



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

SEP 9 2003

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

Ms. Laura A. Sears  
BASF Corporation  
Agricultural Products  
26 Davis Dr., P.O. Box 13528  
Research Triangle Park, NC 27709-3528

Dear Ms. Sears:-

Subject: Guardsman Herbicide  
EPA Registration Number 7969-146  
Application Dated August 15, 2003

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act as amended is acceptable, provided you make the following changes before you release the product for shipment.

1. Change the order of the Precautionary statements and First Aid statements to match each other and organize them so that the most severe routes of exposure as demonstrated by toxicity category classification are listed first.
2. Under First Aid Statements, change If Swallowed statements to "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."
3. Change text under "Applicators and other handlers must wear" to  
"Coveralls over long-sleeved shirt and long pants,  
Chemical resistant footwear plus socks,  
Chemical resistant headgear (if overhead exposure)  
A NIOSH approved dust mist filtering respirator with the appropriate N, R, P, or HE filter  
And a Chemical resistant apron (for mixers, loaders, cleaners of equipments or spills)"
4. Under Engineering Controls, add:  
Applicators and mixers and loaders using enclosed cabs or closed loading systems must wear:  
Long-sleeved shirt and long pants  
Chemical resistant gloves and apron  
Shoes plus socks  
and  
be provided and must have immediately available for use in a n emergency, such as a broken package, spill, or equipment breakdown coveralls, chemical resistant footwear, and a NIOSH approved dust mist filtering respirator with the appropriate N, R, P, of HE filter.  
In addition, applicators must have available chemical resistant headgear if overhead exposure.

- take off any PPE that was worn in the treated area before reentering the cab, and
- store all such PPE in a chemical resistant container, such as a plastic bag, to prevent contamination of the inside of the cab.

"Pilots must use an enclosed cockpit in a manner that is consistent with the WPS for Agricultural Pesticides [40 CFR170.240(d)(4)]

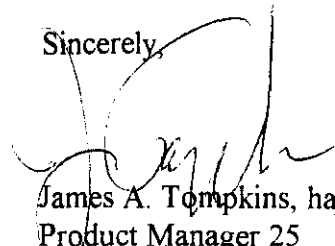
"Flaggers supporting aerial applications must use an enclosed cab that meets the definition of the Worker Protection Standard for Agricultural Pesticides [40 CFR170.240(d)(5)] for dermal protection. In addition, such flaggers must:

- wear the personal protective equipment required for flaggers
- either wear a NIOSH approved dust mist filtering respirator with the appropriate N, R, P or HE filter, or use an enclosed cab that provides inhalation protection equivalent to a dust mist respirator.
- be provided and must have immediately available for use in an emergency when they must exit the cab in the treated area: coveralls, chemical resistant gloves, chemical resistant footwear, and chemical resistant headgear, if overhead exposure.
- take off any PPE that was worn in the treated area before reentering the cab, and
- store all such PPE in a chemical resistant container, such as a plastic bag, to prevent contamination of the inside of the cab.

5. Under Environmental Hazards, change "Tiled-terraced fields containing standpipes" to "Tiled fields containing standpipes"
6. Under Crop Specific Information, Corn (Field, Pop, Seed, and Sweet), Crop-Specific Restrictions and Limitations, change "Corn may be grazed or fed to livestock 40-days or more after applications of Guardsman" to "Corn may be grazed or fed to livestock 60 days or more after application of Guardsman."

Submit three (3) copies of final printed labeling incorporating the above changes before you release the product for shipment. Amended labeling will supercede all previously accepted ones. A stamped copy of labeling is enclosed for your records.

Sincerely,



James A. Tompkins, haj  
Product Manager 25  
Herbicide Branch  
Registration Division (7505C)

**RESTRICTED USE PESTICIDE**  
**DUE TO GROUND AND SURFACE WATER CONCERNS**

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.

This product is a restricted use herbicide due to ground and surface water concerns. Users must read and follow all precautionary statements and instructions for use in order to minimize potential for atrazine to reach ground and surface water.

# BASF

# Guardsman<sup>®</sup>

## herbicide

**For use in corn (field, pop, seed, and sweet) and sorghum (grain)**

**Active Ingredients:**

Dimethenamid* (2-chloro-N-[(1-methyl-2-methoxy)ethyl]-N-(2,4-dimethyl-thien-3-yl)-acetamide).....	24.8%
Atrazine* (2-chloro-4-ethylamino-6-isopropyl-amino-s-triazine).....	28.4%
<b>Inert Ingredients:**</b> .....	<b>46.8%</b>
<b>Total</b> .....	<b>100.0%</b>

\* contains 2.33 pounds of dimethenamid and 2.67 pounds of (atrazine) per gallon  
 \*\* contains petroleum distillates

EPA Reg. Number: 7969-146

EPA Est. Number:

**KEEP OUT OF REACH OF CHILDREN.**  
**WARNING/AVISO**

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 labeling for complete **First Aid, Precautionary Statements, Directions For Use, and Conditions of Sale and Warranty.**

Product of U.S.A.

