

**Tank Mix Compatibility Testing:** A jar test is recommended prior to mixing in a spray tank to ensure compatibility of Milestone and other pesticides or carriers. Use a clear glass jar with lid and mix ingredients in the same order and proportions as will be used in the spray tank.

The mixture is compatible if the materials mix readily when the jar is inverted several times. The mixture should remain stable after standing for 1/2 hour or, if separation occurs, should readily remix if agitated. An incompatible mixture is indicated by separation into distinct layers that do not readily remix when agitated and/or the presence of flakes, precipitates, gels, or heavy oily film in the jar. Use of an appropriate compatibility aid such as Unite or Complex may resolve mix incompatibility. If the mixture is incompatible do not use that tank mix partner in tank mixtures.

**Use with Surfactants on Rangeland, Permanent Grass Pastures and CRP Acres:** The addition of a high quality non-ionic surfactant at 0.25 to 0.5 % volume per volume (1 to 2 quarts per 100 gallons of spray) is recommended to enhance herbicide activity under adverse environmental conditions (such as, high temperature, low relative humidity, drought conditions, dusty plant surfaces) or when weeds are heavily pubescent or more mature.

**Mixing with Sprayable Liquid Fertilizer Solutions:** Milestone is usually compatible with liquid fertilizer solutions. It is anticipated that Milestone will not require a compatibility agent for mixing with fertilizers; however, a compatibility test (jar test) should be made prior to mixing. Jar tests are particularly important when a new batch of fertilizer or pesticide is used, when water sources change, or when tank mixture ingredients or concentrations are changed. Compatibility may be determined by mixing the spray components in the desired order and proportions in a clear glass jar before large scale mixing of spray components in the spray tank. **Note:** The lower the temperature of the liquid fertilizer, the greater the likelihood of mixing problems. Use of a compatibility aid may be required if Milestone is mixed with a 2,4-D-containing product and liquid fertilizer. **Mixing Milestone and 2,4-D in N-P or N-P-K liquid fertilizer solutions is more difficult than mixing with straight nitrogen fertilizer and should not be attempted without first conducting a successful compatibility jar test.** Agitation in the spray tank must be vigorous to be comparable with jar test agitation. Apply the spray mixture the same day it is prepared while maintaining continuous agitation. Rinse the spray tank thoroughly after use.

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**Note:** Foliar-applied liquid fertilizers used as carrier for Milestone can cause yellowing of the foliage of forage grasses and other vegetation.

### Sprayer Clean-Out Instructions

Do not use spray equipment used to apply Milestone for other applications to land planted to, or to be planted to, susceptible crops or desirable sensitive plants unless it has been determined that all residues of this herbicide has been removed by thorough cleaning of equipment.

Equipment used to apply Milestone should be thoroughly cleaned before reusing to apply any other chemicals as follows:

1. Rinse and flush application equipment thoroughly after use. Dispose of rinse water in non-cropland area away from water supplies.
2. Rinse a second time, adding 1 quart of household ammonia or tank cleaning agent for every 25 gallons of water. Circulate the solution through the entire system so that all internal surfaces are contacted (15 to 20 minutes). Let the solution stand for several hours, preferably overnight.
3. Flush the solution out of the spray tank through the boom.
4. Rinse the system twice with clean water, recirculating and draining each time.
5. Spray nozzles and screens should be removed and cleaned separately.

### Precautions for Avoiding Spray Drift

Avoid application under conditions that may allow spray drift because very small quantities of spray, which may not be visible, may injure susceptible crops. This product should be applied only when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, non-target crops and other plants) is minimal (e.g., when wind is blowing away from the sensitive areas. A drift control aid may be added to the spray solution to further reduce the potential for drift. If a drift control aid is used, follow the use directions and precautions on the manufacturer's label. Do not use a thickening agent with Microfoil, Thru-Valve booms, or other spray delivery systems that cannot accommodate thickened spray solutions.

**Ground Equipment:** With ground equipment spray drift can be lessened by keeping the spray boom as low as possible; by applying 10 gallons or more of spray per acre; by keeping the operating spray pressures at the manufacturer's recommended minimum pressures for the specific nozzle type used (low pressure nozzles are available from spray equipment manufacturers); and by spraying when the wind velocity is low (follow state regulations). Avoid calm conditions which may be conducive to thermal inversions. Direct sprays no higher than the tops of target vegetation and keep spray pressures low enough to provide coarse spray droplets to minimize drift.

**Aerial Application:** Avoid spray drift at the application site. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. Users 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 75% of wingspan or 90% of rotor diameter.
2. Nozzles should be pointed backward parallel with the air stream or not 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 will 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 90% 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.

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**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.

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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

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

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

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

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**MATERIAL SAFETY DATA SHEET**

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

Effective Date: 20-Apr-06  
 Product Code: 102721  
 MSDS: 007887

**MILESTONE\* HERBICIDE****1. PRODUCT AND COMPANY IDENTIFICATION:**

**PRODUCT:** Milestone\* Herbicide

**COMPANY IDENTIFICATION:**

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

**2. HAZARDOUS IDENTIFICATIONS:****EMERGENCY OVERVIEW**

Brown liquid with a mild odor. May cause temporary eye irritation. May cause skin irritation.

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

**3. COMPOSITION/INFORMATION ON INGREDIENTS:**

Aminopyralid tri-	CAS # 566191-89-7	40.6%
isopropanolammonium		
Balance, Total, Including		59.4%

**4. FIRST AID:**

**EYE:** Flush eyes thoroughly with water for several minutes. Remove contact lenses, if present, after the initial 1-2 minutes. If effects occur, consult a physician, preferably an ophthalmologist.

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

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

**INHALATION:** Move person to fresh air; if effects occur, consult a physician.

**NOTE TO PHYSICIAN:** 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.

**5. FIRE FIGHTING MEASURES:**

**FLASH POINT:** Not applicable (water-based material)

**METHOD USED:** Not applicable

**FLAMMABLE LIMITS**

LFL: Not determined

UFL: Not determined

**EXTINGUISHING MEDIA:** Foam, CO<sub>2</sub>, or Dry chemical

**FIRE AND EXPLOSION HAZARDS:** Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Toxic irritating gases may be formed under fire conditions.

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

**6. ACCIDENTAL RELEASE MEASURES:**

**ACTION TO TAKE FOR SPILLS:** Absorb small spills with materials such as sand, sawdust, Zorbball, or dirt. Wash exposed body areas thoroughly after handling. Report large spills to Dow AgroSciences at 800-992-5994.

**7. HANDLING AND STORAGE:**

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapors and spray mist. Handle concentrate in ventilated area. Wash thoroughly with soap and water after handling and before eating, chewing gum, using tobacco, using the toilet or smoking. Keep away from food, feedstuffs, and water supplies. Store in original container with the lid tightly closed.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION:**

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

**EXPOSURE GUIDELINES:** None established

**ENGINEERING CONTROLS:** Good general ventilation should be sufficient for most conditions.

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

**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.

**MATERIAL SAFETY DATA SHEET**

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

Effective Date: 20-Apr-06  
 Product Code: 102721  
 MSDS: 007887

**MILESTONE\* HERBICIDE**

**HAND PROTECTION:** Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyethylene, Chlorinated polyethylene, and Ethyl vinyl alcohol laminate (EVAL). Examples of acceptable glove barrier materials include: Viton, Butyl rubber, Neoprene, Natural rubber (Latex), Polyvinyl chloride (PVC or Vinyl), Nitrile/butadiene rubber (Nitrile or NBR). Avoid gloves made of: Polyvinyl alcohol (PVA). **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:** No respiratory protection should be needed.

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

**9. PHYSICAL AND CHEMICAL PROPERTIES:**

**APPEARANCE:** Brown liquid

**ODOR:** Mild

**DENSITY:** 1.14 g/mL @ 20°C

**pH:** 7.33 @ 19.8°C for a 1% solution

**FREEZING POINT:** <14°F (<-10°C)

**10. STABILITY AND REACTIVITY:**

**STABILITY: (CONDITIONS TO AVOID)** Stable under normal storage conditions.

**INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID)**  
None known.

**HAZARDOUS DECOMPOSITION PRODUCTS:** None known.

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

**11. TOXICOLOGICAL INFORMATION:**

**EYE:** May cause slight temporary eye irritation. Corneal injury is unlikely.

**SKIN:** Brief contact may cause slight skin irritation with local redness. Prolonged skin contact is unlikely to result in absorption of harmful amounts. The LD<sub>50</sub> for skin absorption in rats is >5000 mg/kg. Did not cause allergic skin reactions when tested in guinea pigs.

**INGESTION:** Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. The oral LD<sub>50</sub> for rats is >5000 mg/kg.

**INHALATION:** Prolonged exposure is not expected to cause adverse effects. The aerosol LC<sub>50</sub> for rats is >5.79 mg/L in 4 hours.

**SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:** Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

**CANCER INFORMATION:** Based largely or completely on information for similar material(s): did not cause cancer in laboratory animals.

**TERATOLOGY (BIRTH DEFECTS):** Did not cause birth defects or any other fetal effects in laboratory animals.

**REPRODUCTIVE EFFECTS:** Based largely or completely on information for similar material(s): did not interfere with reproduction in laboratory animal studies.

**MUTAGENICITY:** In-vitro and animal genetic toxicity studies were negative.

**12. ECOLOGICAL INFORMATION:****ENVIRONMENTAL FATE:**

**MOVEMENT & PARTITIONING:**  
No relevant information found.

**DEGRADATION & PERSISTENCE:**  
No relevant information found.

**ECOTOXICOLOGY:**

Material is practically non-toxic to aquatic organisms on an acute basis (LC<sub>50</sub> or EC<sub>50</sub> is >100 mg/L).

Material is practically non-toxic to fish on an acute basis (LC<sub>50</sub> is >100 mg/L).

Material is practically non-toxic to birds on an acute basis (LD<sub>50</sub> is >2000 mg/kg).

**MATERIAL SAFETY DATA SHEET**

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**MILESTONE\* HERBICIDE****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.

**14. TRANSPORT INFORMATION:****U.S. DEPARTMENT OF TRANSPORTATION (DOT) INFORMATION:**

For all package sizes and modes of transportation:  
 This material is not regulated for transport

**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:** To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

**SARA HAZARD CATEGORY:** This product has been reviewed according to the EPA "Hazard Categories" promulgated under Section 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:

No real health hazard

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

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

**STATE RIGHT-TO-KNOW:** This product is not known to contain any substances subject to the disclosure requirements of

New Jersey  
 Pennsylvania

**COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND):** To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

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

Health	1
Flammability	0
Reactivity	0

**16. OTHER INFORMATION:**

**MSDS STATUS:** Revised Sections: 2, 4, 8, 11, 12 & 15  
 Reference: DR-0368-4864  
 Replaces RSSDS Dated: 3-Jan-06  
 Document Code: D03-879-003  
 Replaces Document Code: D03-879-002

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

# Specimen Label



# Rodeo®

## Herbicide

For control of annual and perennial weeds and woody plants in forests, non-crop sites, and in and around aquatic sites; also for use in wildlife habitat areas, for perennial grass release, and grass growth suppression and grazed areas on these sites.

Avoid contact of herbicide with foliage, green stems, exposed non-woody roots or fruit of crops, desirable plants and trees, because severe injury or destruction may result.

**Active Ingredient(s):**

glyphosate' N-(phosphonomethyl)glycine, isopropylamine salt .....	53.8%
Inert Ingredients .....	46.2%
Total Ingredients .....	100.0%

<sup>1</sup>Contains 5.4 pounds per gallon glyphosate, isopropylamine salt (4 pounds per gallon glyphosate acid).

EPA Reg. No. 62719-324

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

**Harmful If Inhaled**

Avoid breathing spray mist. Remove contaminated clothing and wash before reuse. Wash thoroughly with soap and water after handling.

### Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

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

Follow manufacturer's instructions for cleaning/maintaining PPE (Personal Protective Equipment). If no such instructions for washables, 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 Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

### User Safety Recommendations

Users should:

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

### First Aid

If inhaled: 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. 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 1-800-992-5994 for emergency medical treatment information.

### Environmental Hazards

Do not contaminate water when cleaning equipment or disposing of equipment washwaters. Treatment of aquatic weeds can result in oxygen depletion or loss due to decomposition of dead plants. This oxygen loss can cause fish suffocation.

In case of leak or spill, soak up and remove to a landfill.

### Physical or Chemical Hazards

Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic or plastic-lined steel containers.

Do not mix, store or apply this product or spray solutions of this product in galvanized steel or unlined steel (except stainless steel) containers or spray tanks. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas, which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

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

## Appendix B - Rodeo Label

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.

**This is an end-use product. Dow AgroSciences does not intend and has not registered it for reformulation. See individual container label for repackaging limitations.**

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 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
- Chemical-resistant gloves made of any waterproof material
- Shoes plus socks

### Storage and Disposal

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

**Pesticide Storage:** Store above 10°F (-12°C) to keep product from crystallizing. Crystals will settle to the bottom. If allowed to crystallize, place in a warm room 68°F (20°C) for several days to redissolve and roll or shake container or recirculate in mini-bulk containers to mix well before using.

**Pesticide Disposal:** Wastes resulting from use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, state or local procedures.

**Container Disposal:** Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. Do not reuse this container. Triple rinse (or equivalent). Then puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

### General Information

#### (How this product works)

This product is a water-soluble liquid, which mixes readily with water and nonionic surfactant to be applied as a foliar spray for the control or destruction of many herbaceous and woody plants. This product is intended for control of annual and perennial weeds and woody plants in forests, pine straw plantations, non-crop sites such as utility rights-of-way, and in and around aquatic sites; also for use in wildlife habitat areas, for perennial grass release, and grass growth suppression and grazed areas on these sites.

The active ingredient in this product moves through the plant from the point of foliage contact to and into the root system. Visible effects on most annual weeds occur within 2 to 4 days, 7 days or more on most perennial weeds, and 30 days or more on most woody plants. Extremely cool or cloudy weather following treatment may slow the activity of this product and delay visual effects of control. Visible effects include gradual wilting and yellowing of the plant which advances to complete browning of above-ground growth and deterioration of underground plant parts.

Unless otherwise directed on this label, delay application until vegetation has emerged and reached the stages described for control of such vegetation under the "Weeds Controlled" section of this label.

Unemerged plants arising from unattached underground rhizomes or root stocks of perennials or brush will not be affected by the spray and will continue to grow. For this reason best control of most perennial weeds or brush is obtained when treatment is made at late growth stages approaching maturity.

Always use the higher rate of this product and surfactant within the recommended range when vegetation is heavy or dense, when treating dense multi-canopied sites or woody vegetation or difficult-to-control herbaceous or woody plants.

Do not treat weeds, brush or trees under poor growing conditions such as drought stress, disease or insect damage, as reduced control may result. Reduced control of target vegetation may also occur if foliage is heavily covered with dust at the time of treatment.

Reduced control may result when applications are made to woody plants or weeds following site disturbance or plant top growth removal from grazing, mowing, logging or mechanical brush control. For best results, delay treatment of such areas until resprouting and foliar growth has restored the target vegetation to the recommended stage of growth for optimum herbicide exposure and control.

Rainfall or irrigation occurring within 6 hours after application may reduce effectiveness. Heavy rainfall or irrigation within 2 hours after application may wash the product off the foliage and a repeat treatment may be required.

This product does not provide residual weed control. For subsequent residual weed control, follow a label-approved herbicide program. Read and carefully observe the cautionary statements and all other information appearing on the labels of all herbicides used.

## Appendix B - Rodeo Label

**Note:** The maximum rates stated throughout this product's labeling apply to this product combined with the use of all other herbicides containing glyphosate or sulfosate as the active ingredient, whether applied as mixtures or separately. Calculate the application rates and ensure that the total use of this and other glyphosate or sulfosate containing products does not exceed the maximum use rates.

**Grazing Restrictions:** This product may be used to treat undesirable vegetation in utility rights-of-way that pass through pastures, rangeland, and forestry sites that are being grazed. For tank mix applications, comply with all restrictions appearing on the tank mix product label.

Except for lactating dairy animals there are no grazing restrictions following the labeled applications of this product.

- For lactating dairy animals there are no grazing restrictions for the following labeled applications of this product:
  - ▶ Where the spray can be directed onto undesirable woody brush and trees, such as in handgun spray-to-wet or low volume directed spray treatments.
  - ▶ For tree injection of frill applications and for cut stump treatments
- For broadcast applications, observe the following restrictions for lactating dairy animals:
  - ▶ For application rates of greater than 4.5 but not to exceed 7.5 quarts per acre, no more than 15 percent of the available grazing area may be treated.
  - ▶ For application rates that do not exceed 4.5 quarts per acre, no more than 25 percent of the available grazing area may be treated.
- These restrictions do not apply to pastures, rangeland or forestry sites outside of utility rights-of-way.

**NOTE:** Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences. When not in use, keep container closed to prevent spills and contamination.

Buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of this product or other materials that are not expressly recommended in this label. Mixing this product with herbicides or other materials not recommended in this label may result in reduced performance.

**ATTENTION:** Avoid drift. Extreme care must be used when applying this product to prevent injury to desirable plants and crops.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended. The likelihood of plant or crop injury occurring from the use of this product is greatest when winds are gusty or in excess of 5 miles per hour or when other conditions, including lesser wind velocities, will allow spray drift to occur. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely to drift. **Avoid applying at excessive speed or pressure.**

### 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 to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulations.

1. The distance of the outer most nozzles on the boom must not exceed 3/4 the length of the wingspan or 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 Information:**

**Importance of 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 Inversion section of this label).

**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-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 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 backwards, parallel to the airstream will produce larger droplets than other orientations. 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 larger droplets than other nozzle types.

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-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.

## Appendix B - Rodeo Label

**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 2-10 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 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 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 smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a connected cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards 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).

### Mixing And Application Instructions

Apply these spray solutions in properly maintained and calibrated equipment capable of delivering desired volumes. Hand-gun applications should be properly directed to avoid spraying desirable plants. Note: reduced results may occur if water containing soil is used, such as water from ponds and unlined ditches.

#### Mixing

This product mixes readily with water. Mix spray solutions of this product as follows:

1. Fill the mixing or spray tank with the required amount of water while adding the required amount of this product (see "Directions for Use" and "Weeds Controlled" sections of this label).
2. Near the end of the filling process, add the required surfactant and mix well. Remove hose from tank immediately after filling to avoid siphoning back into the water source.

**Note:** If tank mixing with Garlon® 3A herbicide, ensure that Garlon 3A is well mixed with at least 75 percent of the total spray volume before adding this product to the spray tank to avoid incompatibility.

During mixing and application, foaming of the spray solution may occur. To prevent or minimize foam, avoid the use of mechanical agitators, place the filling hose below the surface of the spray solution (only during filling), terminate by-pass and return lines at the bottom of the tank, and, if needed, use an approved anti-foam or defoaming agent.

Keep by-pass line on or near bottom of tank to minimize foaming. Screen size in nozzle or line strainers should be no finer than 50 mesh. Carefully select correct nozzle to avoid spraying a fine mist. For best results with conventional ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets.

**IMPORTANT:** When using this product, unless otherwise specified, mix with a surfactant such as a non-ionic surfactant containing 80% or greater active ingredient. For conifer release (pine release) use only surfactants that are approved for conifer release, and specified on the surfactant label as safe for use in conifer release (pine release). Always read and follow the manufacturer's surfactant label recommendations for best results.

Colorants or marking dyes approved for use with herbicides may be added to spray mixtures of this product. Colorants or dyes used in spray solutions of this product may reduce performance, especially at lower rates or dilutions. Use colorants or dyes according to the manufacturer's label recommendations.

Clean sprayer and parts immediately after using this product by thoroughly flushing with water and dispose of rinsate according to labeled use or disposal instructions.

Carefully observe all cautionary statements and other information appearing in the surfactant label.

### Application Equipment And Techniques

**ATTENTION: AVOID DRIFT. EXTREME CARE MUST BE EXERCISED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.**

Do not allow the herbicide solution to mist, drip, drift, or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to crops, plants, or other areas on which the treatment was not intended. The likelihood of plant or crop injury occurring from the use of this product is greatest when winds are gusty or in excess of 5 miles per hour or when other conditions, including lesser wind velocities, will allow spray drift to occur. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely to drift. **AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE.**

**Note:** Use of this product in a manner not consistent with this label may result in injury to persons, animals, or crops, or other unintended consequences. When not in use, keep container closed to prevent spills and contamination.

## Appendix B - Rodeo Label

### Aerial Equipment

For aerial application of this product in California, refer to Federal supplemental label for this product entitled "For Aerial Application in California Only". In California, aerial application may be made in aquatic sites and noncrop areas, including aquatic sites present in noncrop areas that are part of the intended treatment.

For control of weed or brush species listed in this label using aerial application equipment: For aerial broadcast application, unless otherwise specified, apply the rates of this product and surfactant recommended for broadcast application in a spray volume of 3 to 20 gallons of water per acre. See the "Weeds Controlled" section of this label for labeled annual and herbaceous weeds and woody plants and broadcast rate recommendations. Aerial applications of this product may only be made as specifically recommended in this label.

**AVOID DRIFT.** Do not apply during inversion conditions, when winds are gusty or under any other condition which will allow drift. Drift may cause damage to any vegetation contacted to which treatment is not intended. To prevent injury to adjacent desirable vegetation, appropriate buffer zones must be maintained.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations which dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure.

Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing in the additive label. The use of a drift control agent for conifer and herbaceous release applications may result in conifer injury and is not recommended.

**Ensure uniform application.** To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. **Prolonged exposure of this product to uncoated steel surfaces may result in corrosion and possible failure of the part. Landing gear are most susceptible.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38413 may prevent corrosion.

### Ground Broadcast Equipment

For control of weed or brush species listed in this label using conventional boom equipment: For ground broadcast application, unless otherwise specified, apply the rates of this product and surfactant recommended for broadcast application in a spray volume of 3 to 30 gallons of water per acre. See the "Weeds Controlled" section of this label for labeled annual and herbaceous weeds and woody plants and broadcast rate recommendations. As density of vegetation increases, spray volume should be increased within the recommended range to ensure complete coverage. Carefully select correct nozzle to avoid spraying a fine mist. For best results with ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets.

**Forestry and Utility Rights-of-Way Sites:** This product is recommended for broadcast applications using suitable ground equipment in forestry sites, utility sites, and utility rights-of way. Apply the recommended rates of this product and surfactant in a spray volume of 10 to 60 gallons per acre. Check for even distribution of spray droplets.

### Hand-Held and High-Volume Equipment (Use Coarse Sprays Only)

For control of weeds listed in this label using knapsack sprayers or high-volume spraying equipment utilizing handguns or other suitable nozzle arrangements:

**High volume sprays:** Prepare a 3/4 to 2 percent solution of this product in water, add a nonionic surfactant and apply to foliage of vegetation to be controlled. For specific rates of application and instructions for control of various annual and perennial weeds, see the "Weeds Controlled" section in this label.

Applications should be made on a spray-to-wet basis. Spray coverage should be uniform and complete. Do not spray to point of runoff.

**Low volume directed sprays:** This product may be used as a 5 to 10 percent solution in low-volume directed sprays for spot treatment of trees and brush. This treatment method is most effective in areas where there is a low density of undesirable trees or brush. If a straight stream nozzle is used, start the application at the top of the targeted vegetation and spray from top to bottom in a lateral zig-zag motion. Ensure that at least 50 percent of the leaves are contacted by the spray solution. For flat fan and cone nozzles and with hand-directed mist blowers, mist the application over the foliage of the targeted vegetation. Small, open-branched trees need only be treated from one side. If the foliage is thick or there are multiple root sprouts, applications must be made from several sides to ensure adequate spray coverage.

