

7969-278

09/10/2009

1/23

**U.S. ENVIRONMENTAL PROTECTION
AGENCY****Office of Pesticide Programs
Registration Division (7505P)
Ariel Rios Building
1200 Pennsylvania Ave., NW
Washington, D.C. 20460**

EPA Reg. Number:

7969-278

Date of Issuance:

09/10/09

NOTICE OF PESTICIDE:

☒ Registration
☐ Reregistration
(under FIFRA, as amended)

Term of Issuance: conditional

Name of Pesticide Product:

**Sharpen™ Powered By Kixor®
Herbicide**

Name and Address of Registrant (include ZIP Code):

BASF Corporation
26 Davis Dr.
Research Triangle Park, NC 27709

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act. Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA sec. 3(c)(7)(A) provided that you:

1. Submit and/or cite all data required for registration/reregistration review of your product when the Agency requires all registrants of similar products to submit data.

2. Submit the data listed below:

- a. Three side-by-side sunflower residue field trials using the suspension concentrate and wettable granule formulations
- b. 830.6317(one year storage stability) and 830.6320 (corrosion characteristics). The observations must be made at 0, 3, 6, 9, & 12 month intervals. These studies must be conducted under the full GLP requirements in compliance with 40CFR§160

3. Make the following label changes:

- a. Page 10, aerial application requirements:
 - i. point 1: Add the word, "fixed" before the word, "wingspan." Add the words, "blade diameter," after the word, "rotor."
 - ii. Point 5: Add the words, "or stable atmospheric conditions," after the word, "inversions."

Signature of Approving Official:

Jim Tompkins
Product Manager 25
Herbicide Branch
Registration Division (7505P)

Date:

SEP 10 2009

- b. Page 10, Ground Application Requirements:
 - i. Point 2: Add the words, "or stable atmospheric conditions," after the word, "inversions."

- 4. Submit one copy of the revised final printed label for the record.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records

3/23



The Chemical Company

Group 14 Herbicide

SHARPENTM

POWERED BY KIXOR[®] HERBICIDE



A broadleaf herbicide for use in the following field and row agricultural crops: chickpea (garbanzo beans), corn (field, pop, seed, silage, and sweet), cotton, edible bean, edible pea, fallow and postharvest, field pea, lentils, small grains, sorghum, soybean, sunflower (harvest aid/desiccation only)

Active Ingredient:

saflufenacil: N'-[2-chloro-4-fluoro-5-(3-methyl-2,6-dioxo-4-(trifluoromethyl)-3,6-dihydro-1(2H)-pyrimidinyl)benzoyl]-N-isopropyl-N-methylsulfamide 29.74%

Other Ingredients: 70.26%

Total: 100.00%

Contains 2.85 pounds active ingredient saflufenacil per gallon formulated as a water-based suspension concentrate.

EPA Reg. No. 7969-xxx

EPA Est. No.

**KEEP OUT OF REACH OF CHILDREN
CAUTION/PRECAUCION**

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

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

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

Net Contents:

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

**ACCEPTED
with COMMENTS
In EPA Letter Dated:**

SEP 10 2009
Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.

7969-278

| FIRST AID | |
|---|--|
| If swallowed | <ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • 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. |
| If in eyes | <ul style="list-style-type: none"> • 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 eyes. • Call a poison control center for treatment advice. |
| If on skin or clothing | <ul style="list-style-type: none"> • 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. |
| If inhaled | <ul style="list-style-type: none"> • 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. |
| HOTLINE 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 BASF Corporation for emergency medical treatment information at 1-800-832-HELP (4357). | |

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION. Harmful if swallowed. Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Wear protective eyewear such as face shield, goggles, or safety glasses. Remove and wash contaminated clothing before reuse.

Personal Protective Equipment (PPE)

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

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves (such as natural rubber, selection **Category A**)
- Protective eyewear such as face shield, goggles, or safety glasses

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

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.

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for **applicators and other handlers** and have such PPE immediately available for use in an emergency, such as a spill or equipment breakdown.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE 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

For terrestrial uses, **DO NOT** apply directly to water, areas where surface water is present, or intertidal areas below the mean high water mark. **DO NOT** contaminate water when disposing of equipment washwaters or rinsate.

Groundwater Advisory. Saflufenacil has properties and characteristics associated with chemicals detected in groundwater. This chemical may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

Surface Water Advisory. Saflufenacil may impact surface water due to runoff of rainwater. This is especially true for poorly draining soils and soils with shallow groundwater. This product is classified as having high potential for reaching surface water via runoff for several weeks after application. A level, well-maintained buffer strip between

areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential loading of this chemical from runoff water and sediment. Runoff of this product will be reduced by avoiding application when rainfall is forecast to occur within 48 hours.

Endangered Species Protection Requirements

This product may have effects on federally listed threatened or endangered plant species or their critical habitat. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the county or parish in which you are applying the pesticide. To determine whether your county or parish has a Bulletin, and to obtain that Bulletin, consult <http://www.epa.gov/espp/>, or call 1-800-447-3813 no more than 6 months before using this product. Applicators must use Bulletins that are in effect in the month in which the pesticide will be applied. New Bulletins will generally be available from the above sources 6 months prior to their effective dates.

Directions For Use

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 time of herbicide application.

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.

Observe all precautions and limitations in this label and the labels of products used in combination with **Sharpen™ herbicide**. The use of **Sharpen** not consistent with this label can result in injury to crops, animals or persons. Keep containers closed to avoid spills and contamination.

Unless otherwise directed in supplemental labeling, all applicable directions, restrictions, precautions and **Conditions of Sale and Warranty** are to be followed.

BASF Corporation does not recommend or authorize the use of this product in manufacturing, processing or preparing custom blends with other products for application in crops.

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 natural rubber ≥ 14 mils
- Shoes plus socks
- Protective eyewear

STORAGE AND DISPOSAL

DO NOT contaminate water, food, or feed by storage or disposal. Open dumping is prohibited.

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, or foodstuffs. Avoid cross-contamination with other pesticides.

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

Nonrefillable Container. DO NOT reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Triple rinse containers small enough to shake (capacity ≤ 5 gallons) as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or mix tank. Hold container upside down over application equipment or mix tank, or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

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 reuse.
- Keep the spill out of all sewers and open bodies of water.

General Information

Sharpen™ herbicide provides both contact burndown and rate-dependent residual preemergence broadleaf weed control (refer to **Table 1** and **Table 2** for lists, respectively). It can be used in select field and row crops, fallow and postharvest croplands, and for harvest aid/desiccation. **Sharpen** does not control grass weeds and must be used sequentially or tank mixed with a grass herbicide for a complete weed control program. Refer to **Crop-specific Information** section for recommendations on herbicide tank mixtures or sequential programs.

Make burndown applications of **Sharpen** when broadleaf weeds are small and actively growing. An adjuvant is required with **Sharpen** for optimum burndown activity (refer to **Additives** section for details). Burndown activity may be slowed or reduced under cloudy and/or foggy or cooler weather conditions, or when weeds are growing under drought or other stress conditions. When targeting dense weed populations and/or larger broadleaf weeds, use a higher application rate within an application rate range and/or higher spray volumes. Angling nozzles forward (to 45 degrees) may improve penetration of denser weed canopies.

Residual preemergence applications of **Sharpen** must be activated by at least 1/2 inch of rainfall or sprinkler irrigation prior to weed seedling emergence. When **Sharpen** is not activated, a labeled postemergence herbicide or cultivation may be needed to control weed escapes.