**Net contents:**

**Shake before using.**

ACCEPTED  
 with COMMENTS  
 in EPA Letter Dated  
 SEP 9 2003  
 Under the Federal Insecticide,  
 Fungicide, and Rodenticide Act  
 as amended, for the pesticide  
 registered under EPA Reg. No.  
7969-146

<b>FIRST AID</b>	
If in eyes	<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>
If swallowed	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give any liquid to the person.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
If on skin or clothing	<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>
If inhaled	<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 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)	
<b>Note to Physician:</b> Contains Petroleum Distillate - vomiting may cause aspiration pneumonia	

### **Precautionary Statements**

#### **Hazards to Humans and Domestic Animals**

**WARNING.** Causes substantial but temporary eye injury. Do not get in eyes or on clothing. Harmful if swallowed, inhaled, or absorbed through the skin. Avoid breathing vapor or spray. Avoid contact with skin. Prolonged or frequent repeated skin contact may cause allergic reactions in some individuals.

#### **Personal Protective Equipment (PPE)**

Some materials that are chemical resistant to this product are listed below. For more options, refer to category **C** on an EPA chemical resistance category selection chart.

#### **Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Chemical-resistant gloves, such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride, or viton 14 mils
- Chemical-resistant footwear plus socks
- Protective eyewear

#### **Mixers and loaders must wear:**

- Long-sleeved shirt and long pants
- Chemical-resistant gloves, such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride, or viton 14 mils
- Chemical-resistant footwear plus socks
- Protective eyewear

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not re-use them. Follow the 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 Statement**

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**

Atrazine is toxic to aquatic invertebrates. 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.

#### **Ground and Surface Water Advisory**

Dimethenamid has properties that may result in groundwater contamination. Application in areas where soils are permeable or coarse and groundwater is near the surface could result in groundwater contamination. Following application and during rainfall events that cause run-off, this chemical may reach surface water bodies including streams, rivers, and reservoirs.

**Guardsman** contains the active ingredient atrazine. Atrazine can leach through soil and has been found to result in contamination of water supplies by way of ground water. Therefore, growers are advised to avoid use of **Guardsman** in well-drained loamy sand to sand soils, particularly in areas having high groundwater tables.

Ground water contamination may be reduced by diking and flooring of permanent liquid bulk storage sites with an impermeable material.

- This product may not be mixed, loaded, or used within 50 feet of all wells including abandoned wells, drainage wells, and sinkholes.
- This product may not be mixed or loaded within 50 feet of intermittent streams and rivers, natural or impounded lakes, and reservoirs.
- This product may not be applied aerially or by ground within 66 feet of the points where field surface water runoff enters perennial or intermittent streams and rivers or within 200 feet around natural or impounded lakes and reservoirs.

- If this product is applied to highly erodible land, the 66-foot buffer or set-back from runoff points must be planted to crop or seeded with grass or other suitable crop.

Care must be taken when using this product to prevent 1) back siphoning into wells, 2) spills, or 3) improper disposal of excess pesticide, spray mixes, or rinsates.

Check valves or anti-siphoning devices must be used on all mixing equipment to prevent back-siphoning into wells or bulk storage tanks. Refer to **Storage and Disposal** regarding proper disposal of excess pesticide, spray mixes, and rinsates.

#### **Tile-terraced Fields Containing Standpipes**

To ensure protection of surface water from run-off through standpipes and tile outlets in terraced fields, one of the following options may be used:

- Do not apply this product within 66 feet of standpipes in tile-outletted terraced fields.
- Apply this product to the entire tile-outletted field and immediately incorporate it to a depth of 2-3" in the entire tile-outletted terraced field.
- Apply this product to the entire tile-outletted field under a no-till practice only when high crop residue management practices are used. High crop residue management practice is described as a crop management practice where little or no crop residue is removed from the field during or after crop harvest.

#### **Endangered Species Concerns**

The use of any pesticide in a manner that may kill or otherwise harm an endangered species or adversely modify their habitat is a violation of federal law.

### **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.

Unless otherwise directed in supplemental labeling, all applicable directions, restrictions, precautions and **Conditions of Sale and Warranty** are to be followed. This labeling must be in the user's p

### **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**.

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

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, butyl rubber, nitrile rubber, neoprene rubber, PVC, or viton 14 mils
- Chemical-resistant footwear plus socks
- Protective eyewear

### **Storage and Disposal**

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

**Pesticide Storage:** Do not use or store near heat or open flame. Store in original container in a well-ventilated area separately from fertilizer, feed, and foodstuffs. Avoid cross-contamination with other pesticides. Groundwater contamination may be reduced by diking and flooring of permanent liquid bulk storage sites with an impermeable material.

**Pesticide Disposal:** Wastes resulting from this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide, spray mix, or rinsate is a violation of federal law. If these wastes cannot be disposed of according to label instructions, contact the state agency responsible for pesticide regulation or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

### **Container Disposal:**

- **Plastic or Metal Containers:** Triple rinse (or equivalent) and add rinsate to spray tank. 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.
- **Bulk/Mini-bulk Containers:** Reusable containers should be returned to the point of purchase for cleaning and refilling because the container must be thoroughly cleaned before refilling.

