2025-3359
2025-09-08

GROUP	14	HERBICIDE

SULFENTRAZONE 480 SC

COMMERCIAL

(AGRICULTURAL)

Suspension Concentrate
Flowable

For Use on Chickpeas, Field Pea, Flax, Sunflower, Soybeans, Wheat (Spring and Durum),Tame Mustard, Asparagus, Fababean, Mint, Strawberry, Horseradish, Brassica, Head and Stem (Crop Group 5-13) (Transplants only), Brassica, Leafy Greens (Crop Sub-Group 4-13b), and Apples

ACTIVE INGREDIENT: Sulfentrazone ..... 480 g/L

Contains 1,2-benzisothiazolin-3-one at 0.04% as a preservative

REGISTRATION NO. 35625
PEST CONTROL PRODUCTS ACT

READ THE LABEL AND BOOKLET BEFORE USING

Net Contents: 1 L - Bulk

Farmer's Business Network Canada, Inc.
PO Box 5607
High River, Alberta
Canada, T1V 1M7
1-844-200-FARM (3276)

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

FIRST AID

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.
If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.
If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.
If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

Take container, label or product name and the Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically. Contains petroleum distillate – vomiting may cause aspiration pneumonia.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN
Hazards to Humans and Domestic Animals
CAUTION
Avoid contact with skin, eyes or clothing.

Apply only when the potential for drift beyond the area to be treated is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Wear a long-sleeved shirt, long pants, chemical-resistant gloves made of waterproof material

such as polyethylene or polyvinyl chloride, socks and shoes during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab.

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 and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Remove clothing immediately if pesticide gets inside. Then bathe thoroughly and put on clean clothing.

RESTRICTED-ENTRY INTERVAL

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

IMPORTANT

- DO NOT apply this product in a way that will contact workers or other persons, either directly or through drift. For any requirements specific to your area, consult the provincial/ territorial agency responsible for pesticide regulation.
- DO NOT apply more than the allowed amount per hectare per 24-month period. The 24-month period is considered to begin upon the initial application.

ENVIRONMENTAL PRECAUTIONS

Toxic to small wild mammals.

Toxic to non-target terrestrial plants. Observe spray buffer zones specified under DIRECTIONS FOR USE.

The residues of sulfentrazone are persistent and may carry over. It is recommended that this product not be used in areas treated with any products containing sulfentrazone during the previous year.

This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. **DO NOT** use on coarse soils.

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative filter strip between the treated area and the edge of the water body. Additional guidance can be found on the Runoff Mitigation portion of the Canada.ca website.

STORAGE

Store this product away from food or feed

STORE ABOVE 5°C TO KEEP PRODUCT FROM FREEZING. If frozen, thaw before use. If solid crystals are observed, warm material to above 15 °C by placing container in warm location. Shake or roll container periodically to re-dissolve solids.

Do not use or store near heat or open flame.

Store in original containers only. Store containers in a dry location. Carefully open containers. After partial use, replace lids and close tightly. Do not put concentrate or dilute material into food or drink containers. Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.

DISPOSAL

Refillable containers:
Disposal of container: For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. DO NOT reuse this container for any other purpose.

Returnable containers:
Disposal of container: DO NOT reuse this container for any purpose. For disposal, the empty container may be returned to the point of purchase (distributor/dealer).

Recyclable containers:
Disposal of container: DO NOT reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial or territorial requirements.

Disposal of unused, unwanted product: For information on disposal of unused, unwanted product, contact the registrant or the provincial or territorial regulatory agency. Contact the registrant and the provincial or territorial regulatory agency in case of a spill, and for cleanup of spills.

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TABLE OF CONTENTS

Section Number

GENERAL INFORMATION

SECTION 1: FIRST AID AND TOXICOLOGICAL INFORMATION

FIRST AID

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If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

Take container, label or product name and the Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically. Contains petroleum distillate – vomiting may cause aspiration pneumonia.

