

# TENKÖZ®

# Sulfentrazone 4F

## Herbicide

SULFENTRAZONE GROUP 14 HERBICIDE

**ACTIVE INGREDIENT:**

Sulfentrazone ..... 40.4%

**OTHER INGREDIENTS:**

59.6%

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

Contains 4 pounds of active ingredient per gallon.

## KEEP OUT OF REACH OF CHILDREN CAUTION

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

### NET CONTENTS: 2.5 GAL.

EPA Reg. No. 42750-357-55467

EPA Est. No. 70815-GA-01

Distributed by:

**TENKÖZ® Inc.**

1725 Windward Concourse

Suite 410

Alpharetta, GA 30005

42126TK0022

AD121719

See inside booklet for additional **PRECAUTIONARY STATEMENTS** and complete **DIRECTIONS FOR USE**.

FIRST AID	
<b>IF SWALLOWED</b>	<ul style="list-style-type: none"><li>• Call a poison control center or doctor immediately for treatment advice.</li><li>• Have person sip a glass of water if able to swallow.</li><li>• Do not induce vomiting unless told to do so by the poison control center or doctor.</li><li>• Do not give anything by mouth to an unconscious person.</li></ul>
<b>IF INHALED</b>	<ul style="list-style-type: none"><li>• Move person to fresh air.</li><li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li><li>• Call a poison control center or doctor for further treatment advice.</li></ul>
<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li><li>• Call a Poison Control Center or doctor for treatment advice.</li></ul>
<b>IF IN EYES</b>	<ul style="list-style-type: none"><li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li><li>• Remove contact lenses, if present, after the first 5 minutes. Then continue rinsing eye.</li><li>• Call a Poison Control Center or doctor for treatment advice.</li></ul>
<b>HOTLINE NUMBER</b>	Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact CHEMTREC at 1-800-424-9300 for emergency medical information.

**FOR CHEMICAL SPILL, LEAK, FIRE, OR EXPOSURE, CALL CHEMTREC 1-800-424-9300**

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## PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS CAUTION

Harmful if swallowed. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of barrier laminate, butyl rubber  $\geq 14$  mils, nitrile rubber  $\geq 14$  mils, neoprene rubber  $\geq 14$  mils, polyvinyl chloride  $\geq 14$  mils, or Viton  $\geq 14$  mils
- Shoes plus socks

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

### 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 clothing.

### ENVIRONMENTAL HAZARDS

This chemical is toxic to marine/estuarine invertebrates. Do not apply directly to water to areas where surface water is present or to intertidal areas below the mean high-water mark. Drift and runoff may be hazardous to terrestrial and aquatic plants in neighboring areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

Groundwater advisory: Sulfentrazone is known to leach through soil into groundwater under certain conditions as a result of label use. Use of this chemical in areas where soils are permeable particularly where the water table is shallow may result in groundwater contamination.

Do not use on coarse soils classified as sand which have less than 1% organic matter.

Surface water advisory: Sulfentrazone can contaminate surface water through spray drift. Under some conditions sulfentrazone may also have a high potential for runoff into surface water (primarily via dissolution in runoff water) for many months post application.

These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters frequently flooded areas, areas overlying extremely shallow groundwater areas with in field canals or ditches that drain to surface water areas not separated from adjacent surface waters with vegetated filter strips and areas overlying tile drainage systems that drain to surface waters.

## PHYSICAL/CHEMICAL HAZARDS

Do not mix or allow contact with oxidizing agents, as a hazardous chemical reaction may occur.

## DIRECTIONS FOR USE

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

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

Do not apply more than the allowed amount of SULFENTRAZONE 4F per acre per twelve-month period as stated in Table 4. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.

For any requirements specific to your State or Tribe, consult the Agency responsible for pesticide regulation.

### AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. These SULFENTRAZONE 4F requirements 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.

Personal Protective Equipment (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:

1. Coveralls
2. Chemical resistant gloves made of barrier laminate, butyl rubber  $\geq 14$  mils, nitrile rubber  $\geq 14$  mils, neoprene rubber  $\geq 14$  mils, polyvinyl chloride  $\geq 14$  mils, or Viton  $\geq 14$  mils
3. Shoes plus socks

### NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Rentry Statement: Do not allow people (other than applicator) or pets on treatment area during application. Do not enter treatment area until sprays have dried.

### RESISTANCE MANAGEMENT

SULFENTRAZONE 4F contains the active ingredient sulfentrazone and is a Group 14 herbicide based on the mode of action classification system of the Weed Science Society of America. Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is a best practice. A diversified weed management program may include the use of multiple herbicides with different sites of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistance.

The continued effectiveness of this product depends on the successful implementation of a weed resistance management program. To aid in the prevention of developing weeds resistant to this product, users should:

- Scout fields before application to ensure herbicides and rates will be appropriate for the weed species and weed sizes present.
  - Start with a clean field, using either a burndown herbicide application or tillage.
  - Control weeds early when they are relatively small (less than 4 inches).
  - Apply full rates of SULFENTRAZONE 4F for the most difficult to control weed in the field at the specified time (correct weed size) to minimize weed escapes.
  - Scout fields after application to detect weed escapes or shifts in control of weed species.
  - Control weed escapes before they reproduce by seed or proliferate vegetatively.
  - Report any incidence of non-performance of this product against a particular weed to your TENKOZ, INC. representative, local retailer, or county extension agent.
  - Contact your TENKOZ, INC. representative, crop advisor, or extension agent to find out if suspected resistant weeds to these MOAs have been found in your region.
- Do not assume that each listed weed is being controlled by multiple sites of action. Products with multiple active ingredients are intended to broaden the spectrum of weeds that are controlled. Some weeds may be controlled by only one of the active ingredient in this product.

- If resistance is suspected, treat weed escapes with an herbicide having a site of action other than Group 14 and/or use nonchemical methods to remove escapes, as practical, with the goal of preventing further seed production.
- Suspected herbicide-resistant weeds may be identified by these indicators:
- Failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;
- A spreading patch of non-controlled plants of a particular weed species; and
- Surviving plants mixed with controlled individuals of the same species.

Additionally, users should follow as many of the following herbicide resistance management practices as is practical:

- Use a broad-spectrum soil-applied herbicide with other sites of action as a foundation in a weed control program.
- Utilize sequential applications of herbicides with alternative sites of action.
- Rotate the use of this product with non-Group 14 herbicides.
- Avoid making more than two applications of SULFENTRAZONE 4F and any other Group 14 herbicide within a single growing season unless mixed with an herbicide with a different site of action with an overlapping spectrum for the difficult-to-control weeds.
- Incorporate non-chemical weed control practices, such as mechanical cultivation, crop rotation, cover crops and weed-free crop seeds, as part of an integrated weed control program.
- Use good agronomic principles that enhance crop development and crop competitiveness.
- Thoroughly clean plant residues from equipment before leaving fields suspected to contain resistant weeds.
- Manage weeds in and around fields, during and after harvest to reduce weed seed production.

## PRODUCT INFORMATION

SULFENTRAZONE 4F is a selective soil applied herbicide for the control of susceptible broadleaf grass and sedge weeds. SULFENTRAZONE 4F is formulated as a 4-pounds per gallon flowable containing the active ingredient sulfentrazone. **If adequate moisture (1/2" to 1") from rainfall or irrigation is not received within 7 to 10 days after the SULFENTRAZONE 4F treatment, a shallow incorporation may be needed to obtain desired weed control.** When activating moisture is received after dry conditions, SULFENTRAZONE 4F will provide a reduced level of control of susceptible germinating weeds. Soil applications of SULFENTRAZONE 4F must be made before crop seed germination to prevent injury to the emerging crop seedlings. When applications after planting are delayed, injury may occur if seeds are germinating or if they are located near the soil surface. Observe all instructions, crop restrictions, mixing directions, application precautions, replanting directions, rotational crop guidelines and other label information of each product when tank mixing with SULFENTRAZONE 4F.

**Proper handling instructions:** SULFENTRAZONE 4F may not be mixed or loaded within 50 feet of any wells (including abandoned wells and drainage wells), sinkholes, perennial or intermittent streams and rivers and natural or impounded lakes and reservoirs. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pads or properly diked mixing/loading areas.

Operations that involve mixing, loading, rinsing or washing of this product into or from pesticide handling or application equipment or containers within 50 feet of any well are prohibited unless conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be positioned on or moved across the pad. Such a pad shall be designed and maintained to contain any product spills or equipment leaks, container or equipment rinse or washwater and rainwater that may fall on the pad. Surface water shall not be allowed to either flow over or from the pad, which means the pad must be self-contained. The pad shall be sloped to facilitate material removal. An unroofed pad shall be of sufficient capacity to contain at a minimum 110% of the capacity of the largest pesticide container or application equipment on the pad. A pad that is covered by a roof of sufficient size to completely exclude precipitation from contact with the pad shall have a minimum containment capacity of 100% of the capacity of the largest pesticide container or application equipment on the pad. Containment capacities as described above shall be maintained at all times. The above specific minimum containment capacities do not apply to vehicles when delivering pesticide shipments to the mixing/loading site. States may have in effect additional requirements regarding wellhead setbacks and operational containment. Product must be used in a manner that will prevent back siphoning in wells, spills or improper disposal of excess pesticide, spray mixtures or rinsates.

## APPLICATION INSTRUCTIONS

SULFENTRAZONE 4F may be applied to soil as a preplant, incorporated treatment, or as a pre-emergence (prior to weed and/or crop emergence) surface application. Additional application methods include post plant treatments, over the top and layby, in various crops. Application methods are defined in the following Crop Use Directions sections:

Preplant incorporated treatments require a uniform surface application followed by incorporation. Do not incorporate to a depth greater than 2 inches which may result in poor weed control. Care must be taken not to create overlaps in treated zones due to soil movement, which will result in excessive SULFENTRAZONE 4F rates that could result in adverse crop response.

All soil applications and the residual activity of post plant applications of SULFENTRAZONE 4F require adequate moisture for herbicidal activation. The ultimate amount of moisture whether supplied by rainfall or irrigation is dependent on several factors. These factors include but are not limited to existing soil moisture at application, soil type, organic matter and till. In crop situations dependent on rainfall, SULFENTRAZONE 4F can await activating moisture for extended periods (10 to 14 days or longer) depending on the soil parameters described above. Once activated, SULFENTRAZONE 4F will provide activity on existing weeds. The level of activity will depend on the weed species and their size at time of activation. Where irrigation is not available and rainfall has not provided activation, particularly for surface applications of SULFENTRAZONE 4F, a shallow incorporation is recommended for destruction of any germinating weeds and to incorporate SULFENTRAZONE 4F. Herbicide incorporation will initiate the process of activation with existing soil moisture in circumstances where prolonged periods without rainfall and/or irrigation is not possible, alternative or additional weed management practices (cultivation or post applied herbicides) may be required.

Extreme care must be exercised, and the **Crop Specific Use Directions** followed exactly in crops allowing post plant applications of SULFENTRAZONE 4F. Over the top and lay by applications will provide contact, and residual weed control, depending on species. The addition of surfactants may increase contact weed control performance but may also increase the risk of adverse crop response as well.

The directions for the selection of SULFENTRAZONE 4F application rates are critical to achieve maximum performance and to ensure maximum crop safety. The user is required to read and follow the specific SULFENTRAZONE 4F use directions and restrictions for each crop as defined in subsequent sections of this label. The user is cautioned that some crops respond differently to SULFENTRAZONE 4F. This response is governed by the SULFENTRAZONE 4F application rate, various soil factors, and inherent crop sensitivity. The **Crop Specific Use Directions** have been designed to minimize the risk of adverse crop response while maintaining optimum weed control.

#### Mode of Action

Sulfentrazone, the active ingredient in SULFENTRAZONE 4F is a potent inhibitor of the enzyme Protoporphyrinogen Oxidase IX (PPO IX) required for the formation of chlorophyll inhibition of PPO IX enzyme results in the liberation of singlet oxygen (O) that in turn disrupts cellular membranes and causes cellular leakage. The ultimate manifestation of the process is cellular death leading to plant death. The selective herbicidal activity of sulfentrazone is based on its greater affinity for the PPO IX enzyme in weed species versus crop plants.

#### Mechanism of Action

Following the application of SULFENTRAZONE 4F to soil germinating seeds and seedlings, take up sulfentrazone from the soil solution. The amount of sulfentrazone in soil solution and available for weed uptake is determined primarily by soil type, organic matter and soil pH. Sulfentrazone adsorbs to the clay and organic matter (OM) fractions of soils, effectively limiting the amount of active ingredient immediately available to control weeds. Soils typically increase in clay content through the series from coarse to fine as noted in the following Soil Classification Chart Table 1.

## SOIL CLASSIFICATION CHART

Table 1

COARSE	MEDIUM	FINE
Sand Loamy sand Sandy Loam	Sandy clay loam Sandy clay Loam Silty loam Silt	Silty clay loam Silty clay Clay loam Clay

Influence of soil type, organic matter and pH on SULFENTRAZONE 4F Use Rates and Crop Response

Soil organic matter content can vary widely and independently of soil type, and requires an accurate analysis of representative soil samples to determine its content.

Soil pH also exerts a dramatic effect on sulfentrazone availability in the soil solution as soil pH increases sulfentrazone availability increases. Accurate soil pH information will require an accurate analysis of representative soil samples.

The total amount of sulfentrazone available in solution in any given soil is determined by the interaction of soil type (clay content) % organic matter and pH. The application timing (relative to the emergence of the crop and weeds) and amount of rainfall and/or irrigation received will ultimately determine in conjunction with the soil parameters and pH the amount of sulfentrazone in soil solution. It is important to note that SULFENTRAZONE 4F can await activating moisture. However, diminished weed control may result due to the successive increase in weed growth versus timing of activation. It is important to note that irrigation with highly alkaline water (high pH), following a SULFENTRAZONE 4F soil application, can also significantly increase the amount of sulfentrazone available in the soil solution. Irrigation with water having a pH greater than 7.5 could result in adverse crop response. This response will ultimately depend on initial SULFENTRAZONE 4F application rate timing amount and pH of irrigation

water and sensitivity of the crop and its growth stage when irrigated. The risk of adverse crop response will lessen with the advance in growth stage among most crops. The following **Crop Specific Use Directions** have been designed with specific SULFENTRAZONE 4F instructions for each crop based on the soil type, soil organic matter, and soil pH interactions described above.

## APPLICATION INFORMATION

### Ground Application

Utilize a boom and nozzle sprayer equipped with the appropriate nozzles, spray tips and screens and adjusted to provide optimum spray distribution and coverage at the appropriate operating pressures. Utilize nozzles that produce minimal amounts of fine spray droplets to avoid spray drift or inadequate foliar and/or soil coverage. Apply a minimum of 10 gallons of finished spray per acre by ground. Be aware that overlaps and slower ground speeds while starting, stopping or turning while spraying, may result in excessive application and subsequent crop response.

Do not apply when wind speed favors drift beyond the area intended for treatment.

### Aerial Application

Use nozzle types and arrangements that will provide optimum coverage while producing a minimal number of fine droplets. Apply sufficient spray volume to achieve adequate coverage. Apply a minimum of 5 gallons of finished spray per acre. Do not apply when wind speed favors drift beyond the area intended for treatment.

### Chemigation Application

SULFENTRAZONE 4F may be applied through sprinkler irrigation systems including center pivot lateral move, end tow, solid set or hand move irrigation systems. Do not apply this product through any other type of irrigation system. Do not connect any irrigation system (including greenhouse systems) used for pesticide application to a public water system. Crop injury, lack of effectiveness or illegal residues on or in the crop can result from non-uniform distribution of treated water. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

It is important to note that irrigation with highly alkaline water (high pH) following a SULFENTRAZONE 4F soil application can also significantly increase the amount of sulfentrazone available in soil solution irrigation with water having a pH greater than 7.5 could result in adverse crop response. This response will ultimately depend on initial SULFENTRAZONE 4F application rate application timing amount and pH of the irrigation water, and the sensitivity of the crop and the growth stage when irrigated. The risk of adverse crop response will lessen with advancing growth stages of most crops.

The system must contain a functional check valve vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow. The pesticide injection pipeline must also contain a functional automatic quick closing check valve to prevent the flow of fluid back toward the injection pump. The pesticide injection pipeline must also contain a functional normally closed solenoid operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

SULFENTRAZONE 4F should be metered into the irrigation system continuously for the duration of the water application. SULFENTRAZONE 4F should be diluted in sufficient volume to insure accurate application over the area to be treated. Use the appropriate amount of water to carry the product to the soil surface. Continuous agitation is required to maintain product suspension in the solution tank. A jar test should be conducted to ensure that phase separation would not occur during dilution and application. Failure to achieve a uniform dilution throughout the time of application may result in undesirable residues or less than desirable weed control. Flush the lines at the completion of the application and then turn the water off promptly.

When using water from public water systems, **DO NOT APPLY SULFENTRAZONE 4F THROUGH ANY IRRIGATION SYSTEM PHYSICALLY CONNECTED TO A PUBLIC WATER SYSTEM.** Public water system means a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days of the year. SULFENTRAZONE 4F may be applied through irrigation systems which may be supplied by a public water system only if water from the water system is discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and to top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe. Before beginning chemigation, always make sure that the air gap exists and that there is no blockage of the overflow of the reservoir tank.

### Application with Dry Fertilizers

SULFENTRAZONE 4F may be applied impregnated on dry fertilizers. When applied as directed with adequate soil coverage, SULFENTRAZONE 4F dry bulk fertilizer mixtures will provide satisfactory weed control. Follow all SULFENTRAZONE 4F label directions regarding product use rates per acre registered crops incorporation special instructions and precautions. Apply SULFENTRAZONE 4F /dry fertilizer mixtures with ground equipment only. All individual state regulations relating to dry bulk fertilizer blending, registration, labeling and application are the responsibility of the individual and/or company preparing, storing, transporting, selling or applying the SULFENTRAZONE 4F dry fertilizer mixture.

### Impregnation Directions

To impregnate SULFENTRAZONE 4F on dry bulk fertilizer, use a closed rotary drum mixer or other commonly used dry bulk fertilizer blender equipped with suitable spray equipment.

Prepare a slurry of SULFENTRAZONE 4F in a clean container using clear water. Slowly add the SULFENTRAZONE 4F water slurry to the impregnation spray tank and finish filling as needed. With clear water. Spray nozzles must be placed to provide uniform coverage of SULFENTRAZONE 4F onto the fertilizer during mixing. Refer to the SPRAYER EQUIPMENT CLEAN OUT section for directions for cleaning impregnation equipment, transport equipment, loading equipment and application equipment.

Apply the SULFENTRAZONE 4F dry bulk fertilizer with an accurately calibrated dry fertilizer spreader. The SULFENTRAZONE 4F dry bulk fertilizer mixture must be spread uniformly on the soil surface. Uneven spreading leaving untreated areas can cause poor weed control or overlapping areas with potential increased SULFENTRAZONE 4F use rates could result in possible crop response.

A minimum of 200 pounds of dry bulk fertilizer impregnated with the listed amount of SULFENTRAZONE 4F must be applied per acre to achieve adequate soil coverage for satisfactory weed control.

DO NOT impregnate SULFENTRAZONE 4F onto coated ammonium nitrate or limestone, because these materials will not absorb the herbicide.

Refer to the appropriate crop section of the SULFENTRAZONE 4F label to determine the rate of SULFENTRAZONE 4F to be applied per acre. Use the following table to determine the amount of SULFENTRAZONE 4F to be impregnated on a ton (2000 pounds) of dry bulk fertilizer based on the rate of fertilizer that will be applied per acre.