### **In Case of Spill**

In case of large-scale spillage regarding this product, call:

CHEMTREC 800-424-9300  
BASF Corporation 800-832-HELP

**Steps to be taken in case material is released or spilled:**

Dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal. Remove contaminated clothing, and wash affected skin areas with soap and water. Wash clothing before re-use. Keep the spill out of all sewers and open bodies of water.

**Table 1. Weeds Controlled**

Some weed species may have triazine-resistant biotypes that will not be controlled adequately by this product. If resistant biotypes are suspected, use an alternate program or use non-triazine products such as **Clarity**® herbicide in combination or sequentially with **Guardsman**® herbicide.

<b>Annual Grasses</b>	<b>Annual Broadleaves</b>
Barnyardgrass	Amaranth, Palmer
Crabgrass, large	Buckwheat, wild
, smooth	Carpetweed
Cupgrass, southwestern	Cocklebur <sup>2</sup>
, woolly <sup>1</sup>	Eclipta <sup>1</sup>
Foxtail, giant	Jimsonweed
, green	Kochia
, yellow	Lambsquarters, common
Goosegrass	Morningglory, annual
Johnsongrass (seedling) <sup>2</sup>	Mustards
Millet, wild proso <sup>1</sup>	Nightshade <sup>2</sup> , black
Oats, wild	, eastern black
Panicum, fall	, hairy
, Texas <sup>1</sup>	Pigweed, prostrate
Red Rice	, redroot
Sandbur <sup>1</sup>	, smooth
Shattercane <sup>1</sup>	, tumble
Signalgrass, broadleaf <sup>1</sup>	Purslane, common
Witchgrass	Pusley, Florida
<b>Sedge</b>	Ragweed, common
Flatsedge, rice	, giant <sup>2</sup>
Nutsedge, yellow <sup>2</sup>	Smartweed
	Spurge, nodding
	, spotted
	Velvetleaf <sup>2</sup>
	Waterhemp, Common
	, Tall

<sup>1</sup> partial control or suppression. To complement control, **Guardsman** should be used in tank mixes or sequential applications with other herbicides that provide additional control of these weed species.  
<sup>2</sup> For best control of these species, use the highest rate recommended by soil type. If dry conditions exist near application or excessive rainfall occurs early in season, a postemergence herbicide or cultivation may be required to help control these weeds.

**I. General Information**

**Guardsman**® herbicide is a selective pre-emergence herbicide for controlling most annual grasses, many annual broadleaf weeds, and sedges in field corn, seed corn, sweet corn, popcorn and grain sorghum (refer to **Table 1. Weeds Controlled**).

**Mode of Action**

**Guardsman** contains two active ingredients: dimethenamid, a root and shoot growth inhibitor, and atrazine, a photosynthetic inhibitor. **Guardsman** typically controls weeds before or soon after they emerge from the soil.

**Herbicide Resistance**

Naturally occurring biotypes of certain pests with resistance to the atrazine component in **Guardsman** are known to exist. Selection of resistant biotypes, through repeated use of atrazine or related triazine herbicides (same mode of action), may result in

control failures. If poor performance cannot be attributed to adverse weather conditions or improper application methods, a resistant biotype may be present. In such a case, additional treatments with this herbicide or related products is not recommended. Consult your local representative or agricultural advisor for assistance.

**Cleaning Spray Equipment**

Clean application equipment thoroughly by using a strong detergent or commercial sprayer cleaner according to the manufacturer's directions and then triple rinsing the equipment before and after applying this product.

**II. Application Instructions**

**Guardsman** may be applied preplant surface, preplant incorporated, pre-emergence or may be applied early postemergence to corn or grain sorghum. **Guardsman** will provide most effective weed control when applied (by ground or aerial equipment), and subsequently incorporated into soil by rainfall, sprinkler irrigation, or mechanical tillage prior to weed seedling emergence from soil. **Guardsman** may be applied using either water or fluid fertilizer as the spray carrier, or impregnated onto and applied with dry bulk fertilizer. Sprayable fluid fertilizer as a carrier is not recommended for use after crop emergence. Refer to section III. **Additives** for more information.

**Application Rate**

Recommended use rates for **Guardsman** when used alone, in tank mix, or sequential applications are given in **Table 2** (refer to section IV. **General Tank Mixing Information** and section VI. **Crop-Specific Information** for more details). Recommended use rates of this product vary by soil type. The most accurate indicator of appropriate use rate for **Guardsman** is the Cation Exchange Capacity (CEC) of the soil to be treated. CEC values are available in standard soil testing procedures. If CEC values are not available, the recommended use rate of **Guardsman** may be determined using soil texture and organic matter. Soil texture groupings used in this label are coarse (sand, loamy sand, sandy loam), medium (silt, silt loam, loam, sandy clay loam), and fine (sandy clay, silty clay, silty clay loam, clay loam, and clay).

To determine **Guardsman** use rates by either soil CEC values or by soil texture and organic matter, refer to **Table 2**. When use rates are expressed in ranges, use the lower rates for lower CEC values and use the higher rates for higher CEC values. If soil texture and organic matter content are used to determine use rates, use the lower rates for more coarsely textured soils low in organic matter and use the higher rates for more finely textured soils that are high in organic matter. Reduced rates may be used where partial control or reduced length of soil residual control is required (refer to **Table 2**).