Prepare the desired volume of spray solution by mixing the amount of this product in water, shown in the following table:

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## Spray Solution

Desired Volume	Amount of this product							
	3/4%	1%	1 1/4%	1 1/2%	2%	5%	8%	10%
1 gal	1 fl oz	1 1/3 fl oz	1 2/3 fl oz	2 fl oz	2 2/3 fl oz	6 1/2 fl oz	10 1/4 fl oz	12 3/4 fl oz
25 gal	1 1/2 pt	1 qt	1 1/4 qt	1 1/2 qt	2 qt	5 qt	2 gal	2.5 gal
100 gal	3 qt	1 gal	1 1/4 gal	1 1/2 gal	2 gal	5 gal	8 gal	10 gal

2 tablespoons = 1 fluid ounce

For use in knapsack sprayers, it is suggested that the recommended amount of this product be mixed with water in a larger container. Fill the knapsack sprayer with the mixed solution and add the correct amount of surfactant.

### Selective Equipment

This product may be applied through shielded sprayers or wiper application equipment. This equipment may be used to selectively control undesirable vegetation without harming desirable vegetation.

Shielded sprayers direct the herbicide solution onto weeds while shielding desirable vegetation from the spray solution. Any recommended rate or tank mixture of this product may be used employing this equipment.

Wiper applicators physically wipe product directly onto undesirable vegetation. Care should be taken to avoid wiping desirable vegetation. Use a 33 to 100 percent solution of this product, diluted in water for wiper applications. Use a 33 percent solution for wick or gravity feed systems. Higher concentrations may be used in pressurized systems that are capable of handling thicker solutions. Addition of a nonionic surfactant at a rate of 10 percent by volume of total herbicide solution is recommended.

### Weeds Controlled

#### Annual Weeds

Apply to actively growing annual grasses and broadleaf weeds.

Allow at least 3 days after application before disturbing treated vegetation. After this period the weeds may be mowed, tilled or burned. See "Directions for Use," "General Information" and "Mixing and Application Instructions" for labeled uses and specific application instructions.

**Broadcast Application Rates:** For weeds less than 6 inches tall, use 1 1/2 pints of this product per acre plus a surfactant such as a non-ionic surfactant containing 80% or greater active ingredient. If weeds are greater than 6 inches tall, use 2 1/2 pints of this product per acre plus a non-ionic surfactant containing 80% or greater active ingredient.

**Hand-Held, High-Volume Application Rates:** Use a 3/4 percent solution of this product in water plus a surfactant such as a non-ionic surfactant containing 80% or greater active ingredient. Apply to foliage of vegetation to be controlled.

When applied as directed, this product plus a surfactant such as a non-ionic surfactant containing 80% or greater active ingredient will control the following annual weeds:

Common Name	Scientific Name
Balsamapple <sup>†</sup>	<i>Momordica charantia</i>
Barley	<i>Hordeum vulgare</i>
Barnyardgrass	<i>Echinochloa crus-galli</i>
Bassia, livehook	<i>Bassia hyssopifolia</i>
Bluegrass, annual	<i>Poa annua</i>
Bluegrass, bulbous	<i>Poa bulbosa</i>
Brome	<i>Bromus spp.</i>
Buttercup	<i>Ranunculus spp.</i>
Cheat	<i>Bromus secalinus</i>
Chickweed, mouseear	<i>Cerastium vulgatum</i>
Cocklebur	<i>Xanthium strumarium</i>
Corn, volunteer	<i>Zea mays</i>
Crabgrass	<i>Digitaria spp.</i>
Dwarfdandelion	<i>Krigia cespitosa</i>
Falseflax, smallseed	<i>Camelina microcarpa</i>
Fiddleneck	<i>Amsinckia spp.</i>
Flaxleaf fleabane	<i>Conyza bonariensis</i>
Fleabane	<i>Erigeron spp.</i>
Foxtail	<i>Setaria spp.</i>
Foxtail, Carolina	<i>Alopecurus carolinianus</i>
Groundsel, common	<i>Senecio vulgaris</i>
Horseweed/Marestail	<i>Conyza canadensis</i>
Kochia	<i>Kochia scoparia</i>
Lambsquarters, common	<i>Chenopodium album</i>
Lettuce, prickly	<i>Lactuca serriola</i>
Morningglory	<i>Ipomoea spp.</i>
Mustard, blue	<i>Chorispora tenella</i>
Mustard, tansy	<i>Descurainia pinnata</i>
Mustard, tumble	<i>Sisymbrium altissimum</i>
Mustard, wild	<i>Sinapis arvensis</i>
Oats, wild	<i>Avena fatua</i>
Panicum	<i>Panicum spp.</i>
Pennycress, field	<i>Thlaspi arvense</i>
Pigweed, redroot	<i>Amaranthus retroflexus</i>
Pigweed, smooth	<i>Amaranthus hybridus</i>
Ragweed, common	<i>Ambrosia artemisiifolia</i>
Ragweed, giant	<i>Ambrosia trifida</i>
Rocket, London	<i>Sisymbrium irio</i>
Rye	<i>Secale cereale</i>
Ryegrass, Italian <sup>††</sup>	<i>Lolium multiflorum</i>
Sandbur, field	<i>Cenchrus spp.</i>
Shattercane	<i>Sorghum bicolor</i>
Shepherd's-purse	<i>Capsella bursa-pastoris</i>
Signalgrass, broadleaf	<i>Brachiaria platyphylla</i>
Smartweed, Pennsylvania	<i>Polygonum pennsylvanicum</i>

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Common Name	Scientific Name
Sowthistle, annual	<i>Sonchus oleraceus</i>
Spanishneedles <sup>11</sup>	<i>Bidens bipinnata</i>
Stinkgrass	<i>Eragrostis cilianensis</i>
Sunflower	<i>Helianthus annuus</i>
Thistle, Russian	<i>Salsola kali</i>
Spurry, umbrella	<i>Holosteum umbellatum</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Wheat	<i>Triticum aestivum</i>
Witchgrass	<i>Panicum capillare</i>

<sup>1</sup> Apply with hand-held equipment only.

<sup>11</sup> Apply 3 pints of this product per acre.

Annual weeds will generally continue to germinate from seed throughout the growing season. Repeat treatments will be necessary to control later germinating weeds.

### Perennial Weeds

Apply this product to control most vigorously growing perennial weeds. Unless otherwise directed, apply when target plants are actively growing and most have reached early head or early bud stage of growth. Unless otherwise directed, allow at least 7 days after application before disturbing vegetation.

**NOTE:** If weeds have been mowed or tilled, do not treat until regrowth has reached the recommended stages. Fall treatments must be applied before a killing frost.

Repeat treatments may be necessary to control weeds regenerating from underground parts or seed.

**Specific Weed Control Recommendations:** For perennial weeds, apply the recommended rate plus a surfactant such as a non-ionic surfactant containing 80% or greater active ingredient. Use of this product without surfactant will result in reduced herbicide performance. Refer to the "Mixing and Application Instructions" section of this label and the surfactant manufacturer label for more information.

**When applied as directed, this product plus a surfactant such as a non-ionic surfactant containing 80% or greater active ingredient will control the following perennial weeds:** (Numbers in parentheses "(-)" following common name of a listed weed species refer to "Specific Perennial Weed Control Recommendations" for that weed which follow the species listing.)

Common Name	Scientific Name
Alfalfa (31)	<i>Medicago sativa</i>
Alligatorweed <sup>1</sup> (1)	<i>Alternanthera philoxeroides</i>
Anise/Fennel (31)	<i>Foeniculum vulgare</i>
Artichoke, Jerusalem (31)	<i>Helianthus tuberosus</i>
Bahiagrass (31)	<i>Paspalum notatum</i>
Bermudagrass (2)	<i>Cynodon dactylon</i>
Bindweed, field (3)	<i>Convolvulus arvensis</i>
Bluegrass, Kentucky (12)	<i>Poa pratensis</i>
Blueweed, Texas (3)	<i>Helianthus ciliaris</i>
Brackenfern (4)	<i>Pteridium</i> spp.
Bromegrass, smooth (12)	<i>Bromus inermis</i>
Canarygrass, reed (12)	<i>Phalaris arundinacea</i>
Cattail (5)	<i>Typha</i> spp.
Clover, red (31)	<i>Trifolium pratense</i>
Clover, white (31)	<i>Trifolium repens</i>
Cogongrass (6)	<i>Imperata cylindrica</i>

Cordgrass (7)	<i>Spartina</i> spp.
Cutgrass, giant <sup>1</sup> (8)	<i>Zizaniopsis miliacea</i>
Dallisgrass (31)	<i>Paspalum dilatatum</i>
Dandelion (31)	<i>Taraxacum officinale</i>
Dock, curly (31)	<i>Rumex crispus</i>
Dogbane, hemp (9)	<i>Apocynum cannabinum</i>
Fescue (31)	<i>Festuca</i> spp.
Fescue, tall (10)	<i>Festuca arundinacea</i>
Guineagrass (11)	<i>Panicum maximum</i>
Hemlock, poison (31)	<i>Conium maculatum</i>
Horsenettle (31)	<i>Solanum carolinense</i>
Horseradish (9)	<i>Armoracia rusticana</i>
Ice Plant (22)	<i>Mesembryanthemum crystallinum</i>
Johnsongrass (12)	<i>Sorghum halepense</i>
Kikuyugrass (21)	<i>Pennisetum clandestinum</i>
Knapweed (9)	<i>Centaurea repens</i>
Lantana (13)	<i>Lantana camara</i>
Lespedeza, common (31)	<i>Lespedeza striata</i>
Lospedeza, sericea (31)	<i>Lespedeza cuneata</i>
Loosestrife, purple (14)	<i>Lythrum salicaria</i>
Lotus, American (15)	<i>Nelumbo lutea</i>
Maidencane (16)	<i>Panicum hematomon</i>
Milkweed (17)	<i>Asclepias</i> spp.
Muhly, wirestem (21)	<i>Muhlenbergia frondosa</i>
Mullein, common (31)	<i>Verbascum thapsus</i>
Napierrgrass (31)	<i>Pennisetum purpureum</i>
Nightshade, silverleaf (3)	<i>Solanum elaeagnifolium</i>
Nutsedge, purple (18)	<i>Cyperus rotundus</i>
Nutsedge, yellow (18)	<i>Cyperus esculentus</i>
Orchardgrass (12)	<i>Dactylis glomerata</i>
Pampasgrass (19)	<i>Cortaderia jubata</i>
Paragrass (16)	<i>Brachiaria mutica</i>
Phragmites <sup>11</sup> (20)	<i>Phragmites</i> spp.
Quackgrass (21)	<i>Agropyron repens</i>
Reed, giant (22)	<i>Arundo donax</i>
Ryegrass, perennial (12)	<i>Lolium perenne</i>
Smartweed, swamp (31)	<i>Polygonum coccineum</i>
Spatterdock (23)	<i>Nuphar luteum</i>
Starthistle, yellow (31)	<i>Centaurea solstitialis</i>
Sweet potato, wild <sup>1</sup> (24)	<i>Ipomoea pandurata</i>
Thistle, artichoke (25)	<i>Cynara cardunculus</i>
Thistle, Canada (25)	<i>Cirsium arvense</i>
Timothy (12)	<i>Phleum pratense</i>
Torpedograss <sup>1</sup> (26)	<i>Panicum repens</i>
Tules, common (27)	<i>Scirpus acutus</i>
Vaseygrass (31)	<i>Paspalum urvillei</i>
Velvetgrass (31)	<i>Holcus</i> spp.
Waterhyacinth (28)	<i>Eichornia crassipes</i>
Waterlettuce (29)	<i>Pistia stratiotes</i>
Waterprimrose (30)	<i>Ludwigia</i> spp.
Wheatgrass, western (12)	<i>Agropyron smithii</i>

<sup>1</sup> Partial control.

<sup>11</sup> Partial control in southeastern states. See "Specific Weed Control Recommendations" below.

### Specific Perennial Weed Control Recommendations:

1. **Alligatorweed:** Apply 6 pints of this product per acre as a broadcast spray or as a 1 1/4 percent solution with hand-held equipment to provide partial control of alligatorweed. Apply when most of the target plants are in bloom. Repeat applications will be required to maintain such control.

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2. **Bermudagrass:** Apply 7 1/2 pints of this product per acre as a broadcast spray or as a 1 1/2 percent solution with hand-held equipment. Apply when target plants are actively growing and when seedheads appear.
3. **Bindweed, field / Silverleaf Nightshade / Texas Blueweed:** Apply 6 to 7 1/2 pints of this product per acre as a broadcast spray west of the Mississippi River and 4 1/2 to 6 pints of this product per acre east of the Mississippi River. With hand-held equipment, use a 1 1/2 percent solution. Apply when target plants are actively growing and are at or beyond full bloom. For silverleaf nightshade, best results can be obtained when application is made after berries are formed. Do not treat when weeds are under drought stress. New leaf development indicates active growth. For best results apply in late summer or fall.
4. **Brackenfern:** Apply 4 1/2 to 6 pints of this product per acre as a broadcast spray or as a 3/4 to 1 percent solution with hand-held equipment. Apply to fully expanded fronds which are at least 18 inches long.
5. **Cattail:** Apply 4 1/2 to 6 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment. Apply when target plants are actively growing and are at or beyond the early-to-full bloom stage of growth. Best results are achieved when application is made during the summer or fall months.
6. **Cogongrass:** Apply 4 1/2 to 7 1/2 pints of this product per acre as a broadcast spray. Apply when cogongrass is at least 18 inches tall and actively growing in late summer or fall. Allow 7 or more days after application before tillage or mowing. Due to uneven stages of growth and the dense nature of vegetation preventing good spray coverage, repeat treatments may be necessary to maintain control.
7. **Cordgrass:** Apply 4 1/2 to 7 1/2 pints of this product per acre as a broadcast spray or as a 1 to 2 percent solution with hand-held equipment. Schedule applications in order to allow 6 hours before treated plants are covered by tidewater. The presence of debris and silt on the cordgrass plants will reduce performance. It may be necessary to wash targeted plants prior to application to improve uptake of this product into the plant.
8. **Cutgrass, giant:** Apply 6 pints of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment to provide partial control of giant cutgrass. Repeat applications will be required to maintain such control, especially where vegetation is partially submerged in water. Allow for substantial regrowth to the 7 to 10-leaf stage prior to retreatment.
9. **Dogbane, hemp / Knapweed / Horseradish:** Apply 6 pints of this product per acre as a broadcast spray or as a 1 1/2 percent solution with hand-held equipment. Apply when target plants are actively growing and most have reached the late bud-to-flower stage of growth. For best results, apply in late summer or fall.
10. **Fescue, tall:** Apply 4 1/2 pints of this product per acre as a broadcast spray or as a 1 percent solution with hand-held equipment. Apply when target plants are actively growing and most have reached the boot-to-head stage of growth. When applied prior to the boot stage, less desirable control may be obtained.
11. **Guineagrass:** Apply 4 1/2 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment. Apply when target plants are actively growing and when most have reached at least the 7-leaf stage of growth.
12. **Johnsongrass / Bluegrass, Kentucky / Bromegrass, smooth / Canarygrass, reed / Orchardgrass / Ryegrass, perennial / Timothy / Wheatgrass, western:** Apply 3 to 4 1/2 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment. Apply when target plants are actively growing and most have reached the boot-to-head stage of growth. When applied prior to the boot stage, less desirable control may be obtained. In the fall, apply before plants have turned brown.
13. **Lantana:** Apply this product as a 3/4 to 1 percent solution with hand-held equipment. Apply to actively growing lantana at or beyond the bloom stage of growth. Use the higher application rate for plants that have reached the woody stage of growth.
14. **Loosestrife, purple:** Apply 4 pints of this product per acre as a broadcast spray or as a 1 to 1 1/2 percent solution using hand-held equipment. Treat when plants are actively growing at or beyond the bloom stage of growth. Best results are achieved when application is made during summer or fall months. Fall treatments must be applied before a killing frost.
15. **Lotus, American:** Apply 4 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment. Treat when plants are actively growing at or beyond the bloom stage of growth. Best results are achieved when application is made during summer or fall months. Fall treatments must be applied before a killing frost. Repeat treatment may be necessary to control regrowth from underground parts and seeds.
16. **Maidencane / Paragrass:** Apply 6 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment. Repeat treatments will be required, especially to vegetation partially submerged in water. Under these conditions, allow for regrowth to the 7 to 10-leaf stage prior to retreatment.
17. **Milkweed, common:** Apply 4 1/2 pints of this product per acre as a broadcast spray or as a 1 1/2 percent solution with hand-held equipment. Apply when target plants are actively growing and most have reached the late bud-to-flower stage of growth.
18. **Nutsedge, purple, yellow:** Apply 4 1/2 pints of this product per acre as a broadcast spray, or as a 3/4 percent solution with hand-held equipment to control existing nutsedge plants and immature nutlets attached to treated plants. Apply when target plants are in flower or when new nutlets can be found at rhizome tips. Nutlets which have not germinated will not be controlled and may germinate following treatment. Repeat treatments will be required for long-term control.
19. **Pampasgrass:** Apply a 1 1/2 percent solution of this product with hand-held equipment when plants are actively growing.
20. **Phragmites:** For partial control of phragmites in Florida and the counties of other states bordering the Gulf of Mexico, apply 7 1/2 pints per acre as a broadcast spray or apply a 1 1/2 percent solution with hand-held equipment. In other areas of the U.S., apply 4 to 6 pints per acre as a broadcast spray or apply a 3/4 percent solution with hand-held equipment for partial control. For best results, treat during late summer or fall months when plants are actively growing and in full bloom. Due to the dense nature of the vegetation, which may prevent good spray coverage and uneven stages of growth, repeat treatments may be necessary to maintain control. Visual control symptoms will be slow to develop.
21. **Quackgrass / Kikuyugrass / Muhly, wirestem:** Apply 3 to 4 1/2 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment when most quackgrass or wirestem muhly is at least 8 inches in height (3 to 4-leaf stage of growth) and actively growing. Allow 3 or more days after application before tillage.
22. **Reed, giant / ice plant:** For control of giant reed and ice plant, apply a 1 1/2 percent solution of this product with hand-held equipment when plants are actively growing. For giant reed, best results are obtained when applications are made in late summer to fall.
23. **Spatterdock:** Apply 6 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment. Apply when most plants are in full bloom. For best results, apply during the summer or fall months.

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24. **Sweet potato, wild:** Apply this product as a 1 1/2 percent solution using hand-held equipment. Apply to actively growing weeds that are at or beyond the bloom stage of growth. Repeat applications will be required. Allow the plant to reach the recommended stage of growth before retreatment.
25. **Thistle, Canada / artichoke:** Apply 3 to 4 1/2 pints of this product per acre as a broadcast spray or as a 1 1/2 percent solution with hand-held equipment for Canada thistle. To control artichoke thistle, apply a 2 percent solution as a spray-to-wet application. Apply when target plants are actively growing and are at or beyond the bud stage of growth.
26. **Torpedograss:** Apply 6 to 7 1/2 pints of this product per acre as a broadcast spray or as a 3/4 to 1 1/2 percent solution with hand-held equipment to provide partial control of torpedograss. Use the lower rates under terrestrial conditions, and the higher rates under partially submerged or a floating mat condition. Repeat treatments will be required to maintain such control.
27. **Tules, common:** Apply this product as a 1 1/2 percent solution with hand-held equipment. Apply to actively growing plants at or beyond the seedhead stage of growth. After application, visual symptoms will be slow to appear and may not occur for 3 or more weeks.
28. **Waterhyacinth:** Apply 5 to 6 pints of this product per acre as a broadcast spray or apply a 3/4 to 1 percent solution with hand-held equipment. Apply when target plants are actively growing and at or beyond the early bloom stage of growth. After application, visual symptoms may require 3 or more weeks to appear with complete necrosis and decomposition usually occurring within 60 to 90 days. Use the higher rates when more rapid visual effects are desired.
29. **Waterlettuce:** For control, apply a 3/4 to 1 percent solution of this product with hand-held equipment to actively growing plants. Use higher rates where infestations are heavy. Best results are obtained from mid-summer through winter applications. Spring applications may require retreatment.
30. **Waterprimrose:** Apply this product as a 3/4 percent solution using hand-held equipment. Apply to plants that are actively growing at or beyond the bloom stage of growth, but before fall color changes occur. Thorough coverage is necessary for best control.
31. **Other perennial weeds listed above:** Apply 4 1/2 to 7 1/2 pints of per acre as a broadcast spray or apply as a 3/4 to 1 1/2 percent solution with hand-held equipment.

### Woody Brush and Trees

**NOTE:** If brush has been mowed or tilled or trees have been cut, do not treat until regrowth has reached the recommended stage of growth.

#### Application Rates and Timing

When applied as a 5 to 8 percent solution as a directed application as described in the "Hand-Held and High-Volume Equipment" section, this product will control or partially control all wood brush and tree species listed in this section of this label. Use the higher rate of application for dense stands and larger woody brush and trees.

**Specific Brush or Tree Control Recommendations:** Numbers in parentheses "(-)" following the common name of a listed brush or tree species refer to "Specific Brush or Tree Control Recommendations" which follow the species listing. See this section for specific application rates and timing for listed species.

For woody brush and trees, apply the recommended rate plus a surfactant such as a non-ionic surfactant containing 80% or greater active ingredient. Use of this product without surfactant will result in reduced herbicide performance. Refer to the "Mixing and Application Instructions" section of this label and the surfactant manufacturer label for more information. Make applications when plants are actively growing and, unless otherwise directed, after full-leaf expansion. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants that have reached the woody stage of growth. Best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when application is made in the spring or early summer when brush species are at high moisture content and are flowering. Ensure thorough coverage when using hand-held equipment. Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, mowing or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Reduced performance may result if fall treatments are made following a frost.

See the "Directions for Use" and "Mixing and Application Instructions" sections in this label for labeled use and specific application instructions. **When applied as directed, this product plus a surfactant such as a non-ionic surfactant containing 80% or greater active ingredient will control the following woody brush plants and trees:** (Numbers in parentheses "(-)" following common name of a listed brush or tree species refer to "Specific Brush or Tree Control Recommendations" for that species which follow the species listing.)

