7969-278 09-03-2010 1/24

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

OFFICE OF
CHEMICAL SAFETY AND
POLLUTION PREVENTION

Craig D. Kleppe, Ph.D.
BASF Corporation
26 Davis Drive
Research Triangle Park, NC 27709-3528

SEP - 3 2010

Subject: Label Amendment – Add crop rotation intervals to sweetcorn, add non-cropland area uses, delete references to crop oil concentrates, specify minimum spray carrier volume for weed control applications and harvest aid/desiccation applications, add use directions for fall application to soybeans

Product Name: SHARPEN Powered by KIXOR Herbicide
EPA Registration Number: 7969-278
Decision Number: 436550

The label amendment referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended is acceptable provided that you make the following change to the product labeling:

1) Delete the following sentence from the 'Hazards to Humans and Domestic Animals' section: "Remove and wash contaminated clothing before reuse."
This statement is redundant to the statements of the 'User Safety Recommendation' box.

2) On page 21, the last sentence of the left column under "Application Rates and Timings" must be revised so that the closing parenthesis comes after "saflufenacil" and not "acre."

3) On page 22, the last paragraph in the right column under "Water Volume for Leafy Spruge Control," the typographical error "Through" must be revised to "Thorough" so that the sentence reads: "Thorough coverage of weeds is essential…"

One copy of the master label stamped "Accepted with Comments" is enclosed for your records. Products shipped after 18 months from the date on this notice or the next printing of the label whichever occurs first, must bear the new revised label. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA. Your release for shipment of this product constitutes acceptance of these conditions. This label supersedes all previous accepted labels. You must submit one copy of the final printed label before the product is released for shipment.

Sincerely,

Kathryn V. Montague

Kathryn V. Montague
Product Manager (23)
Herbicide Branch
Registration Division (7505P)

2/24

BASF

The Chemical Company

Group 14 Herbicide

SHARPEN™ X™

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); and noncropland areas

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. 7969-278 **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 - 3 2010

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

7969-278

FIRST AID	
If swallowed	• 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	• 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	• 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	• 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. 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 Handling

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

In Case of 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)

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.

Product 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, for harvest aid/desiccation, and in noncropland areas. **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.

6/24

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	*Amaranthus palmeri*	C	6
Bedstraw, catchweed	*Galium aparine*	C	3
Beggarticks, hairy	*Bidens pilosa*	C	6
Beggarweed, Florida	*Desmodium tortuosum*	C	6
Bindweed, field	*Convolvulus arvensis*	S[1]	6
Buckwheat, wild	*Polygonum convolvulus*	C	3
Canola, volunteer (rapeseed)	*Brassica* spp.	C	6
Carpetweed	*Mollugo verticillata*	C	6
Chickweed, common	*Stellaria media*	S	3
Cocklebur, common	*Xanthium strumarium*	C	6
Cowcockle	*Vaccaria pyramidata*	C	4
Dandelion	*Taraxacum officinale*	S[1]	6
Eveningprimrose, cutleaf	*Oenothera laciniata*	C	4
Falseflax, smallseed	*Camelina microcarpa*	C	4
Filaree, broadleaf	*Erodium botrys*	C	4
Filaree, redstem	*Erodium cicutarium*	S	3
Filaree, whitestem	*Erodium moschatum*	C	4
Fleabane, hairy	*Conyza bonariensis*	C	6
Flixweed	*Descurainia sophia*	C	6
Goosefoot, nettleleaf	*Chenopodium murale*	C	3
Groundcherry, cutleaf	*Physalis angulata*	C	6
Groundsel, common	*Senecio vulgaris*	C	4
Henbit	*Lamium amplexicaule*	S	3
Horseweed (marestail)	*Conyza canadensis*	C	6
Knotweed, prostrate	*Polygonum aviculare*	C	3
Kochia	*Kochia scoparia*	C	1 to 3 Suppression of button/puffball stage at < 1-inch tall
Ladysthumb	*Polygonum persicaria*	C	6
Lambsquarters, common	*Chenopodium album*	C	6
Lambsquarters, narrowleaf	*Chenopodium pratericola*	C	6
Lettuce, miner's	*Claytonia perfoliata*	C	6
Lettuce, prickly	*Lactuca serriola*	C	6
Mallow, common	*Malva neglecta*	C	6
Mallow, little (cheeseweed)	*Malva parviflora*	C	6
Mallow, Venice	*Hibiscus trionum*	C	6
Marestail (horseweed)	*Conyza canadensis*	C	6
Morningglory, entireleaf	*Ipomoea hederacea* var. *integriuscula*	C	6
Morningglory, ivyleaf	*Ipomoea hederacea*	C	6
Morningglory, palmleaf	*Ipomoea wrightii*	C	6
Morningglory, pitted	*Ipomoea lacunosa*	C	6
Morningglory, tall	*Ipomoea purpurea*	C	6
Mustard, black	*Brassica nigra*	C	6
Mustard, tumble	*Sisymbrium altissimum*	C	6
Mustard, wild	*Sinapis arvensis*	C	6
Nettle, burning	*Urtica urens*	C	4
Nightshade, black	*Solanum nigrum*	C	6
Nightshade, cutleaf	*Solanum triflorum*	C	6
Nightshade, Eastern black	*Solanum ptycanthum*	C	6
Nightshade, hairy	*Solanum saccharoides*	C	6

