

# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

August 4, 2021

Ogongi Ogongi Agent for Tigris, LLC c/o Wagner Regulatory Consultants, Inc. P.O. Box 640 Hockessin, DE 19707

 Subject: PRIA Label and CSF Amendment – Replaced basic CSF, added alternate CSFs #1 through 11; updated label for acute toxicity statements, added registration review label mitigation language for s-metolachlor, and added endangered species mitigation language per the s-metolachlor NMFS biological opinion
 Conditional Data – Storage stability and corrosion characteristics
 Product Name: Tigris Sulfen Elite
 EPA Registration Number: 92647-7
 Application Dates: September 19, 2018 and June 5, 2020
 Decision Number: 551209, 563617

Dear Ogongi Ogongi:

The amended label and CSFs referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, are acceptable. This approval does not affect any conditions that were previously imposed on this registration. You continue to be subject to existing conditions on your registration and any deadlines connected with them.

Additionally, the Agency, in accordance with FIFRA, as amended, has completed reviewing all of the information submitted with your application to support the Registration Review of the above referenced product in connection with the S-metolachlor Interim Decision, and has concluded that your submission is acceptable.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(d), you may distribute or sell this product under the previously approved labeling for 12 months from the date of this letter. After 12 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

Please note that the record for this product currently contains the following CSFs:

• Basic CSF dated 06/05/2020

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• Alternate CSFs #1-11 dated 06/05/2020

Additionally, please note that the condition of registration regarding submission of data requirements for storage stability and corrosion characteristics (Guidelines 830.6317 and 830.6320) has been satisfied.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under FIFRA and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

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

If you have any questions, please contact Curtis Hildebrandt at 703-347-8198 or by email at hildebrandt.curtis@epa.gov.

Sincerely,

Mindy Ondish

Mindy Ondish Product Manager 23 Herbicide Branch Registration Division (7505P) Office of Pesticide Programs

Enclosure

[Note to reviewer: [Text] in brackets denotes optional or explanatory language] [Note to reviewer: {Text} in braces denotes where in the final label text will appear] [MASTER LABEL]

SULFENTRAZONE	GROUP	14	HERBICIDE
S-METOLACHLOR	GROUP	15	HERBICIDE

# Tigris Sulfen Elite<sup>[™]</sup>

ACTIVE INGREDIENTS:	(% by weight)
Sulfentrazone	7.55%
S-metolachlor	
OTHER INGREDIENTS:	24.20%
TOTAL:	
Contains 7.0 lbs./gal. which includes 0.7 pound sulfentrazone and 6.3 pounds S-metolachlor per gallon.	
*Contains petroleum distillates.	

# KEEP OUT OF REACH OF CHILDREN CAUTION

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

	FIRST AID
IF SWALLOWED:	<ul> <li>Immediately call a poison control center or doctor.</li> <li>Do not give any liquid to the person.</li> <li>Do not induce vomiting unless told to do so by the poison control center or doctor.</li> </ul>
IF IN EYES:	<ul> <li>Do not give anything by mouth to an unconscious person.</li> <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>
IF ON SKIN OR CLOTHING:	<ul> <li>Take off contaminated clothing.</li> <li>Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>Call a poison control center or doctor for treatment advice.</li> </ul>
IF INHALED:	<ul> <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>
	HOTLINE NUMBER
	ontainer or label with you when calling a poison control center or doctor, or going for treatment. For emergency ning this product, call your poison control center at <b>1-800-222-1222</b> .
	NOTE TO PHYSICIAN
Contains petroleum	distillate. Vomiting may cause aspiration pneumonia.

Contains periode an astinute. Volinting may eause aspiration pream

[Optional referral statements when booklets and container labels are used:]

[See label booklet for [complete] [additional] [First Aid,] [Precautionary Statements,] [Directions For Use,] and [Storage and Disposal].]

EPA Reg. No.: 92647-7

Net Contents: \_\_\_\_

Manufactured For[By]: Tigris, LLC P.O. Box 250 10025 Hwy. 264 Alternate Middlesex, NC 27557 EPA Est. No.: \_\_\_\_\_



# PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

#### CAUTION

Harmful if swallowed. Causes moderate eye irritation. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Avoid contact with eyes or clothing. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals.

#### PERSONAL PROTECTIVE EQUIPMENT (PPE)

#### Applicators and other handlers must wear:

- Coveralls
- Chemical-resistant gloves made of Barrier Laminate, Butyl Rubber ≥ 14 mils, Nitrile Rubber ≥ 14 mils or Viton ≥ 14 mils
- Chemical-resistant footwear plus socks
- Chemical-resistant apron when cleaning equipment, mixing, or loading.

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.

#### **Engineering Controls**

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.607 (d-f)), the handler PPE requirements may be reduced or modified as specified in the WPS. Mixers and loaders supporting aerial applications are required to use closed systems. The closed system must be used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.607(d-f)]. When using the closed system, the mixers' and loaders' PPE requirements may be reduced or modified as specified in the WPS.

#### **Users should:**

# USER SAFETY RECOMMENDATIONS

- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

#### **ENVIRONMENTAL HAZARDS**

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

#### Mixing/Loading Instructions:

Care must be taken when using this product to prevent back-siphoning into wells, spills or improper disposal of excess pesticide, spray mixtures, or rinsates. Check-valves or antisiphoning devices must be used on all mixing and/or irrigation equipment.

**Tigris Sulfen Elite** may not be mixed, loaded, or used 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 wash water, 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.

#### Groundwater Advisory:

S-metolachlor is known to leach through soil into groundwater under certain conditions as a result of label use. This chemical may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

#### Surface Water Advisory:

This product can contaminate surface water through spray drift. This product may impact surface water quality due to runoff of rain water. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having high potential for reaching surface water via runoff for several weeks or months after application. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential loading of s-metolachlor and sulfentrazone from runoff water and sediment. Runoff of this product will be reduced by avoiding applications when rainfall or irrigation is expected to occur within 48 hours.

#### Non-Target Organism Advisory:

This product is toxic to plants and may adversely impact the forage and habitat of non-target organisms, including pollinators, in areas adjacent to the treated site. Protect the forage and habitat of non-target organisms by following label directions intended to minimize spray drift.

#### **Reporting Ecological Incidents:**

To report ecological incidents, including mortality, injury, or harm to plants and animals, call Tigris, LLC at [phone number].

#### PHYSICAL/CHEMICAL HAZARDS

Do not use or store near heat or open flame. Do not mix or allow contact with oxidizing agents. Hazardous chemical reaction may occur.