SECTION 2: PRECAUTIONS, PROTECTIVE CLOTHING AND EQUIPMENT

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

Hazards to Humans and Domestic Animals

Avoid contact with skin, eyes or clothing.

Apply only when the potential for drift beyond the area to be treated is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment, and sprayer settings.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Wear a long-sleeved shirt, long pants, chemical-resistant gloves made of waterproof material such as polyethylene or polyvinyl chloride, socks and shoes during mixing, loading, application, clean-up and repair. Gloves are not required during application within a closed cab.

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 and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Remove clothing immediately if pesticide gets inside. Then bathe thoroughly and put on clean clothing.

RESTRICTED-ENTRY INTERVAL

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

IMPORTANT

- **DO NOT** apply this product in a way that will contact workers or other persons, either directly or through drift. For any requirements specific to your area, consult the provincial/territorial agency responsible for pesticide regulation.
- **DO NOT** apply more than the allowed amount per hectare per 24-month period. The 24-month period is considered to begin upon the initial application.

SECTION 3: ENVIRONMENTAL PRECAUTIONS

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Toxic to non-target terrestrial plants. Observe spray buffer zones specified under DIRECTIONS FOR USE.

The residues of sulfentrazone is persistent and may carry over. It is recommended that this product not be used in areas treated with any products containing sulfentrazone during the previous year.

This product demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this product in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. **DO NOT** use on coarse soils.

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative filter strip between the treated area and the edge of the water body. Additional guidance can be found on the Runoff Mitigation portion of the Canada.ca website.

SECTION 4: STORAGE

Store this product away from food or feed.

STORE ABOVE 5°C TO KEEP PRODUCT FROM FREEZING. If frozen, thaw before use. If solid crystals are observed, warm material to above 15 °C by placing container in warm location. Shake or roll container periodically to re-dissolve solids.

Do not use or store near heat or open flame.

Store in original containers only. Store containers in a dry location. Carefully open containers. After partial use, replace lids and close tightly. Do not put concentrate or dilute material into food or drink containers. Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.

SECTION 5: DISPOSAL

Refillable containers:
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If there is no container collection site in your area, dispose of the container in accordance with provincial or territorial requirements.

Disposal of unused, unwanted product: For information on disposal of unused, unwanted product, contact the registrant or the provincial or territorial regulatory agency. Contact the registrant and the provincial or territorial regulatory agency in case of a spill, and for cleanup of spills.

DIRECTIONS FOR USE

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to

control aquatic pests.

Field sprayer application: DO NOT apply when wind speed is less than 1 km/h. Avoid application of this product when winds are gusty. DO NOT apply with sprays finer than the American Society of Agricultural and Biological Engineers (ASABE) S572 (572.1 to 572.3) Medium classification. Boom height must be 60 cm or less above the crop or ground.

DO NOT apply by air.

SECTION 6: NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

SECTION 7: PRODUCT INFORMATION

Sulfentrazone 480 SC is a selective soil applied herbicide for the control of a variety of weeds in labelled crops.

Sulfentrazone 480 SC is formulated as a flowable (suspension concentrate) containing 480 grams of the active ingredient, sulfentrazone, per litre, intended for dilution with water for application.

Sulfentrazone 480 SC is taken up by the plant roots and shoots.

Observe all instructions, mixing directions, application precautions and other label information of Sulfentrazone 480 SC.

For information regarding the use of this product, visit www.fbn.ca.

SAFETY AND HANDLING

SECTION 8: PROPER HANDLING INSTRUCTIONS

Sulfentrazone 480 SC may not be mixed or loaded within 15 metres of any wells (including abandoned wells and drainage wells), sink holes, perennial or intermittent streams or 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 15 metres 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 besloped to facilitate material removal. An unroofed pad shall be of sufficient capacity to contain ata 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. Provinces may have in effect additional requirements regarding wellhead setbacks and operational containment.

Sulfentrazone 480 SC must be used in a manner which will prevent back siphoning in wells, spills or improper disposal of excess pesticide, spray mixtures or rinsates.