For those rates not listed in the following table, calculate the amount of SULFENTRAZONE 4F to be impregnated on a ton of dry bulk fertilizer using the following formula:

$$\begin{array}{l} 2000 \text{ pounds} \\ \text{dry fertilizer} \end{array} \times \begin{array}{l} \text{SULFENTRAZONE 4F use Rate in Fluid} \\ \text{Ounces per Acre} \end{array} = \begin{array}{l} \text{Ounces of SULFENTRAZONE 4F to be applied} \\ \text{per ton of fertilizer per acre} \end{array}$$

## RATE CHART FOR IMPREGNATION OF DRY BULK FERTILIZERS WITH SULFENTRAZONE 4F

Table 2

	Ounces SULFENTRAZONE 4F per ton of fertilizer		
	SULFENTRAZONE 4F Use Rate Per Acre		
Dry Fertilizer Rate (lb./acre)	8.0 Fluid Ounces per Acre	10.1 Fluid Ounces per Acre	12.0 Fluid Ounces per Acre
200	8.0	10.1	12.0
250	6.4	8.8	9.6
300	5.33	6.73	8.0
350	4.57	5.77	6.86
400	4.0	5.05	6.0
450	3.56	4.49	5.33

### Application with Liquid Fertilizer

SULFENTRAZONE 4F may be applied using liquid fertilizer solutions as the carrier. The fertilizer solutions may either be concentrate formulations as blended or diluted with water. When applied as directed with adequate soil coverage, SULFENTRAZONE 4F applied with liquid fertilizer mixtures will provide satisfactory weed control. However, adequate soil coverage is essential to achieve acceptable levels of weed control.

Herbicide mixing solution stability and/or compatibility problems can occur when liquid fertilizers are used as a carrier. Compatibility tests must be conducted prior to mixing to insure tank mixture compatibility and stability. The use of compatibility agents may be beneficial to achieve and maintain a homogenous solution.

### Mixing Instructions for Liquid Fertilizer Application

Fill the clean spray tank to one half of the total volume with the fertilizer solution. Start the spray tank agitation system. Prepare a slurry of SULFENTRAZONE 4F in a clean container. With clean water using equal volumes of SULFENTRAZONE 4F and clean water. Slowly add the SULFENTRAZONE 4F/water slurry to the spray tank. Carefully rinse the slurry container, adding the rinsate to the spray tank. Better mixing of the SULFENTRAZONE 4F water slurry may be achieved if the slurry is added using induction systems on the sprayer fill plumbing system.

Complete filling the spray tank to the desired level. Sufficient and continuous spray tank agitation is required at all times to maintain a homogenous spray solution. The spray system must be designed such that there is sufficient flow capacity to uniformly apply the spray mixture and maintain adequate tank agitation. Some systems may require separate pumps to simultaneously supply the spray system and the spray tank agitation system. Insure the SULFENTRAZONE 4F slurry is thoroughly mixed before application.

For tank mixtures with other herbicide(s), a compatibility test must be conducted to ensure product compatibility before mixing. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Apply the SULFENTRAZONE 4F spray mixture immediately after mixing. Do not store the sprayer overnight or for any extended period of time with the SULFENTRAZONE 4F spray mixture remaining in the tank.

**DO NOT** premix SULFENTRAZONE 4F spray solutions in nurse tanks.

All individual state regulations relating to liquid fertilizer blending storage transportation registration labeling and application are the responsibility of the individual and/or company preparing selling or applying the SULFENTRAZONE 4F and fertilizer mixture.

### MANDATORY SPRAY DRIFT DIRECTIONS

#### AERIAL APPLICATIONS:

- **DO NOT** release spray at a height greater than 10 feet above the vegetative canopy, unless a greater application height is necessary for pilot safety.
- Aerial application is allowed only when the field is too wet to safely apply pesticides using ground equipment.
- For applications prior to the emergence of crops and target weeds, applicators are required to use a coarse or coarser droplet size (ASABE S572.1)
- The boom length must be 65% or less of the wingspan for fixed wing aircraft and 75% or less of the rotor diameter for helicopters.
- Nozzles must be oriented so the spray is directed toward the back of the aircraft.
- **DO NOT** apply when wind speeds exceed 10 miles per hour at the application site.
- **DO NOT** apply during temperature inversions.
- Applicators must use ½ swath displacement upwind at the downwind edge of the field.
- When wind speeds are 5 – 10 mph maintain a minimum downwind buffer zone of at least ½ mile from all crops and desirable vegetation, except the following:
  - 150 feet from dormant tree fruit/nut/vine crops and overwintering sugar beets.
  - 650 feet from garlic, jojoba, legumes, onions, pastures, small grains, seedling sugar beets, and non-targeted vegetable fallow beds.
- For upwind and side borders, maintain buffer zone of 150 feet from any non-targeted vegetable fallow bed, crop, or desirable vegetation.

#### GROUND BOOM APPLICATIONS:

- Apply with the nozzle height recommended by the manufacturer, but no more than 3 feet above the ground or crop canopy.
- For all applications, applicators are required to use a coarse or coarser droplet size (ASABE S572.1).
- **DO NOT** apply when wind speeds exceed 10 miles per hour at the application site.
- **DO NOT** apply during temperature inversions.

#### BOOM-LESS GROUND APPLICATIONS:

- Applicators are required to use a coarse or coarser droplet size (ASABE S572.1) for all applications.
- **DO NOT** apply when wind speeds exceed 10 miles per hour at the application site.
- **DO NOT** apply during temperature inversions.

## SPRAY DRIFT MANAGEMENT ADVISORIES

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR AND THE GROWER

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

The following drift management requirements must be followed to avoid off target movement from aerial applications. These requirements do not apply to forestry applications, public health uses or to applications of dry materials.

1. The distance of the outermost nozzles on the boom must not exceed  $\frac{3}{4}$  the length of the wingspan or rotor.
2. Nozzles must always point backward, parallel with the air stream, and never be pointed downwards more than 45 degrees.
3. Observe the regulations of the State where applications are made.
4. Applicators must observe and abide by the requirements of the Aerial Drift Reduction Advisory.

#### **Information on Droplet Size**

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage for pesticide performance. Applying larger droplets reduces drift potential but will not prevent drift if applications are made improperly or under unfavorable environmental conditions (See information on Wind Temperature and Humidity and Temperature Inversions in subsequent sections).

#### **Controlling Spray Droplet Size**

**Volume** – Use high-flow-rate nozzles to apply the greatest practical spray volume. Nozzles with higher rated flow generally produce larger droplets.

**Pressure** When higher flow rates are needed, use higher flow-rate nozzles rather than increasing spray pressure.

Do not exceed the nozzle manufacturers recommended pressures. Lower pressure produces larger droplets in many types of nozzles.

**Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.

**Nozzle Orientation** - For aerial application, the recommended practice is to orient nozzles so that the spray is released parallel to the airstream. This orientation usually produces larger droplets as compared to other nozzle orientations. Significant nozzle deflection from horizontal will reduce droplet size and increase drift potential.

**Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low drift nozzles for both ground and aerial applications. Solid stream nozzles oriented straight back usually produce the largest droplets and the lowest drift potential in aerial applications.

**Boom Length** - For some aerial use patterns reducing the effective boom length to less than  $\frac{3}{4}$  of the wingspan or rotor length may further reduce drift without reducing swath width.

**Application Height** – Aerial application should not be made at a height greater than 10 feet above the top of the target plant canopy unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Swath Adjustment** - When aerial 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 the path of the aircraft upwind. Swath adjustment or offset distance should increase when conditions favor increased drift potential (higher winds, smaller droplets, etc.)

**Wind** - Drift potential is between wind speeds of three to ten miles per hour. However, many factors, including droplet size and equipment type determine drift potential at any given wind speed. Application should be avoided below 3 mph due to variable wind direction and high inversion potential.

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

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

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

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

### Off Target Movement of SULFENTRAZONE 4F

Drift of dilute spray mixtures containing SULFENTRAZONE 4F must be prevented. Observation of the preceding environmental conditions correct application equipment design calibration and application practices will significantly diminish the risk of off target spray drift. SULFENTRAZONE 4F can cause significant symptomatology by drift on to sensitive crops and other plants. This symptomatology may manifest initially as discreet localized spots where contacted by SULFENTRAZONE 4F drift mixtures. Depending on concentration of the spray solution and droplets size (effectively determining the dosage of sulfentrazone) and depending on the inherent sensitivity of the plants involved, these spots or lesions may or may not coalesce. These effects will usually not have lasting effects on plant growth but will likely reduce the value of affected fruit or foliage where grade or quality is associated with appearance. In severe drift instances with particularly sensitive crops, defoliation of affected foliage could result. Failure to follow these guidelines and environmental prohibitions that then result in off-target movement or drift of SULFENTRAZONE 4F on to unintended crops or plants irrespective of severity constitutes misapplication of this product. Tenkoz accepts no responsibility or liability for potential crop effects that may result from such misapplication of SULFENTRAZONE 4F.

### MAXIMUM ALLOWABLE SULFENTRAZONE 4F USE PER ACRE PER 12 MONTH PERIOD\*

Refer to the crop section of this label for specific product use directions

Table 3

Crop	Fluid Ounces SULFENTRAZONE 4F Per Acre	Pound Active Sulfentrazone Per Acre
<b>Row Crops</b>		
Corn	12.0	0.375
Fallow	8.0	0.25
Peanuts	9.6	0.30
Potatoes	8.0	0.25
Soybeans	12.0	0.375
Sugarcane	12.0	0.375
Sunflower subgroup 20B	8.0	0.25
Tobacco	12.0	0.375
Wheat, spring (Pacific Northwest states ID, OR, WA only)	6.0	0.1875
<b>Vegetable Crops</b>		
Asparagus	12.0	0.375
Brassica head and stem (Broccoli and Cabbage)	12.0	0.375
Brassica leafy greens	6.4	0.220
Cowpeas succulent (Tennessee only)	6.0	0.1875
Dry Beans & Peas	8.0	0.25
Fruiting Vegetables and Okra (except cucurbits)	12.0	0.375
Horseradish	8.0	0.25
Lima beans succulent (Tennessee only)	6.0	0.1875
Melons	8.0	0.25
Rhubarb	8.0	0.25
Strawberry	12.0	0.375
Succulent Peas	6.0	0.1875
Turnips	8.0	0.25

**Table 3** (cont.)

<b>Crop</b>	<b>Fluid Ounces SULFENTRAZONE 4F Per Acre</b>	<b>Pound Active Sulfentrazone Per Acre</b>
<b>Oil Crops</b>		
Flax	12.0	0.375
Mint	12.0	0.375
<b>Turf</b>		
Sod Production	12.0	0.375
<b>Permanent Crops</b>		
Barnes	12.0	0.375
Citrus	12.0	0.375
Grapes	12.0	0.375
Tree nuts	12.0	0.375

\*The total allowed usage per twelve-month period includes all applications made to the field per twelve-month interval. This includes fallow treatments, burndown treatments, planting time and all in season treatments. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.

### **CROP ROTATIONAL RESTRICTIONS**

The following Table 4 shows the minimum interval in months from the time of the last SULFENTRAZONE 4F application until SULFENTRAZONE 4F treated soil can be replanted to the crops listed. When SULFENTRAZONE 4F is tank mixed with another herbicide refer to the partner label for recropping instructions following the directions that are most restrictive.

For all other crops not listed below; the rotational interval is a minimum of 12 months. Some crops have rotational intervals greater than 12 months after a SULFENTRAZONE 4F application due to potential crop injury. A representative bioassay of the field shall be completed with the rotational crop to accurately determine the planned crops sensitivity to sulfentrazone.

### **CROP ROTATIONAL RESTRICTIONS\*\***

**TABLE 4**

<b>Crop</b>	<b>Interval (Months)</b>
Alfalfa	12
Asparagus	Anytime
Barley	4
Berries	Anytime
Brassica head and stem (Broccoli and Cabbage)	Anytime
Brassica Leafy Greens	Anytime
Canola	24
Cereal Grains (Buckwheat, Oats, Pearl Millet, Proso Millet, Teosinte, Wild rice)	12
Citrus	Anytime
Corn, Field	10
Corn, Pop	18
Corn, Sweet	18

(continued)

**TABLE 4** (cont.)

<b>Crop</b>	<b>Interval (Months)</b>
Cotton	18
Cowpea, succulent (Tennessee only)	Anytime
Dry Shell Peas and Beans	Anytime
Flax	Anytime
Fruiting Vegetables (except cucurbits)	Anytime
Grapes	Anytime
Horseradish	Anytime
Lima beans, succulent (Tennessee only)	Anytime
Melons	Anytime
Mint	Anytime
Peanuts	Anytime
Potatoes	Anytime
Rhubarb	Anytime
Rice	10
Rye	4
Sorghum	10 *
Soybeans	Anytime
Strawberry	Anytime
Succulent peas	Anytime
Sugar Beets	36
Sugarcane	Anytime
Sunflower subgroup 20B	Anytime
Sweet Potatoes	12
Triticale	4
Tobacco	Anytime
Tree nuts	Anytime
Turf	Anytime
Turnips	Anytime
Wheat	4
Wheat, spring (Pacific Northwest states ID, OR, WA only)	Anytime

Sorghum – 18-month rotation for rates above 8.0 fluid ounces/acre.

For all other crops not listed, the rotation interval is a minimum of 12 months

## BAND TREATMENT APPLICATIONS

For band treatments, apply the broadcast equivalent rate and volume per acre to determine these.

Band Width Inches		Broadcast	=	
Row Width Inches	X	Rate Per Acre		Band Rate
Band Width Inches		Broadcast	=	
Row Width Inches	X	Volume Per Acre		Band Volume

## MIXING AND LOADING INSTRUCTIONS

SULFENTRAZONE 4F may be applied alone or in tank mixtures with other herbicides for the control of additional weed species. Mixtures with some other pesticides have not been tested. Conduct appropriate compatibility tests prior to tank mixing with other pesticides.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. It is important that spray equipment is clean and free of existing pesticide residues before preparing SULFENTRAZONE 4F spray mixtures. Follow the spray tank clean out procedures specified on the label of the product or products previously applied.

For best results fill spray tank with one half of the volume of clean water needed for the field to be treated. Start agitation system. Prepare a slurry of SULFENTRAZONE 4F in a clean container using clean water. Slowly add the SULFENTRAZONE 4F water slurry to the spray tank. Carefully rinse the slurry container, adding the rinsate to the spray tank. Complete filling the spray tank to the desired level.

## SPRAYER EQUIPMENT CLEAN-OUT

**As soon as possible after spraying SULFENTRAZONE 4F and before using sprayer equipment for any other applications, the sprayer must be thoroughly cleaned to avoid potential crop effects using the following procedure. Residues left in mixing equipment, spray tanks, hoses, spray booms and nozzles can cause crop effects if they are not properly cleaned. In addition, users must take appropriate steps to ensure proper equipment clean-out for any other products mixed with SULFENTRAZONE 4F as required on the other product labels. More complete cleaning can be achieved if the spray system is cleaned immediately following the application.**

1. Drain sprayer tank hoses, spray boom and spray nozzles. Use a high-pressure detergent wash to remove physical sediment and residues from the inside of the sprayer tank and thoroughly rinse. Then thoroughly flush sprayer hoses, spray boom and spray nozzles with a clean water rinse. Remove and clean spray tips and all filters and screens (tank spray hose and spray tips) separately in the ammonia solution of Step 2.
2. Next, prepare a sprayer cleaning solution by adding three gallons of ammonia (containing at least 3% active) per 100 gallons of clean water. Prepare sufficient cleaning solution to allow the operation of the spray system for a minimum of 15 minutes to thoroughly flush hoses, spray boom and spray nozzles.
3. Convenient and thorough cleaning of the sprayer can be achieved if the ammonia solution or fresh water is left in the spray tank hoses, spray booms and spray nozzles overnight or during storage.
4. Before using the sprayer, completely drain the sprayer system. Rinse the tank with clean water and flush through the hoses, spray boom and spray nozzles with clean water. Remove and clean spray tips and all filters and screens (tank, spray hose and spray tip) separately in an ammonia solution.
5. Properly dispose of all cleaning solution and rinsate in accordance with Federal, State, and local regulations and guidelines.

Do not apply sprayer cleaning solutions or rinsate to sensitive crops.

Do not store the sprayer overnight or for any extended period with SULFENTRAZONE 4F spray solution remaining in the tank spray lines, spray boom plumbing, spray nozzles or strainers.

If the sprayer has been stored or idle, purge the spray boom and nozzles with clean water before beginning any application.

Should small quantities of SULFENTRAZONE 4F remain in adequately cleaned mixing, loading, and/or spray equipment, they may be released during subsequent applications, potentially causing effects to certain crops and other vegetation. Tenkoz accepts no liability for any effects due to inadequately cleaned equipment.

Do not drain or flush equipment on or near desirable trees or plants.

Do not contaminate any body of water including irrigation water that may be used on other crops.

## WEEDS LIST

When SULFENTRAZONE 4F is applied in accordance with the application information and the specific crop use directions, SULFENTRAZONE 4F applied alone or in listed tank mixtures will provide control of the following weeds. Refer to the specific crop section.

**Table 5**

Common Name	Scientific Name
Amaranth, livid	<i>Amaranthus lividus</i>
Amaranth, Palmer	<i>Amaranthus palmeri</i>
Amaranth, Powell	<i>Amaranthus Powell II</i>
Amaranth, Spiny	<i>Amaranthus spinosus</i>
Amaranth, spleen	<i>Amaranthus dubius</i>
Anoda, spurred	<i>Anoda cristata</i>
Bedstraw, catchweed	<i>Galium apanne</i>
Carpetweed	<i>Mollugo verticillata</i>
Chickweed, common	<i>Stellana media</i>
Copperleaf, hophornbeam	<i>Acalypha ostryeaefolta</i>
Copperleaf, Virginia	<i>Acalypha Virginia</i>
Crabgrass, large	<i>Digitana sanguinalis</i>
Crabgrass, smooth	<i>Digitana ischaenium</i>
Crabgrass, Southern	<i>Digitana cilians</i>
Croton, tropic	<i>Croton glandulosus</i>
Crownbeard, golden	<i>Verbesina encelioides</i>
Cupgrass, wooly	<i>Enchloa Villosa</i>
Cyperus, hedgehog	<i>Cyperus compressus</i>
Daisy, American	<i>Eclipta alba</i>
Devilsclaw	<i>Proboscidea louisiana</i>
Dock, curly	<i>Rumex crispus</i>
Eclipta	<i>Eclipta prostrata</i>
Filaree, redstem	<i>Erodium cicutarium</i>
Flexweed	<i>Descuramia sophia</i>
Gahnsoga, hairy	<i>Gahnsoga ciliata</i>
Goosegrass	<i>Eleusme melica</i>
Groundcherry, clammy (seedling)	<i>Physalis heterophylla</i>
Groundcherry, cutleaf	<i>Physalis angulata</i>
Jimsonweed	<i>Datura stramonium</i>
Kochia	<i>Kochta scopana</i>
Ladythumb	<i>Polygonum persicana</i>
Lambsquarters, common	<i>Chenopodium album</i>
Lettuce, miners	<i>Montia perfoliata</i>
Mallow, common	<i>Malva neglecta wall</i>

(continued)

**Table 5** (cont.)

<b>Common Name</b>	<b>Scientific Name</b>
Mayweed, Chamomile	<i>Anthemis cotula</i>
Milkweed, honeyvine	<i>Ampeiamus albidus</i>
Morningglory, entireleaf	<i>Ipomoea hederacea integriuscula</i>
Morningglory, ivyleaf	<i>Ipomoea hederacea hederacea</i>
Morningglory, palmleaf	<i>Ipomoea wright</i>
Morningglory, purple	<i>Ipomoea turbmata</i>
Morningglory, red	<i>Ipomoea coccmea</i>
Morningglory, scarlet	<i>Ipomoea coccmea</i>
Morningglory, smallflower	<i>Jacquemontia tammfolta</i>
Morningglory, tall	<i>Ipomoea purpurea</i>
Mustard, tumble	<i>Sisymbrium altissimum</i>
Nightshade, black	<i>Solarium ingrum</i>
Nightshade, Eastern black	<i>Solarium ptycanthum</i>
Nutsedge, purple	<i>Cyperus rotundus</i>
Nutsedge, yellow	<i>Cyperus esculentus</i>
Orchardgrass	<i>Dactylis glomerata</i>
Panicum, fall	<i>Panicum dichotomiflorum</i>
Pigweed, redroot	<i>Amaranthus retroflexus</i>
Pigweed, smooth	<i>Amaranthus hybridus</i>
Plantain, blackseed	<i>Plantago rugelidecric</i>
Plantain, narrow leaved	<i>Plantago lanceolate</i>
Poorjoe	<i>Diodia teres</i>
Porophyllum	<i>Porophyllum rederule</i>
Poinsettia, Wild	<i>Euphorbia heterophylla</i>
Purslane, common	<i>Portulaca oleracea</i>
Redmaids	<i>Calandrima ciliata</i>
Redweed	<i>Melochta corchonfolta</i>
Sedge, annual	<i>Carex spp</i>
Senna, coffee	<i>Cassia occidentalis</i>
Shepherdspurse	<i>Capsella bursa pastons</i>
Sida, prickly	<i>Sida spriosa</i>
Sida, Southern	<i>Sida acuta</i>
Signalgrass, broadleaf	<i>Brachiana platyphylla</i>
Smartweed, PA (seedling)	<i>Polygonum pensylvanicum</i>
Smellmellon	<i>Cucuints melo</i>
Starbur, bristly	<i>Acanthospermum hispidum</i>

(continued)

**Table 5 (cont.)**

Common Name	Scientific Name
Stinkgrass	<i>Eragrostis ciitanensts</i>
Toadflax, yellow	<i>Linana vulgans</i>
Tassleflower, red	<i>Emilto sonchifolia</i>
Thistle, Russian	<i>Salsola kalt</i>
Waterhemp, common	<i>Amaranthus rudis</i>
Waterhemp, tall	<i>Amaranthus tuberculatos</i>
Waterprimrose, Winged	<i>Luditeta decurrens</i>
Witchgrass	<i>Paincuin captilare</i>

## REPLANTING INSTRUCTIONS

If initial planting of labeled crops fails to produce a stand only labeled crops for SULFENTRAZONE 4F or the tank mix partner whichever is most restrictive may be planted. Do not retreat field with SULFENTRAZONE 4F or other herbicide containing sulfentrazone. Do not plant treated fields with any crop at intervals that are inconsistent with the Rotational Crop Guidelines on this label. When replanting, use minimum soil tillage to preserve the herbicide barrier and achieve maximum weed control.