In Case of Emergency

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

- CHEMTREC 1-800-424-9300
- BASF Corporation 1-800-832-HELP (4357)

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment
- Your local poison control center (hospital)
- BASF Corporation 1-800-832-HELP (4357)

Table 1. Broadleaf Weeds Controlled by a Burndown Application of Sharpen™ herbicide

| Common Name | Scientific Name | C = Control S = Suppression | Maximum Height or Diameter (inches) |
|------------------------------|--|--------------------------------|---|
| Amaranth, Palmer | <i>Amaranthus palmeri</i> | C | 6 |
| Bedstraw, catchweed | <i>Galium aparine</i> | C | 3 |
| Beggarticks, hairy | <i>Bidens pilosa</i> | C | 6 |
| Beggarweed, Florida | <i>Desmodium tortuosum</i> | C | 6 |
| Bindweed, field | <i>Convolvulus arvensis</i> | S ¹ | 6 |
| Buckwheat, wild | <i>Polygonum convolvulus</i> | C | 3 |
| Canola, volunteer (rapeseed) | <i>Brassica</i> spp. | C | 6 |
| Carpetweed | <i>Mollugo verticillata</i> | C | 6 |
| Chickweed, common | <i>Stellaria media</i> | S | 3 |
| Cocklebur, common | <i>Xanthium strumarium</i> | C | 6 |
| Cowcockle | <i>Vaccaria pyramidata</i> | C | 4 |
| Dandelion | <i>Taraxacum officinale</i> | S ¹ | 6 |
| Eveningprimrose, cutleaf | <i>Oenothera laciniata</i> | C | 4 |
| Falseflax, smallseed | <i>Camelina microcarpa</i> | C | 4 |
| Filaree, broadleaf | <i>Erodium botrys</i> | C | 4 |
| Filaree, redstem | <i>Erodium cicutarium</i> | S | 3 |
| Filaree, whitestem | <i>Erodium moschatum</i> | C | 4 |
| Fleabane, hairy | <i>Conyza bonariensis</i> | C | 6 |
| Flixweed | <i>Descurainia sophia</i> | C | 6 |
| Goosefoot, nettleleaf | <i>Chenopodium murale</i> | C | 3 |
| Groundcherry, cutleaf | <i>Physalis angulata</i> | C | 6 |
| Groundsel, common | <i>Senecio vulgaris</i> | C | 4 |
| Henbit | <i>Lamium amplexicaule</i> | S | 3 |
| Horseweed (maretail) | <i>Conyza canadensis</i> | C | 6 |
| Knotweed, prostrate | <i>Polygonum aviculare</i> | C | 3 |
| Kochia | <i>Kochia scoparia</i> | C | 3 |
| Ladysthumb | <i>Polygonum persicaria</i> | C | 6 |
| Lambsquarters, common | <i>Chenopodium album</i> | C | 6 |
| Lambsquarters, narrowleaf | <i>Chenopodium pratericola</i> | C | 6 |
| Lettuce, miner's | <i>Claytonia perfoliata</i> | C | 6 |
| Lettuce, prickly | <i>Lactuca serriola</i> | C | 6 |
| Mallow, common | <i>Malva neglecta</i> | C | 6 |
| Mallow, little (cheeseweed) | <i>Malva parviflora</i> | C | 6 |
| Mallow, Venice | <i>Hibiscus trionum</i> | C | 6 |
| Maretail (horseweed) | <i>Conyza canadensis</i> | C | 6 |
| Morningglory, entireleaf | <i>Ipomoea hederacea</i> var. <i>integriuscula</i> | C | 6 |
| Morningglory, ivyleaf | <i>Ipomoea hederacea</i> | C | 6 |
| Morningglory, palmleaf | <i>Ipomoea wrightii</i> | C | 6 |
| Morningglory, pitted | <i>Ipomoea lacunosa</i> | C | 6 |
| Morningglory, tall | <i>Ipomoea purpurea</i> | C | 6 |
| Mustard, black | <i>Brassica nigra</i> | C | 6 |
| Mustard, tumble | <i>Sisymbrium altissimum</i> | C | 6 |
| Mustard, wild | <i>Sinapis arvensis</i> | C | 6 |
| Nettle, burning | <i>Urtica urens</i> | C | 4 |
| Nightshade, black | <i>Solanum nigrum</i> | C | 6 |
| Nightshade, cutleaf | <i>Solanum triflorum</i> | C | 6 |
| Nightshade, Eastern black | <i>Solanum ptycanthum</i> | C | 6 |
| Nightshade, hairy | <i>Solanum saccharoides</i> | C | 6 |
| Pennycress, field | <i>Thlaspi arvense</i> | C | 6 |
| Pigweed, prostrate | <i>Amaranthus blitoides</i> | C | 6 |
| Pigweed, redroot | <i>Amaranthus retroflexus</i> | C | 6 |
| Pigweed, smooth | <i>Amaranthus hybridus</i> | C | 6 |
| Puncturevine | <i>Tribulus terrestris</i> | C | 6 |
| Purslane, common | <i>Portulaca oleracea</i> | C | 3 |
| Pusley, Florida | <i>Richardia scabra</i> | S | 3 |

Table 1. Broadleaf Weeds Controlled by a Burndown Application of Sharpen™ herbicide (continued)

| Common Name | Scientific Name | C = Control S = Suppression | | Maximum Height or Diameter (inches) |
|------------------------------|--------------------------------|--------------------------------|--|---|
| | | | | |
| Ragweed, common ² | <i>Ambrosia artemisiifolia</i> | C | | 6 |
| Ragweed, giant | <i>Ambrosia trifida</i> | C | | 6 |
| Rocket, London | <i>Sisymbrium irio</i> | C | | 6 |
| Sesbania, hemp | <i>Sesbania exaltata</i> | C | | 4 |
| Shepherd's-purse | <i>Capsella bursa-pastoris</i> | C | | 6 |
| Sida, prickly | <i>Sida spinosa</i> | C | | 6 |
| Smartweed, Pennsylvania | <i>Polygonum pensylvanicum</i> | C | | 6 |
| Sowthistle, annual | <i>Sonchus oleraceus</i> | C | | 6 |
| Sowthistle, spiny | <i>Sonchus asper</i> | C | | 6 |
| Spurge, garden | <i>Chamaesyce hirta</i> | C | | 6 |
| Spurge, prostrate | <i>Chamaesyce humistrata</i> | C | | 6 |
| Spurge, spotted | <i>Chamaesyce maculata</i> | C | | 6 |
| Sunflower, common | <i>Helianthus annuus</i> | C | | 6 |
| Tansymustard, green | <i>Descurainia incana</i> | C | | 6 |
| Tansymustard, pinnate | <i>Descurainia pinnata</i> | C | | 6 |
| Thistle, Canada | <i>Cirsium arvense</i> | S ¹ | | 6 |
| Thistle, Russian | <i>Salsola kali</i> | C | | 3 |
| Velvetleaf | <i>Abutilon theophrasti</i> | C | | 6 |
| Waterhemp ² | <i>Amaranthus tuberculatus</i> | C | | 6 |
| Willowweed | <i>Epilobium adenocaulon</i> | C | | 3 |

¹ Control of seedling stage and suppression of perennial growth stage.

² Populations of noted weeds exist that are known to be resistant to burndown applications of **Group 14/Group E** herbicides and will not be controlled by herbicides like **Sharpen**. See the **Resistance Management** section for practices to manage and minimize the impact of resistant weeds (e.g. tank mixes or alternation with other herbicide modes of action, crop rotation, and mechanical control).