SECTION 9: SPRAY BUFFER ZONES

The spray buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands) and sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands).

Method of application	Crop /Site	Spray Buffer Zones (metres) Required for the Protection of:		
		Freshwater Habitat of Depths:		Terrestrial Habitat
		Less than 1 m	Greater than 1 m	
Field sprayer	Chickpea, Field Pea, Flax, Sunflower, Strawberry, Soybean, Wheat (spring and durum), Tame Mustard, Fababean, Mint, Horseradish, *Brassica*, Head and Stem (Crop Group 5-13), *Brassica*, Leafy Greens (CropSub-Group 4-13B), and Apples	1	0	10

When tank mixes are permitted, consult the labels of the tank mix partners and observe the largest (most restrictive) spray buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASABE) category indicated on the labels for those tank mix partners.

The spray buffer zones for this product for conventional application equipment can be modified based on weather conditions and spray equipment configuration by accessing the Spray Buffer Zone Calculator on the Drift Mitigation portion of the Canada.ca website.

SECTION 10: CROPS AND WEEDS

SECTION 10.1: CROPS

Sulfentrazone 480 SC may be used during production of the following crops: chickpeas, field peas, flax, sunflower, soybeans, wheat (spring and durum), mustard, asparagus, fababean,mint, strawberry, horseradish, *Brassica*, head and stem (Crop Group 5-13), *Brassica*, leafy greens (Crop Sub-Group 4-13B), and apples. Refer to SECTION 10.3: SPECIFIC CROP INFORMATION for guidance regarding application timing, rates and precautions.

Sulfentrazone 480 SC does not control emerged weeds.

SECTION 10.2: WEEDS CONTROLLED

When used as directed, Sulfentrazone 480 SC will provide control of the weeds listed in the table below.

Use rate (mL/ha)	Weeds controlled
219	Kochia
292	Above weeds plus: Redroot pigweed Lamb's-quarters Wild buckwheat Eastern black nightshade Common waterhemp Smooth crabgrass Large crabgrass Yellow woodsorrel Common groundsel Cleavers (suppression) Powell pigweed (green pigweed) Common purslane

Soil Parameters
Sulfentrazone 480 SC must only be applied to soils that fall within the parameters outlined in the table below.

Soil Texture	Soil Type	Organic Matter	pH
Fine	Silty clay loam, silty clay, clay loam, clay	1.5 - 6%	<7.8
Medium	Sandy clay loam, sandy clay, loam, silt loam, silt		
Coarse	Sand, loamy sand, sandy loam	DO NOT USE	

Do not apply to soil classified as coarse-textured.
Do not apply to soil with an organic matter content less than 1.5% or greater than 6%.
Do not apply to soil with a pH of 7.8 or greater.

Timing of Application

Spring Application

Sulfentrazone 480 SC can be applied in the spring pre-plant or pre-emergence up the three-days after seeding.

Do not mechanically incorporate as this can destroy the herbicide barrier and allow weeds to escape.

Refer to “SECTION 10.3: SPECIFIC CROP INFORMATION” for full application instructions for each crop.

Fall Application
In Western Canada only, Sulfentrazone 480 SC, can be applied in the fall for control or suppression of labelled weeds prior to planting chickpeas, fababeans, field peas, flax, mustard, soybeans, sunflowers and wheat (spring and durum) the following spring. Sulfentrazone 480 SC should be applied to stubble or soil surface to allow moisture from rainfall or snow melt to move the product into the soil. Apply the product in the fall when the average soil temperature is below 10^{o}C.

Do not mechanically incorporate in the fall or spring as this can destroy the herbicide barrier and allow weeds to escape.

Do not apply to frozen soils or existing snow cover to prevent run-off of Sulfentrazone 480 SC.

Refer to “SECTION 10.3: SPECIFIC CROP INFORMATION” for full application instructions for each crop.