# **DIRECTIONS FOR USE**

#### **Endangered Species Protection Requirements:**

It is a Federal offense to use any pesticide in a manner that results in an unauthorized "take" (e.g., kill or otherwise harm) of an endangered species and certain threatened species, under the Endangered Species Act section 9. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. You must obtain a Bulletin no earlier than six months before using this product. To obtain Bulletins, consult <u>http://www.epa.gov/espp/</u>, call 1-844-447-3813, or email <u>ESPP@epa.gov</u>. You must use the Bulletin valid for the month in which you will apply the product.

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

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

# AGRICULTURAL USE REQUIREMENTS

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

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

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls
- Chemical-resistant gloves made of Barrier Laminate, Butyl Rubber ≥ 14 mils, Nitrile Rubber ≥ 14 mils or Viton ≥ 14 mils
- Chemical-resistant footwear plus socks

#### **RESISTANCE MANAGEMENT**

**Tigris Sulfen Elite** product contains S-metolachlor and sulfentrazone and is classified as Group 15 and 14 herbicides respectively. Herbicide resistance is defined as the inherited ability of a plant to survive and reproduce following exposure to a dose of herbicide normally lethal to the wild type. In a plant, resistance may be naturally occurring or induced by such techniques as genetic engineering or selection of variants produced by tissue culture or mutagenesis. Any weed population may contain or develop plants that are naturally resistant to **Tigris Sulfen Elite** and other Group 15 and 14 herbicides. Weed species with acquired resistance to Group 15 and 14 herbicides may eventually dominate the weed population if Group 15 and 14 herbicides are used repeatedly in the same field or in successive years as the primary method of control for targeted species. This may result in partial or total loss of control of those species by **Tigris Sulfen Elite** or other Group 15 and 14 herbicides.

To delay herbicide resistance, consider the below best practices for resistance management:

- Plant into weed-free fields and keep fields as weed-free as possible.
- To the extent possible, use a diversified approach toward weed management. Whenever possible, incorporate multiple weed-control practices such as mechanical cultivation, biological management practices, and crop rotation.

- Fields with difficult to control weeds should be rotated to crops that allow the use of herbicides with alternative mechanisms of action or different management practices.
- To the extent possible, do not allow weed escapes to produce seeds, roots or tubers. Manage weed seeds at harvest and postharvest to prevent a buildup of the weed seed-bank.
- Prevent field-to-field and within-field movement of weed seed or vegetative propagules. Thoroughly clean plant residues from equipment before leaving fields.
- Prevent an influx of weeds into the field by managing field borders.
- Identify weeds present in the field through scouting and field history and understand their biology. The weed-control program should consider all of the weeds present.
- Difficult to control weeds may require sequential applications of herbicides with differing mechanisms of action.
- Apply this herbicide at the correct timing and rate needed to control the most difficult weed in the field.
- Use a broad-spectrum soil-applied herbicide with a mechanism of action that differs from this product as a foundation in a weedcontrol program. Do not use more than two applications of this or any other herbicide with the same mechanism of action within a single growing season unless mixed with an herbicide with another mechanism of action with an overlapping spectrum for the difficult-to-control weeds.
- If resistance is suspected, treat weed escapes with an herbicide with a different MOA or use non-chemical methods to remove escapes.
- Monitor treated weed populations for loss of field efficacy.
- Scout field(s) before and after application.
- Report failure to local extension specialists, certified crop advisors and Tigris, LLC at [phone number].
- Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species.
- Contact your local sales representative, extension agent, or certified crop advisors to find out if suspected resistant weeds to this MOA have been found in your region. If resistant biotypes of target weeds have been reported, use the application rates of this product specified for your local conditions. Tank mix products so that there are multiple effective mechanisms of action for each target weed.

# MANDATORY SPRAY DRIFT MANAGEMENT

# Aerial Applications:

- Aerial application is only allowed when environmental conditions prohibit ground application. Aerial application is allowed only when the field is too wet to safely apply pesticides using ground equipment.
- Must use a minimum finished spray volume of 5 gallons per acre.
- Do not release spray at a height greater than 10 ft above the ground or vegetative canopy, unless a greater application height is necessary for pilot safety.
- Select nozzles and application pressure that deliver medium to coarse or larger spray droplets as indicated in the nozzle manufacturer's recommendations and in accordance with ASABE\* standard S572
- Select coarse to very coarse droplet size when this product is used as a preemergent/preplant application.
- Select medium to very coarse droplet size when this product is used postemergence with a contact burndown herbicide.
- Do not apply as spray droplets smaller than medium to coarse. (defined by the ASABE standard)
- Applicators may spray only when wind speed is between 3 and 10 mph.
- Applicators must use ½ swath displacement upwind at the downwind edge of the field.
- The boom length must be 75% or less of the wingspan for fixed-wing aircraft and 90% or less of the rotor diameter for helicopters.
- Do not apply during temperature inversions.

# Ground Boom Applications:

- Must use a minimum finished spray volume of 10 gallons per acre.
- When this product is tank mixed with a contact burndown herbicide, ground applicators must use a minimum spray volume of 15 gallons per acre.
- For boom spraying, the maximum release height must be 30 inches from the soil.
- Select nozzles and application pressure that deliver medium to coarse or larger spray droplets as indicated in the nozzle manufacturer's recommendations and in accordance with ASABE\* standard S572.
- Select coarse to very coarse droplet size when this product is used as a preemergent/preplant application.
- Select medium to very coarse droplet size when this product is used postemergence with a contact burndown herbicide.
- Do not apply as spray droplets smaller than medium to coarse (defined by the ASABE standard S572).
- Applicators may spray only when wind speed is between 3 and 10 mph.
- Do not apply during temperature inversions.

# **Boomless Ground Applications:**

- Must use a minimum finished spray volume of 10 gallons per acre.
- When this product is tank mixed with a contact burndown herbicide, ground applicators must use a minimum spray volume of 15 gallons per acre.

- For boom spraying, the maximum release height must be 30 inches from the soil.
- Select nozzles and application pressure that deliver medium to coarse or larger spray droplets as indicated in the nozzle manufacturer's recommendations and in accordance with ASABE\* standard S572.
- Select coarse to very coarse droplet size when this product is used as a preemergent/preplant application.
- Select medium to very coarse droplet size when this product is used postemergence with a contact burndown herbicide.
- Do not apply as spray droplets smaller than medium to coarse (defined by the ASABE standard S572).
- Applicators may spray only when wind speed is between 3 and 10 mph.
- Do not apply during temperature inversions.

\*ASABE - American Society for Agricultural and Biological Engineers

### SPRAY DRIFT ADVISORIES

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT. BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

# IMPORTANCE OF DROPLET SIZE

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

# **Controlling Droplet Size – Ground Boom**

- Volume Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

# **Controlling Droplet Size – Aircraft**

• Adjust Nozzles - Follow nozzle manufacturers' recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

#### **BOOM HEIGHT – Ground Boom**

For ground equipment, the boom should remain level with the crop and have minimal bounce.