Common Name	Scientific Name
Alder (1)	<i>Alnus spp.</i>
Ash <sup>1</sup> (20)	<i>Fraxinus spp.</i>
Aspen, quaking (2)	<i>Populus tremuloides</i>
Beardclover, Bearmat (20)	<i>Chamaebatia foliolosa</i>
Birch (3)	<i>Betula spp.</i>
Blackberry (1)	<i>Rubus spp.</i>
Broom, French (4)	<i>Cytisus monspessulanus</i>
Broom, Scotch (4)	<i>Cytisus scoparius</i>
Buckwheat, California <sup>1</sup> (5)	<i>Eriogonum fasciculatum</i>
Cascara <sup>1</sup> (20)	<i>Rhamnus purshiana</i>
Catsclaw <sup>1</sup> (6)	<i>Acacia greggi</i>
Ceanothus (20)	<i>Ceanothus spp.</i>
Chamise (17)	<i>Adenostoma fasciculatum</i>
Cherry, bitter (7)	<i>Prunus emarginata</i>
Cherry, black (7)	<i>Prunus serotina</i>
Cherry, pin (7)	<i>Prunus pensylvanica</i>
Coyote brush (8)	<i>Baccharis consanguinea</i>
Creeper, Virginia <sup>1</sup> (20)	<i>Parthenocissus quinquefolia</i>
Dewberry (1)	<i>Rubus trivialis</i>
Dogwood (9)	<i>Cornus spp.</i>
Elderberry (3)	<i>Sambucus spp.</i>
Elm <sup>1</sup> (20)	<i>Ulmus spp.</i>
Eucalyptus, bluegum (10)	<i>Eucalyptus globulus</i>
Hasardia <sup>1</sup> (5)	<i>Haplopappus squamosus</i>
Hawthorn (2)	<i>Crataegus spp.</i>
Hazel (3)	<i>Corylus spp.</i>
Hickory (9)	<i>Carya spp.</i>
Holly, Florida (11)	<i>Schinus terebinthifolius</i>
(Brazilian peppertree)	

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Common Name	Scientific Name
Honeysuckle (1)	<i>Lonicera spp.</i>
Hornbeam, American (20)	<i>Carpinus caroliniana</i>
Kudzu (12)	<i>Pueraria lobata</i>
Locust, black (20)	<i>Robinia pseudoacacia</i>
Manzanita (20)	<i>Arctostaphylos spp.</i>
Maple, red (13)	<i>Acer rubrum</i>
Maple, sugar (14)	<i>Acer saccharum</i>
Maple, vine (20)	<i>Acer circinatum</i>
Monkey flower (5)	<i>Mimulus guttatus</i>
Oak, black (20)	<i>Quercus velutina</i>
Oak, northern pin (14)	<i>Quercus palustris</i>
Oak, post (1)	<i>Quercus stellata</i>
Oak, red (14)	<i>Quercus rubra</i>
Oak, southern red (7)	<i>Quercus falcata</i>
Oak, white (20)	<i>Quercus alba</i>
Persimmon (20)	<i>Diospyros spp.</i>
Poison-ivy (15)	<i>Rhus radicans</i>
Poison-oak (15)	<i>Rhus toxicodendron</i>
Poplar, yellow (20)	<i>Liriodendron tulipifera</i>
Prunus (7)	<i>Prunus spp.</i>
Raspberry (1)	<i>Rubus spp.</i>
Redbud, eastern (20)	<i>Cercis canadensis</i>
Rose, multiflora (16)	<i>Rosa multiflora</i>
Russian-olive (20)	<i>Elaeagnus angustifolia</i>
Sage: black (17), white	<i>Salvia spp.</i>
Sagebrush, California (17)	<i>Artemisia californica</i>
Salmonberry (3)	<i>Rubus spectabilis</i>
Salt cedar (9)	<i>Tamarix spp.</i>
Saltbush, sea myrtle (18)	<i>Baccharis halimifolia</i>
Sassafras (20)	<i>Sassafras albidum</i>
Sourwood (20)	<i>Oxydendrum arboreum</i>
Sumac, poison (20)	<i>Rhus vernix</i>
Sumac, smooth (20)	<i>Rhus glabra</i>
Sumac, winged (20)	<i>Rhus copallina</i>
Sweetgum (7)	<i>Liquidambar styraciflua</i>
Swordfern (20)	<i>Polystichum munitum</i>
Tallowtree, Chinese (17)	<i>Sapium sebiferum</i>
Thimbleberry (3)	<i>Rubus parviflorus</i>
Tobacco, tree (5)	<i>Nicotiana glauca</i>
Trumpet creeper (2)	<i>Campsis radicans</i>
Waxmyrtle, southern (11)	<i>Myrica cerifera</i>
Willow (19)	<i>Salix spp.</i>

\* Partial control (See below for control or partial control instructions.)

### Specific Brush or Tree Control Recommendations:

- Alder / Blackberry / Dewberry / Honeysuckle / Oak, Post / Raspberry:** For control, apply 4 1/2 to 6 pints per acre as a broadcast spray or as a 3/4 to 1 1/4 percent solution with hand-held equipment.
- Aspen, Quaking / Hawthorn / Trumpet creeper:** For control, apply 3 to 4 1/4 pints of this product per acre as a broadcast spray or as a 3/4 to 1 1/4 percent solution with hand-held equipment.
- Birch / Elderberry / Hazel / Salmonberry / Thimbleberry:** For control, apply 3 pints per acre of this product as a broadcast spray or as a 3/4 percent solution with hand-held equipment.
- Broom, French / Broom, Scotch:** For control, apply a 1 1/4 to 1 1/2 percent solution with hand-held equipment.
- Buckwheat, California / Hasardia / Monkey flower / Tobacco, tree:** For partial control of these species, apply a 3/4 to 1 1/2 percent solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.

- Catsclaw:** For partial control, apply a 1 1/4 to 1 1/2 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.
- Cherry, bitter / Cherry, black / Cherry, pin / Oak, southern red / Sweetgum / Prunus:** For control, apply 3 to 7 1/2 pints of this product per acre as a broadcast spray or as a 1 to 1 1/2 percent solution with hand-held equipment.
- Coyote brush:** For control, apply a 1 1/4 to 1 1/2 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.
- Dogwood / Hickory / Salt cedar:** For partial control, apply a 1 to 2 percent solution of this product with hand-held equipment or 6 to 7 1/2 pints per acre as a broadcast spray.
- Eucalyptus, bluegum:** For control of eucalyptus resprouts, apply a 1 1/2 percent solution of this product with hand-held equipment when resprouts are 6 to 12-feet tall. Ensure complete coverage. Apply when plants are actively growing. Avoid application to drought-stressed plants.
- Holly, Florida / Waxmyrtle, southern:** For partial control, apply this product as a 1 1/2 percent solution with hand-held equipment.
- Kudzu:** For control, apply 6 pints of this product per acre as a broadcast spray or as a 1 1/2 percent solution with hand-held equipment. Repeat applications will be required to maintain control.
- Maple, red:** For control, apply as a 3/4 to 1 1/4 percent solution with hand-held equipment when leaves are fully developed. For partial control, apply 2 to 7 1/2 pints of this product per acre as a broadcast spray.
- Maple, sugar / Oak: northern pin / Oak, red:** For control, apply as a 3/4 to 1 1/4 percent solution with hand-held equipment when at least 50 percent of the new leaves are fully developed.
- Poison-ivy / Poison-oak:** For control, apply 6 to 7 1/2 pints of this product per acre as a broadcast spray or as a 1 1/2 percent solution with hand-held equipment. Repeat applications may be required to maintain control. Fall treatments must be applied before leaves lose green color.
- Rose, multiflora:** For control, apply 3 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment. Treatments should be made prior to leaf deterioration by leaf-feeding insects.
- Sage, black / Sagebrush, California / Chamise / Tallowtree, Chinese:** For control of these species, apply a 3/4 percent solution of this product as a foliar spray with hand-held equipment. Thorough coverage of foliage is necessary for best results.
- Saltbush, sea myrtle:** For control, apply this product as a 1 percent solution with hand-held equipment.
- Willow:** For control, apply 4 1/2 pints of this product per acre as a broadcast spray or as a 3/4 percent solution with hand-held equipment.
- Other woody brush and trees listed above:** For partial control, apply 3 to 7 1/2 pints of this product per acre as a broadcast spray or as a 3/4 to 1 1/2 percent solution with hand-held equipment.

### Aquatic and other Noncrop Sites

Apply this product as directed and under conditions described to control or partially control weeds and woody plants listed in the "Weeds Controlled" section in industrial, recreational and public areas or other similar aquatic or terrestrial sites on this label.

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### Noncrop Sites

This product may be used to control the listed weeds in and around aquatic sites and on noncrop sites such as:

Airports  
 Golf Courses  
 Habitat Restoration & Management Areas  
 Highways & Roadsides  
 Industrial Plant Sites  
 Lumberyards  
 Parking Areas  
 Parks  
 Petroleum Tank Farms  
 Pipeline, Power, Telephone & Utility Rights-of-Way  
 Pumping Installations  
 Railroads  
 Schools  
 Storage Areas  
 Similar Sites

### Aquatic Sites

This product may be applied to emerged weeds in all bodies of fresh and brackish water which may be flowing, nonflowing or transient. This includes lakes, rivers, streams, ponds, estuaries, rice levees, seeps, irrigation and drainage ditches, canals, reservoirs, wastewater treatment facilities, wildlife habitat restoration and management areas and similar sites.

If aquatic sites are present in the noncrop area and are part of the intended treatment, read and observe the following directions:

- This product does not control plants which are completely submerged or have a majority of their foliage under water.
- There is no restriction on the use of treated water for irrigation, recreation or domestic purposes.
- Consult local state fish and game agency and water control authorities before applying this product to public water. Permits may be required to treat such water.
- **NOTE:** Do not apply this product directly to water within 1/2 mile up-stream of an active potable water intake in flowing water (i.e., river, stream, etc.) or within 1/2 mile of an active potable water intake in a standing body of water such as lake, pond or reservoir. To make aquatic applications around and within 1/2 mile of active potable water intakes, the water intake must be turned off for a minimum period of 48 hours after the application. The water intake may be turned on prior to 48 hours if the glyphosate level in the intake water is below 0.7 parts per million as determined by laboratory analysis. These aquatic applications may be made only in those cases where there are alternative water sources or holding ponds which would permit the turning off of an active potable water intake for a minimum period of 48 hours after the applications. This restriction does not apply to intermittent inadvertent overspray of water in terrestrial use sites.
- For treatments after drawdown of water or in dry ditches, allow 7 or more days after treatment before reintroduction of water to achieve maximum weed control. Apply this product within 1 day after drawdown to ensure application to actively growing weeds.

- Floating mats of vegetation may require retreatment. Avoid wash-off of sprayed foliage by spray boat or recreational boat backwash or by rainfall within 6 hours of application. Do not re-treat within 24 hours following the initial treatment.
- Applications made to moving bodies of water must be made while traveling upstream to prevent concentration of this herbicide in water. When making any bankside applications, do not overlap more than 1 foot into open water. Do not spray in bodies of water where weeds do not exist. The maximum application rate of 7 1/2 pints per acre must not be exceeded in any single broadcast application that is being made over water.
- When emerged infestations require treatment of the total surface area of impounded water, treating the area in strips may avoid oxygen depletion due to decaying vegetation. Oxygen depletion may result in fish kill.

### Forestry Sites and Utility Rights-of-Way

In forest and utility sites, this product is recommended for the control or partial control of woody brush, trees, and annual and perennial herbaceous weeds. This product is also recommended for use in preparing or establishing wildlife openings within these sites, in pine straw plantations for maintaining logging roads, and for side trimming along utility rights-of-way.

In forestry sites, this product is recommended for use in site preparation prior to planting any tree species, including Christmas trees and silvicultural nursery sites.

In utility sites, this product is recommended for use along electrical power, pipeline, and telephone rights-of-way, and in other utility sites associated with these rights-of-way, such as substations.

#### Application Rates <sup>1</sup>:

Method of Application	Application Rate	Spray Volume (gal/acre)
<b>Broadcast</b>		
Aerial	1.5 to 7.5 qt/acre	5 to 30
Ground	1.5 to 7.5 qt/acre	10 to 60
<b>Spray-to-Wet</b>		
Handgun, Backpack Mistblower	0.75 to 2% by volume	spray-to-wet
<b>Low Volume Directed Spray <sup>2</sup></b>		
Handgun, Backpack Mistblower	5% to 10% by volume	partial coverage

<sup>1</sup>Where repeat applications are necessary, do not exceed 8.0 quarts per acre per year.

<sup>2</sup>For low volume directed spray applications, coverage should be uniform with at least 50 percent of the foliage contacted. For best results, coverage of the top one-half of the plant is important.

In forestry site preparation and utility rights-of-way applications, this product requires use with a surfactant such as a non-ionic surfactant containing greater than 80 percent active ingredient. Use of this product without surfactant will result in reduced herbicide performance. Refer to the "Mixing and Application Instructions" section of this label and the surfactant manufacturer label for more information.

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Use higher rates of this product within the recommended rate ranges for control or partial control of woody brush, trees and hard-to-control perennial herbaceous weeds. For best results, apply to actively growing woody brush and trees after full leaf expansion and before fall color and leaf drop. Use increased rates within the recommended rate range to control of perennial herbaceous weeds from emergence up to the appearance of seedheads, flowers or berries appear. Use lower rates within the recommended rate range to control annual herbaceous weeds and actively growing perennial herbaceous weeds after seedheads, flowers or berries appear. Apply to foliage of actively growing annual herbaceous weeds anytime after emergence.

### Tank Mixtures

This product may be used in tank mix combination with other herbicide products to broaden the spectrum of vegetation controlled. When tank mixing, read and observe applicable use directions, precautions and limitations on the respective product labels. Use according to the most restrictive precautionary statements for each product on the mixture. Any recommended rate of this product may be used in a tank mix.

**Note:** For forestry site preparation, make sure the tank mix product is approved for use prior to planting the desired species. Observe planting interval restrictions. For side trimming treatments in utility rights-of-way, tank mixtures with Arsenal 2WSL herbicide are not recommended. For side trimming treatments, it is recommended that this product be used alone as recommended, or as a tank mix with Garlon.

Product	Broadcast Rate	Use Sites
Arsenal Applicators Concentrate	2 to 16 fl oz/acre	Forestry site preparation
Oust	1 to 4 oz/acre	Forestry site preparation, utility sites
Garlon 3A <sup>1</sup>	1 to 4 qt/acre	Forestry site preparation, utility sites
Garlon 4	1 to 4 qt/acre	Forestry site preparation, utility sites
Arsenal 2WSL	2 to 32 fl oz/acre	Utility sites
	<b>Spray-to-Wet Rates</b>	
Arsenal Applicators Concentrate	1/32% to 1/2% by volume	Forestry site preparation
Arsenal 2WSL	1/32% to 1/2% by volume	Utility sites
	<b>Low Volume Directed Spray Rates</b>	
Arsenal Applicators Concentrate	1/8% to 1/2% by volume	Forestry site preparation
Arsenal 2WSL	1/8% to 1/2% by volume	Utility sites

<sup>1</sup> Ensure that Garlon 3A is thoroughly mixed with water before adding this product. Agitation is required while mixing this product with Garlon 3A to avoid compatibility problems.

For control of herbaceous weeds, use the lower recommended tank mixture rates. For control of dense stands or difficult-to-control woody brush and trees, use the higher recommended rates.

## Forestry Conifer and Hardwood Release

### Directed Sprays and Selective Equipment

This product may be applied as a directed spray or by using selective equipment in forestry conifer and hardwood sites, including Christmas tree plantations and silvicultural nurseries. This product requires use with a surfactant. Use only surfactants that are approved for conifer release and specified on the surfactant label as safe for use in conifer release (pine release). Use of this product without surfactant will result in reduced herbicide performance. Refer to the "Mixing and Application Instructions" section of this label and the surfactant manufacturer label for more information.

**Tank Mixing:** In hardwood plantations, tank mixtures with Oust may be used. In pine plantations, tank mixtures with Garlon 4 or Arsenal AC may be used. Comply with all site restrictions, forestry species limitations, and precautions on the tank mix product labels.

Avoid contact of spray drift, mist or drips with foliage, green bark or non-woody surface roots of desirable plant species. See "Application Equipment and Techniques" section of this label for specific recommendations and precautions.

**Spray-to-Wet Applications:** Use a 2 percent spray solution to control undesirable woody brush and trees. To control herbaceous weeds, use a 1 to 2 percent spray solution.

**Low Volume Directed Spray Applications:** Use a 5 to 10 percent spray solution. Coverage should be uniform with at least 50 percent of the foliage contacted. Coverage of the top one-half of the unwanted vegetation is important.

**Broadcast Applications:** For equipment calibrated for broadcast applications, use 1 1/2 to 7 1/2 quarts of this product per acre. Apply in 10 to 60 gallons of clean water per acre. Shielded application equipment may be used to avoid contact of the spray solution with desirable plants. Shields should be adjusted to prevent spray contact with the foliage of green bark of desirable vegetation.

**Wiper Application Equipment:** See the "Selective Equipment" section of this label for equipment and application rate recommendations.

### Broadcast Application

**Note:** Except where specifically recommended below, make broadcast applications of this product only where conifers have been established for more than one year.

**Broadcast application must be made after formation of final conifer resting buds in the fall or prior to initial bud swelling in the spring.**

Injury may occur to conifers treated for release, especially where spray patterns overlap or the higher rates are applied. Damage can be accentuated if applications are made when conifers are actively growing, or are under stress from drought, flood water, improper planting, insects, animal damage or diseases.

Accord Concentrate requires use with a surfactant. Use a surfactant that is labeled/recommended for use in over-the-top release applications. Use of this product without a surfactant will result in reduced herbicide performance. Refer to the "Mixing and Application Instructions" section of this label and the surfactant manufacturer label for more information.

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For release of the following conifer species outside the Southeastern United States:

Douglas fir (*Pseudotsuga menziesii*)  
Fir (*Abies* species)  
Hemlock<sup>†</sup> (*Tsuga* species)  
Pines<sup>†</sup> (*Pinus* species)  
Redwood, California<sup>†</sup> (*Sequoia* species)

<sup>†</sup> Includes all species except loblolly pine, longleaf pine, shortleaf pine or slash pine.

<sup>††</sup> Use of a surfactant is not recommended for release of hemlock species or California redwood. In mixed conifer stands, injury to these species may result if a surfactant is used.

**Application Rate for Conifer Release:** Apply 3/4 to 1 1/2 quarts per acre as a broadcast spray. In Maine and New Hampshire, up to 2 1/4 quarts per acre of this product may be used for the control and suppression of difficult-to-control hardwood species.

To release Douglas fir, and pine and spruce species at the end of the first growing season (except in California), apply 3/4 to 1 1/8 quarts per acre of this product. Make sure that all conifers are well hardened off.

**Note:** For release of Douglas fir with this product or recommended tank mixtures, a nonionic surfactant recommended for over-the-top foliar spray may be used. To avoid possible conifer injury, nonionic surfactants may be used at 2 fluid ounces per acre at elevations above 1500 feet, or 1 fluid ounce per acre in the coastal range or at elevations below 1500 feet. Use of surfactant rates exceeding those listed above may result in unacceptable conifer injury and are not recommended. Make sure that the nonionic surfactant has been adequately tested for safety to Douglas fir before use.

**Tank Mixtures with Oust:** To release jack pine, white pine and white spruce, apply 3/4 to 1 1/2 quarts of this product with 1 to 3 ounces (1 to 1 1/2 ounces for white pine) of Oust per acre. Make applications to actively growing weeds as a broadcast spray over the top of established conifers. Applications at these rates should be made after formation of conifer resting buds in the late summer or fall.

**Tank Mixtures with Arsenal Applicators Concentrate:** This product may be tank mixed with Arsenal Applicators Concentrate for release of Douglas fir. Tank mix 3/4 to 1 1/8 quarts of this product with 2 to 6 fluid ounces of Arsenal Applicators Concentrate per acre. For release of balsam fir and red spruce, apply a mixture of 1 1/2 quarts of this product with 1 to 2 1/2 fluid ounces of Arsenal Applicators Concentrate per acre.

In Maine and New Hampshire for the release of red pine, balsam fir, red spruce, white spruce, Norway spruce, and black spruce with dense tough-to-control brush and where maples make up a large component of the undesirable trees, up to 2 1/4 quarts per acre of this product may be tank mixed with 1 to 2 1/2 fluid ounces per acre of Arsenal Applicators Concentrate herbicide and applied as a broadcast spray.

**Tank mixtures with Arsenal Applicators Concentrate and Oust or Oust XP Herbicides:** In Maine and New Hampshire for release of red pine, balsam fir, red spruce, white spruce, Norway spruce and black spruce with heavy grass and herbaceous weed densities, tough-to-control brush and where maples make up a large component of the undesirable trees up to 2 1/4 quarts per acre of this product may be tank mixed with 1 to 2.5 fluid ounces per acre of Arsenal Applicators Concentrate and 1 to 3 oz of Oust or Oust XP herbicides and applied as a broadcast spray.

For release of the following conifer species in the Southeastern United States:

Loblolly pine (*Pinus taeda*)  
Eastern white pine (*Pinus strobus*)  
Shortleaf pine (*Pinus echinata*)  
Slash pine (*Pinus elliotii*)  
Virginia pine (*Pinus virginiana*)  
Longleaf pine (*Pinus palustris*)

Apply 1 1/8 to 1 7/8 quarts of this product per acre as a broadcast spray during late summer or early fall after the conifers have hardened off. For applications at the end of the first growing season, use 3/4 quart of this product alone or in a recommended tank mixture.

**Tank Mixtures with Arsenal Applicators Concentrate:** For conifer release, apply 3/4 to 1 1/2 quarts of this product with 2 to 16 fluid ounces of Arsenal Applicators Concentrate per acre as a broadcast spray. Use only on conifer species that are labeled for over-the-top spray for both products. Use the higher recommended rates for dense tough-to-control wood brush and trees.

Read and observe label claims, cautionary statements and all information on the labels of each product used in these tank mixtures. Use according to the most restrictive precautionary statements for each product in the mixture.

### Herbaceous Release

When applied as directed, this product plus listed residual herbicides provides postemergence control of the annual weeds and control or suppression of the perennial weeds listed in this label, and residual control of the weeds listed in the residual herbicide label. Make applications to actively growing weeds as a broadcast spray over the top of labeled conifers.

**Tank Mixtures with Oust:** To release loblolly pines, tank mix 12 to 18 fluid ounces of this product with 2 to 4 ounces of Oust per acre.

To release slash pines, tank mix 9 to 12 fluid ounces of this product with 2 to 4 ounces of Oust per acre.

In Maine and New Hampshire for release of red pine, balsam fir, red spruce, white spruce, Norway spruce, and black spruce with heavy grass and herbaceous weeds infesting the site, up to 2 1/4 quarts per acre of may be tank mixed with 1 to 3 oz of Oust herbicide or Oust XP herbicide to control grass, herbaceous weeds and woody brush, and applied as a broadcast spray.

For tank mixtures with Oust use a surfactant that is labeled/ recommended for use in over-the-top herbaceous release applications. Use of this product without a surfactant will result in reduced herbicide performance. Refer to the "Mixing and Application Instructions" section of this label and the surfactant manufacturer label for more information.

Weed control may be reduced if water volumes exceed 25 gallons per acre for these treatments.

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**Tank Mixture with Atrazine:** To release Douglas fir, apply 3/4 quart of this product with 4 pounds a.i. of atrazine per acre. Apply only over Douglas fir that has been established for at least one full growing season. Apply in the early spring, usually mid-March through early April. Injury will occur if applications are made after bud swell in the spring. For this use, do not add surfactant to the tank mixture.

Always read and follow the manufacturer's label for all herbicides and surfactants used.

### Wetland Sites

This product may be used in and around water (aquatic areas) and wetlands found in forestry and in power, telephone and pipeline rights-of-way sites, including where these sites are adjacent to or surrounding domestic water supply reservoirs, supply streams, lakes and ponds. Read and observe the following before making applications in and around water.

Consult local public water control authorities before applying this product in and around public water. Permits may be required to treat in such areas.

There is no restriction on the use of treated water for irrigation, recreation or domestic purposes.

**Note:** Do not apply this product directly to water within 1/2 mile up-stream of an active potable water intake in flowing water (i.e., river, stream, etc.) or within 1/2 mile of an active potable water intake in a standing body of water such as a lake, pond or reservoir. To make aquatic applications around and within 1/2 mile of active potable water intakes, the water intake must be turned off for a minimum period of 48 hours after application. These aquatic applications may be made ONLY in those cases where there are alternative water sources or holding ponds which would permit the turning off of an active potable water intake for a minimum period of 48 hours after the application. This restriction does not apply to intermittent inadvertent overspray of water in terrestrial use sites.

Do not spray open bodies of water where woody brush, trees and herbaceous weeds do not exist. The maximum application rate of 3 3/4 quarts per acre must not be exceeded in a single over-water broadcast application except as follows, where any recommended rate may be applied:

- Stream crossings in utility right-of-way.
- Where applications will result in less than 20 percent of the total water area being treated.

### Wildlife Habitat Restoration and Management Areas

This product is recommended for the restoration and/or maintenance of native habitat and in wildlife management areas.