Table 2. Broadleaf Weeds Controlled with a Residual Preemergence Application of Sharpen™ herbicide

| Common Name | Scientific Name | C = Control S = Suppression ¹ |
|------------------------|------------------------------|---|
| Annual Broadleaf Weeds | | |
| Amaranth, Palmer | <i>Amaranthus palmeri</i> | C |
| Amaranth, Powell | <i>Amaranthus powellii</i> | C |
| Beggarweed, Florida | <i>Desmodium tortuosum</i> | C |
| Buckwheat, wild | <i>Polygonum convolvulus</i> | C |
| Buffalobur | <i>Solanum rostratum</i> | C |
| Burcucumber | <i>Sicyos angulatus</i> | S |
| Carpetweed | <i>Mollugo verticillata</i> | C |
| Chamomile, mayweed | <i>Anthemis cotula</i> | C |
| Chickweed, common | <i>Stellaria media</i> | C |
| Cocklebur, common | <i>Xanthium strumarium</i> | C |
| Copperleaf, Virginia | <i>Acalypha virginica</i> | C |
| Devil's-claw | <i>Proboscidea louisiana</i> | C |
| Eclipta | <i>Eclipta prostrata</i> | C |
| Fleabane, hairy | <i>Conyza bonariensis</i> | C |
| Galinsoga, smallflower | <i>Galinsoga parviflora</i> | C |
| Groundcherry, cutleaf | <i>Physalis angulata</i> | C |
| Horseweed (marestail) | <i>Conyza canadensis</i> | C |
| Jimsonweed | <i>Datura stramonium</i> | C |
| Kochia | <i>Kochia scoparia</i> | C |
| Ladysthumb | <i>Polygonum persicaria</i> | C |
| Lambsquarters, common | <i>Chenopodium album</i> | C |
| Mallow, Venice | <i>Hibiscus trionum</i> | C |
| Marestail (horseweed) | <i>Conyza canadensis</i> | C |

Table 2. Broadleaf Weeds Controlled with a Residual Preemergence Application of Sharpen™ herbicide

(continued)

| Common Name | Scientific Name | C = Control S = Suppression ¹ |
|-------------------------------|--|---|
| Annual Broadleaf Weeds | | |
| Morningglory, entireleaf | <i>Ipomoea hederacea</i> var. <i>integriuscula</i> | C |
| Morningglory, ivyleaf | <i>Ipomoea hederacea</i> | C |
| Morningglory, palmleaf | <i>Ipomoea wrightii</i> | C |
| Morningglory, pitted | <i>Ipomoea lacunosa</i> | C |
| Morningglory, tall | <i>Ipomoea purpurea</i> | C |
| Mustard, wild | <i>Sinapis arvensis</i> | C |
| Nightshade, black | <i>Solanum nigrum</i> | C |
| Nightshade, cutleaf | <i>Solanum triflorum</i> | C |
| Nightshade, Eastern black | <i>Solanum ptycanthum</i> | C |
| Nightshade, hairy | <i>Solanum saccharoides</i> | C |
| Pennycress, field | <i>Thlaspi arvense</i> | C |
| Pigweed, prostrate | <i>Amaranthus blitoides</i> | C |
| Pigweed, redroot | <i>Amaranthus retroflexus</i> | C |
| Pigweed, smooth | <i>Amaranthus hybridus</i> | C |
| Pigweed, tumble | <i>Amaranthus albus</i> | C |
| Puncturevine | <i>Tribulus terrestris</i> | S |
| Purslane, common | <i>Portulaca oleracea</i> | C |
| Pusley, Florida | <i>Richardia scabra</i> | S |
| Ragweed, common | <i>Ambrosia artemisiifolia</i> | C |
| Ragweed, giant | <i>Ambrosia trifida</i> | C |
| Sesbania, hemp | <i>Sesbania exaltata</i> | C |
| Sida, prickly | <i>Sida spinosa</i> | C |
| Smartweed, Pennsylvania | <i>Polygonum pensylvanicum</i> | C |
| Sprangletop, red | <i>Leptochloa filiformis</i> | C |
| Spurge, nodding | <i>Chamaesyce nutans</i> | C |
| Spurge, spotted | <i>Chamaesyce maculata</i> | C |
| Starbur, bristly | <i>Acanthospermum hispidum</i> | C |
| Sunflower, common | <i>Helianthus annuus</i> | C |
| Thistle, Russian | <i>Salsola kali</i> | C |
| Velvetleaf | <i>Abutilon theophrasti</i> | C |
| Waterhemp, common | <i>Amaranthus rudis</i> | C |
| Waterhemp | <i>Amaranthus tuberculatus</i> | C |

¹ **Sharpen** should be used in tank mixes or sequential applications with other labeled herbicides that provide additional control of noted weeds.

Mode of Action

Sharpen™ herbicide is a potent inhibitor of protoporphyrinogen-oxidase belonging to herbicide mode of action **Group 14** (WSSA)/**Group E** (HRAC). **Sharpen** is rapidly absorbed by roots and foliage. Following inhibition of protoporphyrinogen-oxidase, plant death is the result of membrane damage. Under active growing conditions, susceptible emerged weeds usually develop chlorotic and necrotic injury symptoms within hours and die within a few days. Susceptible emerging weed seedlings will usually die as they reach the soil surface or shortly after emergence.

Resistance Management

While weed resistance to protoporphyrinogen-oxidase inhibiting herbicides is relatively infrequent, populations of resistant biotypes are known to exist. Resistance management practices include:

1. Following labeled application rate and weed growth stage recommendations
2. Avoiding repeated applications of herbicides with the same mode of action
3. Utilizing tank mixes and sequential applications with other effective herbicides possessing different modes of action
4. Using crop rotation so that crop competition, tillage or herbicides with alternative modes of action can be used to control weed escapes.

Crop Tolerance

Crops are tolerant to **Sharpen** when applied according to label directions as a preplant to preemergence treatment and under normal environmental conditions. Crop injury may occur under stressful growing conditions (e.g. low soil fertility, seedling disease, extreme hot or cold weather, excessive moisture, high soil pH, high soil salt concentration, or drought).

Severe crop injury will result if **Sharpen** is applied post-emergence (over the top) to any crop.

Application Instructions

Sharpen may only be applied prior to crop emergence, except for harvest aid/desiccation uses.

Application Rates

Application rates of **Sharpen** may vary depending on soil texture and organic matter. Refer to **Table 3** for soil texture groups used in this label.

Table 3. Soil Texture Groups

| Coarse | Medium | Fine |
|------------|-----------------|-----------------|
| Sand | Silt | Sandy clay |
| Loamy sand | Silt loam | Silty clay |
| Sandy loam | Loam | Silty clay loam |
| | Sandy clay loam | Clay loam |
| | | Clay |

An overview of application rates for **Sharpen** by crop use is provided in the **Application Rates for Sharpen™ herbicide** chart. Refer to the **Crop-specific Information** section for specific application directions and the restrictions and limitations by crop and use pattern.

Application Rates for Sharpen™ herbicide

| Crop and/or Use | Application Timing and Single Application Rate (fl ozs/A) | | | Maximum Single or Maximum Cumulative Application Rate per Cropping Season** | |
|--|---|---|--------------------------|---|---------|
| | Burndown* (includes early preplant applications) | Burndown* + Residual (includes early preplant, preplant incorporated, and preemergence applications) | Harvest Aid/Desiccation* | fl ozs/A | lb ai/A |
| Corn | 1 to 2 | 2 to 6 | Not applicable | 6 | 0.134 |
| Cotton | 1 | 2 | Not applicable | 2 | 0.045 |
| Fallow, postharvest | 1 to 2 | 2 to 6 | Not applicable | Follow rate restrictions noted in Crop Rotation and Emergency Replanting Intervals or Crop-specific Information sections. | |
| Legume vegetables: | | | | | |
| Chickpea | 1 to 2 | 1 to 4 | Not applicable | 4 | 0.089 |
| Edible bean | 0.75 to 2 | 1 to 4 | Not applicable | 4 | 0.089 |
| Edible pea | 0.75 to 2 | 1 to 4 | Not applicable | 4 | 0.089 |
| Field pea, dry | 1 to 2 | 1 to 4 | Not applicable | 4 | 0.089 |
| Lentil | 0.75 to 2 | 0.75 to 4 | Not applicable | 4 | 0.089 |
| Small grains | 1 to 2 | 2 to 6 | Not applicable | 6 | 0.134 |
| Sorghum | 1 to 2 | 2 to 6 | Not applicable | 6 | 0.134 |
| Soybean | 1 to 2 | 1 to 4 | Not applicable | 4 | 0.089 |
| Sunflower | Not applicable | Not applicable | 1 to 2 | 4 | 0.089 |
| * Best product performance in a contact burndown or harvest aid/desiccation use pattern is obtained when Sharpen is applied with a suitable adjuvant system to actively growing weeds (refer to Additives section for details). | | | | | |
| ** A cropping season is defined as the period following harvest of the preceding crop through harvest of the planned or current crop. Note that except for harvest aid/desiccation uses, Sharpen must be applied before crop emergence (see Crop-specific Information section for application timing details). | | | | | |

Application Methods and Equipment

Sharpen may be applied by ground or air. Good spray coverage is important for optimum broadleaf weed control and can be improved with proper adjuvant, nozzle and spray volume selection.