RELEASE HEIGHT - Aircraft

Higher release heights increase the potential for spray drift.

#### SHIELDED SPRAYERS

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

#### **TEMPERATURE AND HUMIDITY**

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

#### **TEMPERATURE INVERSIONS**

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.

#### WIND

Drift potential generally increases with wind speed. AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.

• Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

# **Boom-less Ground Applications:**

• Setting nozzles at the lowest effective height will help to reduce the potential for spray drift.

# Handheld Technology Applications:

• Take precautions to minimize spray drift.

**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). To assure that spray will not adversely affect adjacent sensitive non-target plants, apply **Tigris Sulfen Elite** by aircraft at a minimum upwind distance of 400 ft. from sensitive plants. Avoid application to humans or animals. Flagmen and loaders should avoid inhalation of spray mist and prolonged contact with skin.

#### **Off-Target Movement of Tigris Sulfen Elite**

Drift of dilute spray mixtures containing **Tigris Sulfen Elite** must be prevented. Observation of the environmental conditions, correct application equipment design, calibration and application practices will reduce the risk of off-target spray drift. **Tigris Sulfen Elite** can cause damage by drift on to sensitive crops and other plants. This symptomology may manifest initially as discreet, localized spots where contacted by **Tigris Sulfen Elite** drift mixtures. Depending on sensitivity of the plants, the concentration of the spray solution and droplets size these spots or lesions may or may not coalesce. These effects will usually not have lasting effects on plant growth, but can reduce the value of affected fruit or foliage where grade or quality is associated with appearance. In drift instances with sensitive crops, defoliation of affected foliage could result.

#### **PRODUCT INFORMATION**

Tigris Sulfen Elite is a soil-applied herbicide for the control of susceptible broadleaf, grass, and sedge weeds.

If adequate moisture (1/2" to 1") from rainfall or irrigation is not received within 7 to 10 days after the **Tigris Sulfen Elite** treatment, a shallow incorporation (less than 2"), may be needed to obtain desired weed control.

When activating moisture is not received a planned post-emergence application of a labeled herbicide will be needed for optimum weed control. If an activating rainfall (1/2" to 1") is not received **Tigris Sulfen Elite** will provide a reduced level of control of susceptible germinating weeds.

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 **Tigris Sulfen Elite**. Tank mixtures are permitted only in those states where the tank mix partner is registered.

**Tigris Sulfen Elite** can be mixed with water, liquid fertilizer, or mixtures of water and liquid fertilizer and applied as a pre-plant or preemergence treatment to labeled crops.

Under normal growing conditions, **Tigris Sulfen Elite** exhibits excellent crop safety. Soil applications of **Tigris Sulfen Elite** must be made before crop seed germination to prevent injury to the emerging crop seedlings. **Tigris Sulfen Elite** applied after crop emergence will cause severe injury to the crop. Poor growing conditions, such as excessive soil moisture, cool temperatures, and soil compaction or the presence of various pathogens may impact seedling vigor. Under these conditions, the active ingredients in **Tigris Sulfen Elite** can contribute to crop response. Refer to the specific directions of use for a particular crop/use pattern as set forth below for additional information.

#### **IMPORTANT PRECAUTIONS:**

- 1. Ensure the seed furrow is closed and the seed covered on acres treated with Tigris Sulfen Elite.
- Soybean stunting may occur if excessive rainfall occurs after application but before soybeans emerge. Injury is more prevalent under poor drainage or compacted conditions or when soil is saturated for long periods of time. Soybeans outgrow stunting once favorable growing conditions return.
- 3. Do not apply if there are visible signs of cracking due to soybean emergence, or serious crop injury may result, such as but not limited to stand loss.
- 4. Seedling disease, nematodes, cold weather, deep planting (more than 2"), excessive moisture, high salt concentration, or drought may weaken soybean seedlings and increase the possibility of crop injury.
- 5. When tank mixing, follow the most restrictive use rates and precautions of the mixing partners.

#### **IMPORTANT RESTRICTIONS:**

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

#### **Mechanism of Action:**

Following the application of **Tigris Sulfen Elite** to soil, germinating seeds and seedlings take up **Tigris Sulfen Elite** from the soil solution. The amount of **Tigris Sulfen Elite** in soil solution available for weed uptake is determined primarily by soil type, soil organic matter and soil pH. Similar to other herbicides, **Tigris Sulfen Elite** adsorbs to the clay and organic matter (OM) fractions of soils; effectively limiting the amount of active ingredient immediately available to control weeds.

#### Influence of Soil Type, Organic Matter, and pH on Tigris Sulfen Elite Use Rates and Crop Response:

Coarse-textured and high pH >7.2 soils (see Table 1) will exhibit increased weed control and crop response with **Tigris Sulfen Elite**. It is important to know the soil type and soil pH levels of the field (or areas within a field) before application to determine the proper rate of **Tigris Sulfen Elite** for the crop. Soil organic matter content and soil pH can vary widely and independently of soil type and requires an accurate analysis of representative soil samples or grids of soil samples within a specific field to determine its content.

It is important to note that irrigation with highly alkaline water (high pH) following a **Tigris Sulfen Elite** soil application can also significantly increase the amount of **Tigris Sulfen Elite** available in the soil solution. Irrigation with water having a pH greater than 7.2 could result in adverse crop response. This response will ultimately depend on initial **Tigris Sulfen Elite** 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.

#### **Table 1: Soil Texture Classification Chart**

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

### **APPLICATION INFORMATION**

# **Ground Application:**

The sprayer should be properly calibrated to deliver the appropriate volume of herbicide solution. Be aware that overlaps and slower ground speeds while starting, stopping, or turning while spraying may result in excessive application and subsequent crop response.

# **Chemigation Application:**

Apply **Tigris Sulfen Elite** in 0.25 to 1 inch of water. Use the lower water volume on coarse-textured soil and higher volume on finetextured soils. Applying >1" of irrigation water may result in reduced weed control by moving the product below the weed germination zone in the soil. Apply immediately after planting unless specified differently in the individual crop section. **Tigris Sulfen Elite** may be applied through sprinkler irrigation systems including center pivot, lateral move, end tow, solid set, or hand move irrigation systems. 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.

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.

**Tigris Sulfen Elite** should be metered into the irrigation system continuously for the duration of the water application. **Tigris Sulfen Elite** should be diluted in sufficient volume to ensure 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 Tigris Sulfen Elite 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. **Tigris Sulfen Elite** 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.