## ROW CROPS

### CORN (Field Corn, Seed Corn, Popcorn)

(For Use Only with Varieties Tolerant to PPO Herbicides)

**Table 6**

<b>SULFENTRAZONE 4F Use Rate Table (Corn)</b>			
Fall, Spring, Early Preplant Preemergence and Preplant Incorporated Applications			
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre		
	Soil Texture		
% Organic Matter	Coarse	Medium	Fine
<1.5	3.0 - 4.5	3.0 - 4.5	3.75 - 5.25
1.5 - 3.0	3.0 - 4.5	3.75 - 6.0	4.5 - 6.75
>3	3.75 - 6.0	4.5 - 6.75	6.0 - 8.0

Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories  
Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 Within the rate range

#### Preplant (Fall Applications)

SULFENTRAZONE 4F may be applied in the fall as a preplant treatment prior to corn planting the following spring SULFENTRAZONE 4F can be used alone or in a tank mixture with other herbicides to control susceptible broadleaves, sedges and grasses in corn.

Apply SULFENTRAZONE 4F in conventional tillage or conservation tillage (reduced tillage or no tillage) cropping systems using rates listed in the Table 6. SULFENTRAZONE 4F should be applied to the stubble or soil surface and allow moisture from rainfall or snow to move the product into the soil. Do not mechanically incorporate in the fall or spring as this operation can destroy the herbicide barrier allowing escapes to occur. Do not apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

SULFENTRAZONE 4F may be tank mixed with other burndown herbicides to control emerged weeds in the fall or residual soil herbicides that are labeled for fall use on corn. Select the correct SULFENTRAZONE 4F use rate for corn from the Table 6 for your soil type and organic matter. Due to the extended period of time between the fall application and corn planting the use rate of SULFENTRAZONE 4F should be the mid to high rate within the rate range for the appropriate soil type and organic matter.

### **Early Preplant and Preemergence (Spring Applications)**

SULFENTRAZONE 4F may be applied preplant on the soil surface in the spring to control weeds in conventional and conservation tillage systems. SULFENTRAZONE 4F can be applied from 45 days prior to planting until 3 days after planting as a preemergence broadcast or banded soil application if corn seedlings have not broken the soil surface and if the seed furrow is completely closed. For preemergence applications 14 to 45 days prior to planting, use the mid to high rate in the appropriate rate range for the soil and organic matter type listed in Table 6.

SULFENTRAZONE 4F can be tank mixed with other herbicides labeled for use in corn. To control insect pests, such as cutworm or armyworm, that may be present, SULFENTRAZONE 4F may be tank mixed with insecticides, including cypermethrin or bifenthrin. If dry conditions persist following preemergence application of SULFENTRAZONE 4F a shallow incorporation may be needed to activate the herbicide. If weeds are emerged at the time of SULFENTRAZONE 4F application, use a burndown herbicide in conjunction with SULFENTRAZONE 4F as needed. When planting into soil treated preplant with SULFENTRAZONE 4F, minimize soil disturbance to maintain the herbicide barrier on the soil surface to achieve maximum weed control. Observe all precautions, instructions and rotational cropping guidelines of each product label when tank mixing, including all references to potential carryover and crop injury warnings or restrictions.

### **Preplant Incorporated**

SULFENTRAZONE 4F may be applied as a Preplant Incorporated treatment in the spring prior to planting in reduced and conventional tillage corn. SULFENTRAZONE 4F should be shallowly incorporated or mixed thoroughly into the soil to a maximum depth of 2 inches using a correctly adjusted implement such as a field cultivator, field finisher or disk harrow. Incorporating SULFENTRAZONE 4F deeper than 2 inches may result in inconsistent weed control. Use the appropriate rate from Table 6 for the soil texture, organic matter and pH level of the soil, SULFENTRAZONE 4F can be tank mixed with other soil applied herbicides and insecticides labeled for preplant incorporation in corn.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. It is important that spray equipment is clean and free of existing pesticide residues before preparing SULFENTRAZONE 4F spray mixtures. Follow the spray tank clean out procedures specified on the label of the product or products previously applied.

SULFENTRAZONE 4F may be applied more than once to the same crop in split or sequential applications to provide season long control of difficult to control existing or late emerging weeds.

### **Precautions**

These Crop Specific Use Directions are based upon the interactive effects of SULFENTRAZONE 4F (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions. SULFENTRAZONE 4F Product Use Rates, Rotational Crop Guidelines, Replanting Instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all varieties or cultivars of a given crop species have been evaluated under treatment with SULFENTRAZONE 4F. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F under specific local conditions.

### **CORN RESTRICTIONS**

- **DO NOT** apply more than 8.0 fluid ounces (0.25 pound of sulfentrazone) in a single application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 6.0 fl oz/A of this product.
- **DO NOT** apply more than 12.0 fluid ounces (0.375 pound of sulfentrazone) per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

## FALLOW OR POST HARVEST BURNDOWN

SULFENTRAZONE 4F may be applied in the fall following crop harvest or in existing fallow fields of asparagus, cabbage, corn, dry shell peas and beans, horseradish, limas, mint, peanuts, potatoes, soybeans, sugarcane, sunflowers and tobacco.

**Table 7**

SULFENTRAZONE 4F Use Rate Table (Fallow or Post Harvest Burndown)			
	Fall and Spring Fallow Applications		
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre		
	Soil Texture		
% Organic Matter	Coarse	Medium	Fine
<1.5	3.0 – 3.75	3.0 – 4.5	3.75 – 5.25
1.5 - 30	3.75 - 5.25	3.75 – 6.0	4.5 – 6.75
>3	4.5 – 6.0	4.5 – 8.0	5.25 - 8.0
Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories. Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range.			

### Fall Application (MN, ND, SD, MT, CO, NE, WY, ID, WA, OR, WI, MI)

SULFENTRAZONE 4F may be applied in the fall following crop harvest or in existing fallow fields to control or suppress weeds the following season. The SULFENTRAZONE 4F Rotational Crop Guidelines in Table 4 must be followed if crops are planted the next season SULFENTRAZONE 4F should be applied to the harvested crop stubble or soil surface without incorporation.

Moisture in the form of rain or snow will move and activate the product. Do not mechanically incorporate in the fall or spring after application because this activity may destroy the herbicide barrier and weed escapes can occur. Do not apply to frozen soils to prevent SULFENTRAZONE 4F runoff from rain or snow that may occur following application SULFENTRAZONE 4F may be tank mixed with herbicides to control emerged weeds. Sequential applications may be needed depending on weed size. In situations where weed size may interfere with SULFENTRAZONE 4F reaching the soil surface a separate burndown application prior to the application of SULFENTRAZONE 4F will be required. Use listed rates of burndown herbicides in combination with SULFENTRAZONE 4F or sequential applications as needed. Higher aerial spray volumes are required when there is a dense weed population or canopy.

SULFENTRAZONE 4F can be tank mixed with other herbicides. Observe all precautions, instructions and rotational cropping guidelines of each product's label when tank mixing including all references to potential carryover and crop injury warnings or restrictions.

### Spring Pre-emerge Application

SULFENTRAZONE 4F may be applied as a fallow treatment early in the spring provided the application is made prior to weed emergence and adequate moisture is available to activate the SULFENTRAZONE 4F. Follow the same use rate recommendations and application guidelines listed under the Fall Application section above Weeds Controlled.

When applied according to directions SULFENTRAZONE 4F will provide control of the following listed weeds:

Filaree redstem	Pigweed redroot
Kochia	Pigweed smooth
Lambs Quarters, common	Thistle, Russian
Morningglory, ivyleaf	Waterhemp, common
Morningglory, tall	Waterhemp, tall
Nightshade, Eastern Black	

For information on other weeds not listed above, refer to Weeds Controlled section of this label.

## Precautions

These Crop Specific Use Directions are based upon the interactive effects of SULFENTRAZONE 4F (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, SULFENTRAZONE 4F Product Use Rates, Rotational Crop Guidelines, Replanting Instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all varieties or cultivars of a given crop species have been evaluated under treatment with SULFENTRAZONE 4F. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F under specific local conditions.

## FALLOW OR POST HARVEST USE RESTRICTIONS

- **DO NOT** apply more than 8 fluid ounces (0.25 pound of sulfentrazone) in a single application.
- **DO NOT** apply more than 8.0 fluid ounces (0.25 pound of sulfentrazone) per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** apply more than 1 application per year
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

## PEANUTS Southeastern United States Only (AL, GA, MS, NC, SC, VA)

Apply SULFENTRAZONE 4F alone or in combination with other registered herbicides for the control of key grass and broadleaf weeds in peanut production. Refer to the information below for specific use directions. SULFENTRAZONE 4F is registered for use on peanuts only in the following states: AL, GA, MS, NC, SC and VA.

## Application Instructions

SULFENTRAZONE 4F may be preplant incorporated (to a depth no greater than 2 inches) up to 14 days prior to planting. Alternatively, SULFENTRAZONE 4F may be applied to the soil surface at planting or within 12 hours after planting incorporation of SULFENTRAZONE 4F deeper than 2 inches can result in adverse crop response and/or inconsistent weed control. Do not use SULFENTRAZONE 4F for at-crack type applications or apply to exposed peanut tissue. Such use can result in significant adverse crop response. For optimum performance, a combination of SULFENTRAZONE 4F plus a grass herbicide labeled for peanuts is recommended. Under conditions of exceptionally high weed populations, or when weeds not controlled by SULFENTRAZONE 4F are anticipated, the use of suitable post emergent peanut herbicides is recommended. Broadcast apply the correct SULFENTRAZONE 4F use rate from the tables below in a minimum of 10 gallons of water per acre of finished spray. Banded SULFENTRAZONE 4F application rates must be adjusted in proportion to the broadcast rate.

## SULFENTRAZONE 4F Use Rates and Weeds Controlled in Coarse Soils

When applied as directed at 4.8 fluid ounces (0.15 pound active ingredient) per acre, SULFENTRAZONE 4F will provide control of the listed weeds:

Amaranth, spleen	Jimsonweed
Copperleaf, hophornbeam	Lambsquarters, common
Croton, tropic	Morningglory, entireleaf
Crownbeard, golden	Morningglory, red
Devilsclaw	

When applied as directed at 6.4 fluid ounces (0.2 pound active ingredient) per acre SULFENTRAZONE 4F will provide control of the listed weeds

All the weeds controlled at 4.8 fl. oz. plus	
Amaranthus, Palmer	Morningglory, smallflower
Crabgrass, large	Pointsentia, Wild
Crabgrass, Southern	Redweed
Eclipta	Senna coffee
Goosegrass	Signalgrass, broadleaf
Morningglory, pitted	Smartweed PA (seedling)

When applied as directed at 8.0 fluid ounces (0.25 pound active ingredient) per acre SULFENTRAZONE 4F will provide control of the listed weeds

All the weeds controlled at 6.4 fl. oz. Plus	
Anoda, spurred	Purslane, common
Cocklebur, common	Sida, prickly
Nutsedge, Yellow	Starbur, prickly
Nutsedge, purple <sup>3</sup>	

<sup>1</sup>Use rates are SULFENTRAZONE 4F fluid ounces per acre. Specified weeds are controlled in coarse (sand and loamy sand) soils Medium and fine soils (sandy loam clay loam clay) or soils with organic matter greater than 1.0% must use the next higher rate in the table above. The next higher rate for 8.0 fluid ounces (0.25 lb. ai) must not exceed 9.6 fluid ounces (0.3 lb. ai) per acre

<sup>2</sup>Controls initial and several continuing flushes (germinations) of Wild poinsettia

<sup>3</sup>Purple nutsedge activity is based on preplant incorporated applications of SULFENTRAZONE 4F. Pre-emergence surface applications may provide control (>85%) under certain circumstances. Otherwise purple nutsedge will be partially controlled (71 to 84%)

In soils with pH greater than 7, use the next lower SULFENTRAZONE 4F application rate. Irrigation with alkaline (pH 8 to 9) water can result in adverse crop response. The extent of crop response is dependent on SULFENTRAZONE 4F application rate, soil type (including %OM and pH), timing (after SULFENTRAZONE 4F application relative to crop emergence) amount and pH of irrigation water. Do not irrigate with water greater than pH 9.

After peanuts are established (4" to 6" across in size), the alkalinity of irrigation water has minimal impact on crop growth.

For information on other weeds not listed above, refer to Weeds Controlled section (Table 5) in this label.

#### Precautions

These Crop Specific Use Directions are based upon the interactive effects of SULFENTRAZONE 4F (sulfentrazone) and the primary soil and environmental factors which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, SULFENTRAZONE 4F Product Use Rates, Rotational Crop Guidelines, Replanting Instructions, Weed Controlled and any other sections of this label pertinent to the anticipated crop use. It is important to note that not all varieties or cultivars of a given crop species have been evaluated under treatment with SULFENTRAZONE 4F. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F under specific local conditions.

#### PEANUT RESTRICTIONS

- **DO NOT** apply more than 9.6 fluid ounces (0.3 pound of sulfentrazone) in a single application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 4.8 fl oz/A of this product.
- **DO NOT** apply more than 9.6 fluid ounces (0.3 pound of sulfentrazone) of SULFENTRAZONE 4F per acre per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** feed treated peanut forage or peanut hay to livestock.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** irrigate with water having a pH higher than 9.
- **DO NOT** apply at cracking time.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

## POTATOES

**Table 8**

SULFENTRAZONE 4F Use Rate Table (Potatoes) Preemergence Application				
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre			
	Soil Texture			
% Organic Matter	Coarse	Medium	Fine	
<1.5	3.0-4.5	3.0-4.5	3.75-5.25	
1.5 – 3.0	3.0-4.5	3.75-6.0	4.5-6.0	
>3	4.5-6.0	5.25-6.75	6.0-8.0	
Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories. Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range				

**Ground and Aerial Applications**

Apply SULFENTRAZONE 4F by aerial application as a preemergence treatment following planting and after dragoff, but prior to potato emergence. Optimum performance can be achieved if SULFENTRAZONE 4F is applied to the soil surface and either rainfall or overhead irrigation is used to activate the product. If no moisture is received within 7 days, following application in areas without irrigation, a shallow incorporation (less than 2 inches) may be needed prior to weed and potato emergence to activate the product.

Select the appropriate use rate based on soil texture and organic matter as shown in Table 8 above. For control of emerged weeds at the time of the SULFENTRAZONE 4F application, an appropriate burndown herbicide and adjuvants labeled for potatoes may be tank mixed with SULFENTRAZONE 4F to control these weeds. Do not apply SULFENTRAZONE 4F if the potatoes have emerged from the soil as undesirable crop response may occur.

SULFENTRAZONE 4F may be tank mixed with other soil applied herbicides labeled for use in potatoes to improve weed management and increase weed control spectrum.

Apply SULFENTRAZONE 4F in a minimum of 10 gallons of spray by ground application and 5 gallons of spray by air.

**Chemigation Applications**

SULFENTRAZONE 4F may be applied to potatoes through sprinkler irrigation systems, systems including center pivot, lateral move, end tow, solid set or hand move irrigation systems. Apply SULFENTRAZONE 4F prior to potato emergence using sufficient water (0.25 to 0.5 inch per acre) to provide thorough soil surface coverage, but to avoid runoff of irrigation water. SULFENTRAZONE 4F may be applied with other products labeled for chemigation use in potatoes.

It is important to note that irrigation with highly alkaline water (high pH) following a SULFENTRAZONE 4F soil application may significantly increase the amount of sulfentrazone available in soil solution irrigation with water having a pH greater than 7.5 could result in adverse crop response. This response will ultimately depend on initial SULFENTRAZONE 4F application rate, application timing, amount and pH of irrigation water, the sensitivity of the crop and the crop growth stage when irrigated. The risk of adverse crop response will lessen with advances in the crop growth stage.

**Weeds Controlled**

**When applied according to directions SULFENTRAZONE 4F will provide control of**

Amaranth, Palmer	Nightshade, Eastern black
Filaree, redstem	Pigweed redroot
Kochia	Pigweed smooth
Lambsquarters, common	Thistle Russian
Morningglory, ivyleaf	Waterhemp, common
Morningglory, tall	Waterhemp, tall

For information on other weeds not listed above, refer to Weeds Controlled section (Table 5) in this label.

## Precautions

Potato varieties may vary in their response to herbicide applications. When using SULFENTRAZONE 4F on an untested variety, always determine the crop tolerance before planting. Some potato varieties, including Sangre, Shepody, and Snowden have shown sensitivity to SULFENTRAZONE 4F. Caution should be used when planting these varieties on marginal coarse soils.

These Crop Specific Use Directions are based upon the interactive effects of SULFENTRAZONE 4F (sulfentrazone) and the primary soil and environmental factors which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, SULFENTRAZONE 4F Product Use Rates, Rotational Crop Guidelines, Replanting Instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all varieties or cultivars of a given crop species have been evaluated under treatment with SULFENTRAZONE 4F. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F under specific local conditions.

## POTATO RESTRICTIONS

- **DO NOT** apply more than 8.0 fluid ounces (0.25 pound of sulfentrazone) in a single application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 4.0 fl oz/A of this product.
- **DO NOT** apply more than 8.0 fluid ounces (0.25 pound sulfentrazone) per acre per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.
- **DO NOT** use on soils classified as sand which have less than 1% organic matter.
- **DO NOT** apply SULFENTRAZONE 4F after potato emergence from the soil as undesirable crop response may occur.

## SOYBEANS

Table 9

SULFENTRAZONE 4F Use Rate Table (Soybeans)			
Fall, Spring Early Preplant Preemergence and Preplant incorporated Applications			
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre		
	Soil Texture		
% Organic Matter	Coarse	Medium	Fine
<1.5	4.5-6.0	6.0-8.0	8.0
1.5 – 3.0	6.0-8.0	8.0-10.1	10.1
>3	8.0-10.1	10.1-12.0	12.0

Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories. Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range.

## Ground and Aerial Applications

Apply SULFENTRAZONE 4F in conventional tillage, conservation tillage, reduced tillage or no tillage cropping systems using rates listed in the SULFENTRAZONE 4F Use Rate Table 9. SULFENTRAZONE 4F may be applied with ground or aerial sprayers calibrated to deliver a minimum of 10 gallons of finished spray by ground application and 5 gallons of finished spray by air. Use nozzle types and arrangements that will provide optimum coverage while producing a minimal amount of fine droplets. Apply sufficient spray volume to achieve adequate coverage.

## Preplant Incorporated and Preemergence Applications

SULFENTRAZONE 4F can be applied prior to planting or up to 3 days after planting. When applications after planting are delayed greater than 3 days after planting, injury may occur if seeds are germinating. SULFENTRAZONE 4F may be applied preemergence or preplant incorporated. For preplant incorporated applications, incorporation must be uniform and no deeper than 2 inches. Improper soil incorporation may result in erratic weed control and/or crop injury. SULFENTRAZONE 4F applied near or after crop emergence may cause severe injury to the crop. SULFENTRAZONE 4F can be applied alone or in combination with other labeled soybean herbicides.