**Application Timing**

**Preplant Surface Applications:** For use in minimum tillage or no-tillage production systems, apply **Guardsman** alone or in tank mixes up to 45 days before planting. When making early preplant applications (15-45 days prior to planting), use the highest rate recommended for the specific soil type. Early preplant applications are not recommended for use on coarse-textured soils or in areas where average annual rainfall (or rainfall + irrigation) typically

**Table 2. Guardsman® herbicide Application Rates Per Acre<sup>1,2</sup>**

As Determined By Cation Exchange Capacity (CEC) of the Soil		
Cation Exchange Capacity (CEC) of Soil	Guardsman Use Rate Per Acre	
< 5	3-3.5 pints	
5-9	3.5-4 pints	
10-14	4-4.5 pints	
15-20	4.5-5 pints	
> 20*	4.75-5 pints	

As Determined By Soil Texture and Organic Matter Content		
Soil Texture	Organic Matter Content	
	Less than 3%	3% or more <sup>3</sup>
Coarse	3-3.5 pints	3.5-4.5 pints
Medium	3.5-4.5 pints	4.5-5 pints
Fine	4.5-5 pints	4.75-5 pints

<sup>1</sup> The rates listed are intended for full season control of targeted weeds. Reduced rates (2-3.5 pints of Guardsman per acre) may be used where partial control or reduced length of soil residual control is required, such as postemergence applications, or pre-emergence applications where cultivation or sequentially applied herbicides will be used for added control of the same targeted weed species. Use 2-2.5, 2.5-3, and 3-3.5 pints of Guardsman per acre on coarse, medium, and fine soil respectively.

<sup>2</sup> For all early preplant applications, use 4.75-5 pints of Guardsman per acre. Do not exceed 4.75 pints per acre on highly erodible soils with less than 30% plant residue cover prior to crop emergence.

<sup>3</sup> On all soils with 8-20% organic matter, use 4.75-5 pints of Guardsman per acre. Guardsman is not recommended for use on soils with more than 20% organic matter.

exceeds 40". Early preplant applications may be applied as part of a split application program where the second application is made after planting (use 2/3 of Guardsman® herbicide rate early followed by 1/3 of rate after planting). A split application is recommended when the initial application is made more than 30 days prior to planting. Tank mixes with postemergence herbicides such as **Acquire™**, **Clarity®**, **Gramoxone® Extra**, **Roundup Ultra®**, or **Touchdown®** must be used when weeds are more than 1.5" tall at the time of application.

**Preplant Incorporated Applications:** Apply Guardsman and incorporate into the upper (1-2") soil surface up to 2 weeks before planting. Use a harrow, rolling cultivator, finishing disk, or other implement capable of giving uniform shallow incorporation. Avoid deeper incorporation or reduced weed control may result.

**Pre-emergence Surface Applications:** Broadcast treatment uniformly to the soil surface after planting and before crop emergence. Rainfall, sprinkler irrigation, or shallow mechanical incorporation after application is required to move this product into the upper soil surface where weed seeds germinate. If adequate rainfall or irrigation does not occur and weed seedling emergence begins, a shallow cultivation or rotary hoeing will improve performance.

**Early Postemergence Applications:** Guardsman may be applied early postemergence to corn or sorghum up to 12" tall. Apply Guardsman before weeds are greater than 1.5" tall or in a tank mix with

products that control emerged weeds.

**Split Applications:** Guardsman may be used in split application programs where applications are made as part of the methods described above. If applications are less than 2 weeks apart, the total Guardsman rate used must not exceed the maximum rate given for each specific soil type. If applications are 2 weeks or more apart, a total Guardsman use rate of up to 5 pints per acre per year may be used on any soil type.

**Managing Off-target Movement**

**Spray Drift:** High or gusty winds, high temperatures, low humidity, and temperature inversions increase the likelihood of spray drift from intended targets. Do not apply when these conditions exist. To minimize spray drift:

- Make application when conditions are favorable for even spray deposition (approximately 3-10 mph) on the soil surface. Do not apply when wind or wind gusts exceed 15 mph.
- Use low pressure, properly calibrated, application equipment as possible to produce large spray droplets and sufficient spray volume to ensure uniform application. Do not use nozzles producing a mist droplet spray.
- Keep ground driven spray boom as low as possible above the target surface.

**Wind erosion of treated soil:** 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**

**Water Volume:** Use 2 or more gallons of water per acre. The actual minimum spray volume per acre is determined by the spray equipment used. Adequate spray volume must be used to provide accurate and uniform distribution of spray particles over the treated area and to avoid drift of spray particles to nontarget areas.