It is important to note that irrigation with highly alkaline water (high pH) following a **Tigris Sulfen Elite** soil application may significantly increase the amount of sulfentrazone available in soil solution. Irrigation with water having a pH greater than 7.2 could result in adverse crop response.

#### **Restrictions:**

- 1. Do not apply by chemigation if there are visible signs of cracking due to soybean emergence, or serious crop injury may result, such as but not limited to stand loss.
- 2. Do not apply this product through any other type of irrigation system.
- 3. Do not connect any irrigation system (including greenhouse systems) used for pesticide application to a public water system.

# Application with Dry Fertilizers:

**Tigris Sulfen Elite** may be applied impregnated on dry fertilizers. When applied as directed with adequate soil coverage, **Tigris Sulfen Elite** dry bulk fertilizer mixtures will provide satisfactory weed control. Follow all **Tigris Sulfen Elite** label directions regarding product use rates per acre, registered crops, incorporation, special instructions, and precautions. Apply **Tigris Sulfen Elite**/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 **Tigris Sulfen Elite**/dry fertilizer mixture.

#### Impregnation Directions:

To impregnate **Tigris Sulfen Elite** 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 **Tigris Sulfen Elite** in a clean container using clear water. Slowly add the **Tigris Sulfen Elite**/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 **Tigris Sulfen Elite** 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 **Tigris Sulfen Elite** dry bulk fertilizer with an accurately calibrated dry fertilizer spreader. The **Tigris Sulfen Elite** 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 **Tigris Sulfen Elite** use rates could result in possible crop response.

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

Refer to the appropriate crop section of the **Tigris Sulfen Elite** label to determine the rate of **Tigris Sulfen Elite** to be applied per acre. Use the following table to determine the amount of **Tigris Sulfen Elite** to be impregnated on a ton (2,000 pounds) of dry bulk fertilizer based on the rate of fertilizer that will be applied per acre.

For those rates not listed in Table 2, calculate the amount of **Tigris Sulfen Elite** to be impregnated on a ton of dry bulk fertilizer using the following formula:

2000		<b>Tigris Sulfen Elite</b>	Fluid Ounces of
Pounds dry fertilizer	v	use rate in fluid	_ Tigris Sulfen Elite to
per acre	^	ounces per acre	be applied per ton
			of fertilizer

# Table 2: Rate Chart for Impregnation of Dry Bulk Fertilizers with Tigris Sulfen Elite

Dry Fertilizer Rate Per Acre	Fluid Ounces Tigris Sulfen Elite Per Ton of Fertilizer Tigris Sulfen Elite Use Rate Per Acre			
Dry Fertilizer Kate Fer Acre				
Lb./A	14 fl. oz./A	26 fl. oz./A	35 fl. oz./A	
200	140	260	350	
250	112	208	280	
300	93	173	233	
350	80	148	200	
400	70	130	175	
450	62	114	154	

#### **Restrictions:**

- 1. DO NOT impregnate **Tigris Sulfen Elite** onto coated on ammonium nitrate, potassium nitrate, or sodium nitrate either alone or in blends with other fertilizers because these materials will not absorb the herbicide.
- 2. Do not use **Tigris Sulfen Elite** alone or in mixtures on straight limestone, since absorption will not be achieved. Fertilizer blends containing limestone can be impregnated.
- 3. To avoid crop injury, do not use the herbicide/fertilizer mixture on crops where bedding occurs.

#### **Application with Liquid Fertilizer:**

**Tigris Sulfen Elite** may be applied using liquid fertilizer or fertilizer and water mixtures as the carrier. Adequate soil coverage is essential to achieve acceptable levels of weed control. Herbicide mixing, solution stability and/or compatibility problems may 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 Applications:

Fill the clean spray tank to one half of the total volume with the fertilizer solution. Start the spray tank agitation system. Pre-slurry **Tigris Sulfen Elite** with water prior to adding to the spray tank. Carefully rinse the empty container, adding the rinsate to the spray tank.

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 **Tigris Sulfen Elite** slurry is thoroughly mixed before application.

For tank mixtures with other herbicide(s), a compatibility test must be conducted to insure product compatibility before mixing. Read and follow all the directions, precautions, and restrictions of the tank mixture products prior to mixing.

Apply the **Tigris Sulfen Elite** spray mixture immediately after mixing. It is not recommended to store the sprayer overnight or for any extended period of time with the **Tigris Sulfen Elite** spray mixture remaining in the tank.

Thoroughly re-agitate spray mixture if product is left sitting in the tank for extended period of time.

If **Tigris Sulfen Elite** is mixed and loaded in nurse tanks, thorough agitation of spray solution is required prior to off-loading and application.

Follow all **Tigris Sulfen Elite** label directions regarding product use rates per acre, registered crops, application instructions, incorporation directions, special instructions, and all precautions.

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 **Tigris Sulfen Elite** and fertilizer mixture.

#### MAXIMUM ALLOWABLE Tigris Sulfen Elite USE PER ACRE PER 12 MONTH CROPPING YEAR PERIOD

The total allowed usage includes all applications made to the field per twelve-month cropping year. This includes all pre plant and after plant pre emerge treatments.

**RESTRICTION:** Do not exceed maximum allowed use rate of sulfentrazone or *S*-metolachlor per year on each crop. **Refer to the crop** section of this label for specific product use directions.

Сгор	Tigris Sulfen Elite Fl. oz./A	Total Lb. a.i./A	Sulfentrazone Lb. a.i./A	S-metolachlor Lb. a.i./A
Dry Beans and Peas	38.7	2.12	0.21	1.90
Horseradish	25.0	1.36	0.13	1.23
Soybeans	38.7	2.12	0.21	1.90
Sunflowers	38.7	2.12	0.21	1.90

#### **CROP ROTATIONAL RESTRICTIONS**

The following Table 4 shows the minimum interval in months from the time of the last **Tigris Sulfen Elite** application until **Tigris Sulfen Elite** treated soil can be replanted to the crops listed. Cover crops for soil health and erosion control can be planted at any time after an application of **Tigris Sulfen Elite**, but do not use cover crops for food or feed. Consult your local University extension service for cover crop sensitivity to **Tigris Sulfen Elite**. When **Tigris Sulfen Elite** is tank mixed with another herbicide, refer to the partner label for re- cropping instructions, following the directions that are most restrictive.

Some crops have rotational intervals greater than 12 months after a **Tigris Sulfen Elite** application due to potential crop injury. A representative bioassay of the field shall be completed with the rotational crop to accurately determine the planned crop's sensitivity to **Tigris Sulfen Elite**.