Use and configure application equipment to provide an adequate spray volume, an accurate and uniform distribution of spray droplets over the treated area, and to avoid spray drift to nontarget areas. Equipment should be adjusted to maintain continuous agitation during spraying with good mechanical or bypass agitation. Avoid overlaps that will increase rates above the use rates specified in this label.

Sharpen may be applied using either water or sprayable fluid nitrogen fertilizer solutions as the spray carrier. Additionally, **Sharpen** may be impregnated on and applied with dry bulk fertilizer.

Aerial Application Requirements

Water Volume. Use 3 or more gallons of water per acre.

The following measures must be followed to reduce the potential of spray drift to nontarget areas from aerial applications:

1. The distance of the outermost nozzles on the boom must not exceed 3/4 the length of the wingspan or 90% of rotor.
2. Use low-drift nozzles such as straight-stream nozzles (D-8 or larger). **DO NOT** use nozzles producing a mist droplet spray.
3. Nozzles must always point backward parallel with the airstream and never be pointed downward more than 45 degrees.
4. Without compromising aircraft safety, applications should be made at a height of 10 feet or less above the crop canopy or tallest plants.
5. **DO NOT** apply during periods of temperature inversions.
6. Avoid potential adverse effects to nontarget areas by maintaining a (150)* foot buffer between the point of direct application and the **closest downwind edge** of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas, and shrub lands).

*The buffer zone size is determined by use rate. Refer to the table below for the minimum buffer zone distance required for the intended use rate. Utilize the appropriate buffer zone distance from the table below in the buffer zone statement above.

NOTE: This footnote and table will only appear on master label. It will be removed from the final print container label after the appropriate buffer zone distance is selected.

| Sharpen™ herbicide Use Rate (fl ozs/A) | Saflufenacil Use Rate (lb ai/A) | Saflufenacil Use Rate (g ai/ha) | Buffer Zone Distance (feet) |
|--|---------------------------------|---------------------------------|-----------------------------|
| 1 | 0.022 | 25 | 26 |
| 2 | 0.045 | 50 | 66 |
| 3 | 0.067 | 75 | 100 |
| 4 | 0.089 | 100 | 100 |
| 5 | 0.111 | 125 | 120 |
| 6 | 0.134 | 150 | 150 |

Ground Application Requirements

Spray Carrier Volume. Use 5 or more gallons of water per treated acre or 20 or more gallons of sprayable fluid nitrogen fertilizer per treated acre. Thorough coverage of existing vegetation is essential for burndown applications and higher spray volumes may be necessary for better performance.

The following measures must be followed to reduce the potential of spray drift to nontarget areas from ground applications:

1. Apply this product using nozzles which deliver **medium to coarse spray droplets** as defined by ASAE standard S-572 and as shown in nozzle manufacturer's catalogs. Flat-fan nozzles are recommended for burn-down applications while flood-jet type nozzles are recommended for residual soil surface applications. Nozzles that deliver COARSE spray droplets may be used to reduce spray drift provided spray volume per acre (GPA) is increased to maintain coverage of target (i.e. weeds or soil surface). **DO NOT** use nozzles that produce FINE (e.g. cone) spray droplets.
2. Apply this product only when the potential for drift to adjacent nontarget areas is minimal (e.g. when the wind is **10 MPH or less and is blowing away** from sensitive areas). **DO NOT** apply during periods of temperature inversions.
3. Avoid potential adverse effects to nontarget areas by maintaining a (75)* foot buffer between the application area and the **closest downwind edge** of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas, and shrub lands).

*The buffer zone size is determined by use rate. Refer to the table below for the minimum buffer zone distance required for the intended use rate. Utilize the appropriate buffer zone distance from the table below in the buffer zone statement above.

NOTE: This footnote and table will only appear on master label. It will be removed from the final print container label after the appropriate buffer zone distance is selected.

| Sharpen Use Rate (fl ozs/A) | Saflufenacil Use Rate (lb ai/A) | Saflufenacil Use Rate (g ai/ha) | Buffer Zone Distance (feet) |
|-----------------------------|---------------------------------|---------------------------------|-----------------------------|
| 1 | 0.022 | 25 | 13 |
| 2 | 0.045 | 50 | 33 |
| 3 | 0.067 | 75 | 50 |
| 4 | 0.089 | 100 | 50 |
| 5 | 0.111 | 125 | 60 |
| 6 | 0.134 | 150 | 75 |

Ground Application (dry bulk fertilizer)

Sharpen™ herbicide may be impregnated or coated onto dry bulk granular fertilizer carriers for residual soil surface applications. Impregnation or coating may be conducted by either in-plant bulk or on-board systems. Perform the mixing operation in well-ventilated areas.

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 **Sharpen** may clog air tubes or deflector plates on pneumatic application systems. Mineral oil may be added to **Sharpen** before blending with fertilizer to reduce plugging. **DO NOT** use drying agents when mineral oil is used. To avoid separation of **Sharpen** and mineral oil mixes in cold temperatures, either keep mixture heated or agitated prior to blending with fertilizer. Mineral oil may be used with in-plant blending stations or with on-board injection systems.

Generally, fertilizer application rates of at least 200 lbs to 700 lbs per acre of herbicide and fertilizer blend will provide adequate distribution or coverage of **Sharpen** across the soil surface. 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 (< 2 inches) incorporation is desirable for improved weed control. Deeper incorporation will dilute the herbicide layer near the soil surface and may result in unsatisfactory weed control.

Use the following formula to determine the herbicide rate when using dry bulk fertilizer applications:

$$\frac{\text{fl ozs herbicide per acre}}{\text{pounds fertilizer per acre}} \times 2000 = \frac{\text{fl ozs herbicide}}{\text{per ton of fertilizer}}$$

Cleaning Spray Equipment

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

Spray Drift Management

It is the responsibility of the applicator to avoid spray drift at the application site, especially onto nontarget areas. The interaction of many equipment-related and weather-related factors determines the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

The applicator should be familiar with and take into account the information covered in the following spray drift reduction advisory information.

Controlling Droplet Size. The most effective way to reduce drift potential is to apply the largest droplets that provide sufficient coverage and control.

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 Type. Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets.

Swath Adjustment. When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the upwind 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 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. If applying at wind speeds less than 3 mph, the applicator must determine if:

1. Conditions of temperature inversion exist, or
2. Stable atmospheric conditions exist at or below nozzle height.

DO NOT make applications into areas of temperature inversions or stable atmospheric conditions.

NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

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.

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Additives

For optimum burndown or harvest aid/desiccation activity with **Sharpen™ herbicide**, an adjuvant system must be used that includes the following:

| Adjuvant | Rate |
|---|--|
| Methylated seed oil (MSO) or Crop oil concentrate (COC) | 1 gal/100 gals (1% v/v) |
| PLUS | PLUS |
| Ammonium sulfate (AMS) or Urea ammonium nitrate (UAN) | 8.5 to 17 lbs/100 gals (1% to 2% w/v) or 1.25 to 2.5 gals/100 gals (1.25% to 2.5% v/v) |

The use of AMS fertilizer is highly recommended when mixing **Sharpen** with glyphosate-based herbicides.