SULFENTRAZONE 4F may be followed by labeled postemergence soybean herbicides for increased control of grass and broadleaf weeds. Always follow the most restrictive label when tank mixing. When using SULFENTRAZONE 4F in no till or minimum till cropping systems, tank mix with an appropriate burndown herbicide for improved control of existing weeds.

### Fall Applications

SULFENTRAZONE 4F may be applied as a fall treatment to the stubble of harvested crops for the burndown of existing vegetation and preemergence control of labeled weeds the following spring in no till and conservation tillage production systems. Fall applications of SULFENTRAZONE 4F must be made in weed control programs that include as needed spring applications of preplant preemergence or postemergence herbicides for the following crop season. SULFENTRAZONE 4F can be applied to the stubble of a harvested crop in no till or to the soil surface of conservation tillage fields after harvest when the sustained soil temperature is 55 degrees F and falling at a soil depth of 4 inches. Apply after September 30 in those areas North of Interstate 90 and after October 15 in those areas North of Interstate 70. Do not apply SULFENTRAZONE 4F as a fall treatment South of Interstate 70. Applications to ridge till production systems must be made after the formation of ridges or beds.

If weeds are emerged at the time of application, utilize a tank mixture with a suitable burndown herbicide at labeled rates. Fall applied burndown treatments should be made with a minimum 20 gallons per acre to achieve adequate coverage of the weeds being treated. When making burndown applications to emerged weeds, the addition of adjuvants such as COC or MSO to the spray mixture can be used to enhance the burndown activity of the application.

### Weeds Controlled

When applied according to directions SULFENTRAZONE 4F will provide control of:

Amaranth, Palmer	Nightshade
Copperleaf, hophornbeam	Pigweed, SPP
Kochia	Sida, prickly
Lambsquarters, common	Thistle, Russian
Morningglory, spp	Waterhemp, spp

For information on other weeds not listed above refer to Weeds Controlled section (Table 5) in this label.

### Precautions

When applying SULFENTRAZONE 4F with other registered herbicides refer to specific label information on precautions instructions, limitations application methods and timings and weeds controlled.

SULFENTRAZONE 4F is especially effective against a wide range of economic broadleaf and grass weeds. The same processes that sulfentrazone affects in these weeds can, under certain conditions, be affected in soybeans. These conditions include high pH (7.5 and above), cool weather, prolonged and excessive moisture seedling diseases and any other condition including poor agronomic practices that are unfavorable to vigorous crop growth. Such effects in soybeans are often observed as stunting and discoloration. The duration of these effects are somewhat dependent on the duration of the adverse growing conditions. These effects lessen and generally diminish with the return to normal growing conditions.

These Crop Specific Use Directions are based upon the interactive effects of SULFENTRAZONE 4F (sulfentrazone) and the primary soil and environmental factors which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under application instructions SULFENTRAZONE 4F Product Use Rates Rotational Crop Guidelines, Replanting Instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use.

It is important to note that not all varieties or cultivars of a given crop species have been evaluated under treatment With SULFENTRAZONE 4F. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F under specific local conditions.

### SOYBEAN RESTRICTIONS

- **DO NOT** apply more than 12.0 fluid ounces (0.375 pound of sulfentrazone) in a single application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 6.0 fl oz/A of this product.
- **DO NOT** apply more than 12.0 fluid ounces (0.375 pound of sulfentrazone) per acre of SULFENTRAZONE 4F per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.
- **DO NOT** apply after crop seed germination.

# SUGARCANE

**Table 10**

SULFENTRAZONE 4F Use Rate Table (Sugarcane) Planting Time and Lay by Applications				
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre			
	Soil Texture			
% Organic Matter	Coarse	Medium	Fine	
<1.5	4.5-6.0	6.0-8.0	8.0	
1.5 - 3.0	6.0-8.3	8.0-10.1	10.1	
>3	8.0-10.1	10.1-12.0	12.0	

Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories.  
Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range.

Apply SULFENTRAZONE 4F as a broadcast or banded pre-emerge soil applied treatment for the control of broadleaf weeds grasses and sedges in sugarcane. Refer to the SULFENTRAZONE 4F Product Use Rate Section and Table 10 for specific use information.

### Planting Time Applications

Apply SULFENTRAZONE 4F pre-emerge to newly planted or ratoon sugarcane. Use the higher rate on clay soils and/or soils with organic matter content higher than 2 percent. Apply either by air in minimum of 5 gallons of spray per acre or by ground equipment in a minimum of 15 gallons of spray per acre. SULFENTRAZONE 4F may be applied with other herbicides registered for use in sugarcane.

### Aerial Applications

SULFENTRAZONE 4F may be applied by air in a minimum of 5 gallons of finished spray per acre. SULFENTRAZONE 4F may be applied with other herbicides or insecticides registered for aerial application in sugarcane.

### Lay by Applications

Apply SULFENTRAZONE 4F as a directed spray to sugarcane at lay by timing. Use the higher rate on clay soils and/or soils with organic matter content higher than 2 percent. Apply as a directed spray with ground equipment in a minimum of 15 gallons of spray per acre. SULFENTRAZONE 4F may be applied with other herbicides registered for use in sugarcane.

### Weeds Controlled

When applied according to directions, SULFENTRAZONE 4F will provide control of:

Morningglory, entireleaf	Morningglory, tall
Morningglory, ivyleaf	Pigweed, red root
Morningglory, red	Nutsedge, yellow

For information on other weeds not listed above, refer to Weeds Controlled section (Table 5) in this label.

### Precautions

These Crop Specific Use Directions are based upon the interactive effects of SULFENTRAZONE 4F (sulfentrazone) and the primary soil and environmental factors which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, SULFENTRAZONE 4F Product Use Rates, Rotational Crop Guidelines, Replanting Instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all varieties or cultivars of a given crop species have been evaluated under treatment with SULFENTRAZONE 4F.

Consult university extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F under specific local conditions.

## SUGARCANE RESTRICTIONS

- **DO NOT** apply more than 12.0 fluid ounces (0.375 pound of sulfentrazone) in a single application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 6.0 fl oz/A of this product.
- **DO NOT** apply more than 12.0 fluid ounces (0.375 pound of sulfentrazone) per acre of SULFENTRAZONE 4F per acre per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- Pre-harvest Interval (PHI) - Do not apply within 120 days of harvest.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** allow spray to contact crop leaves.

## SUNFLOWER Subgroup 20B

Calendula, Castor Oil plant, Chinese tallowtree, Euphorbia Evening primrose, Jojoba, Niger seed, Rose hip, Safflower, Stokes aster, Sunflower, Tallowwood, Tea oil plant, Vernonia cultivars, varieties and/or hybrids of these.

**Table 11**

SULFENTRAZONE 4F Use Rate Table (Sunflower subgroup 20B) Fall, Early Spring Preplant Preemergence and Preplant Incorporated Applications				
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre			
% Organic Matter	Soil Texture			
	Coarse	Medium	Fine	
<1.5	3.0 - 3.75	3.0-4.5	3.75-5. 25	
1.5 - 3.0	3.0-4.5	3.75-6.0	4.5-6.75	
>3	3.75-6.0	4.5-6.75	6.0-8.0	

Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories.  
Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range

### Fall Applications (For use only in ND, SD, MT, MN, WY, CO, NE, KS)

SULFENTRAZONE 4F may be applied in the fall as a preplant treatment to control or suppress weeds prior to planting the following spring. SULFENTRAZONE 4F should be applied to the stubble or soil surface and allow moisture from rainfall or snow to move the product into the soil. Do not mechanically incorporate in the fall or spring as this can destroy the herbicide barrier and allowing weed escapes to occur. Do not apply to frozen soils or to existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snow melt that may occur following application.

SULFENTRAZONE 4F may be tankmixed with other residual soil herbicides that are labeled for fall use on sunflowers or other crops in subgroup 20B. If weeds are emerged at the time of SULFENTRAZONE 4F application, use a burndown herbicide such as glyphosate or paraquat at the full labeled rate in combination with SULFENTRAZONE 4F or split application as needed. Select the appropriate rate of SULFENTRAZONE 4F from Table 11 above within the correct soil type and organic matter range.

When applying SULFENTRAZONE 4F in the fall, use a mid to high rate within the rate range for the appropriate soil type and organic matter.

### Early Preplant and Preemergence (Spring Applications)

SULFENTRAZONE 4F may be applied preplant on the soil surface in the spring to control weeds.

SULFENTRAZONE 4F can be applied early preplant prior to planting up to 3 days after planting as a pre-emerge soil application if seedlings have not broken the soil surface and if the seed furrow is completely closed. For pre-emerge applications greater than 3 weeks prior to planting, use the high rate within the appropriate rate range for the soil and organic matter type listed in the use rate Table 13.

If applying SULFENTRAZONE 4F to coarse textured soils with less than 1.5% organic matter, wait a minimum of 7 days after application before planting SULFENTRAZONE 4F can be tank mixed with other pre-emerge herbicides labeled for sunflowers or other crops in Subgroup 20B. If dry conditions persist following preemergent application of SULFENTRAZONE 4F, a shallow incorporation may be needed to incorporate and activate the herbicide. If weeds are emerged at the time of SULFENTRAZONE 4F application, use a burndown herbicide at the full labeled rate in combination with SULFENTRAZONE 4F or split application as needed.

### Preplant Incorporated (PPI)

SULFENTRAZONE 4F may be applied as a Preplant Incorporated treatment in the spring prior to planting in reduced and conventional tillage. SULFENTRAZONE 4F should be shallowly incorporated in the soil no deeper than 2 inches. Incorporating SULFENTRAZONE 4F deeper than 2 inches can result in inconsistent weed control. Use the appropriate rate from Table 11 above for the soil texture, organic matter and pH level. SULFENTRAZONE 4F can be tank mixed with other soil applied herbicides labeled for preplant incorporation in sunflowers or other crops in Subgroup 20B.

### Weeds Controlled

When applied according to directions, SULFENTRAZONE 4F will provide control of:

Amaranth, Palmer	Pigweed, red root
Filaree, redstem	Pigweed, smooth
Kochia	Sida, prickly
Lambsquarters, common	Thistle, Russian
Morningglory, ivyleaf	Waterhemp, common
Morningglory, tall	Waterhemp, tall
Nightshade, Eastern Black	

For information on other weeds not listed above, refer to Weeds Controlled section (Table 5) in this label.

### Precautions

When applying SULFENTRAZONE 4F to coarse textured soils, it is recommended that growers allow a minimum of 7-14 days from application to planting. Best results are achieved with SULFENTRAZONE 4F when applications are made early preplant and greater than 14 days before planting.

Some adverse crop response may occur on coarse textured soils with low organic matter (less than 1.5%) and pH of 7-8 or higher or on highly eroded soils or in areas of calcareous outcroppings. SULFENTRAZONE 4F use rates should be reduced in those areas. Inadequate seed furrow closure or shallow planting (less than 1 inch) may result in undesirable crop response. As expected, poor growing conditions such as excessive moisture low temperatures, soil compaction and diseases may also cause undesirable crop response.

These Crop Specific Use directions are based upon the interactive effects of SULFENTRAZONE 4F (sulfentrazone) and the primary soil and environmental factors which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, SULFENTRAZONE 4F Product Use Rates, Rotational Crop Guidelines, Replanting Instructions Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all varieties or cultivars of a given crop species have been evaluated under treatment with SULFENTRAZONE 4F. Consult with university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F under specific local conditions.

### SUNFLOWER RESTRICTIONS

- **DO NOT** apply more than 8.0 fluid ounces (0.25 pound of sulfentrazone) in a single application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 4.0 fl oz/A of this product.
- **DO NOT** apply more than 8.0 fluid ounces (0.25 pound of sulfentrazone) of SULFENTRAZONE 4F per twelve-month period to sunflowers. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** incorporate greater than 2 inches deep.

## TOBACCO (Burley, Flue Cured and Dark)

**Table 12**

SULFENTRAZONE 4F Use Rate Table (Tobacco) Preemergence and Preplant Incorporated Applications			
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre		
	Soil Texture		
% Organic Matter	Coarse	Medium	Fine
<15	4.5-6.0	6.0-8.0	8.0
1.5 – 3.0	6.0-8.0	8.0-10.1	10.1
>3	8.0-10.1	10.1-12.0	12.0

Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories.  
Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range

SULFENTRAZONE 4F may be surface applied or preplant incorporated (to a depth no greater than 2 inches) from 14 days to 12 hours days prior to transplanting tobacco. Incorporating SULFENTRAZONE 4F deeper than 2 inches can result in inconsistent weed control.

Broadcast apply the appropriate SULFENTRAZONE 4F rate from Table 12 above in a minimum of 10 gallons per acre of water to the soil prior to transplanting.

**Non-Bedded (Fields where raised beds are NOT formed prior to transplanting)**

Perform all accepted cultural practices for land preparation, fertilizer/fungicide incorporation, etc. prior to the application of SULFENTRAZONE 4F. Once the field has been prepared for planting, SULFENTRAZONE 4F may be surface applied or lightly preplant incorporated from 14 days to 12 hours prior to transplanting.

If SULFENTRAZONE 4F is surface applied and it is necessary to remove equipment tracks from the field after application but prior to transplanting any light finishing equipment may be used providing the soil is not disturbed to a depth greater than 2 inches.

If timely cultivations are not performed following a pre-transplant surface application, reduced or unacceptable weed control may occur in the drill

**Bedded (Fields where raised beds ARE formed PRIOR to transplanting).**

Apply SULFENTRAZONE 4F to formed beds as a surface application from 14 days to 12 hours prior to transplanting. If it is customary to drag/knock down beds prior to transplanting this procedure must be performed prior to the SULFENTRAZONE 4F application.

When incorporating prior to bedding, SULFENTRAZONE 4F must be thoroughly and uniformly incorporated to a depth no greater than 2 inches to avoid concentrating SULFENTRAZONE 4F in the bed.

If initial transplanting fails to produce a uniform stand, tobacco may be replanted. DO NOT retreat field with a second application of SULFENTRAZONE 4F or any other herbicide containing sulfentrazone. DO NOT re-bed. Re-transplant into previously formed treated beds.

For broad spectrum and optimum grass weed control a grass herbicide application will be required.

**Weeds Controlled**

**When applied according to directions, SULFENTRAZONE 4F will provide control of:**

Amaranth, livid	Pigweed, red root
Filaree, redstem	Pigweed, smooth
Galinsoga, hairy	Sida, prickly
Lambsquarters, common	Signalgrass, broadleaf
Morningglory, ivyleaf	
Morningglory, tall	

For information on other weeds not listed above, refer to Weeds Controlled section (Table 5) in this label.

**Precautions**

Poor agronomic practices, unfavorable pH soils diseases, cold weather, excessive moisture, drought or other conditions, unfavorable to normal plant growth, may adversely affect the growth of tobacco transplants. Weakened transplants may be more susceptible to herbicide response and diseases particularly under poor drainage

or compacted soil conditions or when the soil has been saturated for long periods of time. Contact your State Agricultural Extension Service Specialist for consultation as to the agronomic recommendations suited for your tobacco varieties and local conditions. Temporary stunting of tobacco may occur if transplants are set too shallowly or if heavy rainfall occurs immediately following transplanting. Splashing of treated soil onto tobacco leaves may cause some localized and inconsequential necrosis. Use sound transplanting practices that insure treated soil will not wash or crust over tobacco plants.

These Crop Specific Use directions are based upon the interactive effects of SULFENTRAZONE 4F (sulfentrazone) and the primary soil and environmental factors which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions SULFENTRAZONE 4F Product Use Rates, Rotational Crop Guidelines, Replanting Instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all varieties or cultivars of a given crop species have been evaluated under treatment with SULFENTRAZONE 4F. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F under specific local conditions

#### TOBACCO RESTRICTIONS

- **DO NOT** apply more than 12.0 fluid ounces (0.375 pound of sulfentrazone) in a single application.
- **DO NOT** apply more than 12.0 fluid ounces (0.375 pound of sulfentrazone) per acre of SULFENTRAZONE 4F per acre per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 6.0 fl oz/A of this product.
- **DO NOT** use on Shade Grown Tobacco.
- **DO NOT** apply SULFENTRAZONE 4F to soils classified as sands containing less than 1% organic matter.
- **DO NOT** use SULFENTRAZONE 4F in tobacco seeding beds or greenhouses.
- **DO NOT** apply SULFENTRAZONE 4F post-transplant as unacceptable injury may occur.
- **DO NOT** perform tillage practices that concentrate SULFENTRAZONE 4F into the bed or crop injury may occur.
- **DO NOT** incorporate greater than 2 inches deep.

## VEGETABLE CROPS

Before applying SULFENTRAZONE 4F to vegetable crops, users producers and/or applicators must read and follow the information presented in the Conditions of Sale and Limitation of Warranty and Liability section of this label.

### ASPARAGUS

**Table 13**

SULFENTRAZONE 4F Use Rate Table (Asparagus) Spring Preemergence Applications				
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre			
% Organic Matter	Soil Texture			
	Coarse	Medium	Fine	
<1.5	4.5-6.0	6.0-8.0	8.0	
1.5 – 3.0	6.0-8.0	8.0-10.1	10.1	
>3.0	8.0-10.1	10.1-12.0	12.0	

Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories. Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range.

Apply SULFENTRAZONE 4F as a broadcast treatment to crowns established for one or more years.

Apply in the spring before the crop and weeds emerge. Apply SULFENTRAZONE 4F at rate specified in Table 13 for soil texture and % organic matter in 10 to 40 gallons of finished spray per acre. SULFENTRAZONE 4F may be applied with other pesticides registered to use with asparagus.

## Weeds Controlled

When Applied according to directions SULFENTRAZONE 4F will provide control of:

Amaranth, Palmer	Nightshade, Eastern black
Galinsoga, hairy	Nutsedge, yellow
Lambsquarters, common	Pigweed, red root
Morningglory, ivyleaf	Pigweed, smooth

For information on other weeds not listed above, refer to Weeds Controlled Section (Table 5) in this label.

## Precautions

These Crop Specific Use directions are based upon the interactive effects of SULFENTRAZONE 4F (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions SULFENTRAZONE 4F Product Use Rates, Rotational Crop Guidelines, Replanting Instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all varieties or cultivars of a given crop species have been evaluated under treatment with SULFENTRAZONE 4F. Consult university or extension weed management specialists for additional information on Specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F under Specific local conditions

## ASPARAGUS RESTRICTIONS

- **DO NOT** apply more than 12.0 fluid ounces (0.375 pound of sulfentrazone) in a single application.
- **DO NOT** apply within 14 days prior to harvest
- **DO NOT** apply more than 12.0 fluid ounces (0.375 pound of sulfentrazone) per acre per 12-month period.
- **DO NOT** make more than one SULFENTRAZONE 4F application per acre per 12-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

## BRASSICA, HEAD AND STEM

Broccoli, Chinese broccoli, brussels sprouts, Chinese (Napa) cabbage,  
Chinese mustard, cauliflower, Cavalo, broccoli kohlrabi)

Table 14

SULFENTRAZONE 4F Use Rate Table (Head and Stem Brassica)				
Fall or Spring Early Preplant, Preemergence and Preplant Incorporated Applications				
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre			
% Organic Matter	Soil Texture			
	Coarse	Medium	Fine	
<1.5	2.25 - 3.0	3.0 - 4.5	3.0-6.0	
1.5 - 3.0%	3.0 - 6.0	6.0 - 9.0	6.0-9.0	
>3%	6.0 - 9.0	6.0 - 12.0	6.0-12.0	

Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories.  
Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range

## Early Preplant and Preemergence (Fall Application or Spring Application)

SULFENTRAZONE 4F Herbicide may be applied in the fall or Spring preceding the growing season up to 72 hours prior to transplanting head and stem brassica. SULFENTRAZONE 4F Herbicide should be applied to the harvested crop stubble or soil surface without incorporation. Moisture in the form of rain or snow will move and activate the product into the soil. Do not mechanically incorporate in the fall or Spring after application as this may destroy the Herbicide barrier and weed escapes can occur.