### **RESTRICTION:** Do not rotate to food or feed crops other than those listed on the label.

Table 4:

Table 2

Сгор	Interval (Months)
Alfalfa*	12
Barley	4 1/2
Cabbage (transplant only)	2
Cereal Grains (Oats, Pearl Millet, Proso Millet, Teosinte, Wild Rice)	12
Buckwheat	12
Corn, Field	10, 4***
Corn, Pop	10†
Corn, Sweet	10+
Cotton	18 or 12**
Cowpea (succulent)	8
Dry Shell Peas and Beans	Anytime
Horseradish	Anytime
Limas Beans-Tennessee Only	Anytime
Peanuts	Anytime
Potatoes	Anytime

Rice	10
Rye	4½
Sorghum	10
Soybeans	Anytime
Succulent peas	8
Sugar Beets	36
Sunflowers	Anytime
Triticale	41/2
Tobacco	10
Tomato	Anytime
Wheat	41/2

\*To avoid injury to rotational alfalfa:

1. Do not apply more than 1.9 lbs. a.i. S-metolachlor per acre in the previous crop,

2. Do not make lay-by or other post-emergent applications of products containing *S*- metolachlor in the previous crop.

\*\* Cotton may be planted after 12 months where **Tigris Sulfen Elite** was applied at rates 36 fl. oz./acre or less and meets the following conditions:

- Medium and fine soils
- Ph <7.2

• Rainfall or irrigation must exceed 15" after application of Tigris Sulfen Elite to rotate to cotton.

\*\*\*Field corn may be planted after 4 months where **Tigris Sulfen Elite** was applied at 28 fl. oz./acre or less.

<sup>†</sup>Popcorn and sweet corn may be planted after 10 months where **Tigris Sulfen Elite** was applied at 28 fl. oz./acre or less.

For all other crops not listed, the rotation interval is a minimum of 12 months with a representative bioassay to determine crop safety before planting.

#### **REPLANTING INSTRUCTIONS**

If initial planting of labeled crops fails to produce a stand, only crops labeled for **Tigris Sulfen Elite** or the tank mix partner; whichever is most restrictive, may be planted based on the amount of product initially applied. When replanting use minimum soil tillage to preserve the herbicide barrier and achieve maximum weed control.

**RESTRICTIONS:** Do not retreat field with **Tigris Sulfen Elite** or another herbicide containing sulfentrazone and *S*-metolachlor. Do not plant treated fields to any crop at intervals that are inconsistent with the Rotational Crop Guidelines on this label.

#### BAND TREATMENT APPLICATIONS

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

Band Width Inches Row Width Inches	_ x	Broadcast Rate Per Acre	=	Band Rate
Band Width Inches Row Width	_ x	Broadcast Volume Per Acre	=	Band Volume
Inches				

#### MIXING AND LOADING INSTRUCTIONS

**Tigris Sulfen Elite** may be applied alone, or in tank mixtures with other labeled 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. Follow all precautions and restrictions on the tank mix partner label.

It is important that spray equipment is clean and free of existing pesticide residues before preparing **Tigris Sulfen Elite** spray mixtures. For all tanks containing spray solution 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. Slowly add the **Tigris Sulfen Elite** to the spray tank. Carefully rinse the empty container, adding the rinsate to the spray tank. Complete filling the spray tank to the desired level. Continuous spray tank agitation is required at all times to maintain a uniform spray solution. Make sure **Tigris Sulfen Elite** is thoroughly mixed before application.

Use the **Tigris Sulfen Elite** spray mixture immediately after mixing. Avoid storing the sprayer overnight or for any extended period of time with the **Tigris Sulfen Elite** spray mixture remaining in the tank.

If **Tigris Sulfen Elite** is tank mixed with other labeled herbicides, all additional directions, restrictions, and precautions for the tank mixture herbicides must be followed. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

#### SPRAYER EQUIPMENT CLEAN-OUT

As soon as possible after spraying **Tigris Sulfen Elite** and before using sprayer equipment for any other applications, the sprayer must be thoroughly cleaned to avoid potential crop affects 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 **Tigris Sulfen Elite** 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 3 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 of time with **Tigris Sulfen Elite** 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 **Tigris Sulfen Elite** remain in inadequately cleaned mixing, loading and/or spray equipment, they may be released during subsequent applications potentially causing effects to certain crops and other vegetation. Tigris, LLC 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.

	0	Elite Use Rate	
Fail, Sprin	g Early Pre-plant, Pre-emergen	ce, and Pre-plant Incorporated Ap	
Broadcast Rate	oadcast Bate Fl. Oz. Tigris Sulfen Elit		
Diodacaot nate	Soil Texture		
% Organic Matter	Coarse	Medium	Fine
<1.5	19-25	25-32	25-32
1.5-3	25	25-32	25-32
	25	25-32	32-38.7

SOYBEANS

#### Weeds Controlled:

The following is a general list of weeds for which **Tigris Sulfen Elite** has shown control or suppression. The level of control will vary per use rate, cropping system, environmental conditions, moisture levels and soil type. **Tigris Sulfen Elite** may not control all of the weeds listed under all crop conditions.

Amaranth, Palmer	Amaranthus palmeri
Amaranth, spiny	Amaranthus, spinosus
Amaranth, spleen	Amaranthus dubius
Barnyardgrass	Echinochloa crus-galli (L.) Beauv.
Broadleaf signalgrass	Urochloa platyphylla (Nash) R. D. Webster

Copperleaf, hophornbeam	Acalypha ostryifolia Riddell
Crabgrass spp.	Digitaria spp.
Crowfootgrass	Dactyloctenium aegyptium (L.) Willd.
Cupgrass, Prairie	Eriochloa contracta Hitchc.
Cupgrass, Southwestern	Eriochloa acuminata (J. Presl) Kunth
Fall Panicum	Panicum dichotomiflorum Michx.
Florida Pusley	Richardia scabra L.
Foxtail, Giant	Setaria faberi Herrm.
Foxtail, Green	Setaria viridis (L.) Beauv.
Foxtail, Robust	Setaria viridis var. robusta
Foxtail, Yellow	Setaria glauca (L.) Beauv.
Foxtail, bristly	Setaria verticillata (L.) Beauv.
Goosegrass	Eleusine indica (L.) Gaertn.
Groundcherry, cutleaf	Physalis angulata L.
Hairy galinsoga	Galinsoga ciliata (Raf.) Blake
Kochia (ALS- and Triazine-Resistant)	Kochia scoparia (L.) Schrad.
Lambsquarters, common	Chenopodium album
Morningglory, entireleaf	Ipomea hederacea integriusc
Morningglory, ivyleaf	Ipomea hederacea hederacea
Morningglory, Palmleaf	Ipomea Wrightii
Morningglory, pitted	Ipomoea lacunosa L.
Morningglory, purple	Ipomea turbinate
Morningglory, red	Ipomea coccinea
Morningglory, scarlet	Ipomea hederifolia
Morningglory, small flower	Jacquemontia tamnifolia (L.) Griseb.
Morningglory, tall	lpomea, purpurea
Nightshade, black	Solanum nigrum
Nightshade, eastern black	Solanum americanum
Pigweed, red root	Amaranthus retroflexus
Pigweed, smooth	Amaranthus hybridus
Pigweed, spiny	Amaranthus
Sida, prickly	Sida spinosa L.
Smartweed, Pennsylvania (seedling)	Polygonum pensylvanicum L.
Star of Bethlehem	Ornithogalum umbellatum L.
Texas panicum	Panicum texanum L
Thistle, Russian	Salsola tragus L.
Tropical Spiderwort	Commelina benghalensis L.
Waterhemp, common	Amaranthus rudis
Waterhemp, tall	Amaranthus tuberculatus
Witch grass	Panicum capillare L.
SEDGES (suppression only)	
Nutsedge, purple	Cyperus rotundus
Nutsedge, yellow	Cyperus esculentus
Sedge, annual	Cares spp.