**Habitat Restoration and Maintenance:** When applied as directed, exotic and other undesirable vegetation may be controlled in habitat management areas. Applications may be made to allow recovery of native plant species, to open up water to attract waterfowl, and for similar broad-spectrum vegetation control requirements in habitat management areas. Spot treatments may be made to selectively remove unwanted plants for habitat enhancement. For spot treatments, care should be exercised to keep spray off of desirable plants.

**Wildlife Food Plots:** This product may be used as a site preparation treatment prior to planting wildlife food plots. Apply as directed to control vegetation in the plot area. Any wildlife food species may be planted after applying this product, or native species may be allowed to reinfest the area. If tillage is needed to prepare a seedbed, wait 7 days after applying this product before tilling to allow for maximum effectiveness.

### Wiper Applications

For wick or wiper applications, mix 1 gallon of this product with 2 gallons of clean water to make a 33 percent solution. Addition of a nonionic surfactant at a rate of 10 percent by volume of total herbicide solution is recommended.

Wiper applications can be used to control or suppress annual and perennial weeds listed on this label. In heavy weed stands, a double application in opposite directions may improve results. See the "Weed Controlled" section in this label for recommended timing, growth stage and other instructions for achieving optimum results

### Cut Stump Application

Woody vegetation may be controlled by treating freshly cut stumps of trees and resprouts with this product. Apply this product using suitable equipment to ensure coverage of the entire cambium. Cut vegetation close to the soil surface. **Apply a 50 to 100 percent solution of this product to freshly cut surface immediately after cutting.** Delay in applying this product may result in reduced performance. For best results, trees should be cut during periods of active growth and full leaf expansion.

When used according to directions for cut stump application, this product will control, partially control or suppress most woody brush and tree species, some of which are listed below:

Common Name	Scientific Name
Alder	<i>Alnus spp.</i>
Coyote brush †	<i>Baccharis consanguinea</i>
Dogwood †	<i>Cornus spp.</i>
Eucalyptus	<i>Eucalyptus spp.</i>
Hickory †	<i>Carya spp.</i>
Madrone	<i>Arbutus menziesii</i>
Maple †	<i>Acer spp.</i>
Oak	<i>Quercus spp.</i>
Poplar †	<i>Populus spp.</i>
Reed, giant	<i>Arundo donax</i>

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Common Name	Scientific Name
Salt cedar	<i>Tamarix spp.</i>
Sweet gum <sup>1</sup>	<i>Liquidambar styraciflua</i>
Sycamore <sup>1</sup>	<i>Platanus occidentalis</i>
Tan oak	<i>Lithocarpus densiflorus</i>
Willow	<i>Salix spp.</i>

<sup>1</sup> This product is not approved for this use on these species in the state of California.

### Injection and Frill Applications

Woody vegetation may be controlled by injection or frill application of this product. Apply this product using suitable equipment which must penetrate into living tissue. Apply the equivalent of 1 ml of this product per 2 to 3 inches of trunk diameter. This is best achieved by applying 25 to 100 percent concentration of this product either to a continuous frill around the tree or as cuts evenly spaced around the tree below all branches. As tree diameter increases in size, better results are achieved by applying dilute material to a continuous frill or more closely spaced cuttings. Avoid application techniques that allow runoff to occur from frill or cut areas in species that exude sap freely after frills or cutting. In species such as these, make frill or cut at an oblique angle so as to produce a cupping effect and use undiluted material. For best results, applications should be made during periods of active growth and full leaf expansion.

This treatment will control the following woody species:

Common Name	Scientific Name
Oak	<i>Quercus spp.</i>
Poplar	<i>Populus spp.</i>
Sweet gum	<i>Liquidambar styraciflua</i>
Sycamore	<i>Platanus occidentalis</i>

This treatment will suppress the following woody species:

Common Name	Scientific Name
Black gum <sup>1</sup>	<i>Nyssa sylvatica</i>
Dogwood	<i>Cornus spp.</i>
Hickory	<i>Carya spp.</i>
Maple, red	<i>Acer rubrum</i>

<sup>1</sup> This product is not approved for this use on this species in the state of California.

### Release of Bermudagrass or Bahiagrass on Noncrop Sites

#### Release Of Dormant Bermudagrass And Bahiagrass

When applied as directed, this product will provide control or suppression of many winter annual weeds and tall fescue for effective release of dormant bermudagrass or bahiagrass. Make applications to dormant bermudagrass or bahiagrass.

For best results on winter annuals, treat when weeds are in an early growth stage (below 6 inches in height) after most have germinated. For best results on tall fescue, treat when fescue is in or beyond the 4 to 6-leaf stage.

### Weeds Controlled

Rate recommendations for control or suppression of winter annuals and tall fescue are listed below.

Apply the recommended rates of this product in 10 to 25 gallons of water per acre plus a surfactant such as a non-ionic surfactant containing 80% or greater active ingredient. Use of this product without surfactant will result in reduced herbicide performance. Refer to the "Mixing and Application Instructions" section of this label and the surfactant manufacturer label for more information.

### Weeds Controlled or Suppressed <sup>1</sup>

Note: C = Controlled; S = Suppressed

Weed Species	Rate (Fluid Ounces Per Acre)					
	6	9	12	18	24	48
Barley, little <i>Hordeum pusillum</i>	S	C	C	C	C	C
Bedstraw, catchweed <i>Galium aparine</i>	S	C	C	C	C	C
Bluegrass, annual <i>Poa annua</i>	S	C	C	C	C	C
Chervil <i>Chaerophyllum tainturieri</i>	S	C	C	C	C	C
Chickweed, common <i>Stellaria media</i>	S	C	C	C	C	C
Clover, crimson <i>Trifolium incarnatum</i>	•	S	S	C	C	C
Clover, large hop <i>Trifolium campestre</i>	•	S	S	C	C	C
Speedwell, corn <i>Veronica arvensis</i>	S	C	C	C	C	C
Fescue, tall <i>Festuca arundinacea</i>	•	•	•	•	S	S
Geranium, Carolina <i>Geranium carolinianum</i>	•	•	S	S	C	C
Henbit <i>Lamium amplexicaule</i>	•	S	C	C	C	C
Ryegrass, Italian <i>Lolium multiflorum</i>	•	•	S	C	C	C
Vetch, common <i>Vicia sativa</i>	•	•	S	C	C	C

<sup>1</sup> These rates apply only to sites where an established competitive turf is present.

### Release Of Actively Growing Bermudagrass

NOTE: Use only on sites where bahiagrass or bermudagrass are desired for ground cover and some temporary injury or yellowing of the grasses can be tolerated.

## Appendix B - Rodeo Label

When applied as directed, this product will aid in the release of bermudagrass by providing control of annual species listed in the "Weeds Controlled" section in this label, and suppression or partial control of certain perennial weeds.

For control or suppression of those annual species listed in this label, use 3/4 to 2 1/4 pints of this product as a broadcast spray in 10 to 25 gallons of spray solution per acre, plus a surfactant such as a non-ionic surfactant containing 80% or greater active ingredient. Use of this product without surfactant will result in reduced herbicide performance. Refer to the "Mixing and Application Instructions" section of this label and the surfactant manufacturer label for more information. Use the lower rate when treating annual weeds below 6 inches in height (or length of runner in annual vines). Use the higher rate as size of plants increases or as they approach flower or seedhead formation.

Use the higher rate for partial control or longer-term suppression of the following perennial species. Use lower rates for shorter-term suppression of growth.

Bahiagrass	Johnsongrass †
Dallisgrass	Trumpet creeper ††
Fescue (tall)	Vaseygrass

† Johnsongrass is controlled at the higher rate.

†† Suppression at the higher rate only.

Use only on well-established bermudagrass. Bermudagrass injury may result from the treatment but regrowth will occur under moist conditions. Repeat applications in the same season are not recommended, since severe injury may result.

### **Bahiagrass Seedhead and Vegetative Suppression**

When applied as directed in the "Noncrop Sites" section in this label, this product will provide significant inhibition of seedhead emergence and will suppress vegetative growth for a period of approximately 45 days with single applications and approximately 120 days with sequential applications.

Apply this product 1 to 2 weeks after full green-up of bahiagrass or after the bahiagrass has been mowed to a uniform height of 3 to 4 inches. Applications must be made prior to seedhead emergence. Apply 5 fluid ounces per acre of this product in 10 to 25 gallons of water per acre, plus a surfactant such as a non-ionic surfactant containing 80% or greater active ingredient. Use of this product without surfactant will result in reduced herbicide performance. Refer to the "Mixing and Application Instructions" section of this label and the surfactant manufacturer label for more information.

Sequential applications of this product plus nonionic surfactant may be made at approximately 45-day intervals to extend the period of seedhead and vegetative growth suppression. For continued vegetative growth suppression, sequential applications must be made prior to seedhead emergence.

Apply no more than 2 sequential applications per year. As a first sequential application, apply 3 fluid ounces of this product per acre plus nonionic surfactant. A second sequential application of 2 to 3 fluid ounces per acre plus nonionic surfactant may be made approximately 45 days after the last application.

### **Annual Grass Growth Suppression**

For growth suppression of some annual grasses, such as annual ryegrass, wild barley and wild oats growing in coarse turf on roadsides or other industrial areas, apply 3 to 4 ounces of this product in 10 to 40 gallons of water per acre plus a surfactant such as a non-ionic surfactant containing 80% or greater active ingredient. Use of this product without surfactant will result in reduced herbicide performance. Refer to the "Mixing and Application Instructions" section of this label and the surfactant manufacturer label for more information. Applications should be made when annual grasses are actively growing and before the seedheads are in the boot stage of development. Treatments made after seedhead emergence may cause injury to the desired grasses.

### **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.

### **Inherent Risks of Use**

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

## Appendix B - Rodeo Label

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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. To the fullest 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 above 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.

\*Trademark of Dow AgroSciences LLC  
Dow AgroSciences LLC • Indianapolis, IN 46268 U.S.A.

Label Code: D02-148-004  
Replaces Label: D02-148-003  
LOES Number: 010-01471

EPA-accepted 07/13/06

#### Revisions:

1. Revised marketing claims to remove pine plantations and add grazed areas on these sites
2. Added/revised surfactant instructions
3. Revised nonionic surfactant instructions to 80% active ingredient
4. Revised use site text under Aquatic and other Noncrop Sites

**MATERIAL SAFETY DATA SHEET**

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

Effective Date: 3/23/04  
 Product Code: 84825  
 MSDS: 006694

**RODEO\* HERBICIDE****1. PRODUCT AND COMPANY IDENTIFICATION:**

**PRODUCT:** Rodeo\* Herbicide

**COMPANY IDENTIFICATION:**

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

**2. COMPOSITION/INFORMATION ON INGREDIENTS:**

Glyphosate IPA: N-(phosphono-methyl) glycine, Isopropylamine Salt	CAS # 038641-94-0	53.8%
Balance, Total		46.2%

**3. HAZARDOUS IDENTIFICATIONS:****EMERGENCY OVERVIEW**

Clear, pale yellow liquid. May cause eye irritation. Slightly toxic to aquatic organisms.

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

**4. FIRST AID:**

**EYE:** Flush eyes thoroughly with water for several minutes. Remove contact lenses after initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

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

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

**INHALATION:** Remove person to fresh air; if effects occur, consult a physician.

**NOTE TO PHYSICIAN:** 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:** >214°F (>101°C)

**METHOD USED:** Setaflash

**FLAMMABLE LIMITS:**

LFL: Not applicable  
 UFL: Not applicable

**EXTINGUISHING MEDIA:** Foam, CO<sub>2</sub>, Dry Chemical

**FIRE AND EXPLOSION HAZARDS:** Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Toxic irritating gases may be formed under fire conditions.

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

**6. ACCIDENTAL RELEASE MEASURES:**

**ACTION TO TAKE FOR SPILLS:** Absorb small spills with an inert absorbent material such as Hazorb, Zorbball, sand, or dirt. Report large spills to Dow AgroSciences on 800-992-5994.

**7. HANDLING AND STORAGE:**

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapors and spray mist. Handle concentrate in ventilated area. Wash thoroughly with soap and water after handling and before eating, chewing gum, using tobacco, using the toilet or smoking. Keep away from food, feedstuffs, and water supplies. Store in original container with the lid tightly closed. Store above 10°F (-12°C) to keep from crystallizing.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION:**

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

**EXPOSURE GUIDELINES:** None established

**ENGINEERING CONTROLS:** Good general ventilation should be sufficient for most conditions. Local exhaust ventilation may be necessary for some operations.

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

**EYE/FACE PROTECTION:** Use safety glasses.

**SKIN PROTECTION:** No precautions other than clean body-covering clothing should be needed.

**MATERIAL SAFETY DATA SHEET**

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

Effective Date: 3/23/04  
Product Code: 84825  
MSDS: 006694

**RODEO\* HERBICIDE**

**RESPIRATORY PROTECTION:** For most conditions, no respiratory protection should be needed; however, if discomfort is experienced, use a NIOSH approved air-purifying respirator.

**APPLICATIONS AND ALL OTHER HANDLERS:** Please refer to the product label for personal protective clothing and equipment.

**9. PHYSICAL AND CHEMICAL PROPERTIES:**

**APPEARANCE:** Clear, pale yellow liquid  
**DENSITY:** 10.0 - 10.5 lbs/gal  
**pH:** 4.8 – 5.0  
**ODOR:** None  
**SOLUBILITY IN WATER:** Miscible  
**SPECIFIC GRAVITY:** 1.21 gm/L  
**FREEZING POINT:** -7°F -- -10°F (-21°C -- -25°C)

**10. STABILITY AND REACTIVITY:**

**STABILITY: (CONDITIONS TO AVOID)** Stable under normal storage conditions.

**INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID)** Galvanized or unlined steel (except stainless steel) containers or spray tanks may produce hydrogen gas which may form a highly combustible gas mixture.

**HAZARDOUS DECOMPOSITION PRODUCTS:** None known.

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

**11. TOXICOLOGICAL INFORMATION:**

**EYE:** May cause slight temporary eye irritation. Corneal injury is unlikely.

**SKIN:** Essentially non-irritating to skin. Prolonged skin contact is unlikely to result in absorption of harmful amounts. The LD<sub>50</sub> for skin absorption in rabbits is >5000 mg/kg. Did not cause allergic skin reactions when tested in guinea pigs.

**INGESTION:** Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. The oral LD<sub>50</sub> for rats is >5000 mg/kg.

**INHALATION:** Brief exposure (minutes) is not likely to cause adverse effects. The aerosol LC<sub>50</sub> for rats is >6.37 mg/L for 4 hours.

**SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:** For a similar material, glyphosate, in animals, effects have been reported on the following organ: liver.

**CANCER INFORMATION:** A similar material, glyphosate, did not cause cancer in laboratory animals.

**TERATOLOGY (BIRTH DEFECTS):** For glyphosate IPA, available data are inadequate for evaluation of potential to cause birth defects.

**REPRODUCTIVE EFFECTS:** For glyphosate IPA, available data are inadequate to determine effects on reproduction.

**MUTAGENICITY:** For a similar material, glyphosate, in-vitro and animal genetic toxicity studies were negative.

**12. ECOLOGICAL INFORMATION:****ENVIRONMENTAL DATA:****ECOTOXICOLOGY:**

Material is practically non-toxic to aquatic organisms on an acute basis (LC<sub>50</sub> or EC<sub>50</sub> is >100 mg/L in most sensitive species tested).

Acute LC<sub>50</sub> for rainbow trout (*Oncorhynchus mykiss*) is >2500 mg/L.

Acute immobilization EC<sub>50</sub> in water flea (*Daphnia magna*) is 918 mg/L.

Material is practically non-toxic to birds on an acute basis (LD<sub>50</sub> is >2000 mg/kg).

Acute oral LD<sub>50</sub> in bobwhite (*Colinus virginianus*) is >2000 mg/kg.

The LC<sub>50</sub> in earthworm *Eisenia foetida* is >1000 mg/kg.

Acute contact LD<sub>50</sub> in honey bee (*Apis mellifera*) is >100 µg/bee.

Acute oral LD<sub>50</sub> in honey bee (*Apis mellifera*) is >100 µg/bee.

Growth inhibition EC<sub>50</sub> in green alga (*Selenastrum capricornutum*) is 127 mg/L.

Growth inhibition EC<sub>50</sub> in duckweed (*Lemna sp.*) is 24.4 mg/L.

**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.

**MATERIAL SAFETY DATA SHEET****RODEO\* HERBICIDE**

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

Effective Date: 3/23/04  
 Product Code: 84825  
 MSDS: 006694

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.

**14. TRANSPORT INFORMATION:****U.S. DEPARTMENT OF TRANSPORTATION (DOT) INFORMATION:**

For all package sizes and modes of transportation:  
 This material is not regulated for transport.

**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:** To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

**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:

Not to have met any hazard category

**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:** This product is not known to contain any substances subject to the disclosure requirements of

New Jersey  
 Pennsylvania

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

**COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND):** To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

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

<u>CATEGORY</u>	<u>RATING</u>
Health	1
Flammability	1
Reactivity	0

**16. OTHER INFORMATION:**

**MSDS STATUS:** Revised Sections: 3,4,11,12,13,14 & 15  
 Reference: DR-0361-8028  
 Replaces MSDS Dated: 1/12/00  
 Document Code: D03-148-002  
 Replaces Document Code: D03-148-001

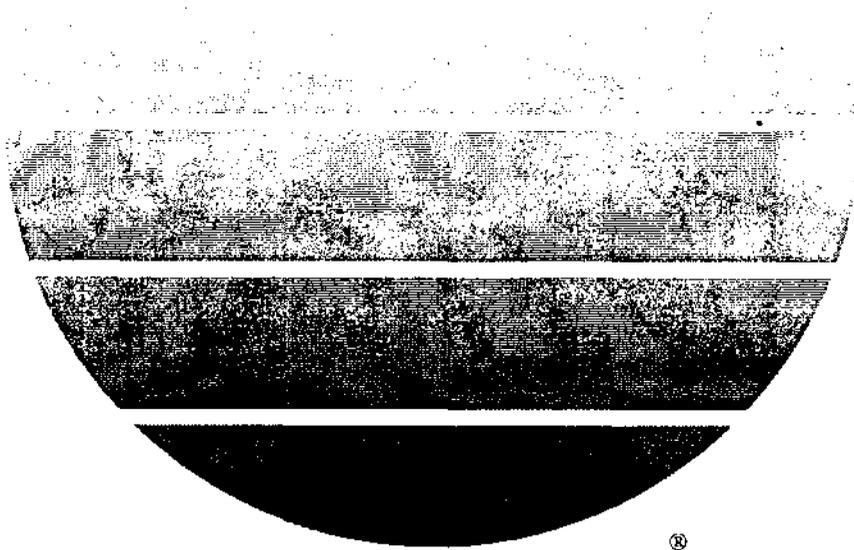
The Information Herein Is Given In Good Faith, But No Warranty, Express Or Implied, Is Made. Consult Dow AgroSciences For Further Information.



# DuPont™ Telar® DF

herbicide

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



# DuPont™ Telar® DF

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## herbicide

**Dry flowable**

<i>Active Ingredient</i>	<i>By Weight</i>
Chlorsulfuron 2-Chloro-N-[(4-methoxy-6-methyl- 1,3,5-triazin-2-yl)aminocarbonyl] benzenesulfonamide	75%
<i>Inert Ingredients</i>	25%
TOTAL	100%

EPA Reg. No. 352-522  
EPA Est. No. \_\_\_\_\_

**KEEP OUT OF REACH OF CHILDREN**  
**CAUTION**

**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!** Harmful if absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling.

**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 disposing of equipment washwaters.

**PESTICIDE HANDLING**

- Calibrate sprayers only with clean water away from the well site.
- Make scheduled checks of spray equipment.
- Assure accurate measurement of pesticides by all operation employees.
- Mix only enough product for the job at hand.
- Avoid over-filling of spray tank.
- Do not discharge excess material on the soil at a single spot in the field/grove or mixing/loading station.
- Dilute and agitate excess solution and apply at labeled rates/uses.
- Avoid storage of pesticides near well sites.
- When triple rinsing the pesticide container, be sure to add the rinsate to the spray mix.

## Appendix B - Telar Label

### 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.

DuPont™ TELAR® DF should be used only in accordance with recommendations on this label or in separate 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.

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

### NON-CROP WEED CONTROL

#### GENERAL INFORMATION

TELAR® DF herbicide is a dry flowable that is mixed in water and applied as a spray to control many annual, biennial, and perennial broadleaf weeds on non-crop, industrial sites such as airports, military installations, fence rows, roadsides and associated rights-of-way, lumberyards, petroleum tank farms, pipeline and utility rights-of-way, pumping installations, railroads, storage areas, plant sites and other similar areas including governmental and private lands.

TELAR® DF is noncorrosive, nonflammable, nonvolatile and does not freeze.

TELAR® DF can be applied as a preemergence or postemergence treatment. For best results, apply TELAR® DF before or during early stages of weed growth. The degree and duration of control may depend on the following:

- use rate
- weed spectrum and size at application
- environmental conditions at and following treatment

#### ***Environmental Conditions and Biological Activity***

TELAR® DF is absorbed by both the roots and foliage of plants, rapidly inhibiting the growth of susceptible weeds. Two to 3 weeks after application to weeds, leaf growth slows, and the growing points turn reddish-purple. Within 4 to 6 weeks of application, leaf veins and leaves become discolored, and the growing points subsequently die.

Warm, moist conditions following treatment enhance the effectiveness of TELAR® DF since moisture carries TELAR® DF into weed roots, preventing roots from developing. Cold, dry conditions delay the activity of TELAR® DF. Weeds hardened off by cold weather or drought stress are less susceptible to TELAR® DF.

### RESISTANCE

Biotypes of certain weeds listed on this label are resistant to TELAR® DF and other herbicides with the same mode of action, even at exaggerated application rates. Biotypes are naturally occurring individuals of a species identical in appearance but with slightly different genetic compositions; the mode of action of a herbicide is the chemical interaction that interrupts a biological process necessary for plant growth and development.

If weed control is unsatisfactory, it may be necessary to respray problem areas using a product with a different mode of action, such as postemergence broadleaf and/or grass herbicides. If resistant weed biotypes such as kochia and Russian thistle are suspected or known to be present, consider using another herbicide treatment or adjust the use rate of the TELAR® DF tank-mix partner to help control these biotypes. Consult your agricultural dealer, consultant, applicator, and/or appropriate state agricultural extension service representative for specific alternative herbicide recommendations available in your area.

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.

### INTEGRATED PEST MANAGEMENT

DuPont recommends the use of Integrated Pest Management (IPM) programs to control pests. This product may be used as part of an Integrated Pest Management (IPM) program which can include biological, cultural, and genetic practices aimed at preventing economic pest damage. Application of this product should be based on IPM principles and practices including 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.

### APPLICATION INFORMATION

#### ***NON-CROP, INDUSTRIAL SITES***

TELAR® DF is recommended for control of many annual, biennial, and perennial broadleaf weeds in non-crop, industrial areas.

#### ***Application Timing***

Apply TELAR® DF as a preemergent or early postemergent spray when weeds are actively germinating or growing.

## Appendix B - Telar Label

### Weeds Controlled

DuPont™ TELAR® DF effectively controls the following weeds when applied at the use rates shown. When applied at lower rates, TELAR® DF provides short term control of weeds listed; when applied at higher rates, weed control is increased.

#### 1/4 to 1/2 oz per acre

Annual sowthistle	Mayweed
Blue mustard	Miners lettuce
Common chickweed	Pineapple-weed
Common speedwell	Prostrate pigweed
Conical catchfly	Redroot pigweed
Fiddleneck (tarweed)	Shepherd's-purse
Field pennycress	Smooth pigweed
Flixweed*	Treacle mustard
Hempnettle	Tumble mustard (Jim Hill)
Henbit	Wild mustard
London rocket	

#### 1/2 to 1 oz per acre

Bouncingbet	Groundsel
Bur beakchervil	Marestail
Buttercup	Musk thistle
Canada thistle*†	Sweet clover*
Common lambsquarters	Tumble mustard
Common sunflower	Turkey mullein*
Common speedwell*	Whitetop (hoary cress)†
Dandelion*	Wild parsnip
Goldenrod	

\* Partial control only.