DO NOT use a nonionic surfactant (NIS) as a substitute for COC or MSO, or poor performance on broadleaf weeds or for desiccation will occur.

When an adjuvant is to be used with this product, BASF recommends the use of a Chemical Producers and Distributors Association (CPDA) certified adjuvant.

General Tank Mixing Information

Sharpen may be tank mixed with 1 or more registered 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 product labels involved in tank mixing. Always follow the most restrictive label use directions. Refer to **Crop-specific Information** section for tank mixing details.

Compatibility Test for Mix Components

Before mixing components, always perform a compatibility jar test.

1. 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.
2. Add components in the sequence indicated in the mixing order using 2 teaspoons for each pound or 1 teaspoon for each pint of label rate per acre.
3. Always cap the jar and invert 10 cycles between component additions.
4. When the components have all been added to the jar, let the solution stand for 15 minutes.
5. Evaluate the solution for uniformity and stability. The spray solution should not have free oil on the surface, or fine particles that precipitate to the bottom, or thick (clabbered) texture. If the spray solution is not compati-

ble, 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** - Fill tank 1/2 to 3/4 full with clean water and start agitation.
2. **Agitation** - Maintain agitation throughout mixing.
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 dry flowables, wettable powders, suspension concentrates, or suspensions)
6. **Water-soluble products**
7. **Emulsifiable concentrates** (including crop oil concentrate or methylated seed oil adjuvants)
8. **Water-soluble additives** (including dry and liquid fertilizers such as ammonium sulfate or urea ammonium nitrate)
9. **Remaining quantity of water**
10. Maintain agitation throughout application until spraying is completed. If the spray mixture is allowed to settle for any period of time, thorough agitation is essential to resuspend the mixture before spraying is resumed. Continue agitation while spraying.

Use Precautions

- **Maximum seasonal use rate** - Refer to **Crop-specific Information** section for maximum cropping seasonal application use rates for each crop and use pattern. A cropping season is defined as the period following harvest of the preceding crop through the harvest of the planned or current crop.
- Except for labeled harvest aid/desiccation uses, **DO NOT** apply **Sharpen** after crop emergence or severe crop injury will occur.
- **Rainfastness** - **Sharpen** is rainfast 1 hour after application. Burndown activity may be reduced if rain or irrigation occurs within 1 hour of application.
- **DO NOT** contaminate irrigation ditches or water used for domestic purposes.
- **DO NOT** apply **Sharpen** through any type of irrigation system (e.g. chemigation).
- **Sharpen is not for sale, distribution, or use in Nassau and Suffolk counties in New York State.**

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Crop Rotation and Emergency Replanting Intervals

Use **Table 4** to determine the proper interval between **Sharpen™ herbicide** application and planting of rotational crops or replanting after crop failure (because of environmental factors such as drought, frost, or hail, etc.). Be sure to determine the rotational crop interval for tank mix products and utilize the most restrictive interval of all products applied.

Table 4. Rotational Crop Planting and Emergency Replanting Intervals by Sharpen Application Rate

| Crop | Sharpen Rate (fl ozs/A) | | | | | |
|----------------|--|--------|--------|-----|-----|-----|
| | 1.0 | 2.0 | 3.0 | 4.0 | 5.0 | 6.0 |
| | Rotational Crop Interval (months after application)** | | | | | |
| Corn | 0 | 0 | 0 | 0 | 0 | 0 |
| Sorghum | 0 | 0 | 0 | 0 | 1 | 1 |
| Small grains | 0 | 0 | 0 | 0 | 3 | 3 |
| Chickpea | 0 | 0 | 2 | 4 | 6 | 6 |
| Edible pea | 0 | 1 | 3 | 4 | 6 | 6 |
| Field pea, dry | 0 | 1 | 3 | 4 | 6 | 6 |
| Edible bean*** | 0 | 1 | 3 | 4 | 6 | 6 |
| Soybean* | 0 to 1 | 1 to 2 | 2 to 3 | 4 | 6 | 6 |
| Lentil | 1 | 2 | 3 | 4 | 6 | 9 |
| Cotton* | 1.5 | 3 | 4 | 6 | 6 | 9 |
| Sugarbeet | 4 | 5 | 6 | 7 | 8 | 9 |
| Sunflower | 4 | 5 | 6 | 7 | 8 | 9 |
| Other crops | 4 | 5 | 6 | 7 | 8 | 9 |

* The planting interval for these crops and rates is further defined in the respective **Crop-specific Information** section of this label. Use the longer interval within listed ranges for indicated crops grown on coarse textured soils with organic matter less than 2.0%.

** **DO NOT** include time when the soil is frozen.

*** Edible bean refers to blackeyed pea, crowder pea, cowpea, Southern pea. Use the Other crops rotational crop interval for beans not specifically listed in this table.

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Crop-specific Information

This section provides use directions for **Sharpen™ herbicide** in specific crops. Be sure to read general information, mixing, application, weeds controlled and adjuvant instructions in preceding sections of the label. Read and follow tank mix product labels for restrictions, precautions, instructions, and rotational crop restrictions.

Depending on specific crop application directions, **Sharpen** may be applied for burndown control of emerged broadleaf weeds and/or residual control of germinating broadleaf weeds (refer to **Table 1** and **Table 2** for lists of weeds controlled) before crop planting (preplant and/or preseed) or after planting but before crop emergence (preemergence).

Field Corn (grain, seed, silage), Popcorn, and Sweet Corn

Sharpen may be applied preplant surface, preplant incorporated, or preemergence to corn for broadleaf weed control (refer to **Table 1** and **Table 2** for lists of weeds controlled). Corn in this label refers to field corn (grown for grain, seed, or silage), popcorn, and sweet corn (not including sweet corn grown for seed). Before applying **Sharpen** to seed corn, sweet corn, or popcorn, verify with your local seed company (supplier) the selectivity of **Sharpen** on your inbred line or hybrid to help avoid potential injury.

Application Rates

Sharpen can be applied as part of a one-pass or planned sequential (two-pass) weed control program. A one-pass weed control program should be used where no cultivation or postemergence herbicide application is anticipated. One-pass application rates for **Sharpen** when applied alone, in tank mix, or sequentially are provided in **Table 5** for field corn and **Table 6** for popcorn and sweet corn.

Table 5. Residual Preemergence Rates of Sharpen in Field Corn

| Rate by Soil Texture and Organic Matter Content (fl ozs/A) | | |
|---|----------------|--------|
| Soil Texture ¹ | Organic Matter | |
| | ≤ 1.5% | > 1.5% |
| Coarse ² | 2.0 | 2.5 |
| Medium | 3.5 | 4.0 |
| Fine | 4.0 | 5.0 |

¹ Refer to **Table 3** for definitions of soil texture groups.

² Use on coarse soils with less than 1.5% organic matter may result in crop injury.

Table 6. Residual Preemergence Rates of Sharpen in Popcorn and Sweet Corn

| Rate by Soil Texture and Organic Matter Content (fl ozs/A) | | |
|---|----------------|--------|
| Soil Texture ¹ | Organic Matter | |
| | ≤ 1.5% | > 1.5% |
| Coarse | DO NOT USE | 2.0 |
| Medium | 2.5 | 3.0 |
| Fine | 3.0 | 4.0 |

¹ Refer to **Table 3** for definitions of soil texture groups.

Sharpen use rates applied as the residual component of a planned sequential (two-pass) program (see **Table 7**) will provide control or suppression of listed weeds (**Table 1**) through early to mid season. For full season weed control, apply a labeled postemergence treatment such as **Status® herbicide** + glyphosate as the sequential component.