**Application Equipment:** Use nozzle screens no finer than 50 mesh. The applicator 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 (Banding)**

When applying Guardsman by banding, determine the amount of herbicide and water volume needed using the following formula:

$$\frac{\text{Bandwidth in inches}}{\text{Row width in inches}} \times \frac{\text{Broadcast rate}}{\text{per acre}} = \frac{\text{Banding herbicide}}{\text{rate per acre}}$$

$$\frac{\text{Bandwidth in inches}}{\text{Row width in inches}} \times \frac{\text{Broadcast volume per acre}}{\text{per acre}} = \frac{\text{Banding water}}{\text{volume per acre}}$$

**Ground Application Methods and Equipment (Broadcast)**

**Water Volume:** Use 2 or more gallons of water per acre. The actual minimum spray volume per acre is determined by the spray equipment used. Adequate spray volume must be used to provide accurate and uniform distribution of spray particles over the treated area and to avoid drift of spray particles to nontarget areas.

**Application Equipment:** Use nozzle screens no finer than 50 mesh.

**Ground Application (Dry Bulk Fertilizer)**

**Guardsman**® herbicide may be impregnated or coated onto dry bulk granular fertilizer carriers for preplant surface, preplant incorporated, or pre-emergence applications. Impregnation or coating may be conducted by either the in-plant bulk system or the on-board system. **Guardsman** may also be applied in herbicide tank mixes where the tank mix companion product is also registered for these application systems. Individuals or agents selling **Guardsman** in these application systems are responsible for following all state and local regulations regarding fertilizer and herbicide blending. The addition of a drying agent may be necessary if the fertilizer and herbicide blend is too wet for uniform application due to high humidity, high urea concentration, or low fertilizer use rate. Slowly add the drying agent to the blend until a flowable mixture is obtained. Drying agents are not recommended for use with on-board impregnation systems. Under some conditions, fertilizer impregnated with **Guardsman** may clog air tubes or deflector plates on pneumatic application systems. Mineral oil may be added to **Guardsman** before blending with fertilizer to reduce plugging. Do not use drying agents when mineral oil is used. To avoid separation of **Guardsman** and mineral oil mixes in cold temperatures, either keep mixture heated or agitated prior to blending with fertilizer. Mineral oil may be used at in-plant blending stations or on-board injection systems.

Apply 200-750 pounds of fertilizer and herbicide blend per acre. Application must be made uniformly to the soil to prevent possible crop injury and offer satisfactory weed control. Impregnated fertilizer spread at half rate and overlapped to obtain a full rate will offer a more uniform distribution. A shallow (1-2") incorporation is desirable for improved weed control. Deeper incorporation may result in unsatisfactory weed control.

**Formula to determine the herbicide rate when using dry bulk fertilizer applications:**

$$\frac{\text{Pints or pounds of herbicide per acre}}{\text{pounds of fertilizer per acre}} \times 2,000 = \frac{\text{Pints or pounds of herbicide per ton of fertilizer}}{\text{ton of fertilizer}}$$

**Incompatible Mixtures**

Do not impregnate **Guardsman** or **Guardsman** mixes on ammonium nitrate, potassium nitrate, or sodium nitrate fertilizers or fertilizer blends. Single superphosphate (0-20-0) and triple superphosphate (0-46-0) may be impregnated only with **Guardsman** alone.

**III. Additives**

Spray adjuvants have little or no influence on performance of **Guardsman** when applications are made prior to weed emergence. To improve burndown of emerged weeds, surfactants or low-rate fertilizer (28%, 30%, or 32% UAN or ammonium sulfate), or crop oil concentrate may be used with **Guardsman** alone or in tank mixes applied preplant, pre-emergence, or early postemergence to the crop. Consult your local BASF representative for recommendations for your area.

**Nitrogen Source**

- **Urea ammonium nitrate (UAN):** Use 2-4 quarts of UAN (commonly referred to as 28%, 30%, or 32% nitrogen solution) per acre. Do not use brass or aluminum nozzles when spraying UAN.
- **Ammonium sulfate (AMS):** AMS at 2.5 pounds per acre may be substituted for UAN. Use high-quality AMS (spray grade) to avoid plugging of nozzles. Other sources of nitrogen are not as effective as those mentioned. BASF does not recommend applying AMS if applied in less than 10 gallons per acre because of potential problems with precipitation in reduced volumes. Use AMS only if it has been demonstrated to be successful in local experience.

**Nonionic Surfactant**

The standard label recommendation is 1 pint of an 80% active nonionic spray surfactant per 100 gallons of water.

**Oil Concentrate**

Crop oil concentrates are allowed after crop emergence only when **Guardsman** is used alone or in tank mixes with atrazine. See the manufacturer's label for specific rate recommendations. A crop oil concentrate must contain either a petroleum or vegetable oil base and must meet all of the following criteria:

- be nonphytotoxic,
- contain only EPA-exempt ingredients,
- provide good mixing quality in the jar test, and
- be successful in local experience.

The exact composition of suitable products will vary; however, vegetable and petroleum oil concentrates should contain emulsifiers to provide good mixing quality. Highly refined vegetable oils have proven more satisfactory than unrefined vegetable oils. For additional information, see **Compatibility Test for Mix Components**.

**Table 3. Additive Rate Per Acre**

Additive	Rate Per Acre
Nonionic Surfactant	1-2 pints per 100 gallons
AMS	2.5 pounds
UAN Solution	2-4 quarts
Crop Oil Concentrate	1 quart*

\*see manufacturer's label for specific rate recommendations.