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)
Pennycress, field	*Thlaspi arvense*	C	6
Pigweed, prostrate	*Amaranthus blitoides*	C	6
Pigweed, redroot	*Amaranthus retroflexus*	C	6
Pigweed, smooth	*Amaranthus hybridus*	C	6
Puncturevine	*Tribulus terrestris*	C	6
Purslane, common	*Portulaca oleracea*	C	3
Pusley, Florida	*Richardia scabra*	S	3
Ragweed, common[2]	*Ambrosia artemisiifolia*	C	6
Ragweed, giant	*Ambrosia trifida*	C	6
Rocket, London	*Sisymbrium irio*	C	6
Sesbania, hemp	*Sesbania exaltata*	C	4
Shepherd's-purse	*Capsella bursa-pastoris*	C	6
Sida, prickly	*Sida spinosa*	C	6
Smartweed, Pennsylvania	*Polygonum pensylvanicum*	C	6
Sowthistle, annual	*Sonchus oleraceus*	C	6
Sowthistle, spiny	*Sonchus asper*	C	6
Spurge, garden	*Chamaesyce hirta*	C	6
Spurge, prostrate	*Chamaesyce humistrata*	C	6
Spurge, spotted	*Chamaesyce maculata*	C	6
Sunflower, common	*Helianthus annuus*	C	6
Tansymustard, green	*Descurainia incana*	C	6
Tansymustard, pinnate	*Descurainia pinnata*	C	6
Thistle, Canada	*Cirsium arvense*	S[1]	6
Thistle, Russian	*Salsola kali*	C	3
Velvetleaf	*Abutilon theophrasti*	C	6
Waterhemp[2]	*Amaranthus tuberculatus*	C	6
Willowweed	*Epilobium adenocaulon*	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	*Amaranthus palmeri*	C
Amaranth, Powell	*Amaranthus powellii*	C
Beggarweed, Florida	*Desmodium tortuosum*	C
Buckwheat, wild	*Polygonum convolvulus*	C
Buffalobur	*Solanum rostratum*	C
Burcucumber	*Sicyos angulatus*	S
Carpetweed	*Mollugo verticillata*	C
Chamomile, mayweed	*Anthemis cotula*	C
Chickweed, common	*Stellaria media*	C
Cocklebur, common	*Xanthium strumarium*	C
Copperleaf, Virginia	*Acalypha virginica*	C
Devil's-claw	*Proboscidea louisiana*	C
Eclipta	*Eclipta prostrata*	C
Fleabane, hairy	*Conyza bonariensis*	C
Galinsoga, smallflower	*Galinsoga parviflora*	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		
Groundcherry, cutleaf	*Physalis angulata*	C
Horseweed (marestail)	*Conyza canadensis*	C
Jimsonweed	*Datura stramonium*	C
Kochia	*Kochia scoparia*	C
Ladysthumb	*Polygonum persicaria*	C
Lambsquarters, common	*Chenopodium album*	C
Mallow, Venice	*Hibiscus trionum*	C
Marestail (horseweed)	*Conyza canadensis*	C
Morningglory, entireleaf	*Ipomoea hederacea* var. *integriuscula*	C
Morningglory, ivyleaf	*Ipomoea hederacea*	C
Morningglory, palmleaf	*Ipomoea wrightii*	C
Morningglory, pitted	*Ipomoea lacunosa*	C
Morningglory, tall	*Ipomoea purpurea*	C
Mustard, wild	*Sinapis arvensis*	C
Nightshade, black	*Solanum nigrum*	C
Nightshade, cutleaf	*Solanum triflorum*	C
Nightshade, Eastern black	*Solanum ptycanthum*	C
Nightshade, hairy	*Solanum saccharoides*	C
Pennycress, field	*Thlaspi arvense*	C
Pigweed, prostrate	*Amaranthus blitoides*	C
Pigweed, redroot	*Amaranthus retroflexus*	C
Pigweed, smooth	*Amaranthus hybridus*	C
Pigweed, tumble	*Amaranthus albus*	C
Puncturevine	*Tribulus terrestris*	S
Purslane, common	*Portulaca oleracea*	C
Pusley, Florida	*Richardia scabra*	S
Ragweed, common	*Ambrosia artemisiifolia*	C
Ragweed, giant	*Ambrosia trifida*	C
Sesbania, hemp	*Sesbania exaltata*	C
Sida, prickly	*Sida spinosa*	C
Smartweed, Pennsylvania	*Polygonum pensylvanicum*	C
Sprangletop, red	*Leptochloa filiformis*	C
Spurge, nodding	*Chamaesyce nutans*	C
Spurge, spotted	*Chamaesyce maculata*	C
Starbur, bristly	*Acanthospermum hispidum*	C
Sunflower, common	*Helianthus annuus*	C
Thistle, Russian	*Salsola kali*	C
Velvetleaf	*Abutilon theophrasti*	C
Waterhemp, common	*Amaranthus rudis*	C
Waterhemp	*Amaranthus tuberculatus*	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. Thorough spray coverage is required 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 for weed control applications. Use a minimum of 3 to 5 gallons of water per acre for harvest aid/desiccation applications.