Table 7. Residual Preemergence Rates of Sharpen in a Planned Sequential Program¹ in Field Corn

| Soil Texture ² | Rate by Soil Texture (fl ozs/A) |
|---------------------------|------------------------------------|
| Coarse | 2.0 |
| Medium | 2.5 |
| Fine | 3.0 |

¹ Application rates in **Table 7** will eliminate early season broadleaf weed interference until cultivation or a labeled postemergence herbicide is applied. However, application rates in **Table 5** should be applied if **Sharpen** is being used to control weeds resistant to another herbicide in the tank mix or sequential weed control program.

² Refer to **Table 3** for definitions of soil texture groups.

Application Timings

Early Preplant Surface Application (15 to 30 days prior to planting)

Application rates in **Table 5** should be used when making early preplant surface applications, using the highest application rate for a given soil texture. Early preplant surface applications are not recommended on coarse soils, in areas where average annual rainfall (or rainfall + irrigation) typically exceeds 40 inches, or for popcorn or sweet corn. Cultivation or a labeled postemergence herbicide application may still be required under certain conditions for complete weed control.

Early preplant surface applications may be applied as part of a split application program where applications are made as part of the application timings described in this label. However, the cumulative total of sequential application rates must not exceed the maximum labeled rate for a given soil texture.

Preplant Surface and Preplant Incorporated Applications

(up to 14 days prior to planting)

Sharpen™ herbicide can be applied at use rates specified in **Table 5**, **Table 6**, or **Table 7** to the soil surface or incorporated up to 14 days before planting on all soil types. For preplant incorporated applications, apply **Sharpen** and incorporate into the upper soil surface (1 to 2 inches). Use a harrow, rolling cultivator, field cultivator or other implement capable of providing uniform shallow incorporation. Avoid deeper incorporation or reduced weed control may result.

Preemergence Surface Application

Apply **Sharpen** at use rates specified in **Table 5**, **Table 6**, or **Table 7** as a broadcast spray to the soil surface after planting and before crop emergence. **Sharpen** must be applied before crop emergence or injury will occur.

Burndown plus Residual Weed Control

In addition to residual broadleaf weed control obtained at any of the application timings described above, **Sharpen** will also provide burndown of emerged broadleaf weeds listed in **Table 1**. An adjuvant system (refer to **Additives** section for details) is required for optimum burndown activity. Burndown control of emerged grasses and/or additional broadleaf weeds not listed on the label will require a tank mix with another herbicide (such as glyphosate).

Burndown Weed Control Only

If limited or no residual broadleaf weed control is desired, **Sharpen** can be applied at 1.0 fl oz/A (all soil types) with an adjuvant system any time prior to corn emergence to provide burndown of broadleaf weeds listed in **Table 1**. A burndown application of **Sharpen** can be followed by residual rates of **Sharpen** (**Table 5** or **Table 7**) or **Integrity™ herbicide**. However, **DO NOT** exceed the cropping seasonal maximum cumulative amount per acre of saflufenacil from all product sources.

Crop-specific Restrictions and Limitations

- **DO NOT** apply **Sharpen** after corn emergence or severe crop injury will occur.
- **DO NOT** apply **Sharpen** where an at-planting application of an organophosphate or carbamate insecticide(s) is planned and/or has occurred because severe injury may result.
- **DO NOT** apply more than a maximum cumulative amount of 6.0 fl ozs/A of **Sharpen** per cropping season.
- Corn forage and silage can be harvested, fed, or grazed 80 or more days after application.
- Refer to **Table 4** for crop rotation intervals.

Tank Mixtures

Sharpen may be tank mixed or applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Clarity® herbicide**
- **Guardsman Max® herbicide**
- **G-Max Lite™ herbicide**
- **Integrity**
- **Outlook® herbicide**
- **Prowl® H₂O herbicide**
- **Status® herbicide**
- atrazine
- glyphosate (e.g. **Roundup® herbicide**)
- **Harness® herbicide**
- **Harness® Xtra herbicide**

Cotton

Use **Sharpen** as an early preplant burndown treatment prior to planting cotton.

Application Rates and Timings

Apply **Sharpen** as a broadcast spray at 1.0 fl oz/A plus recommended adjuvants (refer to **Additives** section for details) for the control of actively growing broadleaf weeds (refer to **Table 1** for list of weeds controlled). Wait to plant cotton until at least **21 to 42 days** and an accumulation of 1 inch of rainfall and/or irrigation occurring after application to avoid crop injury. **DO NOT** apply to coarse soils classified as sand with less than 1.5% organic matter or cotton injury may occur.

Crop-specific Restrictions and Limitations

- **DO NOT** apply more than a maximum cumulative amount of 2.0 fl ozs/A of **Sharpen** per cropping season.
- **DO NOT** apply **Sharpen** with other **Group 14/Group E** herbicides (such as flumioxazin) as a tank mix or sequential application within 30 days or crop injury may result.
- **DO NOT** apply **Sharpen** where an at-planting application of an organophosphate or carbamate insecticide(s) is planned because severe injury may result.
- Use the most restrictive preplant interval with tank mixes of other cotton burndown herbicides.
- Cotton gin byproducts may be fed to livestock.
- Refer to **Table 4** for crop rotation intervals.

Tank Mixtures

Broad-spectrum burndown control of grasses and/or additional broadleaf weeds will require a tank mix with a herbicide such as glyphosate. **Sharpen** may be tank mixed or applied sequentially with one or more of, but not limited to, the following cotton burndown herbicide products:

- **Clarity**
- glyphosate (e.g. **Roundup**)

Fallow and Postharvest

Sharpen™ herbicide may be used as a burndown treatment to control broadleaf weeds at any time of the year during the fallow period following crop harvest and before the following crop is planted. **Sharpen** may also be used for specific postharvest uses to burndown the remaining foliage after crop harvest.

Application Rates and Timings

Apply **Sharpen** as a broadcast burndown spray at 1.0 to 2.0 fl ozs/A plus recommended adjuvants (refer to **Additives** section for details). Best product performance is obtained when broadleaf weeds are small and actively growing (refer to **Table 1** for list of weeds controlled). Thorough coverage of existing weeds is essential and higher spray volumes may be needed for best performance.

Sequential applications may be made with a minimum of 14 days between applications; but **DO NOT** exceed a maximum seasonal cumulative amount of 6.0 fl ozs/A of **Sharpen** per cropping season.

For residual broadleaf weed control, **Sharpen** may be applied at 2.0 to 6.0 fl ozs/A.

Specific rotational crop intervals must be observed between an application of **Sharpen** and planting of the following crop (see **Table 4** for crop rotation intervals).

Postharvest use on tomato vines. Apply **Sharpen** as a broadcast burndown spray at 1.0 to 2.0 fl ozs/A plus recommended adjuvants (refer to **Additives** section for details). Thorough spray coverage of existing tomato vines is essential and higher spray volumes may be needed for best performance. **DO NOT** apply prior to or during tomato fruit harvest.

Tank Mixtures

Broad-spectrum burndown control of grasses and/or additional broadleaf weeds will require a tank mix with another herbicide. **Sharpen** may be tank mixed or applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Clarity® herbicide**
- **Distinct® herbicide**
- glyphosate (e.g. **Roundup® herbicide**)

Legume Vegetables (chickpea, edible bean, edible pea, field pea (dry), and lentil)

Sharpen may be applied preplant surface, preplant incorporated, and/or preemergence in legume crops specified in this section for broadleaf weed control (refer to **Table 1** and **Table 2** for lists of weeds controlled).

Application Rates and Timings

See **Table 8** for specific application rates and timings recommendations as they vary by legume crop. With burndown applications, an adjuvant system (refer to **Additives** section for details) is required for optimum burndown activity.

Table 8. Use Directions for Legume Vegetables

| Legume Crop | Application Timing ¹ and Single Application Rates (fl ozs/A) | | Total Rate from Sequential Applications per Cropping Season (fl ozs/A) |
|--------------------------|--|----------------------------------|---|
| | Preplant Burndown | Preplant Burndown + Residual* | |
| Chickpea | 1.0 | 1.0 | 2.0 |
| Edible bean ² | 0.75 | 0.75 to 2.0 | 2.0 |
| Edible pea ² | 0.75 | 0.75 to 2.0 | 2.0 |
| Field pea, dry | 1.0 | 1.0 | 2.0 |
| Lentil | 0.75 | 0.75 to 2.0 | 2.0 |

*1.0 oz/A of **Sharpen™** herbicide will only provide limited residual activity on broadleaf weeds.