## IV. General Tank Mixing Information

**Guardsman® herbicide** may be tank mixed or applied sequentially with one or more of the following herbicide products according to the specific tank mixing instructions in this label and respective product labels. Refer to section **VI. Crop-Specific Information** to determine which tank mix products can be applied to specific crops. Read and follow the applicable **Restrictions and Limitations** and **Directions For Use** on all products involved in tank mixing. The most restrictive labeling applies to tank mixes.

### Tank Mix Partners/Components

The following products may be tank mixed with **Guardsman** according to the specific tank mixing instructions in this label and respective product labels.

- **Accent®** (nicosulfuron)
- **Accent Gold®** (nicosulfuron + rimsulfuron + flumetsulam + clopyralid)
- **Acquire™** (glyphosate)
- **Atrazine**
- **Balance™** (isoxaflutole)
- **Banvel®** (dicamba)
- **Basagran®** (bentazon)
- **Basis Gold®** (nicosulfuron + rimsulfuron + atrazine)
- **Beacon®** (primisulfuron)
- **Bladex®** (cyanazine)
- **Celebrity®** (dicamba + nicosulfuron)
- **Clarity®** (dicamba)
- **Cyclone®** (paraquat)
- **Eradicane®** (EPTC)
- **Fallow Master®** (glyphosate + dicamba)
- **Frontier®** (dimethenamid)
- **Gramoxone® Extra** (paraquat)
- **Homet™** (flumetsulam + clopyralid)
- **Laddok® S-12** (bentazon + atrazine)
- **Landmaster®** (glyphosate + 2,4-D)
- **Liberty®** (glufosinate)
- **Lightning®** (imazethapyr + imazapyr)
- **Marksman®** (dicamba + atrazine)
- **Paramount®** (quinclorac)
- **Peak®** (proflurofen)
- **Permit®** (halosulfuron)
- **Princep®** (simazine)
- **Prowl®** (pendimethalin)
- **Pursuit®** (imazethapyr)
- **Python®** (flumetsulam)
- **Ready Master™ ATZ** (glyphosate + atrazine)
- **Roundup Ultra® RT** (glyphosate)
- **Roundup Ultra®** (glyphosate)
- **Sutan® +** (butylate)
- **Touchdown®** (sulfosate)
- **2,4-D**
- **Weedmaster®** (dicamba + 2,4-D)

Physical incompatibility, reduced weed control, or crop injury may result from mixing **Guardsman** with other pesticides (fungicides, herbicides, insecticides, or miticides), additives, or fertilizers. BASF does not recommend using tank mixes other than those listed on BASF labeling. Local agricultural authorities may be a source of information when using other than BASF recommended tank mixes.

## Compatibility Test for Mix Components

Before mixing components, always perform a compatibility jar test.

For 20 gallons per acre spray volume, use 3.3 cups (800 ml) of water. For other spray volumes, adjust rates accordingly. Only use water from the intended source at the source temperature.

Add components in the sequence indicated in the **Mixing Order** using 2 teaspoons for each pound or 1 teaspoon for each pint of recommended label rate per acre.

Always cap the jar and invert 10 cycles between component additions.

When the components have all been added to the jar, let the solution stand for 15 minutes. Evaluate the solution for uniformity and stability. The spray solution should not have free oil on the surface, nor fine particles that precipitate to the bottom, nor thick (clabbered) texture. If the spray solution is not compatible, repeat the compatibility test with the addition of a suitable compatibility agent. If the solution is then compatible, use the compatibility agent as directed on its label. If the solution is still incompatible, do not mix the ingredients in the same tank.

### Mixing Order

- 1) **Water.** Begin by agitating a thoroughly clean sprayer tank three-quarters full of clean water.
  - 2) **Agitation.** Maintain constant agitation throughout mixing and application.
  - 3) **Inductor.** If an inductor is used, rinse it thoroughly after each component has been added.
  - 4) **Products in PVA bags.** Place any product contained in water-soluble PVA bags into the mixing tank. Wait until all water-soluble PVA bags have fully dissolved and the product is evenly mixed in the spray tank before continuing.
  - 5) **Water-dispersible products** (such as **Guardsman**, dry flowables, wettable powders, suspension concentrates, or suspo-emulsions).
  - 6) **Water-soluble products.**
  - 7) **Emulsifiable concentrates** (oil concentrate when applicable).
  - 8) **Water-soluble additives** (such as AMS or UAN when applicable).
  - 9) **Remaining quantity of water.**
- Maintain constant agitation during application.