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 fixed wingspan or 90% of rotor blade diameter.
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 or stable atmospheric conditions.
6. Avoid potential adverse effects to nontarget areas by maintaining a (150)[a] 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).

[a] 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 for weed control applications. Thorough spray coverage is required for control of emerged broadleaf weeds. High populations and/or variations in size can prevent adequate spray coverage. Controlling fall-germinated weeds in the spring (e.g. horseweed/marestail) will also require thorough spray coverage. Use higher spray volumes (e.g. 15 to 20 gallons of water per acre) in these situations to increase spray coverage and optimize burndown activity. Use a minimum of 5 to 10 gallons of water per acre for harvest aid/desiccation applications.

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 burndown 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 or stable atmospheric conditions.
3. Avoid potential adverse effects to nontarget areas by maintaining a (75)[a] 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).

[a] 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:

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

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.

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)[1]	1 gal/100 gals (1% v/v)[2]
PLUS	**PLUS**
Ammonium sulfate (AMS)	8.5 to 17 lbs/100 gals (1% to 2% w/v)
or	**or**
Urea ammonium nitrate (UAN)	1.25 to 2.5 gals/100 gals (1.25% to 2.5% v/v)

[1] MSO-based adjuvant **MUST** contain at least 60% methylated seed oil. Poor performance may occur with adjuvants containing less than 60% MSO.
[2] **DO NOT** use less than 1 pint/A of MSO with low-volume (< 12.5 gallons per acre) aerial or ground applications.

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 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.

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.

Tank mixtures with contact herbicides (e.g. carfentrazone, paraquat) may reduce the burndown activity of **Sharpen**.

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 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** - 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-soluble additives** (including dry and liquid fertilizers such as ammonium sulfate or urea ammonium nitrate)
6. **Water-dispersible products** (such as dry flowables, wettable powders, suspension concentrates, or suspoemulsions)
7. **Water-soluble products**
8. **Emulsifiable concentrates** (including methylated seed oil adjuvants)
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.**

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)[1]					
Corn	0	0	0	0	0	0
Corn, sweet	0.5	1	2	3	4	4
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[2]	0	1	3	4	6	6
Soybean[3]	0 to 1	1 to 2	2 to 3	4	6	6
Lentil	1	2	3	4	6	9
Cotton[3]	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

[1] **DO NOT** include time when the soil is frozen.
[2] 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.
[3] 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%.

Crop-specific Information

This section provides use directions for **Sharpen™ herbicide** in specific crops. Be sure to read product 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).

Thorough spray coverage is required for control of emerged broadleaf weeds. High populations and/or variations in size can prevent adequate spray coverage. Controlling fall-germinated weeds in the spring (e.g. horseweed/marestail) will also require thorough spray coverage. Use higher spray volumes (e.g. 15 to 20 gallons of water per acre) in these situations to increase spray coverage and optimize burndown activity.