¹ See the following specific legume crop sections for additional use instructions.

² Refer to the following specific legume crop recommendations for types of edible beans and edible peas that are labeled for application.

Chickpea (garbanzo bean)

Sharpen is for use in all types of chickpeas. Apply **Sharpen** early preplant at 1.0 fl oz/A for burndown broadleaf weed control prior to crop emergence. For only limited residual activity on broadleaf weeds, **Sharpen** may also be applied preplant incorporated or preemergence at 1.0 fl oz/A. Sequential applications may be made with a minimum of 14 days between applications.

Edible Beans

Sharpen is for use **ONLY** on the following edible bean types:

- Edible-podded *Vigna* beans (asparagus bean, Chinese longbean, moth bean, yardlong bean)
- Succulent *Vigna* beans (blackeyed pea, cowpea, Southern pea)
- Dry *Vigna* beans (adzuki bean, blackeyed pea, cowpea, Crowder pea, moth bean, mung bean, rice bean, Southern pea)
- Dry *Lupinus* beans (grain lupin, sweet lupin, white lupin, white sweet lupin)

Apply **Sharpen** early preplant at 0.75 oz/A for burndown broadleaf weed control prior to crop emergence. For only limited residual activity on broadleaf weeds, **Sharpen** may also be applied preplant incorporated or preemergence at 0.75 to 2.0 fl oz/A. Sequential applications may be made with a minimum of 14 days between applications.

Edible Peas

Sharpen is for use **ONLY** on the following edible peas:

- Edible-podded peas (dwarf pea, edible-pod pea, snow pea, sugar snap pea)
- Succulent peas (English pea, garden pea, green pea)

Apply **Sharpen** early preplant at 0.75 oz/A for burndown broadleaf weed control prior to crop emergence. For only limited residual activity on broadleaf weeds, **Sharpen** may also be applied preplant incorporated or preemergence at 0.75 to 2.0 fl ozs/A. Sequential applications may be made with a minimum of 14 days between applications.

Field Peas

Sharpen is for use **ONLY** on the following field peas:

- Dry field peas

Apply **Sharpen** early preplant at 1.0 fl oz/A for burndown broadleaf weed control prior to crop emergence. For only limited residual activity, **Sharpen** may also be applied preplant incorporated or preemergence at 1.0 fl oz/A. Sequential applications may be made with a minimum of 30 days between applications.

Lentils

Apply **Sharpen** early preplant at 0.75 oz/A for burndown broadleaf weed control prior to crop emergence. For only limited residual activity on broadleaf weeds, **Sharpen** may also be applied preplant incorporated or preemergence at 0.75 to 2.0 fl ozs/A. Sequential applications may be made with a minimum of 14 days between applications.

DO NOT use **Sharpen** for lentils grown in California.

Use Advisory for Lentils. Lentil injury may be observed depending on factors including rainfall, soil type, seeding depth, and variety. Lentils will be more susceptible to injury from **Sharpen** on coarse-texture and low-organic matter soils. Soil residual herbicides may increase the sensitivity of lentils to **Sharpen** and should not be combined as a tank mix or sequential treatment in a lentil weed control program.

Crop-specific Restrictions and Limitations

- **DO NOT** apply more than a maximum cumulative amount of 4.0 fl ozs/A of **Sharpen** per cropping season.
- **DO NOT** apply when legumes have reached the cracking stage or after emergence or severe crop injury will occur.
- **DO NOT** apply **Sharpen** with other products containing **Group 14/Group E** herbicides (such as sulfentrazone or flumioxazin) as a tank mix or sequential application within 30 days because crop injury may result.
- **DO NOT** use **Sharpen** on any *Phaseolus* bean species.

- Legume forage may be fed or grazed 65 or more days after application.
- Refer to **Table 4** for crop rotation intervals.

Tank Mixtures

Broad-spectrum burndown control of grasses and/or additional broadleaf weeds will usually require a tank mix with another herbicide. **Sharpen™ herbicide** may be tank mixed or applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Pursuit® herbicide**
- glyphosate (e.g. **Roundup® herbicide**)

Small Grains (wheat, barley, canaryseed, oats, millet, rye, and tritcale)

Sharpen may be applied preplant surface, preplant incorporated, or preemergence to small grains for broadleaf weed control (refer to **Table 1** and **Table 2** for lists of weeds controlled). Small grains in this label refers to wheat (including durum, spring and winter), barley, canaryseed, oats, millet, rye, and tritcale.

Application Rates and Timings

Apply **Sharpen** for burndown and/or residual control of broadleaf weeds early preplant to preemergence at 1.0 to 2.0 fl ozs/A. An adjuvant system (refer to the **Additives** section for details) is required for optimum broadleaf burndown activity.

Sequential applications of **Sharpen** may be made as needed prior to small grain emergence. Early preplant applications may be applied as part of a split application program where the first application is made early preplant and the second application is made preemergence.

Winter Wheat Dormancy Application. For residual broadleaf weed control, apply **Sharpen** at 1.0 to 2.0 fl ozs/A to dormant winter wheat only. **DO NOT** apply until dormant period or during and/or after spring greenup (dormancy break). Water or liquid fertilizer may be used as the spray carrier.

Crop-specific Restrictions and Limitations

- **DO NOT** apply more than a maximum cumulative amount of 6.0 fl ozs/A of **Sharpen** per cropping season.
- **DO NOT** apply after small grain emergence or crop injury will occur.
- Small grain forage and hay can be fed or grazed 30 or more days after application.
- Refer to **Table 4** for rotational crop intervals.

Tank Mixtures

Broad-spectrum burndown control of grasses and/or additional broadleaf weeds will usually require a tank mix with another herbicide. **Sharpen** may be tank mixed or applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Clarity® herbicide**
- glyphosate (e.g. **Roundup**)

Sorghum (all types)

Sharpen may be applied preplant surface, preplant incorporated, or preemergence to sorghum (all types specified in the following list) for broadleaf weed control (refer to **Table 1** and **Table 2** for lists of weeds controlled). Before applying **Sharpen** to sweet sorghum, verify with your local seed company (supplier) the selectivity of **Sharpen** on your hybrid or variety to help avoid potential injury to sensitive hybrids or varieties.

Sharpen is for use **ONLY** on the following sorghum types:

- Grain sorghum (milo, durra, kaffir-corn, Indian millet, great millet, grand millet, kaoliang, Chinese sorghum, shatter-cane, guineacorn, sorgo comun)
- Sweet sorghum (sorgo, sorgo duice, Zuckerhirse, sorgo doux)

Application Rates

Application rates for **Sharpen** when applied alone, in tank mix, or sequentially are provided in **Table 9**.

Table 9. Residual Preemergence Rates of Sharpen in Grain Sorghum

| Rate by Soil Texture and Organic Matter Content (fl ozs/A) | | |
|---|----------------|--------|
| Soil Texture ¹ | Organic Matter | |
| | ≤ 1.5% | > 1.5% |
| Coarse | DO NOT USE | 2.0 |
| Medium | 2.5 | 3.0 |
| Fine | 3.0 | 4.0 |

¹ Refer to **Table 3** for definitions of soil texture groups.

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Table 10. Residual Preemergence Rates of Sharpen™ herbicide in Sweet Sorghum

| Rate by Soil Texture and Organic Matter Content (fl ozs/A) | | |
|---|----------------|--------|
| Soil Texture ¹ | Organic Matter | |
| | ≤ 1.5% | > 1.5% |
| Coarse | DO NOT USE | 2.0 |
| Medium | 2.5 | 3.0 |
| Fine | 3.0 | 4.0 |

¹Refer to **Table 3** for definitions of soil texture groups.