# **Fall Applications:**

**Tigris Sulfen Elite** may be applied as a fall treatment to the stubble of harvested crops for Pre-emergence control of labeled weeds the following spring in no-till and conservation tillage production systems. Fall applications of **Tigris Sulfen Elite** must be made in weed control programs that include, as needed, spring application of pre-plant, Pre-emergence, or post-emergence herbicides for the following crop season. Applications to ridge till production systems must be made after the formation of ridges or bedded. Apply when the sustained soil temperature at a 4-inch depth is less than 55 degrees F and falling.

If weeds are emerged at the time of application, utilize a tank mixture with a suitable burndown herbicide at labeled rates.

For Fall Application:

- Apply after September 30 in ND, SD, MN, WI and north of Route 30 in IA.
- Apply after October 15 north of Route 91 in NE and south of Route 30 in IA.
- Apply after October 31 north of Route 136 in IL.
- Do not make fall applications south of Interstate 70.

### Early Pre-plant, Pre-plant Incorporated, and Pre-emergence Applications (Spring Applications):

Use on medium to fine soils with minimum tillage or no-tillage systems in CO, CT, DE, IA, IL, IN, KS, KY, MA, MD, ME, MI, MN, MO, MT, ND, NE, NH, NY, OH, PA, RI, SD, TN, VA, VT, WI WV and WY.

**Tigris Sulfen Elite** can be applied Early Pre-plant, Pre-plant Incorporated or Pre-emergence up to 3 days after planting but prior to emergence. For pre-plant 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. **Tigris Sulfen Elite** applied near or after crop emergence may cause severe injury to the crop. **Tigris Sulfen Elite** can be applied alone or in combination with other soybean herbicides, including those containing sulfentrazone, as long as the sulfentrazone active ingredient rate does not exceed 0.375 lb. a.i./A per year.

**Tigris Sulfen Elite** may be followed by labeled post-emergence soybean herbicides for increased control of grass and broadleaf weeds. Always follow the most restrictive label when tank mixing. When using **Tigris Sulfen Elite** in no-till or minimum till cropping systems, tank mix with an appropriate burndown herbicide for improved control of existing weeds. Apply on coarse soils no more than 2 weeks prior to planting.

### **Precautions:**

• When applying **Tigris Sulfen Elite** with other registered herbicides, refer to specific label information on precautions, restrictions, instructions, limitations, application methods and timings, and weeds controlled.

# **Restrictions:**

- Do not apply more than 2.387 lb. a.i./A S-metolachlor per year.
- Do not apply more than 38.7 fl. oz. (1.91 lbs. a.i. s-metolachlor and 0.21 lb. a.i. sulfentrazone) per acre of Tigris Sulfen Elite per year.
- Do not apply more than 38.7 fl. oz. (1.91 lbs. a.i. s-metolachlor and 0.21 lb. a.i. sulfentrazone) per acre of Tigris Sulfen Elite in a single application.
- Do not apply more than 0.375 lb. a.i. sulfentrazone total from any source per acre per year.
- Do not graze or feed treated soybean forage, hay, or straw to livestock for 30 days after treatment.
- 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 **Tigris Sulfen Elite** runoff from rain or snowmelt that may occur following application.
- Do not apply after crop seed germination.

#### SUNFLOWERS

	Tigris Sulfen Eli	te Use Rate	
	Pre-emergence and Pre-plant	: Incorporated Applications	
Fl. Oz. Tigris Sulfen Elite Per Acre		e	
Broadcast Rate	Soil Texture		
% Organic Matter	Coarse	Medium	Fine
<1.5	17-21	25.7	21-30
1.5-3	17-25.7	32.4	25.7-32.4
>3	25.7	25.7-32.4	32.4-38.7

• For soils with pH >7.2 use the lowest rate for that specific soil texture and organic matter.

# Weeds Controlled:

When applied according to directions in sunflower, **Tigris Sulfen Elite** will provide control of:

Amaranth, Palmer	Thistle, Russian
Kochia (ALS- and Triazine-Resistant)	Waterhemp, common
Lambsquarters, common	Waterhemp, tall
Morningglory, ivyleaf	Barnyardgrass
Morningglory, tall	Fall Panicum
Nightshade, Eastern black	Foxtail, giant
Nightshade, black	Foxtail, green
Pigweed, red root	Foxtail, yellow
Pigweed, smooth	Witch grass

Note: Partial control will occur under dry conditions, under heavy pest pressure or at low use rates under 26 fl. oz. Under these conditions plan to use a labeled post-emergence herbicide for improved control.

# **Pre-emergence (Spring Applications):**

**Tigris Sulfen Elite** can be applied Pre-emergence up to 3 days after planting as a soil surface application if seedlings have not broken the soil surface and if the seed furrow is completely closed and completely covered with soil. Adequate moisture (1/2" to 1") is required for herbicide activation from rainfall or irrigation. If adequate moisture is not received within 7 to 10 days after the **Tigris Sulfen Elite** treatment, a shallow incorporation may (less than 2 inches) be needed to obtain desired weed control. When activating moisture is not received a planned post-emergence application of a labeled herbicide will be needed for optimum weed control. If an activating

rainfall (1/2" to 1") is not received **Tigris Sulfen Elite** will provide a reduced and inconsistent level of control of susceptible germinating weeds. If dry conditions persist, weed control may be reduced. If applying on coarse soils with less than 1.5% organic matter, wait a minimum of 7 days after application before planting.

If weeds are emerged at the time of **Tigris Sulfen Elite** application, use a labeled burndown herbicide such as Aim herbicide, glyphosate or paraquat at the full-labeled rate in combination with **Tigris Sulfen Elite** as needed.