Do not apply to frozen soils, to prevent SULFENTRAZONE 4F Herbicide runoff from rain or snow that may occur following the application. SULFENTRAZONE 4F Herbicide may be tankmixed with other burndown Herbicides to control emerged weeds in the fall or Spring, or with residual soil Herbicides that are labeled for use on head and stem brassica. Use the listed rates of burndown Herbicides in combination with SULFENTRAZONE 4F Herbicide or split applications as needed. Observe all precautions, instructions and rotational cropping guidelines of each products label when tank mixing including all references to potential carryover and crop injury warnings or restrictions.

#### **Preplant Incorporated (PPI)**

SULFENTRAZONE 4 Herbicide may be applied as a preplant incorporated treatment in the spring prior to transplanting head and stem brassica. Do not incorporate to depths greater than 2 inches.

SULFENTRAZONE 4F Herbicide can be tankmixed with other burndown or soil applied Herbicides labeled for use in head and stem brassica. Use the listed rates of burndown Herbicides or split applications as needed. Observe all precautions, instructions and rotational cropping guidelines of each products label when tank mixing, including all references to potential carryover and crop injury warnings or restrictions.

#### **Weeds Controlled**

**When Applied according to directions SULFENTRAZONE 4F will provide control of:**

Galinsoga, hairy	Waterhemp, common
Lambsquarters, common	Waterhemp, tall
Pigweed, red root	

#### **Precautions**

These Crop Specific Use directions are based upon the interactive effects of SULFENTRAZONE 4F Herbicide (sulfentrazone) and the primary soil and environmental factors which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, SULFENTRAZONE 4F Herbicide Product Use Rates, Rotational Crop Guideline Replanting instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all parameters or cultivars of a given crop species have been evaluated under treatment With SULFENTRAZONE 4F Herbicide. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F Herbicide under specific local conditions.

#### **BRASSICA, HEAD AND STEM RESTRICTIONS**

- **DO NOT** apply more than 12.0 ounces (0.375 pound of sulfentrazone) per acre of SULFENTRAZONE 4F Herbicide per application.
- **DO NOT** apply more than 12.0 fluid ounces (0.375 pound of sulfentrazone) per acre per 12-month period.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 6.0 fl oz/A of this product.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** incorporate to depths greater than 2 inches.

## BRASSICA, LEAFY GREENS

Broccoli raab, Chinese (bok choy) cabbage, collards, kale, mizuna, mustard greens, mustard spinach, rape greens

**Table 15**

SULFENTRAZONE 4F Use Rate Table (Leafy Brassica)				
Fall or Spring Early Preplant, Preemergence and Preplant Incorporated Applications				
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre			
% Organic Matter	Soil Texture			
	Coarse	Medium	Fine	
<1.5	2.25 - 3.0	3.0 - 4.5	3.0 - 6.0	
1.5 - 3.0%	3.0 - 6.0	6.0 - 6.4	6.0 - 6.4	
>3%	6.0 - 6.4	6.0 - 6.4	6.0 - 6.4	

Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories.  
Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range

### Early Preplant and Preemergence (Fall Application or Spring Application)

SULFENTRAZONE 4F Herbicide may be applied in the fall or spring preceding the growing season up to 72 hours prior to planting leafy brassica. SULFENTRAZONE 4F Herbicide should be applied to the harvested crop stubble or soil surface without incorporation. Moisture in the form of rain or snow will move and activate the product into the soil. Do not mechanically incorporate in the fall or spring after application, as this may destroy the herbicide barrier and weed escapes can occur. Do not apply to frozen soils to prevent SULFENTRAZONE 4F Herbicide runoff from rain or snow that may occur following application. SULFENTRAZONE 4F Herbicide may be tank mixed with other burndown herbicides to control emerged weeds in the fall or spring or with residual soil herbicides that are labeled for use on cabbage. Use the listed rates of burndown herbicides in combination with SULFENTRAZONE 4F Herbicide or split applications as needed. Observe all precautions, instructions and rotational cropping guidelines of each products label when tank mixing, including all references to potential carryover and crop injury warnings or restrictions.

### Preplant Incorporated (PPI)

SULFENTRAZONE 4F Herbicide may be applied as a Preplant Incorporated treatment in the spring prior to planting leafy brassica. Do not incorporate to depths greater than 2 inches. SULFENTRAZONE 4F Herbicide can be tank mixed with other burndown or soil applied herbicides labeled for use in leafy brassica. Use the listed rates of burndown herbicides or split applications as needed. Observe all precautions, instructions and rotational cropping guidelines of each products label when tank mixing, including all references to potential carryover and crop injury warnings or restrictions.

### Weeds Controlled

**When Applied according to directions SULFENTRAZONE 4F will provide control of:**

Galinsoga, hairy	Waterhemp, common
Lambsquarters, common	Waterhemp, tall
Pigweed, red root	

### Precautions

These Crop Specific Use directions are based upon the interactive effects of SULFENTRAZONE 4F Herbicide (sulfentrazone) and the primary soil and environmental factors which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, SULFENTRAZONE 4F Herbicide Product Use Rates, Rotational Crop Guideline Replanting instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all parameters or cultivars of a given crop species have been evaluated under treatment With SULFENTRAZONE 4F Herbicide. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F Herbicide under specific local conditions.

## BRASSICA LEAFY GREEN RESTRICTIONS

- **DO NOT** apply more than 6.4 ounces (0.20 pound sulfentrazone) per acre of SULFENTRAZONE 4F Herbicide per application.
- **DO NOT** apply more than 6.4 ounces (0.20 pound sulfentrazone) per acre per 12-month period.
- **DO NOT** make more than one SULFENTRAZONE 4F application per acre per 12-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** incorporate to depths greater than 2 inches.

## CABBAGE (Transplanted Only)

Table 16

SULFENTRAZONE 4F Use Rate Table (Cabbage)			
Fall or Spring Early Preplant, Preemergence and Preplant Incorporated Applications			
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre		
	Soil Texture		
% Organic Matter	Coarse	Medium	Fine
<1.5	2.25 - 3.0	3.0-4.5	3.0 - 6.0
1.5 - 3.0%	3.0 - 6.0	6.0 - 9.0	6.0 - 9.0
>3%	6.0 - 9.0	6.0 - 12.0	6.0 - 12.0

Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories.  
Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range

### Early Preplant (Fall Application or Spring Application)

SULFENTRAZONE 4F may be applied in the states of MN, ND, SD, MT, CO, NE, WY, ID, WA, OR, WI, or MI only in the fall or spring preceding the growing season to control weeds prior to or up to the planting or transplanting of cabbage.

SULFENTRAZONE 4F may be applied in the spring from 60 days prior to planting, up to planting time. SULFENTRAZONE 4F should be applied to the harvested crop stubble or soil surface without incorporation. Moisture in the form of rain or snow will move and activate the product into the soil.

Do not mechanically incorporate in the fall or spring after application as this may destroy the herbicide barrier and weed escapes can occur Do not apply to frozen soils to prevent SULFENTRAZONE 4F Herbicide runoff from rain or snow that may occur following application.

SULFENTRAZONE 4F Herbicide may be tank mixed with other burndown herbicides to control emerged weeds in the fall or spring or with residual soil herbicides that are labeled for use on cabbage. Use the listed rates of burndown herbicides in combination with SULFENTRAZONE 4F Herbicide or split applications as needed. Observe all precautions, instructions and rotational cropping guidelines of each products label when tank mixing, including all references to potential carryover and crop injury warnings or restrictions.

### Preplant Incorporated (PPI)

SULFENTRAZONE 4F may be applied as a preplant incorporated treatment in the spring prior to transplanting of cabbage. Do not incorporate to depths greater than 2 inches. SULFENTRAZONE 4F can be tankmixed with other burndown or soil applied herbicides labeled for use in cabbage. Use the listed rates of burndown herbicides in combination with SULFENTRAZONE 4F Herbicide or split applications as needed. Observe all precautions, instructions and rotational cropping guidelines of each products label when tank mixing, including all references to potential carryover and crop injury warnings or restrictions.

### Transplant Cabbage

SULFENTRAZONE 4F may be applied pre-emergence as a broadcast or banded treatment to transplanted cabbage only. Applications should be made broadcast or banded treatment prior to transplanting. SULFENTRAZONE 4F may be applied as a banded treatment into the row middles within 72 hours after transplanting.

## Weeds Controlled

When applied according to directions SULFENTRAZONE 4F will provide control of:

Galinsoga, hairy	Waterhemp, common
Lambsquarter, common	Waterhemp, tall
Pigweed, redroot	

For information on other weeds not listed above, refer to Weeds Controlled section (Table 5) of this label.

## Precautions

These Crop Specific Use directions are based upon the interactive effects of SULFENTRAZONE 4F Herbicide (sulfentrazone) and the primary soil and environmental factors which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, SULFENTRAZONE 4F Herbicide Product Use Rates, Rotational Crop Guideline Replanting instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all parameters or cultivars of a given crop species have been evaluated under treatment With SULFENTRAZONE 4F Herbicide. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F Herbicide under specific local conditions.

## CABBAGE RESTRICTIONS

- **DO NOT** apply more than 12 fluid ounces (0.375 pound of sulfentrazone) per acre of SULFENTRAZONE 4F per application
- **DO NOT** apply more than 12.0 fluid ounces (0.375 pound of sulfentrazone) per acre per 12-month period.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 6.0 fl oz/A of this product.
- **DO NOT use on soils classified as sand, which have less than 1% organic matter.**
- **DO NOT** incorporate to depths greater than 2 inches.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

## DRY SHELLED BEANS AND PEAS

Dried cultivars of bean (*Lupinus*), bean (*Phaseolus*) (includes field bean, kidney bean, lima bean (dry), navy bean, pinto bean, tepary bean, bean (*Vigna*) (includes adzuki bean, blackeyed pea, catjang cowpea, crowder pea, moth bean, lentil mung bean, rice bean, southern pea, urd bean) broad bean (dry), chickpea, guar lab, lab bean, pea (*Pisum*) (includes field pea) and pigeon pea.

Table 17

SULFENTRAZONE 4F Use Rate Table (Dried Shelled Beans and Peas)			
Fall or Spring Early Preplant, Preemergence and Preplant Incorporated Applications			
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre		
	Soil Texture		
% Organic Matter	Coarse	Medium	Fine
<1.5	2.25 - 3.0	3.0 - 4.5	3.0 - 4.5
1.5 - 3.0%	3.0 - 4.5	3.75 - 6.0	3.75 - 6.0
>3%	3.75 - 6.0	4.5 - 6.75	5.25 - 8.0

Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories.  
Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range

## Early Preplant and Fall Applications (For use only in ND, SD, MT, MN, WY, CO, NE, KS, WI, MI, OR, ID, WA, OR).

SULFENTRAZONE 4F may be applied in the fall as a preplant treatment to control or suppress weeds prior to planting the following spring SULFENTRAZONE 4F should be applied to the stubble or soil surface and allow moisture from rainfall or snow to move the product into the soil. Do not mechanically incorporate in the fall or spring as this can destroy the herbicide barrier and weed escapes can occur. Do not apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

SULFENTRAZONE 4F may be tank mixed with other residual soil herbicides that are labeled for fall use on dry bean and dry peas.

If weeds are emerged at the time of SULFENTRAZONE 4F application, use a burndown herbicide such as glyphosate or paraquat at the full labeled rate in combination with SULFENTRAZONE 4F or split application as needed. Select the appropriate rate from Table 17 above within the correct soil type and organic matter range.

When applying SULFENTRAZONE 4F in the fall, use a mid to high rate within the rate range for the appropriate soil type and organic matter.

#### **Early Preplant and Preemergence (Spring Applications)**

SULFENTRAZONE 4F may be applied preplant on the soil surface in the spring to control weeds in dry bean and dry peas. SULFENTRAZONE 4F can be applied early preplant prior to planting up to 3 days after planting as a preemergence soil application if seedlings have not broken the soil surface, and if the seed furrow is completely closed. For preemergence applications greater than 3 weeks prior to planting, use the high rate within the appropriate rate range for the soil, and organic matter type listed in the use rate chart above Table 17. If applying SULFENTRAZONE 4F to coarse textured soils with less than 1.5% organic matter, wait a minimum of 7 days after application before planting. SULFENTRAZONE 4F can be tank mixed with other preemergence herbicides labeled for dry bean and dry peas use. If dry conditions persist following preemergence application of SULFENTRAZONE 4F, a shallow incorporation may be needed to incorporate and activate the herbicide. If weeds are emerged at the time of SULFENTRAZONE 4F application use a burndown herbicide at the full labeled rate in combination with SULFENTRAZONE 4F or split application as needed.

#### **Preplant Incorporated (PPI)**

SULFENTRAZONE 4F may be applied as a Preplant Incorporated treatment in the spring prior to planting in reduced and conventional tillage dry bean and dry pea. Do not incorporate to depths greater than 2 inches. SULFENTRAZONE 4F use rates for PPI applications are similar to those used in preplant and preemergence applications. SULFENTRAZONE 4F can be tankmixed with other burndown or soil applied herbicides labeled for use in dry bean or dry pea. Use the listed rates of burndown herbicides or split applications as needed. Observe all precautions, instructions and rotational cropping guidelines of each products label when tank mixing, including all references to potential carryover and crop injury warnings or restrictions.

#### **Weeds Controlled**

**When Applied according to directions SULFENTRAZONE 4F will provide control of:**

Amaranth Palmer	Pigweed, red root
Filaree redstem	Pigweed, smooth
Kochia	Sida, prickly
Lambsquarters, common	Thistle, Russian
Morningglory, ivyleaf	Waterhemp, common
Morningglory, tall	Waterhemp, tall
Nightshade, Eastern black	

For information on other weeds not listed above, refer to Weeds Controlled Section (Table 5) in this label.

#### **Precautions**

When applying SULFENTRAZONE 4F to coarse textured soils, it is recommended that growers allow a minimum of 7 - 14 days from application to planting. Best results are achieved with SULFENTRAZONE 4F when applications are made early preplant and greater than 14 days before planting.

Under extended periods of dry weather, adequate weed control may not be achieved.

Some adverse crop response may occur on coarse textured soils with low organic matter (less than 1.5%) and pH of 7 - 8 or higher or on highly eroded soils or in areas of calcareous outcroppings. SULFENTRAZONE 4F use rates should be reduced in those areas inadequate seed furrow closure or shallow planting (less than 1 inch) may result in undesirable crop response. As expected, poor growing conditions such as excessive moisture low temperatures soil compaction and diseases may also cause undesirable crop response.

These Crop Specific Use directions are based upon the interactive effects of SULFENTRAZONE 4F (sulfentrazone) and the primary soil and environmental factors which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, SULFENTRAZONE 4F Herbicide Product Use Rates, Rotational Crop Guideline Replanting instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all parameters or cultivars of a given crop species have been evaluated under treatment With SULFENTRAZONE 4F Herbicide. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F Herbicide under specific local conditions.

## DRY SHELLED BEANS AND PEAS RESTRICTIONS

- **DO NOT** apply more than 8 fluid ounces (0.25 pound of sulfentrazone) per acre of SULFENTRAZONE 4F per application
- **DO NOT** apply more than 8.0 fluid ounces (0.25 pound of sulfentrazone) total per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 4.0 fl oz/A of this product.
- **DO NOT** apply after crop emerges or if the seedling is close to the soil surface.
- **DO NOT** incorporate to depths greater than 2 inches.
- **DO NOT** apply to frozen soils or to existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snow melt that may occur following application.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.

## FRUITING VEGETABLES (EXCEPT CUCURBITS) AND OKRA

African eggplant, bush tomato, bell pepper, cocona, currant tomato, eggplant, garden huckleberry, gojo bell, roselle, scarlet eggplant, sunberry tomatillo, tomato, tree tomato, cultivars, varieties and/or hybrids of these.

**Table 18**

SULFENTRAZONE 4F Use Rate Table (Fruiting Vegetables, except Cucurbits and Okra) Preplant Applications				
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre			
% Organic Matter	Soil Texture			
	Coarse	Medium	Fine	
<1.5	2.25 - 3.0	3.0 - 4.5	3.0 - 6.0	
1.5 - 3.0%	3.0 - 6.0	3.75 - 6.0	6.0 - 9.0	
>3.0%	6.0 - 9.0	6.0 - 12.0	6.0 - 12.0	

Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories.  
Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range

### Preplant Applications

SULFENTRAZONE 4F Herbicide may be applied preemergence as a broadcast or banded treatment on fruiting vegetables listed above. Applications must be made prior to transplant. SULFENTRAZONE 4F Herbicide can be tankmixed with other burndown or soil applied herbicides labeled for use on fruiting vegetables listed above. Use the listed rates of burndown herbicides, or split applications as needed. Observe all precautions instructions and rotational cropping guidelines of each products label when tank mixing including all references to potential carryover and crop injury warnings or restrictions.

### Preplant Incorporated (PPI)

SULFENTRAZONE 4F Herbicide may be applied as a Preplant Incorporated treatment in the spring prior to transplanting tomatoes. Do not incorporate to depths greater than 2 inches SULFENTRAZONE 4F Herbicide can be tankmixed with other burndown or soil applied herbicides labeled for use on tomatoes. Use the full recommended rates of burndown herbicides or split applications as needed. Observe all precautions instructions and rotational cropping guidelines of each products label when tank mixing including all references to potential carryover and crop injury warnings or restrictions.

### Weeds Controlled

**When Applied according to directions SULFENTRAZONE 4F will provide control of:**

Lambsquarters, common	Pigweed, red root
Morningglory, ivyleaf	Waterhemp, common
Nutsedge, yellow	Waterhemp, tall

These Crop Specific Use Directions are based upon the interactive effects of SULFENTRAZONE 4F Herbicide (sulfentrazone) and the primary soil and environmental factors which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented

under Application Instructions, SULFENTRAZONE 4F Herbicide Product Use Rates, Rotational Crop Guideline Replanting instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all parameters or cultivars of a given crop species have been evaluated under treatment With SULFENTRAZONE 4F Herbicide. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F Herbicide under specific local conditions.

#### FRUITING VEGETABLES (EXCEPT CUCURBITS) AND OKRA RESTRICTIONS

- **DO NOT** apply more than 8.0 fluid ounces (0.375 pound of sulfentrazone) per acre of SULFENTRAZONE 4F Herbicide per application.
- **DO NOT** apply more than 8.0 fluid ounces (0.25 pound of sulfentrazone) total per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 4.0 fl oz/A of this product.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

## HORSERADISH

**Table 19**

SULFENTRAZONE 4F Use Rate Table (Horseradish)				
Fall or Spring Early Preplant, Preemergence and Preplant Incorporated Applications				
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre			
% Organic Matter	Soil Texture			Fine
	Coarse	Medium	Fine	
<1.5	2.25 - 4.5	3.0 - 4.5	3.0 - 4.5	3.0 - 4.5
1.5 - 3.0%	4.5 - 6.0	6.0 - 8.0	6.0 - 8.0	6.0 - 8.0
>3.0%	6.0 - 7.5	6.0 - 8.0	6.0 - 8.0	6.0 - 8.0

Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories.  
Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range

SULFENTRAZONE 4F may be applied as an preplant preemerge or Preplant Incorporated treatment by ground in a minimum of 15 gallons of finish spray.

#### Early Preplant (Fall Application or Spring Application) (MN, ND, SD, MT, CO, NE, WY, ID, WA, OR, WI, MI)

SULFENTRAZONE 4F may be applied in the fall or spring preceding the growing season to control or suppress weeds prior to or up to the planting of horseradish. SULFENTRAZONE 4F may be applied in the spring from 60 days prior to planting up to planting. SULFENTRAZONE 4F should be applied to the harvested crop stubble or soil surface without incorporation.

Moisture in the form of rain or snow will move and activate the product. Do not mechanically incorporate in the fall or spring after application because this activity may destroy the herbicide barrier and weed escapes can occur. Do not apply to frozen soils to prevent SULFENTRAZONE 4F runoff from rain or snow that may occur following application. SULFENTRAZONE 4F may be tankmixed with herbicides to control emerged weeds. Sequential applications may be needed.

Observe all precautions instructions and rotational cropping guidelines of each products label when tank mixing including all references to potential carryover and crop injury warnings or restrictions.

#### Preplant Incorporated (PPI)

SULFENTRAZONE 4F may be applied as a Preplant Incorporated treatment in the spring prior to planting of horseradish. Do not incorporate to depths greater than 2 inches.

SULFENTRAZONE 4F can be tankmixed with other burndown or soil applied herbicides labeled for use on horseradish. Use the full recommended rates of burndown herbicides or split applications as needed. Observe all precautions instructions and rotational cropping guidelines of each products label when tank mixing including all references to potential carryover and crop injury warnings or restrictions.