† Prebloom to bloom and fall rosette are recommended timings.

#### 1 to 3 oz per acre

Annual ryegrass (Lolium spp)*	Dyer's woad
Aster	Flixweed
Bedstraw	Foxtail (Setaria spp)*
Black mustard	Horsetail (Equisetum spp)
Bull thistle	Pepperweed (perennial)
Burclover	Poison-hemlock
Canada thistle	Prostrate knotweed*
Common cinquefoil	Puncturevine
Common mallow	Red clover
Common mullein	Russian knapweed†
Common ragweed*	Scotch thistle
Common tansy	Scouringrush (Equisetum spp)
Common teasel	Tansymustard
Common yarrow	White clover
Corn spurry	Wild carrot
Cow cockle	Wild garlic/wild onion
Curly dock	Yellow starthistle*

\* Partial control only.

† Prebloom to bloom and fall rosette are recommended timings.

### Specific Weed Problems

**Dalmation Toadflax:** Apply 2 to 3 ounces of TELAR® DF per acre as a high volume foliar spray using a minimum of 24 gallons of water per acre. Use of a surfactant, as directed on this label, is recommended.

**Kochia, Russian Thistle, and Prickly Lettuce:** Tank mix TELAR® DF with herbicides with different modes of action and apply postemergence before weeds form mature seed.

### Tank Mixtures

For improved, broad spectrum control, tank mix TELAR® DF with "Karmex" DF herbicide or DuPont™ Krovar® I DF herbicide for preemergence to early postemergence treatments. Tank mix TELAR® DF with dicamba, 2,4-D, or glyphosate for postemergent applications. When tank mixing TELAR® DF, use the most restrictive label limitations for each product used in the mix.

Do not tank mix TELAR® DF with DuPont™ HYVAR® X-L herbicide.

### Grass Replant Intervals

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

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

Species	TELAR® DF Rate oz/acre	Replant Interval (Months)
Brome, Meadow	1/2-1	1
	1-2	2
Brome, Smooth	1/2-1	2
	1-2	4
Fescue, Alta	1/2	2
	1	3
	2	5
Fescue, Sheep	1/2-1	2
	1-2	4
Foxtail, Meadow	1/2	3
	1	4
	2	6
Green Needle	1/2-2	1
Orchardgrass	1/2	2
	1-2	3
Russian Wildrye	1/2-2	1
Swithgrass	1/2-2	3
Timothy	1/2	2
	1	4
	2	6
Wheatgrass, Western	1/2	1
	1	2
	2	4

## Appendix B - Telar Label

For soils having a pH of 7.5 and greater observe the following minimum replant intervals:

Species	DuPont™	
	TELAR® DF Rate oz/acre	Replant Interval (Months)
Alkali Sacaton	1/2	1
	1	3
	2	>3
Bluestern, Big Blue	1/2	3
	1/2	1
Brome, Mountain	1	2
	2	>3
	1/2	1
Gramma, Blue	1	2
	2	>3
	1/2	1
Gramma, Sideoats	1-2	>3
	1-2	>3
Switchgrass	1-2	>3
Wheatgrass, Bluebunch	1 1/3	1
Wheatgrass, Crested	2/3	1
	1 1/3	1
Wheatgrass, Intermediate	1/13	1
Wheatgrass, Slender	1 1/3	1
Wheatgrass, Siberian	1 1/3	1
Wheatgrass, Streambank	1 1/3	1
Wheatgrass, Thickspike	1/2-2	1
Wheatgrass, Western	1/2	1
	1	2
	2	4

The recommended minimum intervals are for applications made in the Spring to early Summer. Because TELAR® DF degradation is slowed by cold or frozen soils, applications made in the late Summer or early Fall should consider the intervals as beginning in the Spring following treatment.

Testing has indicated that there is a considerable variation in response among the species of grasses when seeded onto areas treated with TELAR® DF. If species other than those listed above are to be planted into areas treated with TELAR® DF a field bioassay should be performed, or previous experience may be used to determine the feasibility of replanting treated sites.

### INDUSTRIAL TURF (Unimproved Only)

TELAR® DF is recommended to control weeds on unimproved industrial turf, on roadsides, and on other non-crop sites.

#### Application Timing

Apply TELAR® DF when desirable grasses are well established, as premature treatment may result in top kill and stand reduction. For best results, treat turf at green-up.

### Weeds Controlled

Refer to **Weeds Controlled** section under **NON-CROP** for rates to control various weeds. When applied at lower rates, TELAR® DF provides short term control of weeds listed; when applied at higher rates, weed control is increased.

TELAR® DF may be used on the following grasses when applied at the use rates shown below.

**Note:** The higher rates and/or the addition of surfactant may result in temporary chlorosis of desirable grasses.

#### 1/4 to 1 oz

Bahiagrass	Orchardgrass
Bermudagrass	Wheatgrasses
Blue grama	(crested, intermediate)
Bluegrass	pubescent, slender,
Bromegrasses	streambank, tall, thick
(meadow, smooth)	spike, western)

#### 1/2 oz

Bentgrass	Kleingrass
Bluestems	Lovegrasses
(big, little, plains, sand,	(sand, weeping)
ww spar)	Prairie sandreed
Buffalograss	Sand dropsced
Galleta	Sheep fescue
Green needlegrass	Sideoats grama
Green sprangetop	Switchgrass
Indiangrass	Wildrye grasses
Indian ricegrass	(beardless, Russian)

#### 1/4 to 1/2 oz

Fescue	Smooth brome
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## Appendix B. Telar Label GROWTH SUPPRESSION AND SEEDHEAD INHIBITION

DuPont™ TELAR® DF as a tank mix with other herbicides may be used to suppress grass growth (chemical mowing) and inhibit seedhead formation.

### Application Timing

Apply TELAR® DF to turf at green-up and before seed heads emerge (boot stage). Ensure that desirable grasses are well established at application, as premature treatment may result in top kill and stand reduction.

### Weeds Controlled

Refer to **Weeds Controlled** section under **NON-CROP** for rates to control various weeds. When applied at lower rates, TELAR® DF provides short term control of weeds listed; when applied at higher rates, weed control is increased.

TELAR® DF may be used on the following grasses when applied at the use rates shown below.

#### 1/4 oz TELAR® DF + 1/4 - 1/2 pt "Embark" 2S

Fescue	Bluegrass
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#### 1/2 oz TELAR® DF + 1/2 - 1 pt "Embark" 2S (PNW Only)

Fescue	Smooth brome
Annual bluegrass	Orchardgrass
Perennial ryegrass	Reed canarygrass

### IMPORTANT PRECAUTIONS (Industrial Turf Only)

- Do not use TELAR® DF or TELAR® DF in a tank mix with "Embark" on bahiagrass turf or turf that is under stress from drought, insects, disease, cold temperature, or poor fertility, as injury may result.
- Do not apply TELAR® DF to turf less than 1 year old.
- Grass seed may be planted in treated areas 6 months after treatment, cultivation is recommended.
- For broadcast applications, do not exceed 1/2 oz TELAR® DF per acre within a 12-month period. For those weeds listed under the 1- to 3-oz recommendation in the Non-crop, Industrial Sites section of this label, spot treatment (at that rate) is recommended. Do not make broadcast applications to turf at 1- to 3-oz as this may cause excessive turf injury.

### SPRAY EQUIPMENT

Apply TELAR® DF using ground equipment. Equipment used to apply TELAR® DF should not be used for application to crops following a TELAR® DF application, as even low rates of TELAR® DF can kill or severely injure most crops (except pasture, range, and small grains).

### BROADCAST APPLICATION

Use 10 to 40 GPA when applying TELAR® DF as a broadcast application. Be sure to calibrate sprayers before application. Select a spray volume and delivery system that will ensure thorough coverage and a uniform spray pattern. When spraying industrial turf, avoid overlapping and shut off spray booms while starting, turning, slowing, or stopping to avoid injury to desired species.

### HANDGUN APPLICATION

Use 100 to 300 GPA when applying TELAR® DF as a broadcast application via handgun. Mix 1 oz TELAR® DF per 100 gal of water. Apply up to 300 gal of spray mix per acre.

### INVERT SPRAY APPLICATION

Apply the high viscosity invert solution as a total volume of 10 to 40 gallons per acre. Mix 1/4 to 3 ounces of TELAR® DF per acre in the water phase of the invert solution. Refer to the Weeds Controlled sections of this label for selecting the appropriate use rate for the target weeds. Follow all use directions and cautionary statements appearing on the labels of the inverting oils and additives or listed in the operators manual of the inverting equipment by its manufacturer.

### SPRAY ADJUVANTS

#### Nonionic Surfactants

Always include a nonionic surfactant when making postemergence applications of TELAR® DF (except for use on turf). Apply at a minimum rate (concentration) of 0.25% v/v (1 qt per 100 gal of spray solution) or at the manufacturer's recommended rate based on spray area.

Use only EPA-approved surfactants containing at least 80% active ingredient.

#### Drift Control Agents

To minimize drift, a drift control agent may be added at the manufacturer's recommended rate.

### MIXING INSTRUCTIONS

1. Fill spray tank 1/2 full of water.
2. With the agitator running, add the proper amount of TELAR® DF.
3. If using a companion product, add the recommended amount.
4. For postemergence applications, add the proper amount of spray adjuvants (i.e. surfactants, drift control agents, etc.).
5. Add the remaining water.
6. Agitate the spray tank thoroughly.

Use the spray preparation of TELAR® DF within 24 hours to avoid product degradation. If the spray preparation is left standing, agitate it thoroughly before using.

## Appendix B - Telar Label

### SPRAYER CLEANUP

Thoroughly clean all mixing and spray equipment immediately following applications of DuPont™ TELAR® DF as follows:

1. Drain tank; rinse interior surfaces of tank; then flush tank, boom, and hoses with clean water for a minimum of 5 minutes.
  2. Fill the tank with clean water and add the cleaning solution\*. Flush the boom, hoses, and nozzles with the cleaning solution. Allow them to sit for 15 minutes with agitation running, and then drain the tank.
  3. Repeat Step 2.
  4. Repeat Step 1.
  5. Remove the nozzles and screens and clean separately. To remove traces of cleaning solution, rinse the tank thoroughly with clean water and flush through the hoses and boom.
- \* Use any of the following cleaning solutions:
1. One gal ammonia (containing 3% active) per 100 gal of water.
  2. "Nutra-sol" (carefully read and follow "Nutra-sol" label directions).
  3. Loveland Spray Tank Cleaner (carefully read and follow Loveland Spray Tank Cleaner label directions).
  4. "Tank-Aid" (carefully read and follow "Tank-Aid" label directions).

To reduce the amount of water required in the above procedure, see separate DuPont bulletin, "Reduced Volume Cleanout Procedure for Large Sprayers."

**Note:** This sprayer cleanup procedure is only effective for TELAR® DF and for general uses specified under "Directions for Use". Do not use the sprayer on food crops (except wheat, barley and oats), feed crops (except range land and pasture), fine turf, ornamentals and other desirable plants.

### 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 Surface 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.

#### 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 variable direction and 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 APPLICATIONS DURING GUSTY OR WINDLESS CONDITIONS.**

**Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they effect 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.

#### SURFACE TEMPERATURE INVERSIONS

Drift potential is high during a surface temperature inversion. Surface inversions restrict vertical air mixing, which causes small suspended droplets to remain close to the ground and move laterally in a concentrated cloud. Surface 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 a surface inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

## Appendix B - Telar Label

### PRECAUTIONS

Injury to or loss of desirable trees or other plants may result from the following:

- If equipment is drained or flushed on or near desirable trees or other plants, on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots.
- Treatment of powdery, dry soil and light, sandy soils 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 DuPont™ TELAR® DF may injure or kill most crops (except small grains). Injury may be more severe when crops are irrigated.
- Applications made during periods of intense rainfall, to soils saturated with water, surfaces paved with materials such as asphalt or concrete, or soils through which rainfall will not readily penetrate may result in runoff and movement of TELAR® DF. Do not treat frozen soil. Treated soil should be left undisturbed to reduce the potential for TELAR® DF movement by soil erosion due to wind or water.
- When TELAR® DF is applied at rates of 1 1/3 ounce/a and less there is no restriction on grazing or haying of forage grasses.

Do not use on lawns, walks, driveways, tennis courts, or similar areas.

Do not apply in or on irrigation ditches or canals including their outer banks.

Do not apply through any type of irrigation system.

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

### STORAGE AND DISPOSAL

**STORAGE:** Store product in original container only. Do not contaminate water, other pesticides, fertilizer, food or feed in storage.

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

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

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

The DuPont Oval Logo, DuPont™, TELAR®, HYVAR® and KROVAR® are trademarks or registered trademarks of E. I. duPont de Nemours and Company

"Embark" is a registered trademark of PBI-Gordon Corp.

"Nutra-sol" is a product of Thomas G. Kilfoil Company, Inc. San Bruno, Ca.

"Tank-Aid" is a product of Cornbelt Chemical Company.

"Karmex" is a registered trademark of Griffin I.I.C

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## Appendix B - Telar Label

### 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. 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.

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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## DuPont Crop Protection

## TELAR® DF HERBICIDE DUPONT™ TELAR® DF HERBICIDE PASTURE, RANGE AND CRP

### TELAR® DF HERBICIDE

EPA Reg. No. 352-522

### DUPONT™ TELAR® DF HERBICIDE

EPA Reg. No. 352-522

## WEED CONTROL IN PASTURE, RANGE AND CONSERVATION RESERVE PROGRAM (CRP)

### DIRECTIONS FOR USE

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

DuPont™ TELAR® DF is recommended for the control and suppression of weeds in permanent (non-rotational) pastures, range and CRP lands when applied according to the directions and under the conditions specified on the package label. Best results are obtained when perennial weeds are treated in the bud to bloom stage or the fall rosette. Annual weeds are controlled best when treated early in their growth cycles.

Treatments may be applied by any ground equipment or by fixed wing aircraft or by helicopter.

### APPLICATION RATES AND WEEDS CONTROLLED

The following application rates are recommended for broadcast applications on the respective forage grasses:

#### 1/4 to 1 ounce/acre

Bahiagrass	Orchardgrass**
Bermudagrass	Wheatgrass
Blue grama	(crested, intermediate, thick
Bluegrass	spike, pubescent, slender,
Bromegrasses	streambank, tall, and western)
(smooth, meadow)	

#### 1/4 to 1/2 ounce/acre

Bluestems	Indiangrass
(big, little, sandy)	Kleingrass**
Buffalograss	Lovegrass
Fescue*	Sideoats grama
(tall, Kentucky, hard,	Switchgrass
creeping)	Wildrye
Green needlegrass**	

\*Some types of fescue are sensitive. Use rates at the lower end of the rate range.

\*\*Except California.

Application rates higher than those recommended for specific grasses, up to 1 1/3 oz/acre, may be made as a spot treatment provided the resulting injury and possible loss of forage can be tolerated by the grower. Refer to the following table to select the appropriate rate to control the weeds specified.

### WEEDS CONTROLLED

TELAR® DF effectively controls weeds when applied at the use rates shown. When applied at lower rates, TELAR® DF provides short term control of weeds listed; when applied at the higher recommended rates weed control is increased or extended. Make a single application per season to control the following weeds.

#### 1/4 to 1/2 ounce/a

Annual sowthistle	Mayweed**
Blue mustard	Miners lettuce**
Common chickweed	Pincapple-weed**
Common speedwell	Prostrate pigweed**
Conical catchfly**	Redroot pigweed
Fiddleneck (tarweed)**	Shepherd's-purse**
Field pennycress	Smooth pigweed**
Flixweed*	Treacle mustard**
Hempnettle**	Tumble mustard (Jim Hill)
Henbit	Wild mustard
London rocket**	

\*\*Except California.

#### 1/2 to 1 ounce/a

Bouncingbet	Goldenrod
Bur beakchervil**	Groundsel**
Buttercup	Marestail
Canada thistle**†	Musk thistle
Common lambsquarters	Sweet clover*
Common sunflower	Tumble mustard
Common speedwell*	Turkey mullein*
Dandelion*	Whitclop (hoary cress)†

\* Partial control only.

\*\*Except California.

† Prebloom to bloom and fall rosette are recommended timings.

## Appendix B - Telar Supplemental Information

### I to 1 1/3 ounce/a

Bedstraw*	Horsetail (Equisetum spp)
Black mustard	Pepperweed (perennial)
Bull thistle	Poison hemlock
Burclover	Puncturevine
Canada thistle	Red clover**
Common cinquefoil*	Russian knapweed†
Common mallow	Scotch thistle
Common mullein	Scouringrush (Equisetum spp)
Common tansy	Tansymustard
Common yarrow	White clover
Curly dock	Wild carrot

\*Partial control only

\*\*Except California.

†Precbloom to bloom and fall rosette are recommended timings.

Broadleaf forage species, such as clover and alfalfa, are sensitive to DuPont™ TELAR® DF and will be severely stunted or injured by TELAR® DF.

Forage grasses which are under stress from drought, insects, disease, cold temperature or poor fertility may be injured by TELAR® DF.

Forage grasses should be well established before applying TELAR® DF as the newly emerged seedlings of some forage grasses are sensitive to TELAR® DF.

TELAR® DF applied before the initiation of flowering may cause the abortion or suppression of seedheads by some cool season grasses.

Varieties and species of forage grasses differ in their tolerance to TELAR DF. Ryegrass (perennial and Italian) may be severely injured. Fescues may be temporarily stunted or yellowed. When using TELAR® DF on a particular grass for the first time, limit the area treated. If no injury occurs, larger areas may be treated in subsequent years.

There are no grazing or hay harvest restrictions for any live-stock, including lactating animals, with application rates up to 1 1/3 ounce/acre of TELAR® DF. No enclosure is required for any animals.

Do not apply more than 1 1/3 oz/acre of TELAR® DF per year.

Refer to the package label for information regarding sprayer cleanup.

### 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 Surface 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 AND HEIGHT

- **Boom Length (aircraft)** - The boom length should not exceed 3/4 of the wing length, using shorter booms decreases drift potential. For helicopters use a boom length and position that prevents droplets from entering the rotor vortices.
- **Boom Height (aircraft)** - Application more than 10 ft above the canopy increases the potential for spray drift.
- **Boom Height (ground)** Setting the boom at the lowest height which provides uniform coverage reduces the exposure of droplets to evaporation and wind. 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 variable direction and 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 APPLICATIONS DURING GUSTY OR WINDLESS CONDITIONS.**

**Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they effect spray drift.

## Appendix B - Telar Supplemental Information

### TEMPERATURE AND HUMIDITY

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

### SURFACE TEMPERATURE INVERSIONS

Drift potential is high during a surface temperature inversion. Surface inversions restrict vertical air mixing, which causes small suspended droplets to remain close to the ground and move laterally in a concentrated cloud. Surface 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 a surface 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.

### IMPORTANT

**BEFORE USING THESE PRODUCTS, READ AND FOLLOW ALL APPLICABLE DIRECTIONS, RESTRICTIONS AND PRECAUTIONS ON THE EPA-REGISTERED LABEL.**

This bulletin contains new or supplemental instructions for use of this product which do not appear on the EPA-registered package label. Follow the instructions carefully.

This labeling must be in the possession of the user at the time of pesticide application.

(Replaces H-64408)

R-274 033103 09-11-02



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

"DuPont" "TELAR" DF HERBICIDE - FOR USE IN STATES OTHER THAN CA
M0000385 Revised 13-SEP-2007

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"TELAR" is a registered trademark of DuPont.

"DuPont" is a trademark of DuPont.

Corporate MSDS Number : DU008091

Tradenames and Synonyms

CHLORSULFURON 75XP

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)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Table with 3 columns: Material, CAS Number, %
\*CHLORSULFURON 64902-72-3 75
(2-CHLORO-N-[[4-METHOXY-6-METHYL-1,3,5-TRIAZIN-2-YL)AMINO]CARBONYL]BENZENESULFONAMIDE)
INERT INGREDIENTS 25

\* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

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

## Emergency Overview

CAUTION! Harmful if absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling.

## Potential Health Effects

Based on animal data, Telar DF Herbicide may cause eye irritation with discomfort, tearing, or blurring of vision.

Based on animal data, Telar DF Herbicide may cause skin irritation with discomfort 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 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.

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

IF INGESTED: No specific intervention is indicated, as the product is not likely to be hazardous by ingestion. 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.

-----  
FIRE FIGHTING MEASURES  
-----

## Flammable Properties

The material poses no explosion hazard in granular form.

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

Wear self-contained breathing apparatus. Use water spray. Cool tank/container with water spray.

If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated.

-----  
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.

## Spill Clean Up

Shovel or sweep up.

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

## Handling (Personnel)

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

## (HANDLING AND STORAGE - Continued)

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.

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

## Engineering Controls

Use only with adequate ventilation.

## Personal Protective Equipment

For non-agricultural use.

No PPE is specified; however, avoid contact with skin, eyes, and clothing.

## Exposure Guidelines

## Applicable Exposure Limits

## CHLORSULFURON

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  
-----

## Physical Data

Solubility in Water	: Dispersible
pH	: 4.5 @ 1% suspension
Odor	: None
Form	: Solid
Color	: Tan
Specific Gravity	: 0.69 @ 25C (77F)
Density	: 0.64-0.74 g/mL

-----  
STABILITY AND REACTIVITY  
-----

## Chemical Stability

Stable at normal temperatures and storage conditions.

## Incompatibility with Other Materials

None reasonably foreseeable.

## Polymerization

Polymerization will not occur.

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

## Animal Data

## Telar DF Herbicide

Oral LD50: > 2000 mg/kg in rats  
Skin Absorption LD50: > 5000 mg/kg in rats  
(Slightly toxic)

Telar DF Herbicide is a mild reversible skin irritant, and a very mild eye irritant, and is not a skin sensitizer in animals.

## Chlorsulfuron

Inhalation 4 hour LC50: > 5.5 mg/L in rats  
(Very low toxicity by inhalation)

Toxicity described in animals from the oral administration of a single dose of Chlorsulfuron include lung changes, weakness and other nonspecific effects.

The effects in animals from repeated inhalation exposures to Chlorsulfuron include decreased weight gain, reversible kidney and spleen effects, and bone marrow changes.

Repeated oral dosing caused decreased weight gain, and hematological and clinical chemical changes. Long-term dosing (500 ppm) resulted in decreased body weight gain, and slight hematological changes.

Animal testing indicates that Chlorsulfuron, the active ingredient, did not show reproductive or carcinogenic effects. Developmental toxicity has been observed but only at maternally toxic dose levels.

Chlorsulfuron did not produce genetic damage in bacterial or mammalian cell cultures. It did not produce heritable genetic damage.

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

## # Ecotoxicological Information

## AQUATIC TOXICITY:

## CHLORSULFURON

96 hour LC50 - Sheepshead minnow: &gt; 980 mg/L.

96 hour LC50 - Bluegill sunfish: &gt; 128 ppm.

96 hour LC50 - Rainbow trout: &gt; 122 ppm.

48 hour EC50 - Daphnia magna: &gt; 112 ppm.

## AVIAN TOXICITY:

## CHLORSULFURON

Acute Oral LD50 - Mallard Duck: &gt; 5000 mg/kg.

Acute Oral LD50 - Bobwhite Quail: &gt; 5000 mg/kg &gt; 112 ppm.

-----  
DISPOSAL CONSIDERATIONS  
-----

## Waste Disposal

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

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/provincial, and local regulations.