# Spring Pre-Plant Incorporated (PPI):

When planting into soil treated pre-plant with **Tigris Sulfen Elite** minimize soil disturbance to maintain the herbicide barrier on the soil surface to achieve maximum weed control. **Tigris Sulfen Elite** can be applied as a Pre-plant Incorporated treatment in the spring up to 2 weeks prior to planting in reduced and conventional tillage sunflowers. **Tigris Sulfen Elite** should be shallowly incorporated in the soil no deeper than 2 inches. Incorporating **Tigris Sulfen Elite** deeper than 2 inches can result in inconsistent weed control. Use the appropriate rate from Table 9 above for the soil texture, soil organic matter, and soil pH level.

#### **Precautions:**

- Plant sunflowers 1.5" deep and completely cover with soil.
- Adverse crop response may occur on coarse-textured soils with low organic matter (less than 1.5%) and pH of 7.2 or higher, or on highly eroded soils, hilltops, or in areas of calcareous outcroppings. Tigris Sulfen Elite use rates should be reduced to 14 fl. oz. in those areas or not applied in these areas at all. Inadequate seed furrow closure or shallow planting (less than 1.5 inch) may result in undesirable crop response and this product should not be applied. 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 **Tigris Sulfen Elite** 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, **Tigris Sulfen Elite** 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 **Tigris Sulfen Elite**. Consult seed companies and university or extension weed management personnel for additional information on specific local varieties or cultivars and any other pertinent information on **Tigris Sulfen Elite** under specific local conditions.

#### **Restrictions:**

- Do not apply more than 38.7 fl. oz. (1.91 lbs. a.i. s-metolachlor and 0.21 lb. a.i. sulfentrazone) of Tigris Sulfen Elite per acre per crop year.
- Do not apply more than 38.7 fl. oz. (1.91 lbs. a.i. s-metolachlor and 0.21 lb. a.i. sulfentrazone) per acre of Tigris Sulfen Elite in a single application.
- Do not apply herbicides containing sulfentrazone to sunflowers if **Tigris Sulfen Elite** has been previously applied within the same twelve-month period.
- Do not apply to frozen soils or existing snow cover to prevent **Tigris Sulfen Elite** runoff from rain or snowmelt that may occur following application.
- Do not allow livestock to graze or feed in treated area.
- Do not apply after crop seed germination.
- Do not use on soils classified as sand, which have less than 1% organic matter.

#### DRY SHELLED BEANS AND PEAS

Dried cultivars of bean (*Lupinus*); bean (*Phaseolus*)(includes field bean, black bean, kidney bean, lima bean (dry), navy bean, pink bean, pinto bean, tepary bean), small red bean, great northern 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); guar; lab lab bean; pea (*Pisum*) (includes field pea and chickpea) and pigeon pea.

	Tigris Sulfen El	ite Use Rate	
Fall or Spring E	arly Pre-plant, Pre-emergence	e, and Pre-plant Incorporated App	olications
Dreadeast Data		Fl. Oz. Tigris Sulfen Elite Per Acre	9
Broadcast Rate	Soil Texture		
% Organic Matter	Coarse	Medium	Fine
<1.5	13-17	17-26	17-26
1.5-3	17-26	21-34	26 - 34
>3	21-34	26-38.7	30-38.7

• For soils with pH >7.2 use the lowest rate for that specific soil texture and organic matter.

#### Weeds Controlled:

The following is a general list of weeds for which **Tigris Sulfen Elite** has shown control or suppression. The level of control will vary per use rate, cropping system, environmental conditions, moisture levels and soil type. **Tigris Sulfen Elite** may not control all of the

weeds listed under all crop conditions. For crops where lower use rates are needed for crop tolerance refer to their specific weed list.

Amaranth, Palmer	Thistle, Russian
Kochia (ALS- and Triazine-Resistant)	Waterhemp, common
Lambsquarters, common	Waterhemp, tall
Morningglory, ivyleaf	Barnyardgrass
Morningglory, tall	Fall Panicum
Nightshade, Eastern black	Foxtail, giant
Nightshade, black	Foxtail, green
Pigweed, red root	Foxtail, yellow
Pigweed, smooth	Witch grass

**Note:** Partial control will occur under dry conditions, under heavy pest pressure or at low use rates under 26 fl. oz. Under these conditions plan to use a labeled post-emergence herbicide for improved control.

# Fall Application:

**Tigris Sulfen Elite** may be applied in the fall following crop harvest or in existing fallow fields to control or suppress weeds the following season. **Tigris Sulfen Elite** 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 **Tigris Sulfen Elite** runoff from rain or snow that may occur following application. **Tigris Sulfen Elite** may be tank mixed with other labeled herbicides to control emerged weeds. When activating moisture is not received a planned post-emergence application of a labeled herbicide will be needed for optimum weed control. If an activating rainfall (1/2" to 1") is not received **Tigris Sulfen Elite** will provide a reduced and inconsistent level of control of susceptible germinating weeds. If dry conditions persist, weed control may be reduced. Fall application of **Tigris Sulfen Elite** may require a follow up grass herbicide treatment as grass escapes may occur.

**Tigris Sulfen Elite** should be applied when the sustained soil temperature is 55°F and falling at a soil depth of 4 inches. Applications to ridge till production systems must be made after the formation of ridges or bedded.

# For Fall Application:

- Apply after September 30 in ND, SD, MN, and WI and north of Route 30 in IA.
- Apply after October 15 north of Route 91 in NE and south of Route 30 in IA.
- Apply after October 31 north of Route 136 in IL.

**Tigris Sulfen Elite** can be tank mixed with other labeled herbicides. Observe all restrictions, 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.

#### Early Pre-plant and Pre-emergence (Spring Applications):

**Tigris Sulfen Elite** can be applied early pre-plant or Pre-emergence up to 3 days after planting if seedlings have not broken the soil surface and if the seed furrow is completely closed and completely covered with soil. Adequate moisture (1/2" to 1") is required for herbicide activation from rainfall. If adequate moisture is not received within 7 to 10 days after the **Tigris Sulfen Elite** treatment, a shallow incorporation (less than 2 inches) may be needed to obtain desired weed control. When activating moisture is not received a planned post-emergence application of a labeled herbicide will be needed for optimum weed control. If an activating rainfall (1/2" to 1") is not received **Tigris Sulfen Elite** will provide a reduced and inconsistent level of control of susceptible germinating weeds. If dry conditions persist, weed control may be reduced. If weeds are emerged at the time of **Tigris Sulfen Elite** application, use a burndown herbicide such as AIM herbicide, glyphosate or paraquat at the full-labeled rate in combination with **Tigris Sulfen Elite** as needed.