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## V. Restrictions and Limitations

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- **Restricted Use Pesticide:** This product is a restricted use herbicide due to ground and surface water concerns. Users must read and follow all precautionary statements and instructions for use in order to minimize potential for atrazine to reach ground and surface water.
- **Maximum seasonal use rate:** Do not apply more than a **total of 5 pints of Guardsman® herbicide** (80 fluid ounces) per acre, per season. **Guardsman** contains 2.67 pounds of the active ingredient atrazine per gallon (0.334 pounds of a.i. per pint). When tank mixing or making sequential applications with atrazine, **Marksman®**, **Laddok® S-12**, or other product containing atrazine, do not exceed the following total combined amounts of atrazine:
  - **Prior to crop emergence:** Do not exceed 1.6 pounds of atrazine a.i. per acre on highly erodible soils with less than 30% plant residue cover. Do not exceed 2.0 pounds of atrazine a.i. per acre on other soils.
  - **After crop emergence:** Do not exceed 2.0 pounds of atrazine a.i. per acre on any soil.
  - **Prior to and after crop emergence (sequential applications):** Do not exceed 2.5 pounds of atrazine a.i. per acre on any soil.
- **Preharvest Interval (PHI):** Refer to section **VI. Crop-Specific Information** for crop-specific preharvest intervals and feeding and grazing restrictions.
- **Restricted Entry Interval (REI): 12 hours**
- The New York State Department of Environmental Conservation prohibits use in Long Island, NY.
- **Crop Rotation Restriction:**
  - If the crop treated with **Guardsman** is lost to adverse weather or for other reasons, the area treated may be replanted to corn and grain sorghum immediately. If the original **Guardsman** treatment was broadcast, do not make a second application of **Guardsman** if the combined rate exceeds the maximum rate per season. If the original application was banded and the second crop is planted in the row middles, a second band application may be applied.
  - Corn, sorghum, soybeans, cotton or peanuts may be planted the year following treatment. Injury may occur to soybeans planted on soils having a calcareous surface layer.
  - Do not plant sugarbeets, tobacco, vegetables (including dry beans), spring-seeded small grains, or small seeded legumes and grasses the year following application, or injury may occur.
- **Stress:** Do not apply to crops under stress such as stress due to lack of moisture, hail damage, flooding, herbicide injury, mechanical injury, or widely fluctuating temperatures, as injury may result.
- Do not apply through any type of **irrigation** equipment. Do not contaminate irrigation ditches or water used for domestic purposes.

## VI. Crop-Specific Information

### Corn (Field, Pop, Seed, and Sweet)

**Guardsman® herbicide** may be applied preplant surface, preplant incorporated, pre-emergence, or postemergence to corn up to 12" tall. Corn in this label refers to field corn (grown for grain, silage, or seed), sweet corn (not including sweet corn grown for seed), and popcorn. Before applying **Guardsman** to seed corn, sweet corn, or popcorn, verify with your local seed company (supplier) the **Guardsman** selectivity on your inbred line or hybrid to help avoid potential injury to sensitive hybrids.

Refer to section II. **Application Instructions** to determine **Guardsman** use rates by soil type and use pattern.

#### Crop-Specific Restrictions and Limitations

Corn may be grazed or fed to livestock 40 days or more after application of **Guardsman**. Sweet corn ears may be harvested 50 days or more after application of **Guardsman**.

### Corn Tank Mixes

**Guardsman** may be tank mixed or applied sequentially in corn with one or more of the following herbicide products according to the specific tank mixing instructions in this label and respective product labels. Read and follow the applicable **Restrictions and Limitations** and **Directions For Use** on all products involved in tank mixing. The most restrictive labeling applies to tank mixes.

- Accent®
- Accent Gold®
- Acquire™
- Atrazine
- Balance®<sup>1</sup>
- Banvel®
- Basagran®
- Basis Gold®
- Beacon®
- Bladex®
- Celebrity®
- Clarity®
- Eradicane®
- Frontier®<sup>2</sup>
- Gramoxone® Extra
- Hornet™
- Laddok® S-12
- Liberty®<sup>3</sup>
- Lightning®<sup>4</sup>
- Marksman®
- Princep®
- Prowl®
- Pursuit®<sup>4</sup>
- Ready Master™ ATZ<sup>5</sup>
- Python®
- Roundup Ultra®<sup>5</sup>
- Sutan® +
- Touchdown®
- 2,4-D<sup>6</sup>

<sup>1</sup> To improve weed control of some species, particularly velvetleaf, tank mix 1-1.5 ounces of **Balance** per acre with the recommended rate of **Guardsman**.

<sup>2</sup> Do not exceed a total of 1.5 pounds a.i. of dimethenamid per crop season.

<sup>3</sup> Use only in **Liberty Link**® (glufosinate tolerant) corn hybrids.

<sup>4</sup> Use only in **Clearfield**® (imidazolinone tolerant) corn hybrids.

<sup>5</sup> includes postemergence tank mixes on **Roundup Ready**® (glyphosate tolerant) corn hybrids.

<sup>6</sup> For preplant or preemergence use only, 2,4-D is not recommended for use within 7 days prior to or 3 days after planting. For preemergence applications, make sure seed furrows are closed and corn seed is covered by a minimum of 1.5" of soil to reduce the chance of injury.

### Sorghum (grain)

**Guardsman** may be applied preplant, preplant incorporated, pre-emergence or postemergence to grain sorghum up to 12" tall.

All **Guardsman** applications must only be made to sorghum seed that has been properly treated by the seed company with an approved chloroacetamide herbicide safener or severe injury may occur.

Refer to section II. **Application Instructions** to determine **Guardsman** use rates by soil type and use pattern. Do not use **Guardsman** on sorghum planted in coarse-textured soil.