## ENVIRONMENTAL HAZARDS

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

## Container Disposal

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

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TRANSPORTATION INFORMATION  
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## # Shipping Information

DOT: Not Regulated by 49 CFR (DOT)

IMO/IMDG: Not Regulated by IMO/IMDG

IATA: Not regulated by IATA

ADDITIONAL INFORMATION: Although material is not regulated by the DOT/IMO/IATA, it may be transported as a class 9 (UN

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Material Safety Data Sheet

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## (TRANSPORTATION INFORMATION - Continued)

3077) under special provision SP146 (DOT), 909 (IMDG) or A97 (IATA). The following description would apply using any one of the aforementioned special provisions:

UN 3077, Environmentally Hazardous Substances, solid, n.o.s., (Chlorsulfuron), 9, PG III

-----  
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. 352-522

-----  
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  
Wilmington, DE 19898  
Telephone : 1-888-638-7668

Appendix B - Telar MSDS

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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



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

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Material Safety Data Sheet

Page 1

"DuPont" "TELAR" DF HERBICIDE - CA USE ONLY
M0000445 Revised 13-SEP-2007

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"TELAR" is a registered trademark of DuPont.

"DuPont" is a trademark of DuPont.

Tradenames and Synonyms

CHLORSULFURON 75XP

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)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Table with 3 columns: Material, CAS Number, %
\*CHLORSULFURON 64902-72-3 75
(2-CHLORO-N-[[4-METHOXY-6-METHYL-1,3,5-TRIAZIN-2-YL) AMINO] CARBONYL] BENZENESULFONAMIDE)
INERT INGREDIENTS 25

\* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

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

## # Emergency Overview

CAUTION! Harmful if absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling.

## Potential Health Effects

Based on animal data, Telar DF Herbicide may cause eye irritation with discomfort, tearing, or blurring of vision.

Based on animal data, Telar DF Herbicide may cause skin irritation with discomfort 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 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.

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

IF INGESTED: No specific intervention is indicated, as the product is not likely to be hazardous by ingestion. 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.

-----  
FIRE FIGHTING MEASURES  
-----

## Flammable Properties

The material poses no explosion hazard in granular form.

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

Wear self-contained breathing apparatus. Use water spray. Cool tank/container with water spray.

If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated.

-----  
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.

## Spill Clean Up

Shovel or sweep up.

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

## Handling (Personnel)

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

## (HANDLING AND STORAGE - Continued)

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.

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

## Engineering Controls

Use only with adequate ventilation.

## Personal Protective Equipment

For non-agricultural use.

No PPE is specified; however, avoid contact with skin, eyes, and clothing.

## Exposure Guidelines

## Applicable Exposure Limits

## CHLORSULFURON

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.

-----  
PHYSICAL AND CHEMICAL PROPERTIES  
-----

## Physical Data

Solubility in Water	: Dispersible
pH	: 4.5 @ 1% suspension
Odor	: None
Form	: Solid
Color	: Tan
Specific Gravity	: 0.69 @ 25C (77F)
Density	: 0.64-0.74 g/mL

-----  
STABILITY AND REACTIVITY  
-----

## Chemical Stability

Stable at normal temperatures and storage conditions.

## Incompatibility with Other Materials

None reasonably foreseeable.

## Polymerization

Polymerization will not occur.

-----  
TOXICOLOGICAL INFORMATION  
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## Animal Data

## Telar DF Herbicide

Oral LD50: > 2000 mg/kg in rats  
Skin Absorption LD50: > 5000 mg/kg in rats  
(Slightly toxic)

Telar DF Herbicide is a mild reversible skin irritant, and a very mild eye irritant, and is not a skin sensitizer in animals.

## Chlorsulfuron

Inhalation 4 hour LC50: > 5.5 mg/L in rats  
(Very low toxicity by inhalation)

Toxicity described in animals from the oral administration of a single dose of Chlorsulfuron include lung changes, weakness and other nonspecific effects.

The effects in animals from repeated inhalation exposures to Chlorsulfuron include decreased weight gain, reversible kidney and spleen effects, and bone marrow changes.

Repeated oral dosing caused decreased weight gain, and hematological and clinical chemical changes. Long-term dosing (500 ppm) resulted in decreased body weight gain, and slight hematological changes.

Animal testing indicates that Chlorsulfuron, the active ingredient, did not show reproductive or carcinogenic effects. Developmental toxicity has been observed but only at maternally toxic dose levels.

Chlorsulfuron did not produce genetic damage in bacterial or mammalian cell cultures. It did not produce heritable genetic damage.

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

## # Ecotoxicological Information

## AQUATIC TOXICITY:

## CHLORSULFURON

96 hour LC50 - Sheepshead minnow: &gt; 980 mg/L.

96 hour LC50 - Bluegill sunfish: &gt; 128 ppm.

96 hour LC50 - Rainbow trout: &gt; 122 ppm.

48 hour EC50 - Daphnia magna: &gt; 112 ppm.

## AVIAN TOXICITY:

## CHLORSULFURON

Acute Oral LD50 - Mallard Duck: &gt; 5000 mg/kg.

Acute Oral LD50 - Bobwhite Quail: &gt; 5000 mg/kg &gt; 112 ppm.

-----  
DISPOSAL CONSIDERATIONS  
-----

## # Waste Disposal

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

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

## 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 disposing of equipment washwaters.

## Container Disposal

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

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TRANSPORTATION INFORMATION  
-----

## # Shipping Information

DOT: Not Regulated by 49 CFR (DOT)

IMO/IMDG: Not Regulated by IMO/IMDG

IATA: Not regulated by IATA

ADDITIONAL INFORMATION: Although material is not regulated by the DOT/IMO/IATA, it may be transported as a class 9 (UN 3077) under special provision SP146 (DOT), 909 (IMDG) or A97 (IATA). The following description would apply using any one

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## (TRANSPORTATION INFORMATION - Continued)

of the aforementioned special provisions:

UN 3077, Environmentally hazardous substances, solid,  
n.o.s., (Chlorsulfuron), 9, PG III-----  
REGULATORY INFORMATION  
-----

## U.S. Federal Regulations

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes  
Chronic : No  
Fire : No  
Reactivity : No  
Pressure : NoIn 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. 352-522

## State Regulations (U.S.)

CALIFORNIA PROPOSITION 65:  
THIS PRODUCT CONTAINS CHLORSULFURON, A CHEMICAL KNOWN TO  
THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER  
REPRODUCTIVE HARM.-----  
OTHER INFORMATION  
-----

## NFPA, NPCA-HMIS

NFPA Rating  
Health : 1  
Flammability : 1  
Reactivity : 0NPCA-HMIS Rating  
Health : 1  
Flammability : 1  
Reactivity : 0Personal Protection rating to be supplied by user depending on use  
conditions.

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Material Safety Data Sheet

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(Continued)

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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

# 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

## RESTRICTED USE PESTICIDE

May Injure (Phytotoxic) Susceptible, Non-Target Plants. For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification. Commercial certified applicators must also ensure that all persons involved in these activities are informed of the precautionary statements.



# Tordon<sup>®</sup> 22K

## Specialty Herbicide

®Trademark of Dow AgroSciences LLC

For control of susceptible broadleaf weeds, woody plants and vines on rangeland and permanent grass pastures, fallow cropland, Conservation Reserve Program (CRP) acres, non-crop areas including forest planting sites, industrial manufacturing sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides, railroads, and wildlife openings in forest and non-crop areas

Active Ingredient:	
picloram: 4-amino-3,5,6-trichloropicolinic acid,	
potassium salt .....	24.4%
Inert Ingredients .....	75.6%
Total Ingredients .....	100.0%

Acid Equivalent  
 picloram: 4-amino-3,5,6-trichloropicolinic acid - 21.1% - 2 lb/gal

EPA Reg. No. 62719-6

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

Avoid contact with eyes or clothing. Prolonged or frequent repeated skin contact may cause allergic skin reactions in some individuals.

### Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- 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.

### 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.
- Users should 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.

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 some plants at very low concentrations. Non-target plants may be adversely affected if pesticide is allowed to drift from areas of application. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Do not contaminate water used for irrigation or domestic purposes by cleaning of equipment or disposal of wastes. Do not allow run-off or spray to contaminate wells, irrigation ditches or any body of water used for irrigation or domestic purposes. Do not make application when circumstances favor movement from treatment site.

Picloram is known to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

## Appendix B - Tordon 22K

This chemical can contaminate surface water through spray drift. Under some conditions, picloram may also have a high potential for runoff into surface water (primarily via dissolution in runoff water). These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas over-laying extremely shallow ground water, areas with in-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas over-laying tile drainage systems that drain to surface water.

**Note: Use in Hawaii limited exclusively to Supplemental Labeling. See "General Use Precautions" for details.**

**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 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
- Waterproof gloves
- Shoes plus socks

### Non-Agricultural Use Requirements

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

**Entry Restrictions for Non-WPS Uses:** For applications on rangeland, permanent grass pastures, and non-cropland, do not enter or allow worker entry into treated areas until sprays have dried, unless applicator and other handler PPE is worn.

### Storage and Disposal

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

**Storage:** If this product is exposed to subfreezing temperatures, the active ingredient may crystallize and settle out of solution. Under these conditions the product should be warmed to at least 40°F and agitated well to dissolve any crystallized material prior to use.

**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 (Metal): Do not reuse container.** Triple rinse (or equivalent). Puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

**Container Disposal (Plastic): Do not reuse container.** Triple rinse (or equivalent). Puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**General:** Consult federal, state or local disposal authorities for approved alternative procedures.

### General Information

Use Tordon® 22K herbicide to control noxious, invasive, or other broadleaf weeds and listed woody plants and vines on rangeland and permanent grass pastures, fallow cropland, Conservation Reserve Program (CRP) acres, non-crop areas including forest planting sites, industrial manufacturing sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides, railroads, and wildlife openings in forest and non-crop areas.

**This product is NOT for sale or use in the San Luis Valley of Colorado.**

### Use Precautions and Restrictions

**Use this product only as specified on this label or EPA-accepted Dow AgroSciences supplemental labeling.** Observe any special use and application restrictions and limitations, including method of application and permissible areas of use as promulgated by state or local authorities.

**Use In Hawaii:** In Hawaii, approved uses of Tordon 22K are limited to those described in Supplemental Labeling which may be obtained from your Dow AgroSciences representative or chemical dealer. Refer to this Supplemental Labeling for specific use directions and precautions.

## Appendix B - Tordon 22K

To prevent damage to crops and other desirable plants, read and follow all directions and precautions on this label and container before using.

Do not use this product for impregnation of dry fertilizer, unless otherwise specified in use directions on Dow AgroSciences supplemental labeling.

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

### Grazing Restrictions:

- Meat animals grazing for up to two weeks after treatment should be removed from treated areas three days prior to slaughter.
- Do not graze lactating dairy animals on treated areas within two weeks after treatment.
- When applying more than 0.5 lb a.i. picloram (1 quart of Tordon 22K) per acre, do not cut grass for feed within two weeks after treatment. There are no restrictions for rates below 1 quart per acre.

**Grass Tolerance:** Tordon 22K at rates over 1 quart per acre may suppress certain established grasses, such as bromegrass and blue gramma. However, subsequent grass growth should be improved by release from weed competition.

**Grazing Poisonous Plants:** Herbicide application may increase palatability of certain poisonous plants. Do not graze treated areas until poisonous plants are dry and no longer palatable to livestock.

### Maximum Use Rates:

- **Non-cropland Areas:** Total use of Tordon 22K, including retreatments or spot treatments, must not exceed 1.0 lb a.i. picloram (2 quarts) per acre per annual growing season on rights-of-way and other non-crop areas.
- On forest sites, no more than 1.0 lb a.i. picloram (2 quarts) per acre may be applied within a period of 2 annual growing seasons.
- **Rangeland and Permanent Grass Pastures:** For control of noxious or invasive weeds as defined by federal, state, or local authorities, do not apply more than 1.0 lb active ingredient (2 quarts of Tordon 22K) per acre per annual growing season as a broadcast treatment. Spot treatments may be applied at the equivalent broadcast rate of up to 1.0 lb active ingredient (2 quarts) per acre.

For control of other broadleaf weeds and woody plants, do not apply more than 0.5 lb active ingredient (1 quart of Tordon 22K) per acre per annual growing season. Spot treatments may be applied at an equivalent broadcast rate of up to 1.0 lb active ingredient (2 quarts) per acre per annual growing season, but not more than 50% of an acre may be treated. Repeat treatments may be applied as necessary, but total use must not exceed the maximum amount specified.

- **Fallow Cropland (Not Rotated to Broadleaf Crops):** Do not apply more than 0.25 lb a.i. picloram (1 pint) per acre as a broadcast treatment per annual growing season.
- **Conservation Reserve Program (CRP) for Seeding to Permanent Grasses Only:** Do not broadcast apply more than 0.5 lb active ingredient (1 quart) per acre of Tordon 22K per annual growing season or apply more than 1.0 lb active ingredient (2 quarts) per acre per annual growing season as a spot application. To reduce potential damage to subsequent small grain crops, use the lower rate or discontinue the use of Tordon 22K at least 2 years prior to the

seeding of small grain crops. After CRP, do not plant broadleaf crops in treated acres until an adequately sensitive bioassay (such as planting strips of the intended broadleaf crop in the treated area) shows that no detectable picloram is present in the soil.

### Precautions for Avoiding Injury to Non-target Plants

- Do not apply to areas that may be rotated to any broadleaf crop.
- Do not use manure from animals grazing treated areas or feeding on treated hay on land used for growing broadleaf crops, ornamentals, orchards or other susceptible, desirable plants. Manure may contain enough picloram to cause injury to susceptible plants.
- Do not use grass or hay from treated areas for composting or mulching of susceptible broadleaf plants or crops.
- Do not transfer livestock from treated grazing areas (or feeding of treated hay) onto sensitive broadleaf crop areas without first allowing 7 days of grazing on an untreated grass pasture (or feeding of untreated hay). Otherwise, urine and manure may contain enough picloram to cause injury to sensitive broadleaf plants.
- Do not contaminate water intended for irrigation or domestic purposes. To avoid injury to crops or other desirable plants, do not treat or allow spray drift or run-off to fall onto banks or bottoms of irrigation ditches, either dry or containing water, or other channels that carry water that may be used for irrigation or domestic purposes.
- Do not use on flood or sub-irrigated land (such as pastures/meadows areas irrigated by periodic flooding or a shallow water table).
- Do not rotate to food or feed crops on treated land if they are not registered for use with picloram until an adequately sensitive bioassay or chemical test shows that no detectable picloram is present in the soil.
- Do not spray if the loss of forage legumes, including clover cannot be tolerated. Tordon 22K may injure or kill legumes. New legume seedlings may not grow for several years following application of this herbicide.
- Do not apply to snow or frozen ground. Application during very cold (near freezing) weather is not advisable.
- Tordon 22K should not be applied on residential or commercial lawns or near ornamental trees and shrubs. Untreated trees can occasionally be affected by root uptake of herbicide through movement into the topsoil or by excretion of the product from the roots of nearby treated trees. Do not apply Tordon 22K within the root zone of desirable trees unless such injury can be tolerated.
- Do not move treated soil to areas other than sites for which Tordon 22K is registered for use. Also, do not use treated soil to grow plants for which use of Tordon 22K is not registered until an adequately sensitive bioassay or chemical test shows that no detectable residue of picloram is present in the soil.
- Do not make application when circumstances favor movement from treatment site.
- Do not apply this product through a mist blower.

### Precautions for Avoiding Spray Drift

Do not apply or otherwise permit Tordon 22K or sprays containing Tordon 22K to contact crops or other desirable broadleaf plants, including but not limited to alfalfa, beans, grapes, melons, peas, potatoes, safflower, soybeans, sugar beets, sunflower, tobacco, tomatoes, and other vegetable crops, flowers, fruit plants, ornamentals or shade trees or the soil containing roots of nearby valuable plants.

## Appendix B - Tordon 22K

Avoid spray drift. Exposure to very small quantities of spray or drift, which may not be visible, may cause serious injury to susceptible plants during active growth or dormant periods. To minimize spray drift, use low nozzle pressure; apply as a coarse spray; and use nozzles designed for herbicide application that do not produce a fine droplet spray. To aid in further reducing spray drift, a drift control or deposition aid may be used with this product, especially when water alone is used as the carrier. If a drift control aid is used, follow all use recommendations and precautions on the product label. Do not use a thickening agent with Microfoil or Thru-Valve booms, or other systems that cannot accommodate thick sprays.

**Ground Equipment:** With ground equipment spray drift can be lessened by keeping the spray boom as low as possible; by applying 10 gallons or more of spray per acre; by keeping the operating spray pressures at the manufacturer's recommended minimum pressures for the specific nozzle type used (low pressure nozzles are available from spray equipment manufacturers); by spraying when the wind velocity is low (follow state regulations). Avoid calm conditions which may be conducive to air inversions. Direct sprays no higher than the tops of target vegetation and keep spray pressures low enough to provide coarse spray droplets to minimize drift. A drift control or deposition aid may be used to further reduce the potential for drift.

**Aerial Application:** 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 wingspan or 90% of rotor width.
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 must 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 direction of air flow 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 2-10 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 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).

## Appendix B - Tordon 22K

### Woody Plants and Broadleaf Weeds Controlled

#### Woody Plants and Vines:

acacia, blackbrush	guava	poplar spp.
acacia, catclaw	gums	pine, pinyon
acacia, twisted	haw	plum, java
aspen	hemlock	rabbitbrush, Douglas
blackberry	hickory	rose, Macartney
broom, Scotch	huisache (suppression only)	rose, multiflora
buttonbush	junipers/cedars	sagebrush, fringed
cactus spp.	lantana	salmonberry
camelthorn	locust	sassafras
cedars (Juniper)	maple spp.	sourwood
chaparral spp.	mesquite	spruce
dogwood	oak spp.	sumac
Douglas fir	oak, live	tallowtree, Chinese
fir spp.	oak, poison	trumpet creeper
gorse	persimmon	willows
granjeno	pine	wormwood, absinthe
guajillo		

#### Annual and Perennial Broadleaf Weeds:

bindweed, field (p)	horsenettle, white (p)	ragweed, western (a)
bitterweed (a)	horseweed (a)	ragwort, tansy (b)
bouncingbet (a)	ironweed (p)	Russian thistle (a)
broomweed, annual (a)	knapeed, diffuse (a)	sage Mediterranean (b)
buckwheat, wild (a)	knapeed, meadow (p)	skeletonweed, rush (p)
buffalobur (a)	knapeed, Russian (p)	smartweed (a)
bullnettle (p)	knapeed, spotted (p)	snakeweed, broom (p)
bursage (a)	knapeed, squarrose (p)	sneezeweed, bitter (a)
burroweed (p)	lambquarters (a)	sowthistle, perennial (p)
cactus sp. (p)	larkspur, geyer (p)	spurge, leafy (p)
cactus, cholla (p)	larkspur, plains (p)	St. Johnswort (p)
camphorweed (a)	larkspur, tall (p)	starthistle, Iberian (a)
carrot, wild (b)	lettuce, prickly (a)	starthistle, purple (a)
chicory (a)	licorice, wild (p)	starthistle, yellow (a)
cinquefoil, sulfur (p)	locoweeds (p)	sunflower (a)
clover (p)	loco, woolly (p)	tasajillo (p)
cocklebur (a)	loco, Wooten (garbancillo) (p)	thistles, annual or biennial, including:
coneflower, upright prairie (p)	lupines (p)	thistle, artichoke (b)
croton (a)	marshelder (sumpweed) (a)	thistle, bull (b)
crupina, common (a)	mayweed (a)	thistle, distaff (a)
daisy, ox-eye (p)	milkweed (p)	thistle, Italian (b)
fleabane (a,b)	mullein (b)	thistle, musk (b)
dock, curly (p)	mustard, wild (a)	thistle, plumeless (b)
garbancillo (Wooten loco) (p)	nightshade, silverleaf (p)	thistle, Scotch (b)
goldaster, gray (p)	parsnip, wild (b)	thistles, perennial, including
goldaster, narrowleaf (p)	pennycress (a)	thistle, Canada (p)
goldenrod, common (p)	pigweed (a)	thistle, wavy leaf (p)
goldenweed, Drummond (p)	pricklypear, plains (p)	toadflax, dalmation (p)
groundsel (p)	pricklypear, lindheimer (p)	toadflax, yellow (p)
henbane, black (a,b)	ragweed, bur (a)	yankeeweed (p)
horsenettle, Carolina (p)	ragweed, common (a)	
horsenettle, western (p)	ragweed, lanceleaf (a)	

(a) - annual; (b) - biennial; (p) - perennial

## Appendix B - Tordon 22K

### Non-Cropland Areas

Use Tordon 22K to control susceptible broadleaf weeds and woody plants on non-cropland areas such as roadsides or other rights-of-way, fence rows, and around farm buildings. Up to 2 quarts of Tordon 22K per acre may be applied. **For general non-crop weed and brush control, See the Rangeland and Permanent Grass Pastures section for specific target weed or woody plant species treatment recommendations.** See specific use directions for Forest Site Preparation below.

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

For broadcast applications apply the recommended rate of Tordon 22K 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. Use application systems designed to prevent spray drift to off-target sites. Nozzles or additives that produce larger droplets may require higher spray volumes to provide adequate coverage.

**Southern States (Alabama, Arkansas, Delaware, Georgia, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas and Virginia):** To control susceptible woody plants and broadleaf weeds, apply Tordon 22K at a rate of 2 quarts per acre. To broaden the spectrum of woody plants and broadleaf weeds controlled, apply 2 quarts per acre of Tordon 22K in tank mix combination with 2 to 4 quarts of Garlon 4 herbicide. Where grass control is desired, Tordon 22K, alone or in combination with Garlon 4 herbicide, may be tank mixed with 1 to 4 quarts per acre of Accord or Roundup herbicides, or 8 to 16 fluid ounces per acre of Arsenal Applicator's Concentrate herbicide. Susceptible woody plants, broadleaf weeds and grasses may also be controlled using a tank mix of 2 quarts per acre of Tordon 22K with 3 to 5 quarts per acre of Accord or Roundup herbicides, or 16 to 24 fluid ounces of Arsenal Applicator's Concentrate. When applying tank mixes, follow use directions and precautions on each product label.

**In Western, Northeastern, and North Central and Lake States (States Not Listed Above As Southern States):** To control susceptible woody plants and broadleaf weeds, apply Tordon 22K at a rate of 1 to 2 quarts per acre. To broaden the spectrum of woody plants and broadleaf weeds controlled, apply 1 to 2 quarts per acre of Tordon 22K in tank mix combination with 1.5 to 3 quarts per acre of Garlon 4 herbicide. Where grass control is also desired, Tordon 22K, alone or in tank mix combination with Garlon 4, may be applied with 1 to 3 quarts per acre of Accord or Roundup herbicide, 2 to 4 ounces per acre of Oust, a combination of Accord (or Roundup) plus Oust at the rates listed, or 8 to 16 fluid ounces of Arsenal Applicator's Concentrate. When applying tank mixes, follow the use directions and precautions on each product label.

### Rangeland and Permanent Grass Pastures

Use Tordon 22K on rangeland and permanent grass pastures to control susceptible broadleaf weeds and woody plants including, but not limited to those shown in the following tables. Many annual weeds at the seedling stage can be controlled at the rate of 1 pt per acre. Where a rate range is recommended, choose the higher rate for dense weed infestations, and for more dependable, longer lasting control. Lower rates will perform best when applied under favorable conditions and at the optimum growth stage, but may provide a lower level of control and require retreatment. For best results treat when weeds are small and actively growing in the spring before full bloom, however, certain weeds may also be treated in late summer to fall. Treatments during full bloom or seed stage of some weeds may not provide acceptable control.