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 Program[1] 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**. Separate sequential applications by at least 14 days. However, **DO NOT** exceed the cropping seasonal maximum cumulative amount per acre of saflufenacil from all product sources per cropping season.

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 (OP) or carbamate insecticide(s) is planned and/or has occurred because severe injury may result.

  EXCEPTION: Sharpen may be applied when **Aztec® insecticide** or **Fortress® insecticide** is applied at planting as a band, T-band, or in-furrow. **Sharpen** may be applied with all other classes of at-planting insecticides including pyrethroids, neonicotinoids, and fipronil.
- **DO NOT** apply more than a maximum cumulative amount of 6.0 fl ozs/A of **Sharpen** (0.134 lb ai/A of saflufenacil) 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® H_2O 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. In geographic areas with average annual rainfall less than 25 inches, the 42-day preplant interval is required after the accumulation of 1 inch of rainfall and/or irrigation. **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™ herbicide** 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.
- 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® herbicide**
- **Distinct® herbicide**
- **Prowl® H_2O herbicide**
- glyphosate (e.g. **Roundup® herbicide**)

Fallow and Postharvest

Sharpen 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**
- **Distinct**
- glyphosate (e.g. **Roundup**)

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 through preemergence at 1.0 fl oz/A for burndown broadleaf weed control prior to crop emergence. 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 through preemergence at 1.0 fl oz/A for burndown broadleaf weed control prior to crop emergence. 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 of planting 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 triticale)

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 triticale.

Application Rates and Timings

Apply **Sharpen** for burndown and/or residual control of broadleaf weeds early preplant through 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. Separate sequential applications by at least 14 days.

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, shattercane, 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** for grain sorghum and **Table 10** for sweet sorghum.

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.

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

[1] 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 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** within 30 days of planting where an at-planting application of an organophosphate or carbamate insecticide(s) is planned and/or has occurred or severe injury may result.

  EXCEPTION: Sharpen may be applied when **Aztec® insecticide** or **Fortress® insecticide** is applied at planting as a band, T-band, or in-furrow. **Sharpen** may be applied with all other classes of at-planting insecticides including pyrethroids, neonicotinoids, and fipronil.
- **DO NOT** apply more than a maximum cumulative amount of 6.0 fl ozs/A of **Sharpen** per cropping season. Sequential applications must be separated by at least 14 days.
- 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**
- **Integrity**
- **Guardsman Max® herbicide**
- **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 in the fall and/or in the spring as a preplant surface, or preplant incorporated, or preeemergence burndown application in reduced or no-till soybeans for broadleaf weed control (refer to **Table 1** and **Table 2** for lists of weeds controlled). An adjuvant system (refer to **Additives** section for details) is required for optimum burndown activity.

Application Rates and Timings

Fall Applications

Apply **Sharpen™ herbicide** at 1.0 to 2.0 fl ozs/A for burndown broadleaf weed control after the prior crop is harvested. Applications must be made prior to first killing frost. Fall applications can be made to all soil types.

Spring Applications

Apply **Sharpen** early preplant through preemergence at 1.0 fl oz/A for burndown broadleaf weed control prior to crop emergence.

For enhanced burndown broadleaf weed control, apply **Sharpen** at 1.5 fl ozs/A. When using this rate, add 14 days to the minimum preplant intervals listed in **Table 11**.

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 Application at 1.0 fl oz/A 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** (0.089 lb ai/A of saflufenacil) per cropping season. Sequential applications **MUST** be separated by at least 30 days.
- **DO NOT** apply more than a maximum cumulative amount of 0.089 lb ai/A of saflufenacil per cropping season in soybean from all product sources.
- **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 of planting because crop injury may result. **Group 14/Group E** herbicides labeled for postemergence applications in soybean may be used 14 days after soybean emergence.
- **DO NOT** apply **Sharpen** within 30 days of planting where an at-planting application of an organophosphate or carbamate insecticide(s) is planned and/or has occurred because severe 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® H_2O 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™ herbicide** 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.

Noncropland Areas

Sharpen may be used:

- In noncropland areas including fence rows, nonirrigation ditchbanks, petroleum tank farms, pumping installations, railroads, rights-of-way (utility, pipeline, highway), storage areas, and utility plant sites
- For the establishment and maintenance of natural areas (such as wildlife management areas, wildlife openings, and wildlife habitats)

Application Rates and Timings

Sharpen may be applied either in a single application or sequentially with an interval of 14 days or more.