#### **Pre-Plant Incorporated (PPI):**

**Tigris Sulfen Elite** can be applied as a Pre-plant Incorporated treatment in the spring prior to planting in reduced and conventional tillage dry beans and peas. **Tigris Sulfen Elite** should be shallowly incorporated in the soil no deeper than 2 inches. Incorporating **Tigris Sulfen Elite** deeper than 2 inches can result in inconsistent weed control. Minimize furrow and ridge formation in the tillage operations. Use the appropriate rate from Table 11 above for the soil texture, soil organic matter, and soil pH level.

#### **Precautions:**

- Under extended periods of dry weather, adequate weed control may not be achieved. Adequate moisture (1/2" to 1") is required for herbicide activation from rainfall. If adequate moisture is not received within 7 to 10 days after the **Tigris Sulfen Elite** treatment, a shallow incorporation may be needed to obtain desired weed control. When activating moisture is not received a planned post-emergence application of a labeled herbicide will be needed for optimum weed control. If an activating rainfall (1/2" to 1") is not received **Tigris Sulfen Elite** will provide a reduced and inconsistent level of control of susceptible germinating weeds. If dry conditions persist, weed control may be reduced.
- Adverse crop response may occur on coarse-textured soils with low organic matter (less than 1.5%) and pH of 7.2 or higher, or on highly eroded soils, hilltops, or in areas of calcareous outcroppings. **Tigris Sulfen Elite** use rates should be reduced to 13 fl. oz. in those areas or not applied in these areas at all. Inadequate seed furrow closure or shallow planting (less than 1.5 inch) may

result in undesirable crop response and this product should not be applied. 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 **Tigris Sulfen Elite** 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, **Tigris Sulfen Elite** Product Use Rates, Rotational Crop Guidelines, Replanting Instructions, Weed Controlled, Crop Liability Disclaimer 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 **Tigris Sulfen Elite**. Consult seed companies and university or extension weed management personnel for additional information on specific local varieties or cultivars and any other pertinent information on **Tigris Sulfen Elite** under specific local conditions.

### **Restrictions:**

- Do not apply more than 38.7 fl. oz. (1.91 lbs. a.i. s-metolachlor and 0.21 lb. a.i. sulfentrazone) of Tigris Sulfen Elite per acre per year.
- Do not apply more than 38.7 fl. oz. (1.91 lbs. a.i. s-metolachlor and 0.21 lb. a.i. sulfentrazone) per acre of Tigris Sulfen Elite in a single application.
- Do not apply additional sulfentrazone containing products to dry field beans and peas if **Tigris Sulfen Elite** has been previously applied within the same twelve-month period.
- 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 **Tigris Sulfen Elite** 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.
- Do not use for forage within 60 days after an application of **Tigris Sulfen Elite**.
- Do not cut for hay within 120 days after an application of Tigris Sulfen Elite.

# HORSERADISH

Apply a single application of **Tigris Sulfen Elite** at a broadcast rate of 19-25 fl. oz. per acre to the soil surface after planting but before weed or crop emergence. Use listed lower rates on soils relatively coarse-textured and listed higher rates on fine-textured soils.

Apply in at least 10 gallons per acre finished spray solution by ground and 15 gallons per acre finished spray solution if applied with a contact burndown herbicide.

Following the application of **Tigris Sulfen Elite** to soil, germinating seeds and seedlings take up **Tigris Sulfen Elite** from the soil solution. The amount of **Tigris Sulfen Elite** in soil solution available for weed uptake is determined primarily by soil type, soil organic matter and soil pH. Similar to other herbicides, **Tigris Sulfen Elite** adsorbs to the clay and organic matter (OM) fractions of soils; effectively limiting the amount of active ingredient immediately available to control weeds. Adequate moisture is required for herbicide activation (1/2" to 1" of rainfall or irrigation). If an activating rainfall (1/2" to 1") is not received **Tigris Sulfen Elite** will provide a reduced level of control of susceptible germinating weeds.

#### Weeds Controlled:

The following is a general list of weeds for which **Tigris Sulfen Elite** has shown control or suppression. The level of control will vary per use rate, cropping system, environmental conditions, moisture levels and soil type. **Tigris Sulfen Elite** may not control all of the weeds listed under all crop conditions. For crops where lower use rates are needed for crop tolerance refer to their specific weed list.

Barnyardgrass	Nightshade, black
Fall panicum	Nightshade, eastern black
Foxtail, giant	Palmer amaranth
Foxtail, green	Pennsylvania smartweed
Foxtail, yellow	Pigweed, red root
Morningglory, entireleaf	Pigweed, smooth
Morningglory, ivyleaf	Waterhemp, common
Morningglory, pitted	Waterhemp, tall
Morningglory, smallflower	

#### **Restrictions:**

- Do not exceed 25 fl. oz. (1.23 lb. a.i. s-metolachlor and 0.14 lb. a.i. sulfentrazone) of Tigris Sulfen Elite per acre per year.
- Do not exceed 25 fl. oz. (1.23 lb. a.i. s-metolachlor and 0.14 lb. a.i. sulfentrazone) of Tigris Sulfen Elite per acre in a single application.
- Do not use on soils classified as sand, which have less than 1% organic matter.
- Do not apply to frozen soils or to existing snow cover to prevent **Tigris Sulfen Elite** runoff from rain or snow melt that may occur following application.
- Do not apply directly on the crop after the crop emerges or if the seedling sprouts are close to the soil surface.
- Harvest horseradish at normal timing.

# STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE:** Store product in original container only, away from other pesticides, fertilizer, food, or feed. Do not use or store around the home. Avoid storage below 32F. Product that has been frozen should be thawed and recirculated prior to its use. Store in a cool, dry place and avoid excess 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:** Waste resulting from the use of this product must be disposed of at an approved waste disposal facility.

# CONTAINER HANDLING:

Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: **Nonrefillable Container \leq 5 Gallons:** Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available, or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, by other procedures allowed by state and local authorities.

**Nonrefillable Container > 5 Gallons:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 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. Then offer for recycling if available, or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

**Returnable/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 into application equipment or mix tank. Fill the container about 10% 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. For final disposal, offer for recycling if available, or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

# CONDITION OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

**NOTICE:** Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather, presence of other materials or other influencing factors in the use of the product, which are beyond the control of Tigris, LLC or Seller. To the extent consistent with applicable law, all such risks shall be assumed by Buyer and User, and Buyer and User agree to hold Tigris, LLC and Seller harmless for any claims relating to such factors.

Tigris, LLC warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or Tigris, LLC, and Buyer and User assume the risk of any such use. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, TIGRIS, LLC MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

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