### Pre-Emergence (PRE)

SULFENTRAZONE 4F may be applied pre-emergence as a broadcast or banded treatment on horseradish. Applications should be made broadcast prior to planting broadcast soon after planting, but at least 5 days before crop emergence. SULFENTRAZONE 4F may be applied as a banded treatment into the row middles after crop emergence. Use the higher SULFENTRAZONE 4F rates on clay soils and/or soils with greater than 1% organic matter. SULFENTRAZONE 4F may be applied with other pesticides registered for use on horseradish.

### Weeds Controlled

When Applied according to directions SULFENTRAZONE 4F will provide control of:

Lambsquarters, common	Pigweed, red root
Morningglory, ivyleaf	Waterhemp, common
Nutsedge, yellow	Waterhemp, tall

For information on other weeds not listed above, refer to Weeds Controlled Section (Table 5) in this label.

### Precautions

These Crop Specific Use directions are based upon the interactive effects of SULFENTRAZONE 4F Herbicide (sulfentrazone) and the primary soil and environmental factors which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, SULFENTRAZONE 4F Herbicide Product Use Rates, Rotational Crop Guideline Replanting instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all parameters or cultivars of a given crop species have been evaluated under treatment with SULFENTRAZONE 4F Herbicide. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F Herbicide under specific local conditions.

### HORSERADISH RESTRICTIONS

- **DO NOT** apply more than 8.0 fluid ounces (0.25 pound of sulfentrazone) per acre of SULFENTRAZONE 4F per application.
- **DO NOT** apply more than 8.0 fluid ounces (0.25 pound of sulfentrazone) per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 4.0 fl oz/A of this product.
- **DO NOT** apply directly on the crop after the crop emerges or if the seedling sprouts are close to the soil surface.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** incorporate to depths greater than 2 inches.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

## MELONS

### Citron melon, muskmelon, watermelon

Table 20

SULFENTRAZONE 4F Use Rate Table (Melons) Preemergence Applications			
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre		
	Soil Texture		
% Organic Matter	Coarse	Medium	Fine
<1.5	3.0 – 3.75	3.0 – 4.5	3.75 – 5.25
1.5 – 3.0%	3.0 - 4.50	3.75 – 6.0	4.5 – 6.8
>3.0%	3.75 – 6.0	4.5 – 6.8	6.0 – 8.0

Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories.  
Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range

### Preemergence

SULFENTRAZONE 4F Herbicide can be applied 48 hours prior to planting to anytime after planting, but before seedlings have emerged. SULFENTRAZONE 4F Herbicide applied after crop emergence may cause severe injury to the crop.

SULFENTRAZONE 4F Herbicide can be applied alone or in combination with other labeled melon Herbicides. SULFENTRAZONE 4F Herbicide may be followed by labeled postemergence melon herbicides for increased control of grass and broadleaf weeds.

Always follow the most restrictive label when tank mixing. When using SULFENTRAZONE 4F Herbicide in no till or minimum till cropping systems tank mix with an appropriate burndown herbicide for improved control of existing weeds.

### Weeds Controlled

**When Applied according to directions SULFENTRAZONE 4F will provide control of:**

Lambsquarters, common	Pigweed, red root
Morningglory, ivyleaf	Waterhemp, common
Nutsedge, yellow	Waterhemp, tall

### Precautions

These Crop Specific Use Directions are based upon the interactive effects of SULFENTRAZONE 4F (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, SULFENTRAZONE 4F Product Use Rates, Rotational Crop Guidelines, Replanting Instructions, Weed Control and any other section of this label pertinent to the anticipated crop use. It is important to note that not all varieties or cultivars of a given crop species have been evaluated under treatment with SULFENTRAZONE 4F. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F under specific local conditions.

### MELONS RESTRICTIONS

- **DO NOT** apply more than 8.0 fluid ounces (0.25 pound of sulfentrazone) per acre of SULFENTRAZONE 4F per application.
- **DO NOT** apply more than 8.0 fluid ounces (0.25 pound of sulfentrazone) per acre per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 4.0 fl oz/A of this product.
- **DO NOT** apply directly on the crop after the crop emerges or if the seedling sprouts are close to the soil surface.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

## STRAWBERRY

**Table 21**

SULFENTRAZONE 4F Use Rate Table (Strawberry) Preemergence Applications				
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre			
	Soil Texture			
% Organic Matter	Coarse	Medium	Fine	
<1.5	2.25 - 3.0	3.0 - 4.5	3.0 - 6.0	
1.5 - 3.0%	3.0 - 6.0	6.0 - 9.0	6.0 - 9.0	
>3.0%	6.0 - 9.0	6.0 - 12.0	6.0 - 12.0	

Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories.  
Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range

### Preemergence

SULFENTRAZONE 4F Herbicide can be applied prior to planting and before seedlings have emerged. SULFENTRAZONE 4F Herbicide applied after crop emergence may cause severe injury to the crop. SULFENTRAZONE 4F Herbicide can be applied alone or in combination with other labeled strawberry herbicides. SULFENTRAZONE 4F Herbicide may be followed by labeled postemergence strawberry herbicides for increased control of grass and broadleaf weeds. Always follow the most restrictive label when tank mixing. When using SULFENTRAZONE 4F Herbicide in no till or minimum till cropping systems, tank mix with an appropriate burndown herbicide for improved control of existing weeds.

## Weeds Controlled

When Applied according to directions SULFENTRAZONE 4F will provide control of:

Corn, spurry	Pineapple weed
Field, Pansy	Prostrate knotweed
Groundsel, common	Sheperdspurse
Ladysthumb	Waterhemp, common
Lambsquarters, common	Waterhemp, tall
Mayweed	White Camplion
Morningglory, ivyleaf	Wild buckwheat
Nutsedge, yellow	Yellow nutsedge
Pigweed, redroot	Yellow woodsorrel

### Precautions

These Crop Specific Use directions are based upon the interactive effects of SULFENTRAZONE 4F Herbicide (sulfentrazone) and the primary soil and environmental factors which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, SULFENTRAZONE 4F Herbicide Product Use Rates, Rotational Crop Guideline Replanting instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all parameters or cultivars of a given crop species have been evaluated under treatment With SULFENTRAZONE 4F Herbicide. Consult university or extension weed management specialists for additional information on specific local vanities or cultivars and any other pertinent information on SULFENTRAZONE 4F Herbicide under specific local conditions.

### STRAWBERRY RESTRICTIONS

- **DO NOT** apply more than 12 ounces (0.375 pound of sulfentrazone) per acre of SULFENTRAZONE 4F Herbicide per application.
- **DO NOT** apply more than 12 ounces (0.375 pound of sulfentrazone) per acre per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 6.0 fl oz/A of this product.
- **DO NOT** retreat sooner than 60 days after previous treatment.
- **DO NOT** apply directly on the crop after the crop emerges or if the seedling sprouts are close to the soil surface.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

## LIMA BEANS, SUCCULENT (TENNESSEE ONLY)

**Table 22**

SULFENTRAZONE 4F Use Rate Table (LIMA BEANS, SUCCULENT (TN ONLY) Preemergence Applications				
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre			
	Soil Texture			
% Organic Matter	Coarse	Medium	Fine	
<1.5	2.25 - 3.5	3.0 - 6.0	3.75 - 6.0	
1.5 - 3.0%	3.0 - 4.5	3.75 - 6.0	4.5 - 6.0	
>3.0%	3.75 - 6.0	4.5 - 6.0	5.25 - 6.0	
Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories.				
Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range				

### Preemergence

SULFENTRAZONE 4F Herbicide may be applied to succulent lima beans as a preemergence treatment at the rate specified in Table 22. Applications should be made with ground equipment in a minimum of 10 gallons of finished spray per acre.

### Weeds Controlled

**When Applied according to directions SULFENTRAZONE 4F will provide control of:**

Copperleaf hophornbeam	Pigweed, red root
Morningglory, entireleaf	Pigweed, smooth
Morningglory, ivyleaf	

### Precautions

When applying SULFENTRAZONE 4F to coarse textured soils, it is recommended that growers allow a minimum of 7-14 days from application to planting. Best results are achieved with SULFENTRAZONE 4F when applications are made early preplant and greater than 14 days before planting.

Under extended periods of dry weather, adequate weed control may not be achieved.

Some adverse crop response may occur on coarse textured soils with low organic matter (less than 1.5%) and pH of 7 - 8 or higher or on highly eroded soils or in areas of calcareous outcroppings. SULFENTRAZONE 4F use rates should be reduced in those areas inadequate seed furrow closure or shallow planting (less than 1 inch) may result in undesirable crop response. As expected, poor growing conditions such as excessive moisture low temperatures soil compaction and diseases may also cause undesirable crop response.

These Crop Specific Use Directions are based upon the interactive effects of SULFENTRAZONE 4F (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, SULFENTRAZONE 4F Product Use Rates, Rotational Crop Guidelines, Replanting Instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all varieties or cultivars of a given crop species have been evaluated under treatment with SULFENTRAZONE 4F. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F under specific local conditions.

### LIMA BEANS, SUCCULENT RESTRICTIONS

- **DO NOT** apply more than 6 ounces (0.1875 pound of sulfentrazone) per acre of SULFENTRAZONE 4F Herbicide per application
- **DO NOT** apply more than 6 ounces (0.1875 pound of sulfentrazone) per acre per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 3.0 fl oz/A of this product.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** incorporate.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

## COWPEAS, SUCCULENT (TENNESSEE ONLY)

**Table 23**

SULFENTRAZONE 4F Use Rate Table (COWPEAS, SUCCULENT (TN ONLY) Preemergence Applications				
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre			
	Soil Texture			
% Organic Matter	Coarse	Medium	Fine	
<1.5	2.25 - 3.5	3.0 - 6.0	3.75 - 6.0	
1.5 - 3.0%	3.0 - 4.5	3.75 - 6.0	4.5 - 6.0	
>3.0%	3.75 - 6.0	4.5 - 6.0	5.25 - 6.0	
Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories.				
Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range				

### Preemergence

SULFENTRAZONE 4F Herbicide may be applied to succulent cowpeas as a preemergence treatment at the rate specified in Table 23. Applications should be made with ground equipment in a minimum of 10 gallons of finished spray per acre.

### Weeds Controlled

**When Applied according to directions SULFENTRAZONE 4F will provide control of:**

Copperleaf hophombeam	Pigweed, red root
Morningglory, entireleaf	Pigweed, smooth
Morningglory, ivyleaf	

### Precautions

When applying SULFENTRAZONE 4F to coarse textured soils, it is recommended that growers allow a minimum of 7-14 days from application to planting. Best results are achieved with SULFENTRAZONE 4F when applications are made early preplant and greater than 14 days before planting.

Under extended periods of dry weather, adequate weed control may not be achieved.

Some adverse crop response may occur on coarse textured soils with low organic matter (less than 1.5%) and pH of 7 - 8 or higher or on highly eroded soils or in areas of calcareous outcroppings. SULFENTRAZONE 4F use rates should be reduced in those areas inadequate seed furrow closure or shallow planting (less than 1 inch) may result in undesirable crop response. As expected, poor growing conditions such as excessive moisture low temperatures soil compaction and diseases may also cause undesirable crop response.

These Crop Specific Use Directions are based upon the interactive effects of SULFENTRAZONE 4F (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, SULFENTRAZONE 4F Product Use Rates, Rotational Crop Guidelines, Replanting Instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all varieties or cultivars of a given crop species have been evaluated under treatment with SULFENTRAZONE 4F. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F under specific local conditions.

### COWPEAS, SUCCULENT RESTRICTIONS

- **DO NOT** apply more than 6 ounces (0.1875 pound of sulfentrazone) per acre of SULFENTRAZONE 4F Herbicide per application
- **DO NOT** apply more than 6 ounces (0.1875 pound of sulfentrazone) per acre per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 3.0 fl oz/A of this product.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** incorporate.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

## SUCCULENT PEAS

*Cajanus cajan* (includes pigeon pea) *Cicerspp* (includes chickpea and garbanzo bean) *Lens culmans* lentil *Pisum* spp. (includes dwarf pea, garden pea, green pea, English pea, field pea and edible pod pea)

**Table 24**

SULFENTRAZONE 4F Use Rate Table (Succulent Peas) Preemergence Applications			
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre		
% Organic Matter	Soil Texture		
	Coarse	Medium	Fine
<1.5	2.25 - 3.5	3.0 - 6.0	3.75 - 6.0
1.5 - 3.0%	3.0 - 4.5	3.75 - 6.0	4.5 - 6.0
>3.0%	3.75 - 6.0	4.5 - 6.0	5.25 - 6.0

Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories.  
Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range

### Preemergence

SULFENTRAZONE 4F Herbicide may be applied to succulent lima beans as a preemergence treatment at the rate specified in Table 24. Applications should be made with ground equipment in a minimum of 10 gallons of finished spray per acre.

### Weeds Controlled

**When Applied according to directions SULFENTRAZONE 4F will provide control of:**

Copperleaf hophombeam	Pigweed, red root
Morningglory, entireleaf	Pigweed, smooth
Morningglory, ivyleaf	

### Precautions

When applying SULFENTRAZONE 4F to coarse textured soils, it is recommended that growers allow a minimum of 7-14 days from application to planting. Best results are achieved with SULFENTRAZONE 4F when applications are made early preplant and greater than 14 days before planting.

Under extended periods of dry weather, adequate weed control may not be achieved.

Some adverse crop response may occur on coarse textured soils with low organic matter (less than 1.5%) and pH of 7 - 8 or higher or on highly eroded soils or in areas of calcareous outcroppings. SULFENTRAZONE 4F use rates should be reduced in those areas inadequate seed furrow closure or shallow planting (less than 1 inch) may result in undesirable crop response. As expected, poor growing conditions such as excessive moisture low temperatures soil compaction and diseases may also cause undesirable crop response.

These Crop Specific Use Directions are based upon the interactive effects of SULFENTRAZONE 4F (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, SULFENTRAZONE 4F Product Use Rates, Rotational Crop Guidelines, Replanting Instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all varieties or cultivars of a given crop species have been evaluated under treatment with SULFENTRAZONE 4F. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F under specific local conditions.

### SUCCULENT PEAS RESTRICTIONS

- **DO NOT** apply more than 6 ounces (0.1875 pound of sulfentrazone) per acre of SULFENTRAZONE 4F Herbicide per application
- **DO NOT** apply more than 6 ounces (0.1875 pound of sulfentrazone) per acre per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 3.0 fl oz/A of this product.

- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** incorporate.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

## FLAX

**Table 23**

SULFENTRAZONE 4F Use Rate Table (Flax) Fall Early Preplant and Preemergence Applications			
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre		
% Organic Matter	Soil Texture		
	Coarse	Medium	Fine
<1.5	2.25 - 3.0	3.0 - 4.5	3.0 - 6.0
1.5 - 3.0%	3.0 - 6.0	6.0 - 9.0	6.0 - 9.0
>3.0%	6.0 - 9.0	6.0 - 12.0	6.0 - 12.0

Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories.  
Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range

### Fall Applications (For use only in ND, SD, MT, MN, WY, CO, NE, KS)

SULFENTRAZONE 4F Herbicide may be applied in the fall as a preplant treatment to control or suppress weeds prior to planting flax the following spring. SULFENTRAZONE 4F Herbicide should be applied to the stubble or soil surface and allow moisture from rainfall or snow to move the product into the soil. Do not mechanically incorporate in the fall or spring as this operation can destroy the herbicide barrier allowing escapes to occur. Do not apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

### Early Preplant and Preemergence (Spring Applications)

SULFENTRAZONE 4F Herbicide may be applied preplant on the soil surface in the spring to control weeds in flax. SULFENTRAZONE 4F Herbicide can be applied early preplant prior to planting up to 3 days after planting as a preemerge soil application if seedlings have not broken the soil surface and if the seed furrow is completely closed. SULFENTRAZONE 4F Herbicide applied after crop emergence may cause severe injury to the crop. For preemerge applications greater than 3 weeks prior to planting, use the mid to high rate with in the appropriate rate range for the soil and organic matter type listed in the use rate chart above. SULFENTRAZONE 4F Herbicide can be applied alone or in combination with other labeled flax herbicides. Always follow the most restrictive label when tankmixing. SULFENTRAZONE 4F Herbicide may be followed by labeled postemergence flax herbicides for increased control of grass and broadleaf weeds. If dry conditions persist following preemerge application of SULFENTRAZONE 4F Herbicide, weed control may be poor. If weeds are emerged at the time of SULFENTRAZONE 4F Herbicide application, use a burndown herbicide at the full labeled rate in combination with SULFENTRAZONE 4F Herbicide or split application as needed. When using SULFENTRAZONE 4F Herbicide in no till or minimum till cropping systems, tankmix with an appropriate burndown herbicide for improved control of existing weeds.

### Preemergence

SULFENTRAZONE 4F Herbicide can be applied prior to planting to anytime after planting, but before seedlings have emerged. SULFENTRAZONE 4F Herbicide applied after crop emergence may cause severe injury to the crop. SULFENTRAZONE 4F Herbicide can be applied alone or in combination with other labeled flax herbicides. SULFENTRAZONE 4F Herbicide may be followed by labeled postemergence flax herbicides for increased control of grass and broadleaf weeds. Always follow the most restrictive label when tankmixing. When using SULFENTRAZONE 4F Herbicide in no till or minimum till cropping systems, tank mix with an appropriate burndown herbicide for improved control of existing weeds.

### Weeds Controlled

**When Applied according to directions SULFENTRAZONE 4F will provide control of:**

Copperleaf hophornbeam	Morningglory, tall
Kochia	Pigweed, smooth
Morningglory, entireleaf	Pigweed, red root
Morningglory, ivyleaf	Nightshade, Eastern black

## Precautions

When applying SULFENTRAZONE 4F to coarse textured soils, it is recommended that growers allow a minimum of 7-14 days from application to planting. Best results are achieved with SULFENTRAZONE 4F when applications are made early preplant and greater than 14 days before planting.

Some adverse crop response may occur on coarse textured soils with low organic matter (less than 1.5%) and pH of 7-8 or higher or on highly eroded soils or in areas of calcareous outcroppings. SULFENTRAZONE 4F use rates should be reduced in those areas. Inadequate seed furrow closure or shallow planting (less than 1 inch) may result in undesirable crop response. As expected, poor growing conditions such as excessive moisture low temperatures, soil compaction and diseases may also cause undesirable crop response.

These Crop Specific Use directions are based upon the interactive effects of SULFENTRAZONE 4F (sulfentrazone) and the primary soil and environmental factors which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, SULFENTRAZONE 4F Product Use Rates, Rotational Crop Guidelines, Replanting Instructions Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all varieties or cultivars of a given crop species have been evaluated under treatment with SULFENTRAZONE 4F. Consult with university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F under specific local conditions.

## FLAX RESTRICTIONS

- **DO NOT** apply more than 12.0 fluid ounces (0.375 pound of sulfentrazone) per acre of SULFENTRAZONE 4F per application.
- **DO NOT** apply more than 12 ounces (0.375 pound of sulfentrazone) per acre per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 6.0 fl oz/A of this product.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** incorporate greater than 2 inches deep.
- **DO NOT** apply directly on the crop after the crop emerges or if the seedling sprouts are close to the soil surface.

## MINT Peppermint, Spearmint

Table 24

SULFENTRAZONE 4F Use Rate Table (Mint) Fall Dormant and New Planting Applications				
Broadcast Rate	Fluid Ounces SULFENTRAZONE 4F per acre			
	Soil Texture			
% Organic Matter	Coarse	Medium	Fine	
<1.5	4.5 – 6.0	6.0 – 8.0	8.0	
1.5 – 3.0%	6.0 – 8.0	8.0 – 10.0	10.1	
>3.0%	8.0 – 10.0	10.0 – 12.0	12.0	

Refer to the previous information on soil types under the COARSE, MEDIUM and FINE categories.  
Use higher rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range

## Dormant Applications

Apply SULFENTRAZONE 4F to established stands of dormant mint after post-harvest and/or spring land cultivation has been completed, and before emergence of new mint growth.

Split applications of SULFENTRAZONE 4F may be used for preemergence sequential control of winter annuals and summer annuals. Fall applications must be applied after post-harvest cultivation has been completed and spring application made after spring cultivation has been completed and before emergence of new mint growth.