**Table 1: Rate Recommendations for Noxious, Invasive, or Other Weed Species Predominant in the Plains and Northern States.**

Weed Species	Broadcast Application (Rate/acre)	Specific Use Directions
<b>Annual and Biennial Weeds:</b>		
bursage (bur ragweed) crupina, common henbane, black horseweed starthistle, Iberian starthistle, purple starthistle, yellow	1-2 pt Tordon 22K	Apply when there is adequate soil moisture and weeds are actively growing.
thistles, including, bull distaff Italian musk plumeless scotch	Fall: 1/2-3/4 pt Tordon 22K  Spring: 1/2-3/4 pt Tordon 22K + 1 lb ae 2,4-D	<b>General:</b> Apply at the rosette stage before bolting in the spring or in the fall prior to soil freeze up. <b>Distaff Thistle:</b> Apply at rosette stage in spring only. <b>Bolted Musk Thistle:</b> Apply before flowering at the rate of 3/4-1 pt of Tordon 22K + 1 lb ae of 2,4-D/acre.
Mullein, common	1 - 1.5 pt Tordon 22K + 1 lb ae 2,4-D	Apply at the rosette stage with surfactant and use at least 30 gallons per acre of water carrier.

## Appendix B - Tordon 22K

**Table 1: Rate Recommendations for Noxious, Invasive, or Other Weed Species Predominant in the Plains and Northern States (Cont.).**

Weed Species	Broadcast Application (Rate/acre)	Specific Use Directions
<b>Perennial Weeds:</b>		
pricklypear, plains	1/2-1 pt Tordon 22K	Apply at peak of flowering. Use of an oil-water emulsion spray mixture may improve control. Lower rate will provide partial control (stand reduction) and high rate more complete control. Treatment response is slow and may continue for 2 years or longer.
sagebrush, fringed	1/2-1 pt Tordon 22K + 1 lb ae 2,4-D ester	Apply after seed stalk elongation and early flowering and throughout the summer if growing conditions are favorable.
cinquefoil, sulfur larkspur, geyer larkspur, plains locoweeds snakeweed, broom	1 pt Tordon 22K	<b>General:</b> Apply when weeds are actively growing. <b>Sulfur cinquefoil:</b> Apply during active growth or fall regrowth. <b>Geyer larkspur:</b> Apply when plant is actively growing between rosette stage and flower bud formation. <b>Locoweeds:</b> Apply from early bud to early bloom stage. See "General Use Precautions" section for note on grazing treated poisonous plants. <b>Broom snakeweed:</b> Apply during active growth between full leaf to early bloom stage.
burweed daisy, ox-eye goldenrod, common knapweed, diffuse knapweed, meadow knapweed, spotted knapweed, squarrose rabbitbrush, Douglas sage, Mediterranean thistle, artichoke thistle, Canada thistle, wavy leaf wormwood, absinth	1-2 pt Tordon 22K	<b>General:</b> Apply during active growth prior to bud stage. Lower rates in rate range may require annual spot treatments. Control with lower rates may be improved by tank mixing with 1.0 lb ae per acre of 2,4-D. <b>Diffuse or spotted knapweed:</b> Optimum time for application is from rosette to mid-bolting stage or when applied to fall regrowth. Under favorable growing conditions, application in summer can be effective if higher application volumes are used. <b>Thistle (Canada and Wavy Leaf):</b> Apply when most basal leaves have emerged, but before bud stage, or apply to regrowth in the fall. Apply rates less than 1 1/2 pt/acre only under favorable conditions and in combination with 1 lb ae/acre of 2,4-D. Retreatment may be required. <b>Absinth wormwood:</b> Apply in spring or early summer when plants are actively growing. <b>Oxeye Daisy:</b> Use 1.5-2 pt/acre with at least 30 gallons per acre of water.
licorice, wild milkweed	2 pt Tordon 22K	<b>Wild Licorice:</b> Apply at bloom stage. <b>Milkweed:</b> Treat during active growth and tank mix recommended rate of Tordon 22K with 1 lb ae/acre 2,4-D and surfactant.
bindweed, field gorse lupines knapweed, Russian ragwort, tansy skeletonweed, rush spurge, leafy St. Johnswort toadflax, dalmation	2-4 pt Tordon 22K	<b>General:</b> Annual retreatment of these species will be required at rates at low end of rate range. Control at low end of rate range may be improved by tank mixing with 1 lb ae/acre 2,4-D. <b>Russian Knapweed:</b> Apply during active growth from bud to mid-flowering, or to fall regrowth. <b>Leafy Spurge:</b> Apply at true flower stage of growth or apply to fall regrowth. Re-apply when level of control falls below 80 percent. <b>Dalmation Toadflax:</b> Apply in the fall or summer when plants are actively growing through full bloom stage of growth.
larkspur, tall sowthistle, perennial toadflax, yellow	4 pt Tordon 22K	<b>General:</b> A retreatment program may be necessary for satisfactory control of these species. <b>Tall Larkspur:</b> For best results apply from 6 inches tall to late bloom stage. For increased control, apply in tank-mix with Ally or Escort herbicide and non-ionic surfactant. <b>See General Use Precautions for note on grazing treated poisonous plants.</b>
<b>Woody Plants:</b>		
juniper	4 qt Tordon 22K per 100 gallons of spray <sup>1</sup>	<sup>1</sup> Apply as a high volume foliar spray / individual plant treatment
redcedar, eastern	Eastern redcedar can be controlled with spot concentrate applications of Tordon 22K in either the spring (April-May) or fall (September-October). For best results, use 3 ml to 4 ml of Tordon 22K (undiluted) per 3 feet of plant height. Application should precede periods of expected rainfall. Apply directly to soil within the dripline and on the upslope side of the tree. Application to trees taller than 15 feet is not recommended. Do not use more than 2 pints of Tordon 22K per acre in any one year.	

## Appendix B - Tordon 22K

**Table 2: Rate Recommendations for Broadleaf Weeds and Woody Species in the Southern U.S. (Alabama, Arkansas, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas and Virginia)**

Tordon 22K can be applied alone or in combination with 2,4-D amine or ester or other products labeled for rangeland and pastures to enhance control of certain species. When Tordon 22K is applied alone, herbicide symptoms will appear more slowly than when tank mixed with 2,4-D

Weed Species	Broadcast Application (Rate/acre)	Specific Use Directions
<b>Annual and Biennial Weeds:</b>		
bitterweed, western broomweed, annual buffalobur bursage (bur ragweed) camphorweed carrot, wild cocklebur croton horseweed lettuce, prickly ragweed, common ragweed, lanceleaf smartweed sneezeweed, bitter sunflower thistle, bull thistle, musk	<b>Early Season</b> 3/4 - 1 1/2 pt Tordon 22K  <b>Mid to Late Season</b> 1-2 pt Tordon 22K	<b>General:</b> Apply when there is adequate soil moisture and weeds are actively growing. <b>Early Season:</b> Recommendations are intended only for very early in the season when weeds are no more than 2 to 3 inches tall. <b>Mid to Late Season:</b> Recommendations are for weeds from 3 inches tall to early flowering. <b>Thistles:</b> Apply the lower rate in the rate range when thistles are in the rosette stage before bolting. When bolting, increase rate and add 2,4-D. <b>Lanceleaf Ragweed:</b> Use the higher rate within the recommended rate range.
<b>Perennial Weeds:</b>		
snakeweed, broom	<b>Fall, Early Winter</b> 1 pt Tordon 22K	<b>Fall and Early Winter:</b> If rainfall is less than average prior to flowering, apply after flowering is complete. If rainfall is average to above average prior to or during flowering, apply during full flower and/or active pollination, before resumption of new top growth.
bullnettle coneflower, upright prairie dock, curly horsenettle, Carolina horsenettle, western horsenettle, white ironweed nightshade, silverleaf ragweed, western yankeeweed	1-2 pt Tordon 22K	<b>General:</b> Apply when there is adequate soil moisture and weeds are actively growing. <b>Nettles and Silverleaf Nightshade:</b> Apply when plants begin to flower in spring. <b>Upright Prairie Coneflower:</b> Apply when plants are 2-6 in. tall, before flowering. <b>Curly Dock:</b> Apply up to bolting <b>Ironweed:</b> Apply up to bud stage. <b>Yankeeweed:</b> Apply when plants are 8 to 10 in. tall.
goldaster, gray goldaster, narrowleaf goldenweed, common goldenweed, Drummond (Isocoma spp.)	1-2 pt Tordon 22K	<b>Gray and Narrowleaf Goldaster:</b> Apply in oil-water emulsion in spring during bud stage (prebloom). Thorough coverage is essential. <b>Goldenweed:</b> Apply in spring (April-June) when there is substantial canopy development as a result of good growing conditions. Add an agricultural surfactant at 0.25%-0.5% or apply in oil-water emulsion. Increase spray volume, 4-5 gpa by air or 15-20 gpa by ground, to ensure thorough coverage.
Poisonous Plants such as groundsel (Senecio spp.) lambert crazyweed loco, woolly loco, Wooton (garbancillo)	1 1/2-2 pt Tordon 22K	<b>General:</b> Apply in fall or winter when there is adequate soil moisture and weeds are actively growing. Herbicide application may increase palatability of poisonous plants. Do not graze treated areas until poisonous plants are dry and no longer palatable to livestock. <b>See General Use Precautions for note on grazing treated poisonous plants.</b> <b>Locoweeds:</b> To improve wetting of locoweeds, use an agricultural surfactant at 0.25%-0.5% or apply in oil-water emulsion.

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**Table 2: Rate Recommendations for Broadleaf Weeds and Woody Species in the Southern U.S. (Alabama, Arkansas, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas and Virginia) (Cont.)**

Cactus	Broadcast Application (Rate/acre)	High Vol. Foliar (Rate/100 gal)	Specific Use Directions
cactus sp. cactus, cholla	--	4 qt Tordon 22K	Apply any time of the year with water and surfactant. Good coverage is essential.
<b>Woody Plants:</b>	<b>Note:</b> Consult local recommendations for specific rates within listed rate ranges.		
huisache (suppression)	2 pt Tordon 22K + 1 pt Remedy	2 qt Tordon 22K + 1 qt Remedy	Fall application is recommended, however, fall applications will not provide satisfactory control of other woody species in the South Texas mixed brush complex. Performance can be erratic.
juniper, including, alligator redberry Utah one-seeded eastern redcedar pinyon pine	--	4qt Tordon 22K	Apply May through July. Complete coverage is essential. Results with ashe juniper may be variable with high volume foliar application.
pricklypear, lindheimer (unburned rangeland)	2 pt Tordon 22K	4 qt Tordon 22K	Application may be made anytime, but optimum time is late August to early November. Onset of herbicidal activity is very slow and may continue for two years or longer. Good coverage is essential.
pricklypear, lindheimer (burned rangeland)	1 pt Tordon 22K	2 qt Tordon 22K	Conduct intense controlled burns from December through March and apply Tordon 22K mid-April through May. Rainfall following burning can also stimulate prolific resprouting of the burned plants. Good coverage is also essential.
Pricklypear, plains	1 1/2 - 2 pt	4 qt	Optimum time for treatment is during flowering. Control may be improved by use of an oil-water emulsion spray mixture. Lower rate will provide partial control (stand reduction) and high rate more complete control. Treatment response is slow and may continue for 2 years or longer.
rose, Macartney rose, multiflora	1 qt Tordon 22K + 2 lb ae 2,4-D	1-2 qt Tordon 22K + 2-4 lb ae 2,4-D	Apply in the spring or fall when conditions are favorable for plant growth. Use an agricultural surfactant (0.5% v/v) or apply as an oil-water emulsion. Ensure thorough and uniform coverage by applying at higher spray volume, 5 or more gpa by air or 20 or more gpa by ground. Avoid treatment less than 9 to 12 months after mowing when plants have a high percentage of new growth. Repeat treatment as necessary.
tallowtree, Chinese	1 qt Tordon22K + 2 lb ae 2,4-D or 1 pt Remedy	2 qt Tordon 22K or 1-2 qt Tordon 22K + 2-4 lb ae 2,4-D or 1 qt Remedy	Apply in the spring or fall, when conditions are favorable for plant growth. Use an agricultural surfactant (0.5% vol/vol) or use an oil-water emulsion and higher spray volumes, 5 gpa or more by air and 20 gpa or more by ground.
South Texas mixed brush, including, acacia, blackbrush acacia, catclaw acacia, twisted granjeno guajillo mesquite prickly pear tasajillo	2 pt Tordon 22K + 2/3 -1 1/3 pt Reclaim or 1 to 2 pt Remedy	2 qt Tordon 22K + 2-3 pt Remedy or 1-2 qt Reclaim	Apply in of oil-water emulsion. Use 4 or more gpa by air or 20 or more gpa by ground. For application timing for mesquite, see comments in section on mesquite control. Tank mixing Tordon 22K with Reclaim will provide improved control of pricklypear and legume species such as mesquite and acacias while tank mixing with Remedy will provide improved control of non-legume species such as granjeno, oaks and hackberry.

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**Table 2: Rate Recommendations for Broadleaf Weeds and Woody Species in the Southern U.S. (Alabama, Arkansas, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas and Virginia) (Cont.)**

Cactus	Broadcast Application (Rate/acre)	High Vol. Foliar (Rate/100 gal)	Specific Use Directions
mesquite	1-2 pt Tordon 22K + 2/3-1 1/3 pt Reclaim or 2 pt Tordon 22K + 1 pt Remedy	1-2 qt Tordon 22K + 1-2 qt Reclaim or 1 1/2-3 pt Remedy	<b>Tordon 22K Alone:</b> Apply as a water spray or oil-water emulsion (see Mixing Instructions) in 4 or more gpa by air or 10 or more gpa by ground. Increase spray volumes with increasing brush density and height to ensure adequate coverage. Where control of pricklypear cactus is desired, use the 2 pint/acre rate of Tordon 22K.

**Tordon 22K in Tank Mix:** Tank mixing with Reclaim will provide control of pricklypear and improved control of legume species such as mesquite and acacias while tank mixing with Remedy will provide improved control of non-legume species such as granjeno, oaks and hackberry. Regrowth mesquite should be at least 4 ft tall prior to treatment. See labels for Reclaim and Remedy for additional treatment recommendations and information on mesquite control. Within rate ranges given for Tordon 22K and tank mix products, consult local recommendations.

**Timing and Factors in Control:** The herbicidal response of mesquite is strongly influenced by environmental conditions as well as foliage condition and stage of growth. For best results, apply when new growth foliage has turned from light to dark green, when the soil temperature has reached 75°F to 83°F at a depth of 12-18 inches, and soil moisture is adequate for plant growth. Application should be made within 45 days after the critical soil temperature at the 12-18 inch depth has been reached or, if Tordon 22K is applied in combination with Reclaim, within 60 days. 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 apply if mesquite exhibits new (light green) growth in response to significant rainfall during the growing season. Soil temperatures at the 12-18 inch depth may vary with soil texture and drainage. Coarse-textured (sandy) soils warm up sooner than fine-textured soils (clay) soils and dry soils warm up more quickly than wet soils.

**Re-application:** Do not reapply in the same growing season. Retreatment will not be effective until woody plants develop sufficient new foliage for interception, uptake, and translocation of the herbicide to plant roots.

### Spot Concentrate Application for Juniper Control

ashe juniper eastern redcedar eastern persimmon	<p><b>General:</b> Apply Tordon 22K undiluted as a spot concentrate application prior to periods of expected rainfall. Apply directly to the soil within the dripline and on the upslope side of the tree. Application to trees taller than 12 feet is not recommended. See directions for "Soil Spot Concentrate" in "Application Methods" section.</p> <p><b>Ashe Juniper:</b> Apply 4 to 6 ml per 3 ft of plant height in the spring (April-May)</p> <p><b>Eastern Redcedar:</b> Apply 3 to 4 ml per 3 ft of plant height in either spring (April-May) or fall (September-October)</p> <p><b>Eastern Persimmon:</b> Apply 2 to 4 ml per inch of stem diameter in spring (March through May)</p>
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### Seeding to Permanent Grasses, Including Conservation Reserve Program (CRP) Acres

#### Newly Seeded Grasses:

Tordon 22K should be applied only after perennial grasses are well established as indicated by development of a good secondary root system and vigorous growth (usually 45 to 60 days after planting). Most perennial grasses show improved tolerance to the post emergence applications at this stage of development. Generally, wheatgrass species are more tolerant to Tordon soil residues.

For best results, apply to actively growing weeds in a spray volume of 2 or more gallons of water per acre by air or 10 or more gallons of water per acre by ground. Refer to the weeds rate chart for information on target weed species and application rates.

**Perennial Broadleaf Weeds:** Apply Tordon 22K to actively growing perennial broadleaf weeds at up to 2 pints per acre after the grass is well established. Risk of grass injury is greatest when using the maximum of 2 pint per acre rate.

**Annual Broadleaf Weeds:** Apply Tordon 22K at 1/2 to 3/4 pint per acre to actively growing susceptible annual broadleaf weeds, (including Russian thistle). Tordon 22K can also be tank mixed with 1/2 to 1 pound ae per acre of 2,4-D where 2,4-D sensitive species are present. Read and follow all directions for use and use precautions on other product labels.

**Weed Control Prior to Seeding Cool Season Perennial Grasses:** Weed control with Tordon 22K fits into grass re-vegetation programs where perennial range or reclamation grass species are to be established in non-cropland, rangeland, permanent grass pastures, or CRP areas. Tordon 22K may be applied in the spring or early summer, depending on the target weed species, and grass seed planted in the fall when conditions are favorable for grass establishment. Alternatively, Tordon 22K may be applied in the fall and grass seed planted in the winter or spring when conditions are favorable for grass establishment.

Apply Tordon 22K at 1 qt/acre or less. Refer to the weeds rate chart for information on target weed species and application rates. When Tordon 22K is applied at 1 qt/acre there may be temporary injury to new plantings of certain perennial grass species, depending on sensitivity. However, temporary grass injury will be more than offset by the benefits to grasses due to decreased weed competition. Germination of annual grass species may be suppressed after treatment.

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To optimize weed control it is suggested the application area be disturbed as little as possible by the seeding operation. After application, the site should be left undisturbed for a minimum of 14 days prior to seedbed preparation or seeding. Potential for injury to sensitive grass species can be decreased by increasing the interval between application and seeding operations.

### Precautions:

- Do not use Tordon 22K if legumes are a desired cover during CRP.
- Conditions that stress grasses, such as drought, will increase potential for injury to the grass at all stages of growth.
- Do not rotate to grain sorghum (milo) if greater than 1 pint per acre of Tordon 22K has been applied. Do not plant grain sorghum within 8 months after application. Do not use this product for sweet sorghum production or on land that will be rotated to sweet sorghum.
- To reduce potential damage to subsequent small grain crops or grain sorghum (milo), use the lower rate or discontinue the use of Tordon 22K at least 2 years prior to the seeding of small grain crops. After CRP, do not plant broadleaf crops in treated acres until an adequately sensitive bioassay shows that no detectable picloram is present in the soil.
- Tordon 22K at rates over 2 pints per acre may suppress certain established grasses such as bromegrass and blue gramma. However, subsequent grass growth should be improved by release from weed competition.

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### Fallow Cropland (Not Rotated to Broadleaf Crops)

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Apply Tordon 22K as a post harvest or fallow treatment in continuous grain or during the fallow period. Tordon 22K may be applied alone or in tank mix combination with 2,4-D or other herbicides registered for this use. Apply in 2 or more gallons of water per acre by air or 5 or more gallons per acre by ground.

### Application Rates

**Annual Weeds:** To control annual weeds such as Russian thistle and wild buckwheat, apply 1/4 to 1/2 pint per acre of Tordon 22K in tank mix combination with 1/2 to 1 lb ae of 2,4-D or other herbicides registered for use on fallow land. Apply when weeds are actively growing.

**Field Bindweed:** Apply 1/2 to 1 pint per acre of Tordon 22K plus 1/2 to 1 lb ae per acre of 2,4-D when bindweed is actively growing. Optimum time for treatment is when plant runners reach 8 to 12 inches. Use 1/2 pint per acre to control light to moderate infestations under good growing conditions or to reduce the potential for crop injury. Use 1 pint per acre for heavy infestations and to start a treatment program for long-term control. Some regrowth will occur the following season and a re-treatment program of 1/2 pint of Tordon 22K plus 1/2 lb ae of 2,4-D for one to two years will provide stand reduction.

**Canada thistle:** Apply 1 pint per acre of Tordon 22K plus 1 lb ae per acre of 2,4-D when the majority of thistle plants are emerged but prior to bud stage.

### Crop Rotation

Use only on land to be planted the following year to grass, barley, oats, wheat, grain sorghum (milo) or fallowed. Do not plant grain sorghum within 8 months after application. Do not use this product for sweet sorghum production or on land that will be rotated to sweet sorghum. Many broadleaf crops are extremely sensitive to soil residues of Tordon 22K. Do not plant sensitive broadleaf crops for 36 months after treatment or until soil residues have declined to a safe level as indicated by an adequately sensitive bioassay using the intended broadleaf crop. A bioassay is recommended following treatment prior to planting any sensitive broadleaf crop.

### Preplant Interval

A preplant interval following application of Tordon 22K prior to planting small grains is recommended to reduce or eliminate potential crop injury and/or yield reduction. The possibility for crop injury or yield reduction to occur depends on application rate, soil organic matter, rainfall, temperature and incidence of cereal diseases. Adequate soil moisture and soil temperature during the preplant interval is important in reducing, but may not eliminate, the risk of crop injury. When considering use of Tordon 22K on fallow land, growers should consider the benefit of weed control against the risk of crop damage and treat only if the risk of injury to small grains can be tolerated. The following preplant intervals are recommended:

For applications up to 1/2 pint per acre, allow a minimum of 45 days of soil temperatures above 40°F between application and planting.

For applications of greater than 1/2 pint and up to 1 pint per acre, allow a minimum of 60 days of soil temperatures above 40°F between application and planting, except in the states of Idaho, North Dakota, Nebraska, Montana, Oregon, South Dakota, Washington and Wyoming, where the minimum preplant interval is 90 days.

### Restrictions:

- Do not apply more than 1 pint per acre as a broadcast treatment per annual growing season.
- **Spot Treatment:** See "Spot Treatment" in "Mixing and Application Methods" section for directions for calibration, spray volume determination and mixing. Spot treatments of Tordon 22K at rates over 1 pint per acre can be made on fallow, non-irrigated cropland if the treated areas comprise less than 10% of the immediate field in any one year. Tordon 22K should not be applied to cropland at rates exceeding 2 quarts per acre. When Tordon 22K is applied at rates above 1 pint per acre, injury to small grains may result for periods up to two years after treatment.

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## Mixing and Application Directions

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### Mixing Instructions

Mix the required amount of Tordon 22K in water and apply as a coarse, low-pressure spray using ground equipment or aircraft. Use enough spray volume to provide uniform coverage of the weeds.

**Use with Surfactants:** Under certain conditions, such as drought or dusty plant surfaces, the addition of a surfactant may improve efficacy. However, if foliar burn occurs too rapidly, translocation of Tordon 22K will be impaired and control of perennial weeds, such as field bindweed, may be reduced.

## Appendix B - Tordon 22K

### Mixing with Water

To prepare the spray, add about half the desired amount of water in the spray tank. Then with agitation, add the recommended amount of Tordon 22K and other registered tank mix herbicides. Finally, with continued agitation, add the rest of the water and additives such as surfactants or drift control and deposition aids.

### Mixing Oil-Water Emulsions (Ground and Aerial Applications)

For aerial application, add oil to the total spray mix at the ratio of 1 part oil to 5 parts water (1:5 ratio). For ground application, add oil to the spray mix at a rate of 5 to 10% of the total mix. **Do not use more than 1 gallon of oil per acre for aerial or ground application.** Use agricultural spray emulsifiers such as Sponto 712 or Triton X-100 according to mixing instructions given below.