Application Timings

Early Preplant Surface Application (15 to 30 days prior to planting)

Application rates in **Table 9** and **Table 10** should be used when making early preplant surface applications, using the highest application rate for a given soil texture. Early preplant surface applications are not recommended on coarse soils or in areas where average annual rainfall (or rainfall + irrigation) typically exceeds 40 inches. Cultivation or a labeled postemergence herbicide application may still be required under certain conditions for complete weed control.

Early preplant surface applications may be applied as part of a split application program where applications are made as part of the application timings described in this label. However, the cumulative total of sequential application rates must not exceed the maximum labeled rate for a given soil texture.

Preplant Surface and Preplant Incorporated Applications (up to 14 days prior to planting)

Sharpen can be applied at use rates specified in **Table 9** and **Table 10** to the soil surface or incorporated up to 14 days before planting on all soil types. For preplant incorporated applications, apply **Sharpen** and incorporate into the upper soil surface (1 to 2 inches). Use a harrow, rolling cultivator, field cultivator or other implement capable of providing uniform shallow incorporation. Avoid deeper incorporation or reduced weed control may result.

Preemergence Surface Application

Apply **Sharpen** at use rates specified in **Table 9** and **Table 10** as a broadcast spray to the soil surface after planting and before crop emergence. **Sharpen** must be applied before crop emergence or injury will occur.

Burndown plus Residual Weed Control

In addition to residual broadleaf weed control obtained at any of the application timings described above, **Sharpen** will also provide burndown of emerged broadleaf weeds listed in **Table 1**. An adjuvant system (refer to **Additives** section for details) is required for optimum burndown activity. Burndown control of emerged grasses and/or additional

broadleaf weeds not listed on the label will require a tank mix with another herbicide (such as glyphosate).

Burndown Weed Control Only

Sharpen can be applied at 1.0 to 2.0 fl ozs/A (all soil types) with an adjuvant system any time prior to sorghum emergence to provide burndown of weeds listed in **Table 1**. A burndown application of **Sharpen** can be followed by residual rates of **Sharpen** (**Table 9** and **Table 10**) or **Integrity™** herbicide. However, **DO NOT** exceed the cropping seasonal maximum cumulative amount per acre of saflufenacil from all product sources.

Crop-specific Restrictions and Limitations

- **DO NOT** apply **Sharpen** after sorghum emergence or severe crop injury will occur.
- **DO NOT** apply **Sharpen** where an at-planting application of an organophosphate or carbamate insecticide(s) is planned and/or has occurred or severe injury may result.
- **DO NOT** apply more than a maximum cumulative amount of 6.0 fl ozs/A of **Sharpen** per cropping season.
- Sorghum forage can be harvested, fed, or grazed 70 days or more after application.
- Refer to **Table 4** for rotational crop intervals.

Tank Mixtures

Sharpen may be tank mixed or applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Clarity®** herbicide
- **G-Max Lite™** herbicide
- **Guardsman Max®** herbicide
- **Integrity**
- **Outlook®** herbicide
- atrazine
- glyphosate (e.g. **Roundup®** herbicide)

NOTE: Sorghum seed must be properly treated with an approved chloroacetamide safener when applying a chloroacetamide herbicide or sorghum injury will occur.

Soybean

Sharpen may be applied preplant surface or preplant incorporated up to preemergence in soybean for broadleaf weed control (refer to **Table 1** and **Table 2** for lists of weeds controlled).

Application Rates and Timings

Apply **Sharpen** early preplant or preplant incorporated up to preemergence at 1.0 fl oz/A for burndown broadleaf weed control prior to crop emergence. An adjuvant system (refer to **Additives** section for details) is required for optimum burndown activity.

Soybean Planting Interval. Dependent on soil texture and organic matter, an interval between **Sharpen** application and planting may be required (see **Table 11**). These

intervals must be observed prior to planting soybean or crop injury may occur.

Table 11. Minimum Preplant Intervals Required Between Sharpen™ herbicide Application and Soybean Planting

| Minimum Preplant Interval (days) by Soil Texture and Organic Matter Content | | |
|---|----------------|--------|
| Soil Texture ¹ | Organic Matter | |
| | ≤ 2.0% | > 2.0% |
| Coarse | DO NOT USE | 14 |
| Medium | 14 | None |
| Fine | None | None |

¹ Refer to **Table 3** for definitions of soil texture groups.

Crop-specific Restrictions and Limitations

- **DO NOT** apply more than a maximum cumulative amount of 4.0 fl ozs/A of **Sharpen** per cropping season.
- **DO NOT** apply when soybean has reached the cracking stage or after emergence or severe crop injury will occur.
- **DO NOT** apply to soybean grown on coarse textured soils that have less than or equal to 2.0% organic matter.
- **DO NOT** apply **Sharpen** with other products containing **Group 14/Group E** herbicides (such as sulfentrazone or flumioxazin) as a tank mix or sequential application within 30 days because crop injury may result.
- Ensure that the seed row is sufficiently covered with soil to avoid washing and concentration of the herbicide in the seed zone.
- Always use the most restrictive preplant interval of all inclusive herbicides when applying **Sharpen** as part of a tank mix.
- Soybean forage may be fed or grazed 65 or more days after application.
- Refer to **Table 4** for crop rotation intervals.
- **USE RESTRICTIONS for Sensitive Soybean Varieties.** Certain soybean varieties are sensitive to **Sharpen**. Consult a BASF representative, crop advisor, or seed company agronomist for information on soybean varieties sensitive to **Sharpen**. Apply 1.0 fl oz/A of **Sharpen** early preplant. Wait until there is an accumulation of 1 inch of rainfall or irrigation followed by an interval of 21 days before planting sensitive soybean varieties. This interval must be observed prior to planting sensitive soybean varieties or crop injury may occur.

Tank Mixtures

Broad-spectrum burndown control of grasses and/or additional broadleaf weeds will usually require a tank mix with a herbicide such as glyphosate. **Sharpen** may be tank mixed with or applied sequentially with one or more of, but not limited to, the following herbicide products:

- **Clarity®** herbicide
- **Extreme®** herbicide
- **Prowl® H₂O** herbicide
- **Pursuit®** herbicide
- **Scepter®** herbicide
- glyphosate (e.g. **Roundup®** herbicide)

Sunflower

Sharpen may be used for harvest aid/desiccation in sunflowers.

Application Rates and Timings

Uniformly apply **Sharpen** at 1.0 to 2.0 fl ozs/A as a broadcast spray over the top of sunflower that has reached physiological maturity (seed moisture is less than 36%) and at least 7 days prior to harvest. For many sunflower varieties, the back of the sunflower heads are yellow and the bracts are turning brown at this timing. Thorough spray coverage and an MSO adjuvant system (refer to the **Additives** section for details) is required for optimum desiccation activity.

Up to 2 sequential applications may be made, but the total cumulative amount of **Sharpen** applied must not exceed 4.0 fl ozs/A.

Crop-specific Restrictions and Limitations

- **DO NOT** apply **Sharpen** on sunflower grown for seed production.
- **DO NOT** apply more than a maximum cumulative amount of 4.0 fl ozs/A of **Sharpen** per cropping season.
- Sunflower seed can be harvested 7 or more days after application.
- Refer to **Table 4** for rotational crop intervals.

Tank Mixtures

Apply **Sharpen** with a labeled rate of glyphosate (e.g. **Roundup**) for additional preharvest weed control. Read and follow the applicable restrictions and limitations and directions for use on the glyphosate product label. The most restrictive labeling applies to tank mixes.

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The **Directions For Use** of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and must be followed carefully. However, it is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or use of the product in a manner inconsistent with its labeling, all of which are beyond the control of BASF CORPORATION ("BASF") or the Seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer.

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