Apply SULFENTRAZONE 4F in tank mixtures with a registered burndown herbicide to control emerged weeds at the time of application.

SULFENTRAZONE 4F may also be applied in tank mixtures with other products registered for use in mint.

Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

### New Planting Applications

SULFENTRAZONE 4F may be applied to new mint plantings preemergence to the weeds and mint. The rate of application must be reduced approximately twenty five percent of the rate listed for established plantings for particular soil characteristics. Refer to SULFENTRAZONE 4F Use Rate Table (Table 24) for the appropriate use rate for the soil type and organic matter content. The higher rates in the range are recommended for soils of pH less than 7.0.

### Weeds Controlled

**When Applied according to directions SULFENTRAZONE 4F will provide control of:**

Amaranth, Powell	Nutsedge, yellow
Bedstraw, catchweed	Pigweed, red root
Chamomile, mayweed	Sheperdspurse
Kochia	Toadflax, yellow
Lambsquarters, common	Thistle, Russian
Morningglory, ivyleaf	Waterhemp, common
Nightshade, Eastern black	Waterhemp, tall

For information on other weeds not listed above, refer to Weeds Controlled Section (Table 5) in this label.

### Precautions

Applications made to mint that has emerged will result in severe injury to exposed plant tissue.

Apply only to healthy mint fields. Applications to mint under stress from disease, pests and cultural or environmental conditions may result in crop injury.

Moisture in the form of rainfall or overhead irrigation is required after application to activate the herbicide.

These Crop Specific Use Directions are based upon the interactive effects of SULFENTRAZONE 4F (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, SULFENTRAZONE 4F Product Use Rates, Rotational Crop Guidelines, Replanting Instructions, Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all varieties or cultivars of a given crop species have been evaluated under treatment with SULFENTRAZONE 4F. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F under specific local conditions.

### MINT RESTRICTIONS

- Apply SULFENTRAZONE 4F only to dormant mint or new mint plantings before new growth emerges.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** apply more than 12.0 fluid ounces (0.375 pound of sulfentrazone) per acre of SULFENTRAZONE 4F per application
- **DO NOT** apply more 12.0 fluid ounces (0.375 pound of sulfentrazone) per acre per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 6.0 fl oz/A of this product.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

## PERMANENT CROPS

### CITRUS FRUIT, TREE NUTS, GRAPES and BERRIES

Citrus Fruits (Crop Group 10), Australian desert lime, Australian finger lime, Australian round lime, Brown River finger lime, calamondin, citron citrus hybrids, grapefruit, Japanese summer grapefruit, kumquat, lemon lime, Mediterranean mandarin, mount white lime, New Guinea wild lime, orange sour, orange sweet, pumelo, Russell River lime, satsuma mandarin, sweet lime, Tachibana orange, Tahiti lime, tangelo, tangerine (mandarin) tangor trifoliolate orange, uniq fruit cultivars varieties and/or hybrids of these.

#### Preharvest interval: 3 days

Berries (Crop Group 13-07) aronia berry, bayberry, bearberry, bilberry, blackberry (including Andean blackberry, arctic blackberry, bingleberry, black satin berry, boysenberry, brombeere, California blackberry, Chesterberry, Cherokee blackberry, Cheyenne blackberry, common blackberry, corberry, darrowberry, dewberry, Dirksen thornless berry, evergreen blackberry, Himalayaberry, hulberry, lavacaberry, loganberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, mora mures deronce nectarberry, Northern dewberry, olallieberry, Oregon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee blackberry, Southern dewberry, layberry, yonagberry, zarzamora and cultivars, varieties and/or hybrids of these) blueberry, highbush blueberry, lowbush buffalo currant, buffaloberry, che, Chilean guava chokecherry, cloudberry, cranberry, highbush currant black currant red elderberry, European barberry, gooseberry, honeysuckle, edible huckleberry, jostaberry, Juneberry (Saskatoon berry), kiwifruit fuzzy, kiwifruit, hard, lingonberry, maypop, mountain pepper berries, mulberry, muntries, native currant partridgeberry, phalsa, pincherry, rasperry, black and red, riberry, salai, schisandra berry, sea buckthorn, serviceberry, wild rasperry cultivars varieties and/or hybrids of these

#### Preharvest interval: 3 days

Tree Nuts (Crop Group 14) Almond Beech Nut, Brazil Nut, Butternut Cashew, Chestnut, Chinquapin, Filbert (Hazelnut), Hickory Nut, Macadamia Nut (Bush Nut), Pecan, Pistachio and Walnut (Black and English)

#### Preharvest interval: 3 days

### APPLICATION INFORMATION

SULFENTRAZONE 4F should be applied as a uniform broadcast soil application to orchard and vineyard floors and to berry beds and furrows or as a uniform band application directed to the base of the trunk in trees and vines and to the base of the berry and beds in berries to provide preemergence control of weeds in Table 23.

For best control, SULFENTRAZONE 4F should be applied when there are no weeds present or a postemergence herbicide is tankmixed to eliminate emerged weeds.

For broadcast application, a single application of SULFENTRAZONE 4F should be made at 4 to 12 fl. oz. per acre (0.125 to 0.375 lb. ai/A).

For improved weed management SULFENTRAZONE 4F can be applied in a tank mixture with other preemergence and postemergence burndown herbicides.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Burndown herbicides may include, but are not limited to, carfentrazone-ethyl, glyphosate, paraquat, glufosinate and 2,4-D. Do not tank mix with flumioxazin or with other products containing sulfentrazone.

When applied as a banded treatment (50% band or less), refer to formula in chart below for rate and volume.

For band treatments, apply the broadcast equivalent rate and volume per acre. To determine these, see chart below:

Band Width Feet	X	Broadcast Rate Per Acre	=	Band Rate
Row Width Feet				
Band Width Feet	X	Broadcast Volume Per Acre	=	Band Volume

A minimum of 10 gallons of spray solution per acre should be used to ensure uniform spray coverage. Nozzle selection should meet manufacturer's spray volume and pressure recommendations for preemergence and postemergence herbicide applications. The spray solution should have a pH between 5.0 and 9.0.

SULFENTRAZONE 4F should only be applied to crops that have been established for one full growing season and are in good health and vigor. Avoid contact of the spray solution on the green bark of trunks of young vines and trees by wrapping the trunk with a nonporous wrap, grow tubes or wax containers which will keep the spray solution from coming in direct contact with the green tissue. Avoid direct or indirect spray contact with crop foliage and fruits.

Best results are obtained when the soil is moist at the time of application and the application will be followed by at least ½ inch of rainfall or sprinkler irrigation within two weeks after application. Applications should be timed to take advantage of normal rainfall patterns and cool temperatures, especially where drip or micro sprinkler irrigation is used which may not uniformly incorporate the herbicide.

## WEED CONTROL INFORMATION

SULFENTRAZONE 4F is a selective soil applied herbicide for the control of susceptible broadleaf grass and sedge weeds found in Tables 23 and 24. Adequate moisture of at least ½ inch is required within 14 days after application for optimal control. If adequate rainfall is not received in a timely fashion, irrigate with a minimum of ½ inch of water. When activating moisture is delayed, a reduced level of weed control may occur. These escaped weeds can be removed using a burndown herbicide.

Tank mix SULFENTRAZONE 4F with a burndown herbicide and use an appropriate adjuvant when weeds are present at the time of application. Refer to the tankmix partner product label for the proper use rates by weed sizes. Use the most restrictive label limitations and precautions of the tankmix product(s).

Residual weed control may be reduced SULFENTRAZONE 4F is applied where heavy crop trash such as leaves and branches and/or weed residues exist. It is best to rake or blow off the leaves and trash when they fall and prior to the SULFENTRAZONE 4F application.

### Permanent Crop Weed List

Common Name	Scientific Name
Amaranth, livid	<i>Amaranthus lividus</i>
Amaranth, Palmer	<i>Amaranthus palmeri</i>
Amaranth, Powell	<i>Amaranthus Powell</i>
Amaranth, spiny	<i>Amaranthus spriosus</i>
Amaranth, spleen	<i>Amaranthus dubius</i>
Anoda, spurred	<i>Anoda cnstata</i>
Barnyardgrass, common	<i>Echinochloa crus-gallit</i>
Bedstraw, catchweed	<i>Gaium appane</i>
Bindweed, field	<i>Convolvulus arvensis</i>
Bluegrass, annual	<i>Poa annua</i>
Carpetweed	<i>Mollugo verticillata</i>
Bromegrass species	<i>Medicago polymorpha</i>
Burclover, California	<i>Mollugo verticillata</i>
Carpetweed	<i>Mollugo verticillata</i>
Cheatgrass	<i>Bromus tectorum</i>
Cheeseweed species	<i>Malva spp.</i>
Chickweed common	<i>Stellana media</i>
Clover species	<i>Tectorum spp.</i>
Copperleaf, hophornbeam	<i>Acalypha ostryveafolta</i>
Copperleaf, Virginia	<i>Acalypha vtrgmtca</i>
Crabgrass, large	<i>Digitana sangumalts</i>
Crabgrass, smooth	<i>Digitana tschaemum</i>
Crabgrass, Southern	<i>Digitana ciltans</i>

(continued)

**Permanent Crop Weed List** (cont.)

<b>Common Name</b>	<b>Scientific Name</b>
Croton, tropic	<i>Croton glandulosus</i>
Crownbeard, golden	<i>Verbesma encelloides</i>
Cupgrass, wooly	<i>Enchloa vilfosa</i>
Cyperus, hedgehog	<i>Cyperus compressus</i>
Daisy Amencan	<i>Eclipta alba</i>
Devilsclaw	<i>Proboscidea lowstana</i>
Dock, curly	<i>Rumex crispus</i>
Eclipta	<i>Eclipta prostrata</i>
Evening primrose, cutleaf	<i>Oenothera lacmтата</i>
Fescue, Red	<i>Fetuca rubra</i>
Fiddleneck species	<i>Arisinckia Sill</i>
Filaree, broadleaf	<i>Erodiuin botrys</i>
Filaree, redstem	<i>Erodium ciciuanum</i>
Filaree, whitestem	<i>Erodiuin moschatum</i>
Fleabane, haiiy	<i>Conyza bonanensts</i>
Flixweed	<i>Descuramta sophta</i>
Foxtail, bristly	<i>Setan verticiliata</i>
Foxtail, giant	<i>Setana faben</i>
Foxtail, green	<i>Setana viridis</i>
Foxtail, yellow	<i>Setana glauca</i>
Galmsoga, hairy	<i>Galmsoga Ciliata</i>
Goosegrass	<i>Eleusme matica</i>
Goosefoot, nettleleaf	<i>Chenopodium murale</i>
Groundcherry clammy (seedling)	<i>Physalts heterophylla</i>
Groundcherry cutleaf	<i>Physalis angulate</i>
Groundsel, common	<i>Senecto vulgans</i>
Henbit	<i>Lamium amplexicaule</i>
Horseweed (Marestall)	<i>Conyza canadenssts</i>
Ryeqgrass, Italian	<i>Lolium multtflorum</i>
Jimsonweed	<i>Datura stramomum</i>
Johnsongrass	<i>Sorghum halpense</i>
Junglence	<i>Enchmochloa colona</i>
Knotweed, common	<i>Polygonum arenastrum</i>
Kochia	<i>Kochia scopana</i>
Ladysthumb	<i>Polygonum persicana</i>
Lambsquarters, common	<i>Chenopodium album</i>

(continued)

**Permanent Crop Weed List** (cont.)

<b>Common Name</b>	<b>Scientific Name</b>
Lettuce, miners	<i>Montia perfoliate</i>
Lovegrass species	<i>Eragrostis spp</i>
Mallow, common	<i>Malva neglecta wall</i>
Mallow, little	<i>Malva paniflora</i>
Mayweed, Chamomile	<i>Anthemis cotulai</i>
Milkweed, honeyvme	<i>Ampelamus albidus</i>
Morningglory, entireleaf	<i>Ipomoea hederacea miegnuscuia</i>
Morningglory, ivyleaf	<i>Ipomoea hederacea hederacea</i>
Morningglory, palmleaf	<i>Ipomoea wright</i>
Morningglory, purple	<i>Ipomoea turbmata</i>
Morningglory, red	<i>Ipomoea coccmea L</i>
Morningglory, scarlet	<i>Ipomoea coccmea</i>
Morningglory, smallflower	<i>Jacquemontia tammfolia</i>
Morningglory, tall	<i>Ipomoea flurea</i>
Mullein turkey	<i>Eremocarous setigerus</i>
Mustard Species	<i>Brassica spp</i>
Mustard, tumble	<i>Stsybruin altisstmuin</i>
Nettle, burning	<i>Urtica urens</i>
Nightshade, black	<i>Solanum ingrum</i>
Nightshade, Eastern black	<i>Solanum ptycanthum</i>
Nutsedge, purple	<i>Cyperus rotundus</i>
Nutsedge, yellow	<i>Cyperus esculentus</i>
Orchardgrass	<i>Dactylis glomerata</i>
Panicum, fall	<i>Pamcum dichotomiflorum</i>
Pigweed, prostrate	<i>Amaranthus bilfoides</i>
Pigweed, redroot	<i>Amaranthus retroflexus</i>
Piqweed, smooth	<i>Amaranthus hybridus</i>
Pigweed, Tumble	<i>Amaranthus aibus</i>
Pineapple weed	<i>Chamomtila suaveolens</i>
Plantain, blackseed	<i>Plantago rugeli decrie</i>
Plantain, narrow leaved	<i>Plantago lanceoita</i>
Poor Joe	<i>Diocia teres</i>
Porophyllum	<i>Porophyllum rederale</i>
Poinsettia, Wild	<i>Euphorbta heterophyllia</i>
Puncturevine	<i>Tnbrilus terrestris</i>

(continued)

**Permanent Crop Weed List** (cont.)

<b>Common Name</b>	<b>Scientific Name</b>
Purslane, common	<i>Portulaca oleracea</i>
Redmaids	<i>Calandina ciliata</i>
Redweed	<i>Melochia corchorifolia</i>
Radish, Wild	<i>Raphanus raphanistrum</i>
Rocket, London	<i>Sisymbrium</i>
Sandbur	<i>Cenchrus sprififer</i>
Sedge, annual	<i>Carex spp</i>
Senna, coffee	<i>Cassta occdentalis</i>
Sheperdspurse	<i>Capsella bursa pastons</i>
Sida, prickly	<i>Sida spriosa</i>
Sida, Southern	<i>Sida acuta</i>
Signalgrass broadleaf	<i>Brachtana platyphylia</i>
Smartweed PA (seedling)	<i>Polygonum pensylvanicum</i>
Smellmellon	<i>Cucuints melo</i>
Sowthistle species	<i>Sonchus spp</i>
Srangeltop, red	<i>Leptochioa fillifomis</i>
Spurge, spotted	<i>Chamaesyce maculate</i>
Starbur, bristly	<i>Acanthospermum htsptdum</i>
Stinkgrass	<i>Eragrosits ciltanensts</i>
Toadflax, yellow	<i>Lmana vulgans</i>
Tassleflower, red	<i>Emito sonchtfolta</i>
Thistle, Russian	<i>Salsola kalt</i>
Waterhemp, common	<i>Amaranthus rudis</i>
Waterhemp, tall	<i>Amaranthus tuberculatos</i>
Waterpnmrose, Winged	<i>Ludwigia decurreris</i>
Willowleaf, pamcle leaf	<i>Eptlobtum brachycarpum</i>
Witchgrass	<i>Paincum captifare</i>

## ANNUAL AND PERENNIAL SEDGE CONTROL INCLUDING NUTSEGE

SULFENTRAZONE 4F applied at 12 fluid ounces per acre (0.375 lb. ai/A) may provide control or suppression of sedges whether applied preemergence or postemergence to the sedges.

Postemergence applications to sedges allow SULFENTRAZONE 4F to be taken into the sedge through the foliage as well as soil uptake through the roots. Soil uptake is the major means of uptake by sedges. Good spray coverage is required for optimum control of sedges especially when applying postemergence to the sedges. Use a quality non-ionic surfactant (NIC) at the rate of 0.25% v/v when applying postemergence.

**When applied as directed SULFENTRAZONE 4F Will provide control or suppression of the following sedges:**

Common Name	Scientific Name
Kyllinga, green	<i>Kyllinga brevifolia</i>
Kullinga, false green	<i>Kyllinga graciliflora</i>
Nutsedge, purple	<i>Cyperus rotundus</i>
Nutsedge, yellow	<i>Cyperus esculentus</i>
Sedge, cylindrical	<i>Cyperus retrorsus</i>
Sedge, globe	<i>Cyperus globulosus</i>
Sedge, Sunnam	<i>Cyperus sunnamensis</i>
Sedge, Texas	<i>Cyperus polystachyos</i>

Optimum control of purple nutsedge may be obtained using split applications of SULFENTRAZONE 4F. Apply 4.6 fluid ounces per acre followed by a second application to actively growing purple nutsedge. SULFENTRAZONE 4F symptoms on purple nutsedge will be observed as reduced nutsedge stands, necrosis, chlorosis and/or stunting. Optimum control may not be observed until the second year after the original treatment.

## REPLANTING IN NEW OR ESTABLISHED ORCHARDS AND VINEYARDS

Delay replanting at least 30 days after SULFENTRAZONE 4F applications when replacing trees and vines in newly planted and established orchards and vineyards. Use untreated soil when replanting trees and vines.

### Precautions

These Crop Specific Use directions are based upon the interactive effects of SULFENTRAZONE 4F (sulfentrazone) and the primary soil and environmental factors which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Product Application Instructions, General SULFENTRAZONE 4F Product Use Rates, Rotational Crop Guidelines, Replanting Instructions Weed Controlled and any other section of this label pertinent to the anticipated crop use. It is important to note that not all varieties or cultivars of a given crop species have been evaluated under treatment with SULFENTRAZONE 4F. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F under specific local conditions. Tenkoz does not recommend tank mixing this product with other products containing sulfentrazone or other group 14 herbicides as crop injury may occur.

Avoid direct or indirect spray contact to foliage and green bark (wrap trunk with non-porous wrap grow tubes or wax containers to keep spray solution off of green tissue)

### PERMANENT CROP RESTRICTIONS

- **DO NOT** apply SULFENTRAZONE 4F using airblast sprayers or by air. Use ground equipment only.
- **DO NOT** exceed the maximum rate of 12 fluid ounces (0.375 pound of sulfentrazone) per 12-month period.
- **DO NOT** apply more than 12 fluid oz. product per acre (0.375 pound of sulfentrazone) per application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 6.0 fl oz/A of this product.
- Apply to crops that have been growing for at least one full year and are in good condition
- **DO NOT** apply to powdery soils or soils where wind may displace the soil unless irrigation can be applied immediately after application
- Follow the most restrictive label of tank mix partners including all references to potential carryover and crop injury warnings and restrictions

- Allow a minimum of 60 days between applications.
- Do not apply after petal fall unless using a hooded or shielded sprayer to ensure that the spray solution will not come in contact with the crop or foliage.
- Pre-harvest Interval (PHI): 3 days
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

## TURNIPS

Apply 8 fluid ounces (0.25 lbs. active ingredient) per acre of SULFENTRAZONE 4F. Make one post emergent application at 46 - 60 days before harvest. Apply in 10 - 40 gallons of water per acre.

### Weeds Controlled

When Applied according to directions SULFENTRAZONE 4F will provide control of:

Galinsoga, hairy	Waterhemp, common
Lambsquarters, common	Waterhemp, tall
Pigweed, red root	

For information on other weeds not listed above, refer to Weeds Controlled Section (Table 5) in this label.

### TURNIP RESTRICTIONS

- **DO NOT** apply more than 8 fluid oz. product per acre (0.25 pound of sulfentrazone) per application.
- **DO NOT** apply more than 8 fluid ounces (0.25 pound of sulfentrazone) per acre per twelve-month period.
- **DO NOT** make more than one application per acre per 12-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- Pre-Harvest Interval – 3 days
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

## RHUBARB

Apply 8 fluid ounces (0.25 lbs. active ingredient) per acre of SULFENTRAZONE 4F. Make one post emergent broadcast application (just prior to rhubarb plants breaking dormancy) at 80 days before harvest. Use a minimum of 10 gallons of water per acre.

### Weeds Controlled

When Applied according to directions SULFENTRAZONE 4F will provide control of:

Galinsoga, hairy	Waterhemp, common
Lambsquarters, common	Waterhemp, tall
Pigweed, red root	

For information on other weeds not listed above, refer to Weeds Controlled Section (Table 5) in this label.