Application rates for **Sharpen** when applied alone, in tank mix, or sequentially are given in **Table 12**. **DO NOT** apply more than a maximum cumulative total of 6.0 fl ozs/A of **Sharpen** (0.134 pound active ingredient saflufenacil per acre) per year.

Table 12. Application Rates in Noncropland Areas

Application	Application Target	Application Rate (fl ozs/A)
Postemergence	Weed size < 6 inches	2 to 4
	Weed size ≥ 6 inches and/or heavier weed infestations	4 to 6[a]
Postemergence + Residual	Burndown + Residual preemergence weed control	6[b]
Tank Mixes with Glyphosate		
Accelerated Burndown	Accelerated burndown of broadleaf weeds and/or control of glyphosate-tolerant species [such as horseweed (marestail)]	1 to 2
Accelerated Burndown + Residual	Accelerated burndown of broadleaf weeds plus control of glyphosate-tolerant species with residual preemergence weed control	6[b]

[a] Partial control or suppression may result with applications to weeds > 6 inches.

[b] To provide effective residual control of labeled weed species, **Sharpen MUST** be used at the maximum use rate of 6 fl ozs/A.

Selective Weeding

Apply **Sharpen** up to 2.0 fl ozs/A as a postemergence spray plus the recommended adjuvant (refer to **Additives** section for details) as a uniform broadcast application for selective broadleaf weed control in unimproved turf and native grass areas. Transitory injury (leaf necrosis) may be observed under certain conditions, but new growth is normal and vigor is not reduced.

DO NOT feed or allow animals to graze areas of grass treated with **Sharpen** within 365 days of treatment.

Tank Mixtures for Selective Weeding

Broad-spectrum postemergence and/or residual control of grasses or additional broadleaf species will 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:

- **Distinct® herbicide**
- **Journey® herbicide**
- **Overdrive® herbicide**
- **Plateau® herbicide**
- glyphosate (e.g. **Roundup® herbicide**)

Bareground

Sharpen will provide contact burndown plus residual preemergence control of annual broadleaf weeds. Apply **Sharpen** plus the recommended adjuvant (refer to **Additives** section for details) as a uniform broadcast application. To provide effective residual broadleaf weed control, **Sharpen** must be applied at the maximum use rate of 6 fl ozs/A. The actual length of residual control is dependent on factors such as application rate, soil type, organic matter, weed pressure, and rainfall amounts after application. Adequate precipitation is necessary to activate **Sharpen**. Dry weather following application may reduce effectiveness.

Tank Mixtures for Bareground

Broad-spectrum postemergence and/or residual control of grasses or additional broadleaf species 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:

- **Arsenal® PowerLine™ herbicide**
- **Journey**
- **Pendulum® AquaCap™ herbicide**
- **Plateau**
- **Sahara® herbicide**
- diuron
- glyphosate (e.g. **Roundup**)

Leafy Spurge Control

Sharpen applied in tank mixture with **Plateau** will control leafy spurge when applied late spring/early summer in noncropland areas as described above. This tank mixture will also control additional weeds listed on the respective **Sharpen** and **Plateau** labels. **Sharpen** plus **Plateau** tank mix may be applied by either ground or air.

Apply **Sharpen** at 1.0 to 2.0 fl ozs/A plus **Plateau** at 4.0 to 6.0 fl ozs/A to leafy spurge when it reaches the yellow bract (pre-bloom) stage in late spring/early summer. **DO NOT** apply this tank mix as a fall application because resultant control may not be satisfactory.

DO NOT feed or allow animals to graze areas of grass treated with **Sharpen** within 365 days of treatment.

Spray Additives for Leafy Spurge Control. Sharpen plus **Plateau** tank mix requires the use of an effective adjuvant system. For best results, use a nonionic surfactant at 0.25% volume/volume (v/v) plus ammonium sulfate at 8.5 to 17.0 lbs/100 gals [1% to 2% weight/volume (w/v)]. Crop oil concentrate or methylated seed oil may also be used with this tank mixture when injury (stunting, necrosis) to grasses is acceptable.

Water Volume for Leafy Spurge Control. For ground applications, use 10 or more gallons of water per acre. Through coverage of weeds is essential and higher spray volumes may be necessary for better performance on a heavy population of leafy spurge. For aerial applications, use 5 or more gallons of water per acre.

24
24

Conditions of Sale and Warranty

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

BASF warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the **Directions For Use**, subject to the inherent risks, referred to above.

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