### Batch Mixing Instructions

With continuous, vigorous agitation:

1. Add half the amount of water to be used to the spray tank.
2. Add the required amount of water-soluble herbicides such as Tordon 22K, Garlon 3A, Reclaim<sup>®</sup> herbicide or 2,4-D Amine.
3. With continued, vigorous agitation slowly add a premix of oil, emulsifier and oil soluble herbicides such as Garlon 4, Remedy<sup>®</sup> herbicide or a 2,4-D ester as required. **Note:** Do not add water or mixtures containing water to the premix or oil soluble herbicide since a thick "invert" (water in oil) emulsion may be formed that will be difficult to break. An invert emulsion will also form if the premix is added to the mixing tank before the addition of water.
4. Finish filling the spray tank and maintain sufficient agitation to ensure uniformity of the spray mixture during application.

### Invert Emulsions (Non-food Crop Use Only)

Tordon 22K may be applied with Envert 171 Woody Plant Herbicide an approved inverting agent to provide a thick invert water-in-oil spray emulsion designed to minimize spray drift. Consult label directions for Envert 171 or inverting agent for use directions. Invert emulsions may be used only for non-food uses.

Where root-suckering species such as sumac, sassafras, locust and black gum predominate, mix 3 gallons of Envert 171 plus 1 1/2 quarts Tordon 22K with 9 gallons of water for each acre to be sprayed.

Where harder-to-control species such as red maple, elm or oaks are present, mix 5 to 6 gallons of Envert 171 plus 1 to 2 quarts of Tordon 22K with 15 to 18 gallons of water for each acre to be sprayed.

### Mixing With Sprayable Liquid Fertilizer Solutions

Tordon 22K is compatible with most non-pressurized liquid fertilizer solutions; however, a compatibility test (jar test) should be made prior to mixing. Jar tests are particularly important when a new batch of fertilizer or pesticide is used, when water sources change, or when tank mixture ingredients or concentrations are changed. Compatibility may be determined by mixing the spray components in the desired order and proportions in a clear glass jar before large scale mixing of spray components in the spray tank. **Note:** The lower the temperature of the liquid fertilizer, the greater the likelihood mixing problems. Use of a compatibility aid such as Unite or Compex may help obtain and maintain a uniform spray solution during mixing and application. Compatibility is best with straight liquid nitrogen fertilizer solutions. Mixing with N-P-K fertilizer solutions or suspensions is more difficult and should not be attempted without first conducting a successful jar

test. Agitation in the spray tank must be vigorous to be comparable with jar test agitation. For best results, liquid fertilizer rates should not exceed 50% of the total spray volume. Premix Tordon 22K with water and add to the liquid fertilizer/water mixture while agitating contents of the spray tank. Apply the spray the same day it is prepared while maintaining continuous agitation. Rinse spray tank thoroughly after use.

**Note:** Foliar applied liquid fertilizers used as carrier for Tordon 22K can cause yellowing or leaf burn of grass foliage.

### Tank Mixing

Tordon 22K may be applied in tank mix combination with labeled rates of 2,4-D or other products 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.

### 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 products packaged in water soluble packaging, do not tank mix with products containing boron or mix in equipment previously used to apply a product mixture containing boron unless the tank and spray equipment has been adequately cleaned. (See "Sprayer Clean-Out" below.)
- 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.  
**Note:** Undiluted Tordon 22K can be incompatible with certain amine formulations of 2,4-D. This incompatibility can usually be overcome by diluting one or both products with 50% water prior to mixing.
- Always perform a (jar) test to ensure the compatibility of products to be used in tank mixture.

**Tank Mix Compatibility Testing:** A jar test is recommended prior to tank mixing to ensure compatibility of Tordon 22K and other pesticides or carriers. Use a clear glass jar with lid and mix the tank mix ingredients in their relative proportions. The tank mixture is compatible if the materials mix readily when the jar is inverted several times. The mixture should remain stable after standing for 1/2 hour or, if separation occurs, should readily mix if agitated. An incompatible mixture is indicated by separation into distinct layers which do not readily remix when agitated and/or the presence of flakes, precipitates, gels, or heavy oily film on the jar.

**Do not** use spray equipment used to apply Tordon 22K for other applications to land planted to, or to be planted to susceptible crops or desirable sensitive plants, unless it has been determined that all phytotoxic residue of this herbicide has been removed by thorough cleaning of equipment.

Local conditions may affect the use of herbicides. State agricultural experiment stations or extension service weed specialists in many states issue recommendations to fit local conditions. Be sure that use of this product conforms to all applicable regulations.

## Appendix B - Tordon 22K

### Sprayer Clean-Out

To avoid injury to desirable plants, equipment used to apply Tordon 22K herbicide should be thoroughly cleaned before reusing to apply any other chemicals.

1. Rinse and flush application equipment thoroughly after use. Dispose of rinse water in non-cropland area away from water supplies.
2. Rinse a second time, adding 1 quart of household ammonia for every 25 gallons of water. Circulate the solution through the entire system so that all internal surfaces are contacted (15 to 20 minutes). Let the solution stand for several hours, preferably overnight.
3. Flush the solution out the spray tank through the boom.
4. Rinse the system twice with clean water, recirculating and draining each time.
5. Nozzles and screens should be removed and cleaned separately.

### Application Methods

#### Ground or Aerial Broadcast

Use Tordon 22K as a broadcast treatment by ground or by air to control listed broadleaf weeds and woody plants. Apply Tordon 22K as a coarse low-pressure spray at the recommended rates in a spray volume of 2 or more gallons per acre by air or 10 or more gallons per acre by ground. For non-crop applications it is recommended that ground applications of Tordon 22K be made in 15 or more gallons of total spray mixture per acre. For aerial applications, the use of 5 to 20 gallons per acre of spray mixture is recommended.

#### High-Volume Foliar Applications

Spray to thoroughly wet foliage and stems of individual plants. An approved surfactant should be added at the manufacturer's recommended rate. Do not apply more than the maximum application rate of Tordon 22K specified for a given treatment site.

#### Modified High Volume Applications

For modified high volume leaf-stem treatments of woody brush mix 1 to 3 quarts of Tordon 22K in 100 gallons of water. To control a wider range of plant species, mix 1 to 3 quarts of Tordon 22K with 1-3 quarts of Garlon® 4 herbicide or 1 to 4 quarts of Garlon 3A herbicide and dilute to make 100 gallons of spray. Apply after the foliage is well developed and in a manner which thoroughly wets all leaves, stems, and root collars.

The amount of spray mixture applied per acre will vary with plant size and density. It is recommended that the total amount of spray mixture applied per acre is 40 to 60 gallons. **The total use of Tordon 22K must not exceed 2 quarts per acre.**

#### Spot Treatment

Use application rates as suggested in the "Approved Uses" section of this label or recommended by your area weed control specialist. Apply in a total spray volume of 20 to 100 gallons per acre. To prevent misapplication, spot treatments should be applied with a calibrated boom or with hand sprayers according to directions provided below. Do not exceed maximum application rates for Tordon 22K for a given treatment site. On rangeland and permanent grass pastures, spot treatments may be applied at an equivalent broadcast rate of up to 2 quarts per acre per annual growing season, but not more than 50% of an acre may be treated (unless the target weed is a noxious weed which allows higher broadcast use rates). Repeat treatments may be applied as necessary, but total use must not exceed the maximum amount specified.

**Hand-Held Sprayers:** Hand-held or backpack sprayers may be used for spot applications of Tordon 22K if care is taken to apply the spray uniformly and at a rate equivalent to a broadcast application. Application rates in the table are based on an area of 1,000 sq ft. Mix the amount of Tordon 22K (fl oz or ml) corresponding to the desired broadcast rate in 0.5 to 2.5 gallons of water, depending on the spray volume required to treat 1000 sq ft. To calculate the amount of Tordon 22K required for larger areas, multiply the table value (fl oz or ml) by the area to be treated in "thousands" of square feet, e.g., if the area to be treated is 3,500 sq ft, multiply the table value by 3.5 (calc. 3,500 ÷ 1,000 = 3.5). An area of 1000 sq ft is approximately 10.5 X 10.5 yards (strides) in size.

Amount of Tordon 22K per 1,000 sq ft to Equal Specified Broadcast Rate					
1/4 pt/acre	1/3 pt/acre	1/2 pt/acre	2/3 pt/acre	1 pt/acre	1 qt/acre
1/10 fl oz (2.7 ml)	1/8 fl oz (3.6 ml)	1/5 fl oz (5.4 ml)	1/4 fl oz (7.3 ml)	3/8 fl oz (11 ml)	3/4 fl oz (22 ml)

<sup>†</sup> 1 fl oz = 29.6 (30) ml

### Special Application Methods

**Soil Spot Concentrate:** Tordon 22K may be applied undiluted as a spot concentrate application to control ashe juniper, eastern redcedar and eastern persimmon. (See specific use directions for these plant species under the Rangeland and Permanent Grass Pasture section of this label.) Applications should precede periods of expected rainfall. Apply directly to the soil within the dripline and on the upslope side of the tree. Applications to trees taller than 12 feet is not recommended.

#### Broadcast Cut Stubble Treatment

To prevent re-sprouting of susceptible woody species after mowing or hand cutting on non-crop areas and rights-of-way, use Tordon 22K Herbicide at the rate of 2 quarts per acre in 15 or more gallons of a water spray mixture. Best results may be obtained when applications are made before or during periods of active root growth. Applications should not be made when the soil is frozen or covered by snow or standing water. It is recommended that applications be made soon after cutting, before sprouting of woody species has occurred. The "Brown Brush Monitor" is recommended for this type of application.

**Special Ground Sprayer Equipment:** To control annual and perennial weed species using special low-volume, minimum drift equipment, such as the hooded Forage Chemical Mower, apply 1 to 2 pt of Tordon 22K in total volumes ranging from 1 gal to 5 gal per acre in water alone or as an oil-water emulsion at a 1:5 and 1:4 oil-to-water ratio for a 1 gal and 5 gal per acre solutions, respectively.

### 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. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of 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 and Inherent Risks of Use above 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.

\*Trademark of Dow AgroSciences LLC  
Dow AgroSciences LLC • Indianapolis, IN 46268 U.S.A.

Label Code: D02-111-011  
Replaces Label: D02-111-010  
LOES Number: 010-00094

EPA Accepted: 01-25-2005

**Revisions**

Initial printing of revised label for Tordon 22K which combines uses of Tordon K and Tordon 22K into a single label.

# Supplemental Labeling



Dow AgroSciences LLC

9330 Zionsville Road

Indianapolis, IN 46268-1054 USA

RESTRICTED USE PESTICIDE

Tordon\* 22K (EPA Reg. No. 62719-6)

(For Distribution and Use Only in the State of Hawaii)

## Tordon 22K for Control of Certain Troublesome Woody Plants on Rangelands, Permanent Grass Pastures and Non-Cropland Areas

REGISTERED USES OF TORDON 22K FOR THE STATE OF HAWAII  
(SALE AND USE RESTRICTED TO TORDON 22K PERMIT HOLDERS)

### NOTICE:

- This supplemental labeling must be in the possession of the user at the time of application.
- Before using Tordon 22K, read and carefully follow all applicable Use Directions, Use Precautions, Precautionary Statements and Storage and Disposal directions on the label affixed to the product container. Also, Read and carefully follow all Use Precautions in this Supplemental Labeling
- Before buying or using this product, read "**Warranty Limitations and Disclaimer**" on the Tordon 22K label. If terms are not acceptable, return unopened package at once to seller for refund of purchase price paid. Otherwise, use by the buyer or any other user constitutes acceptance of the terms under "**Warranty Limitations and Disclaimer**".
- Do not apply Tordon 22K through any type of irrigation system.
- Before applying, be certain that use of Tordon 22K conforms to all local regulations.

### Directions For Use

Use Tordon\* 22K herbicide to control troublesome woody plants such as lantana, melastoma, guava, Java plum, pamakani, cat's claw, gorse, firebush and hau as well as many other woody plants, broadleaf weeds and vines infesting rangelands and permanent grass pastures and non-cropland area in the state of Hawaii. Treat anytime during the year when the plants are actively growing. Do not apply as a broadcast spray.

**Individual Plant Foliar Treatment:** Mix Tordon 22K at the rate of 2 quarts per 100 gallons of water. Add 2 quarts of surfactant to the spray mixture. Apply as a low pressure (10-30 psi) spray to thoroughly wet target vegetation, including leaves, stems and trunks of woody plants. For preparing smaller amounts of spray mixture, mix 2.5 fluid ounces of Tordon 22K and 2.5 fluid ounces of surfactant per 4 gallons of water and apply as above.

Re-treat in subsequent years as needed.

**Cut Surface Treatments:** For control of firebush, hau, Java plum and guava with trunks of 3 inches in diameter or larger. Use Tordon 22K diluted 1 to 4 in water as directed below.

**Tree Injector Application:** Application should be made by injecting 1 milliliter of the diluted herbicide solution through the bark at intervals of 3 inches between edges of the injection wound. The injections should completely surround the tree trunk at any convenient height.

(Continued on back)

## Appendix B - Tordon 22K Supplemental Information

**Frill or Girdle Application:** Make a single girdle through the bark completely around the tree trunk at a convenient height. Wet the cut surface with the diluted herbicide solution.

### USE PRECAUTIONS

- **Do not graze dairy animals on treated areas** within two weeks after application. **Do not slaughter meat animals** grazing on treated areas until two weeks have elapsed after application.
- **Do not allow spray drift.** Tordon herbicides are highly active. Very small amounts may cause damage to plants if applied during either growth or dormant periods. Do not apply or otherwise permit Tordon 22K or sprays containing it to contact desirable plants such as pineapple, papaya, macadamia, coffee, vegetables, flowers, grapes, fruits trees, ornamentals, tomatoes, potatoes, beans of all types and other valuable broadleaf plants, nor soil containing roots of nearby valuable plants. Apply Tordon 22K only when there is little or no wind or no hazard from spray drift.
- **Do not contaminate water.** To avoid injury to crops or other desirable plants, do not contaminate irrigation ditches or water intended for irrigation or domestic purposes. Do not treat or allow spray drift to fall onto inner banks or bottom of irrigation ditches, either dry or containing water, or other channels that carry water that may be used for irrigation purposes.
- **Do not transfer livestock directly from treated areas onto broadleaf crop areas** without allowing 7 days on untreated grass pastures. Urine may contain enough picloram to cause crop injury.
- **Do not use manure from animals grazing treated areas** on land used for growing broadleaf crops, ornamentals, orchards or other valuable plants. Manure may contain enough picloram to cause crop injury.
- **Do not mix with other Pesticides** unless the pesticide is EPA approved for use on sites for which Tordon 22K use is approved. Use pesticide mixtures only in accordance with University of Hawaii treatment recommendations.
- **Cleaning Spray Equipment.** Carefully follow equipment cleaning instructions on Tordon 22K label.
- **Container Disposal.** Carefully follow container disposal instructions on Tordon 22K label.

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122-42-001N (Reissued 01/01/98 for company name change)  
Approved: 01/14/91  
Replaces M1ASP001.

Revisions: Labeling edited for clarity and reformatted as Supplemental labeling. Use directions are exclusively for use in the state of Hawaii.

# MATERIAL SAFETY DATA SHEET



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

Effective Date: 5/29/02  
Product Code: 87116  
MSDS: 000380

## TORDON\* 22K HERBICIDE

### 1. PRODUCT AND COMPANY IDENTIFICATION:

**PRODUCT:** Tordon\* 22K Herbicide

#### COMPANY IDENTIFICATION:

Dow AgroSciences  
9330 Zionsville Road  
Indianapolis, IN 46268-1189

### 2. COMPOSITION/INFORMATION ON INGREDIENTS:

Picloram: 4-Amino-3,5,6-trichloropicolinic Acid, Potassium salt	CAS # 002545-60-0	24.4%
Inert Ingredients, Total, Including Polyglycol	CAS # 069029-39-6	75.6%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

### 3. HAZARDOUS IDENTIFICATIONS:

#### EMERGENCY OVERVIEW

Hazardous chemical. Dark brown liquid. May cause severe eye irritation. LD<sub>50</sub> for skin absorption in rabbits is >5000 mg/kg. Oral LD<sub>50</sub> for skin absorption in rabbits is >5000 mg/kg. Inhalation LC<sub>50</sub> for rats for 4 hours is >8.11 mg/L. Material is slightly toxic to aquatic organisms and practically non-toxic to birds.

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

**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 eye irritation. Corneal injury is unlikely. Effects likely to heal readily.

**SKIN:** Prolonged or repeated exposure may cause skin irritation, even a burn. Prolonged skin contact is unlikely to result in absorption of harmful amounts. The LD<sub>50</sub> for skin absorption in rabbits is >5000 mg/kg. Has caused allergic skin reactions when tested in guinea pigs. Did not cause allergic skin reactions when tested in humans.

**INGESTION:** Very low toxicity if swallowed. The oral LD<sub>50</sub> for male and female rats is >5000 mg/kg. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

**INHALATION:** No adverse effects are anticipated from single exposure to vapor. The LC<sub>50</sub> for rats for 4 hours is >8.11 mg/L.

**SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:** In animals, effects have been reported on the following organ: liver.

**CANCER INFORMATION:** Did not cause cancer in laboratory animals.

**TERATOLOGY (BIRTH DEFECTS):** Birth defects are unlikely. Even exposures having an adverse effect on the mother should have no effect on the fetus.

**REPRODUCTIVE EFFECTS:** Picloram acid did not interfere with reproduction in laboratory animal studies.

### 4. FIRST AID:

**EYES:** 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:** 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.

**INGESTION:** 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 the poison control center or doctor. Never give anything by mouth to an unconscious person.

**INHALATION:** Move person to fresh air; if effects occur, consult a physician.

**NOTE TO PHYSICIAN:** If burn is present, treat as any thermal burn, after decontamination. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

# MATERIAL SAFETY DATA SHEET



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

Effective Date: 5/29/02  
Product Code: 87116  
MSDS: 000380

## TORDON\* 22K HERBICIDE

### 5. FIRE FIGHTING MEASURES:

**FLASH POINT:** None observed up to 214°F  
**METHOD USED:** TCC

#### FLAMMABLE LIMITS

LFL: Not determined

UFL: Not determined

**EXTINGUISHING MEDIA:** Alcohol foam, CO<sub>2</sub>, dry chemical.

**FIRE & EXPLOSION HAZARDS:** No auto-ignition temperature when tested to 1022°F (550°C). Toxic, irritating vapors may be produced if product is involved in fire.

**FIRE-FIGHTING EQUIPMENT:** Wear positive-pressure, self-contained breathing apparatus and full protective clothing. Do not allow water from fire-fighting to enter water supplies.

### 6. ACCIDENTAL RELEASE MEASURES:

**ACTION TO TAKE FOR SPILLS/LEAKS:** Absorb small spills in and inert material, such as dry sand. In case of large spills, dike area to contain product and report to Dow AgroSciences at 800-992-5994.

### 7. HANDLING AND STORAGE:

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:** Keep out of reach of children. Causes substantial but temporary eye injury. Harmful if inhaled or absorbed through skin. Do not get in eyes or on clothing. Avoid breathing spray mist. Avoid skin contact. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Store in the original container with the lid tightly closed.

### 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):** Picloram: ACGIH TLV is 10 mg/M<sup>3</sup>, A4. OSHA PEL is 5 mg/M<sup>3</sup> respirable. PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs.

Polyglycol: Dow AgroSciences Industrial Hygiene Guide is 2 mg/M<sup>3</sup>.

**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:

**RESPIRATORY PROTECTION:** Atmospheric levels should be maintained below the exposure guidelines. When respiratory protection is required for certain operations, use a NIOSH approved air-purifying 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 faceshield, gloves, boots, apron, or full-body suit will depend on operation.

**EYE PROTECTION:** Use chemical goggles.

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

### 9. PHYSICAL AND CHEMICAL PROPERTIES:

**BOILING POINT:** 212°F (100°C)

**VAPOR PRESSURE:** Approximately 23 mmHg @ 20°C

**VAPOR DENSITY:** Not applicable

**SOLUBILITY IN WATER:** Miscible

**SPECIFIC GRAVITY:** 1.160 (68/68°F, 20°C)

**APPEARANCE:** Dark brown liquid

**ODOR:** Not available

### 10. STABILITY AND REACTIVITY:

**STABILITY: (CONDITIONS TO AVOID)** Stable under normal storage conditions.

**INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID)** None under normal use conditions. Under abnormal conditions avoid oxidizing materials and strong acids. Consult manufacturer for specific cases.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Hydrogen chloride and nitrogen oxides may be produced if product is involved in fire.

\*Trademark of Dow AgroSciences

# MATERIAL SAFETY DATA SHEET



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

Effective Date: 5/29/02  
Product Code: 87116  
MSDS: 000380

## TORDON\* 22K HERBICIDE

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

### 11. TOXICOLOGICAL INFORMATION:

**MUTAGENICITY:** The preponderance of data shows picloram to be non-mutagenic in 'in vitro' (test tube) tests and in animal test systems.

### 12. ECOLOGICAL INFORMATION:

#### ENVIRONMENTAL FATE

**MOVEMENT & PARTITIONING:** Based largely or completely on information for picloram. Bioconcentration potential is low (BCF <100 or Log Pow <3).

**DEGRADATION & PERSISTENCE:** Based largely or completely on information for picloram. Biodegradation under aerobic laboratory conditions is below detectable limits (<2.5%).

**ECOTOXICOLOGY:** Material is slightly toxic to aquatic organisms on an acute basis (LC<sub>50</sub>/EC<sub>50</sub> between 10 and 100 mg/L in most sensitive species).  
Acute LC<sub>50</sub> for rainbow trout (*Oncorhynchus mykiss*) is 26 mg/L.  
Acute LC<sub>50</sub> for zebra fish (*Brachydanio rerio*) is 35.5 mg/L.  
Acute LC<sub>50</sub> for sheepshead minnow (*Cyprinodon variegatus*) is >131 mg/L.  
Acute EC<sub>50</sub> for shell deposition inhibition in eastern oyster (*Crassostrea virginica*) is 18-32 mg/L.  
Acute LC<sub>50</sub> for pink shrimp (*Penaeus duorarum*) is 125 mg/L.  
Material is practically non-toxic to birds on a dietary basis (LC<sub>50</sub> >5000 ppm)  
Growth inhibition EC<sub>50</sub> in duckweed (*Lemna sp.*) is 196.2 mg/L.  
Growth inhibition EC<sub>50</sub> for marine diatom (*Skeletonema costatum*) is 14mg/L.  
Growth inhibition EC<sub>50</sub> for blue-green alga (*Anabaena flos-aquae*) is 590 mg/L.  
Growth inhibition EC<sub>50</sub> for diatom (*Navicula sp.*) is 3.9 mg/L.

### 13. DISPOSAL CONSIDERATIONS:

**DISPOSAL METHOD:** Do not contaminate food, feed, or water by storage or disposal. Wastes are toxic. Improper disposal or excess waste, spray mixture, or rinsate is a violation of federal law. If wastes resulting from the use of this product cannot be disposed of according to label instructions, dispose of these wastes at an approved facility. Contact your state pesticide or environmental control agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

### 14. TRANSPORT INFORMATION:

#### U.S. DOT

This Material is **not regulated** for Transportation.

### 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:** To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

**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

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

**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	2
Flammability	1
Reactivity	1

### 16. OTHER INFORMATION:

**MSDS STATUS:** Revised Sections: 3, 4, 8 & 15  
Reference: DR-0119-8636  
Replaces MSDS Dated: 9/14/01  
Document Code: D03-111-004  
Replaces Document Code: D03-111-003

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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