### RHUBARB RESTRICTIONS

- **DO NOT** apply more than 8 fluid oz. product per acre (0.25 pound of sulfentrazone) per application.
- **DO NOT** apply more than 8 fluid ounces (0.25 pound of sulfentrazone) per acre per twelve-month period.
- **DO NOT** make more than one application per acre per 12-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- Pre-Harvest Interval – 80 days
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

## WHEAT (SPRING), (Pacific Northwest states ID, OR, WA only)

Apply 6 fluid ounces (0.188 pound sulfentrazone) per acre of SULFENTRAZONE 4F Herbicide. Make one preplant or preemergence application at 40 days before forage cutting and 120 days before grain harvest. Apply in 10-40 gallons of water per acre. (This use is limited for areas in the Pacific Northwest only).

### Weeds Controlled

**When Applied according to directions SULFENTRAZONE 4F will provide control of:**

Kochia	<i>Kochia scoparia</i>
Thistle, Russian	<i>Salsola kai</i>

For information on other weeds not listed above, refer to Weeds Controlled Section (Table 5) in this label.

### WHEAT RESTRICTIONS

- **DO NOT** apply more than 6 fluid oz. product per acre (0.188 pound of sulfentrazone) per application.
- **DO NOT** apply more than 6 fluid ounces (0.188 pound active) per 12-month period.
- **DO NOT** make more than one application per acre per 12-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.
- **DO NOT** use on soils classified as sand, which have less than 1% organic matter.
- **DO NOT** apply within 40 days before forage cutting and 120 days before grain harvest.

### TURF GRASSES

(including Residential and Institutional Lawns, Athletic Fields, Golf Course Fairways and Roughs and Commercial Sod Farms)

SULFENTRAZONE 4F Herbicide is a selective soil applied herbicide for the control of certain broadleaf weeds, grasses and sedges. When applied according to directions, it will provide control of susceptible species. SULFENTRAZONE 4F Herbicide is formulated as flowable (suspension concentrate) containing four pounds of the active ingredient sulfentrazone per gallon.

The mode of action of SULFENTRAZONE 4F Herbicide involves uptake by weed roots and shoots. Observe all instructions, mixing directions, application precautions and other label information of each product when tank mixing with SULFENTRAZONE 4F Herbicide.

SULFENTRAZONE 4F may be applied to established seeded, sodded or sprigged turfgrasses following the second mowing for the control of key grass sedge and broadleaf weeds. Turf grasses should have developed a good root system, a uniform stand with healthy root systems to fill in the exposed edges prior to application. Turf injury could result from application of this product on turf that is not well established or has been weakened by stresses such as unfavorable weather conditions, diseases, chemical recent harvesting or mechanical influences.

## Turf Grass Tolerance

When applied as directed, the following established turf grasses are tolerant to SULFENTRAZONE 4F Herbicide at the listed use rates:

Table 25 Tolerant Grasses

Grass Type	Maximum Use Rate for Single Application	
	Fluid Ounces SULFENTRAZONE 4F Per Acre	Pound Active Ingredient Per Acre
Cool Season Grasses		
Bentgrass Creeping	4	0.125
Fescue, fine ( <i>Festuca rubra</i> ) Fescue, tall ( <i>Festuca arundinacea</i> ) Ryegrass, perennial ( <i>Lolium perenne</i> ) Bluegrass, Kentucky ( <i>Poa pratensis</i> ) Bluegrass, Rough ( <i>Poa trivialis</i> )	4.8	0.125 - 0.25
Bahiagrass ( <i>Paspalum notatum</i> ) Buffalograss ( <i>Buchloe dactyloides</i> ) Carpetgrass ( <i>Axonopus affinis</i> ) Centipede grass ( <i>Eremochloa ophurioides</i> ) Kikuyugrass ( <i>pennisetum clandestinum</i> ) Seashore Paspalum ( <i>paspalum vaginatum</i> ) Zoysiagrass ( <i>Zoysia japonica</i> ) Bermudagrass ( <i>Cynodon dactylon</i> ) Bermudagrass Hybrids (Cyn) Bluegrass St. Augustinegrass ( <i>Stenotaphrum secundatum</i> )	8 - 12	0.25 - 0.375

Applications of SULFENTRAZONE 4F to certain varieties of Chewings Fine Fescue or Tall Fescue may result in undesirable plant response.

\*It is important to note that not all varieties or cultivars have been evaluated under treatment with SULFENTRAZONE 4F. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on SULFENTRAZONE 4F under specific local conditions.

\*\*Do not apply more than 12 fluid ounces (0.375 pound active) per acre of SULFENTRAZONE 4F Herbicide per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F Herbicide application.

### Applications to Reseeded, Overseeded or Sprigged Areas

Reseeding, overseeding or sprigging may be done following SULFENTRAZONE 4F applications to turfgrasses. If reseeding, overseeding or sprigging is done within 1 month following a SULFENTRAZONE 4F treatment, the establishment of desirable grasses may be inhibited. Overseeding of bermudagrass with perennial ryegrass may be done two (2) to four (4) weeks following a SULFENTRAZONE 4F application provided slight grass plant response can be tolerated.

Optimum reseeding and overseeding results may be obtained with the use of mechanical or power seeding equipment, and where proper soil cultivation, irrigation and fertilization practices are followed.

### Adjuvant use

Good spray coverage is required for optimum control of weeds. Temporary discoloration of some sod species may result from use of surfactant. Use of surfactants is not recommended

### Postemergence Control of Sedges

SULFENTRAZONE 4F may be applied at the rate of four (4) to twelve (12) fluid ounces per acre to established turf grasses for the control or suppression of sedges. Select the correct SULFENTRAZONE 4F use rate from Table 25.

When applied as directed, SULFENTRAZONE 4F will provide control or suppression of the following sedges:

Kylinga, green	<i>Kylinga brevifolia</i>
Kylinga, false green	<i>Kylinga gracifilma</i>
Nutsedge purple	<i>Cyperus rotundus</i>
Nutsedge, yellow	<i>Cyperus esculentus</i>
Sedge, cylindrical	<i>Cyperus retrorsus</i>
Sedge, globe	<i>Cyperus globulosus</i>
Sedge, Sunnam	<i>Cyperus sunnamensis</i>
Sedge, Texas	<i>Cyperus polystachyos</i>

Purple nutsedge: For optimum control of purple nutsedge, split applications are listed below.

Do not exceed the maximum rate per acre based on the turf variety as listed in Table 25 tolerant grasses.

#### Split Application Rates for Optimum Purple Nutsedge Control

Grass Type	First Application (fl. ozs. Per acre)	Second Application (fl. ozs. Per acre)
Cool Season Grasses	2 – 4 fl. ounces	2 – 6 fl. ounces
Warm Season Grasses	4 – 6 fl. ounces	4 – 6 fl. ounces

Allow 35 days after first application for second application

#### Postemergence Control of Grassy Weeds

SULFENTRAZONE 4F Herbicide will control or suppress specific annual grasses when applied at a rate of 4 to 12 fluid ounces per acre. Apply highest rate consistent with the rate needed for turfgrass tolerance in Table 25 Rates lower than 12 fluid ounces per acre will generally control grasses for at least 60 days. SULFENTRAZONE 4F Herbicide works best if applied when the annual grasses are small (pre-tiller stage) and actively growing.

Common Name	Scientific Name
Goosegrass	<i>Eleusine indica</i>

#### Postemergence Control of Broadleaf Weeds

SULFENTRAZONE 4F Herbicide will control or suppress the weeds listed in the broadleaf chart below when applied alone shortly after weeds have emerged. SULFENTRAZONE 4F may be applied at the rate of four (4) to twelve (12) fluid ounces per acre to established turf grasses for the control or suppression of broadleaf weeds. Select the correct SULFENTRAZONE 4F use rate from Table 25. For optimum results, SULFENTRAZONE 4F applications should be made shortly after weeds have emerged.

SULFENTRAZONE 4F may be tankmixed with other herbicides, insecticides and fungicides registered for use on turfgrasses. Read and follow the label recommendations of the tankmix partner to determine turfgrass species tolerance, use rates and application requirements.

Follow all label restrictions, use directions and precautionary statements before use.

When applied as directed, SULFENTRAZONE 4F will provide control or suppression of the following broadleaf weeds:

Broadleaves	Scientific Names
Bittercress	<i>Cardamine spp</i>
Black Medic	<i>Medicago Lupulina</i>
Buttercup	<i>Ranunculus spp</i>
Carolina Geranium	<i>Geranium carolinanum</i>
Carpetweed	<i>Mollugo verticillata</i>

(continued)

<b>Broadleaves</b>	<b>Scientific Names</b>
Chickweed, common	<i>Stellaria media</i>
Chickweed, mouseear	<i>Cerastrium vulgatum</i>
Cinquefoil	<i>Potentilla spp</i>
Clover	<i>Trifolium spp</i>
Cudweed	<i>Gnaphalium spp</i>
Dandelion	<i>Taraxacum officinale</i>
Dock, curly	<i>Rumex crispus</i>
Evening primrose	<i>Oenothera biennis</i>
Fiddleneck	<i>Amsinckia spp</i>
Filaree	<i>Erodium spp</i>
Garlic, wild	<i>Allium vineale</i>
Goldenrod	<i>Solidago spp</i>
Ground ivy	<i>Glechoma hederacea</i>
Henbit	<i>Lamium amplexicaule</i>
Knotweed, prostrate	<i>Polygonum aviculare</i>
Kochia	<i>Kochia scoparia</i>
Lambsquarters, common	<i>Chenopodium album</i>
Lawn burweed	<i>Soliva pterosperma</i>
Lespedeza common	<i>Lespedeza striata</i>
Mallow, common	<i>Malva neglecta</i>
Onion, Wild	<i>Allium canadense</i>
Parsley piert	<i>Alchemilla arvensis</i>
Pigweed redroot	<i>Amaranthus retroflexus</i>
Pigweed tumble	<i>Amaranthus albus</i>
Pineapple weed	<i>Matricaria matricanodes</i>
Plantain, buckhorn	<i>Plantago lanceolata</i>
Puncture weed	<i>Tribulus terrestris</i>
Purslane, common	<i>Portulaca oleracea</i>
Pusley, Florida	<i>Richardia scabra</i>
Redweed	<i>Melochta corchorifolia</i>
Rocket, London	<i>Sisymbrium</i>
Smartweed, PA	<i>Polygonum pensylvanicum</i>
Sorrel, red	<i>Rumex acetosella</i>
Speedwell	<i>Veronica spp</i>
Spurge, annual	<i>Euphorbia spp</i>
Spurge, prostrate	<i>Euphorbia humifusa</i>

(continued)

Broadleaves	Scientific Names
Spurge, spotted	<i>Euphorbia maculata</i>
Star of Bethlehem	<i>Omithogalum umbellatum</i>
Velvetleaf	<i>Abutilon theophrasit</i>
Violet, Wild	<i>Viola pratensis</i>
Woodsorrel, creeping	<i>Oxalis corniculata</i>
Woodsorrel, yellow	<i>Oxalis stricta</i>

#### TURF GRASS RESTRICTIONS

- **DO NOT** apply more 12.0 fluid ounces (0.375 pound of sulfentrazone) per application.
- **DO NOT** apply more 12.0 fluid ounces (0.375 pound of sulfentrazone) per acre per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 6.0 fl oz/A of this product.
- Sod production areas must be established three (3) months prior to the initial treatment of SULFENTRAZONE 4F.
- **DO NOT** apply SULFENTRAZONE 4F to turf grasses not listed on this label.
- **DO NOT** apply with surfactants.
- **DO NOT** graze or feed forage harvested from SULFENTRAZONE 4F treated areas.
- **DO NOT** apply to landscape ornamental plants or ornamental beds.
- **DO NOT** harvest sod within three (3) months of SULFENTRAZONE 4F application.
- **DO NOT** apply to golf course putting greens or tees.
- **DO NOT** apply to frozen soils or existing snow cover to prevent SULFENTRAZONE 4F runoff from rain or snowmelt that may occur following application.

## NON-CROP USES

### For Use in Railroad, Highway, Roadside, Pipeline and Utility Rights-of-Way, Industrial Areas, Fence Rows, and Other Listed Non-crop Sites

#### APPLICATION INSTRUCTIONS

Utilize a boomless application system or a boom and nozzle sprayer equipped with the appropriate nozzles, spray tips, and screens, and adjusted to provide optimum spray distribution and coverage at the appropriate operating pressures. Utilize nozzles and boomless sprayer configurations which produce minimal amounts of fine spray droplets. Do not exceed 25 psi spray pressure unless otherwise required by the manufacturer of drift reducing nozzles or boomless application systems. Apply a minimum of 10 gallons of finished spray per acre.

Water must be used as the carrier for this product when applied alone, or when tank mixed with other herbicides.

#### Railroad Rights-of-Way

SULFENTRAZONE 4F Herbicide can be used to control many weeds and maintain bare ground on railroad rights of way, including railroad yards, railroad crossings and railroad bridge abutments.

#### Highway, Roadside, Pipeline and Utility Rights-of Way

SULFENTRAZONE 4F Herbicide can be used to control many weeds and maintain bare ground in highway roadside pipeline and utility rights of way. Such areas would include, but are not limited to, guard rails, road shoulders, electric utility substations, pipeline pumping stations around electric transmission towers, around distribution line poles and in other areas where complete vegetation control is desired.

## Industrial Areas, Fence Rows and Other Non-crop Sites

SULFENTRAZONE 4F Herbicide controls weeds and maintains bare ground in industrial areas, including production facilities, tank farms, storage areas, parking areas, lumber yards, airports, military installations, along fence rows and in similar non-crop sites where complete vegetation control is needed.

### Method and Rate of Application

For residual control of germinating weeds to non-crop land apply this product as a broadcast treatment at 8 to 12 fluid ounces (0.25 to 0.375 pounds active ingredient) per acre by ground in a minimum of 10 gallons of spray solution per acre. Applications may be made by helicopter on railroad rights-of-way only.

Use labeled rates of burndown herbicide such as glyphosate, diquat, 2-4,D, dicamba, etc. as tank mixtures with SULFENTRAZONE 4F Herbicide Use recommended adjuvants for the herbicide tank mix partner. For all products used in tank mixes refer to the specific product labels for all restrictions on tank mixing and observe all label precautions, instructions and rotations cropping restrictions.

### Timing

For best results, apply SULFENTRAZONE 4F Herbicide alone or in combination with other herbicides for residual control of weeds in late summer, fall or early spring to insure adequate moisture for soil activation.

### Weeds Controlled

This product, when applied at 8 to 12 fluid ounces per acre, will control the following weeds in non-cropland areas. Use the higher labeled rates to extend length of control. Use the higher rates on sites with fine soil textures and on sites with more than 2% organic matter.

Broadleaves	Scientific Name
Bittercress	<i>Cardamine spp</i>
Beggarweed, Florida	<i>Desmodium totuosum</i>
Carpetweed	<i>Mollugo verticiliata</i>
Chickweed, common	<i>Stellana media</i>
Copperleaf, Hophombeam	<i>Acalypha ostryifolia</i>
Crabgrass species	<i>Digitana spp</i>
Croton, tripic	<i>Croton, glanduosus</i>
Daisy, American	<i>Coreopsis grandiflora</i>
Dayflower, common	<i>Commelina communis</i>
Dayflower, Virginia	<i>Commedlina virginica</i>
Dock, curly	<i>Rumex crispus</i>
Fixweed	<i>Descurainia Sophia</i>
Galinsoga, hairy	<i>Galinsoga Ciliata</i>
Groundcherry, clammy (seedling)	<i>Physalis heterophylla</i>
Groundcherry, cutleaf	<i>Physalis angulate</i>
Jimsonweed	<i>Datura stramonium</i>
Kochia	<i>Kochia scopana</i>
ALS/Triazene Resistant Kochia	<i>Kochia scopana</i>
Lambsquarter, common	<i>Chenopdium album</i>
Lettuce, wild	<i>Lactuca virosa</i>
Mallow, common	<i>Malva Neglecta</i>
Milkweed, honeyvine	<i>Ampelamus albidus</i>

(continued)

Broadleaves	Scientific Name
Mexicanweed	<i>Caperonia castanifolia</i>
Morningglory species	<i>Ipomoea spp</i>
Mustard species	<i>Brassica spp</i>
Nightshade species	<i>Solarium spp</i>
Palmer amaranth	<i>Cyperus spp</i>
Pigweed, smooth	<i>Amaranthus hybridus</i>
Pigweed, redroot	<i>Amaranthus retroflexus</i>
Texasweed	<i>Caperonia palustris</i>
Thistle, Russian	<i>Salsola ibenca</i>
Waterhemp, tall	<i>Amaranthus tuberculatus</i>
Waterhemp, common	<i>Amaranthus rudis</i>

Do not apply more than 12 fluid ounces (0.375 pound active) per acre of SULFENTRAZONE 4F Herbicide per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F Herbicide application.

#### NON-CROP RESTRICTIONS

- **DO NOT** apply SULFENTRAZONE 4F Herbicide to soils classified as sand with less than 1% Organic Matter.
- **DO NOT** apply more 12.0 fluid ounces (0.375 pound of sulfentrazone) per application.
- **DO NOT** apply more 12.0 fluid ounces (0.375 pound of sulfentrazone) per acre per twelve-month period. The twelve-month period is considered to begin upon the initial SULFENTRAZONE 4F application.
- **DO NOT** apply more than two applications per year when using reduced application rate equal to or less than 6.0 fl oz/A of this product.

# STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE:** Store product in its original container away from pesticides or fertilizer, food or feed. Store in a cool, secure, dry area away from excessive heat.

**In Case of Spill** - In case of spill avoid contact isolate area and keep out animals and unprotected persons Confine spills. Call CHEMTREC (Transportation and spills) (800) 424 9300.

**To Confine Spill** - To confine spill If liquid dike surrounding area or absorb with sand cat litter or commercial clay. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

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

## CONTAINER HANDLING:

**[For Containers ≤ 5 gallons:]** Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ 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. Offer for recycling, if available, or puncture and dispose of in a sanitary landfill, or by other procedures allowed by State and local authorities.

**For Minibulk Containers [for nonrefillable containers > 5 gallons]:** Nonrefillable container. Do not reuse or refill this container. Triple rinse container or pressure rinse promptly after emptying.

Triple rinse as follow: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or a 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. Offer for recycling, if available, or puncture and dispose of in a sanitary landfill, or by incineration.

**For Bulk Containers [for refillable containers > 5 gallons]:** Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. When the container is empty, replace the cap and seal all openings that have been opened during use; and return to the point of purchase, or to a designated location named at the time of purchase of this product. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transporting. Do not transport if this container is damaged or leaking. If the container is damaged or leaking, call CHEMTREC. If the container is damaged and leaking or material has been spilled, follow these procedures:

- Cover spill with absorbent material.
- Sweep into disposal container.
- Wash area with detergent and water and follow with clean water rinse.
- Do not allow to contaminate water supplies.
- Dispose of according to instructions.

If not returned to the point of purchase or to a designated location, clean empty container as instructed above and offer for recycling. Disposal of this container must be in compliance with state and local regulations.

## LIMITATION OF WARRANTY AND LIABILITY

**IMPORTANT: READ BEFORE USE:** Read the entire Directions for Use, Conditions of Warranties and Limitations of Liability before using this product. If these terms and conditions are not acceptable, return the unopened product container at once. By using, this product, user or buyer accepts the following Disclaimer of Warranties and Limitations of Liability.

**CONDITIONS:** The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Ineffectiveness, injury, and other unintended consequences may result because of such factors as manner of use or application (including misuse), the presence of other materials, weather conditions, and other unknown factors, all of which are beyond the control of Tenkoz, Inc. All such risks shall be assumed by the user or buyer.

**DISCLAIMER OF WARRANTIES:** To the extent consistent with applicable law, Tenkoz, Inc. makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond statements on this label.

**LIMITATIONS OF LIABILITY:** To the extent consistent with applicable law, neither Tenkoz, Inc. nor the Seller shall be liable for any indirect, special, incidental or consequential damages resulting from the use, handling, application, storage, or disposal of this product. To the extent consistent with applicable law, the exclusive remedy of the user or buyer for any and all losses, injuries or damages resulting from the use, handling, application, or storage of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid.

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