For best performance make pre-emergence surface applications within 5 days of the last preplant tillage. If grasses have emerged, **Guardsman** must be applied before they reach the 2-leaf stage or must be used in combination with an effective postemergence herbicide. For best weed control from preplant or pre-emergence applications in sorghum produced under irrigation, use a minimum of 3.5 pints per acre.

Under high soil moisture or cool conditions, **Guardsman** application may cause temporary stunting or leaf wrapping of sorghum. Sorghum will normally outgrow these symptoms in 10-14 days. **Guardsman** is not registered for use on sweet or forage sorghum.

Sorghum forage may be grazed or fed to livestock 60 days or more after application of **Guardsman**. Grain and fodder may be harvested and fed 80 days or more after application of **Guardsman**.

### Sorghum Tank Mixes

**Guardsman** may be tank mixed or applied sequentially in corn with one or more of the following herbicide products according to the specific tank mixing instructions in this label and respective product labels. Read and follow the applicable **Restrictions and Limitations** and **Directions For Use** on all products involved in tank mixing. The most restrictive labeling applies to tank mixes.

- Atrazine
- Basagran®
- Clarity®<sup>1</sup>
- Cyclone®
- Fallow Master®
- Gramoxone® Extra
- Laddok® S-12
- Landmaster®
- Paramount®
- Peak®
- Permit®
- Roundup Ultra®
- Roundup Ultra® RT

<sup>1</sup> Tank mix applications preplant only.

In addition to the tank mixes listed, **Guardsman** can be used in sequential applications with other herbicides labeled for use in grain sorghum such as: **Buctril**®, **Marksman**®, **Weedmaster**® or 2,4-D.

Pests listed in this label:	
Common Name	Scientific Name
Amaranth, Palmer	<i>Amaranthus palmeri</i>
Barnyardgrass	<i>Echinochloa crus-galli</i>
Buckwheat, Wild	<i>Polygonum convolvulus</i>
Carpetweed	<i>Mullugo verticillata</i>
Cocklebur, Common	<i>Xanthium pensylvanicum</i>
Crabgrass, Large	<i>Digitaria sanguinalis</i>
, Smooth	<i>Digitaria ischaemum</i>
Cupgrass, Southwestern	<i>Eriochloa gracilis</i>
, Woolly	<i>Eriochloa villosa</i>
Eclipta	<i>Eclipta alba</i>
Flatsedge, Rice	<i>Cyperus iria</i>
Foxtail, Giant	<i>Setaria faberi</i>
, Green	<i>Setaria viridis</i>
, Yellow	<i>Setaria lutescens</i>
Goosegrass	<i>Eleusine indica</i>
Jimsonweed	<i>Datura stramonium</i>
Johnsongrass (seedling)	<i>Sorghum halepense</i>
Kochia	<i>Kochia scoparia</i>
Lambsquarters, Common	<i>Chenopodium album</i>
Millet, Wild Proso	<i>Panicum miliaceum</i>
Morningglory, Annual	<i>Ipomoea hederacea</i>
Mustard species	<i>Sinapis arvensis</i>
Nightshade, Black	<i>Solanum nigrum</i>
, Eastern Black	<i>Solanum ptycanthum</i>
, Hairy	<i>Solanum sarrachoides</i>
Nutsedge, Yellow	<i>Cyperus esculentus</i>
Oats, Wild	<i>Avena fatua</i>
Panicum, Fall	<i>Panicum dichotomiiflorum</i>
, Texas	<i>Panicum texanum</i>
Pigweed, Prostrate	<i>Amaranthus blitoides</i>
, Redroot	<i>Amaranthus retroflexus</i>
, Smooth	<i>Amaranthus hybridus</i>
, Tumble	<i>Amaranthus albus</i>
Pusley, Florida	<i>Richardia scabra</i>
Purslane, Common	<i>Portulaca oleracea</i>
Red Rice	<i>Oryza sativa</i>
Ragweed, Common	<i>Ambrosia artemisiifolia</i>
, Giant	<i>Ambrosia trifida</i>
Sandbur	<i>Cenchrus</i> spp.
Shattercane	<i>Sorghum bicolor</i>
Signalgrass, Broadleaf	<i>Brachiaria platphylla</i>
Smartweed species	<i>Polygonum</i> spp.
Spurge, Nodding	<i>Euphorbia nutans</i>
, Spotted	<i>Euphorbia maculata</i>
Velvetleaf	<i>Abutilon theophrasti</i>
Waterhemp, Common	<i>Amaranthus rudis</i>
, Tall	<i>Amaranthus tuberculatus</i>
Witchgrass	<i>Panicum capillare</i>

**Crops**

This product can be used on the following crops:

**Corn (Field, Pop, Seed, and Sweet)  
Sorghum, Grain**

Look inside for complete **Restrictions and Limitations** and **Application Instructions**.

**Conditions of Sale and Warranty**

The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of 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. **BASF MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY. IN NO CASE SHALL BASF OR THE SELLER BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.** BASF and the Seller offer this product, and the Buyer and User accept it, subject to the foregoing **Conditions of Sale and Warranty** which may be varied only by agreement in writing signed by a duly authorized representative of BASF.

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