SECTION 10.3: SPECIFIC CROP INFORMATION

SECTION 10.3.1 FIELD CROPS

CHICKPEAS, FIELD PEAS, FLAX, SUNFLOWER, FABABEAN, SOYBEANS

Make one pre plant or pre-emergence application every other year in the spring. Apply in 100 L of water per ha.

Alternatively, in Western Canada only, Sulfentrazone 480 SC, can be applied in the fall for control or suppression of labelled weeds prior to planting chickpeas, faba beans, field peas, flax, soybeans and sunflowers the following spring. Refer to “Timing of Application” section for directions for fall application.

Restrictions
DO NOT mechanically incorporate in the fall or spring.
DO NOT apply to frozen soils or existing snow cover.
Sulfentrazone 480 SC can be applied once in a 24-month period. DO NOT apply any additional products containing sulfentrazone during this 24-month period. The 24-month period is considered to begin when the initial application of Sulfentrazone 480 SC is applied.

WHEAT (SPRING AND DURUM)

Applications

Make one pre-plant or pre-emergence application at a **rate of 219 mL/ha** every other year for kochia control. Apply in a minimum of 100 L of water per ha.

Alternatively, in Western Canada only, Sulfentrazone 480 SC, can be applied in the fall, **at a rate of 219 mL/ha,** to provide control or suppression of labelled weeds prior to planting wheat (spring and durum) the following spring. Refer to "Timing of Application" section for directions for fall application.

Restrictions
DO NOT mechanically incorporate in the fall or spring.
DO NOT apply to frozen soils or existing snow cover.
Sulfentrazone 480 SC can be applied once in a 24-month period. DO NOT apply any additional products containing sulfentrazone during this 24-month period. The 24-month period is considered to begin when the initial application of Sulfentrazone 480 SC is applied.
DO NOT apply Sulfentrazone 480 SC (or any other product containing sulfentrazone) to spring wheat if an application of FOCUS® Herbicide (or any other product containing pyroxasulfone) was applied in the previous fall.

MINT

Dormant Applications
Apply Sulfentrazone 480 SC to established stands of dormant mint after spring land cultivation has been completed and before emergence of new mint growth.

Apply Sulfentrazone 480 SC in tank mixtures with a registered burndown herbicide to control emerged weeds at the time of application.

Sulfentrazone 480 SC may also be applied in tank mixtures with other products registered for use in mint.

New Planting Applications
Sulfentrazone 480 SC may be applied to new mint plantings preemergence to the weeds and mint. The rate of application should be reduced approximately twenty-five percent of the rate listed for established plantings (164 or 219 mL/ha).

Level of weed control will be reduced with the application of Sulfentrazone 480 SC at the reduced rate in new mint plantings.

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.

Restrictions
Apply Sulfentrazone 480 SC only to dormant mint or new mint plantings before new growth emerges.

SECTION 10.3.2 FRUITS AND VEGETABLES

ASPARAGUS

Applications
Apply Sulfentrazone 480 SC as a broadcast treatment to crowns established for one or more years. Apply in the spring before the crop and weeds emerge. Sulfentrazone 480 SC should be applied in 100 to 400 litres of finished spray per hectare.

Restrictions
Do not apply within 14 days prior to harvest.

STRAWBERRY

Applications
Sulfentrazone 480 SC may be applied in the spring or fall as a broadcast or banded dormancy treatment to strawberry. Applications should be made with ground sprayers at 200 – 400 L/ha. A single application may be made using no more than 0.292 L/ha of Sulfentrazone 480 SC per hectare.

Spring applications may be made during dormancy to established plantings only.

Precautions
Applications to strawberry plants with emerged growth are not recommended due to leaf burning and possible stand loss.

Restrictions
Do not apply within 70 days of harvest.
Do not use flood irrigation to activate this product.
Do not apply to saturated soils.
If soils are wet, do not apply if heavy rainfall is predicted within 24 hours.
Do not apply to frozen soils.

BRASSICA, HEAD AND STEM (Crop Group 5-13) (Transplants only)
(Broccoli, Brussels sprouts, Chinese (napa) cabbage, Cabbage, Cauliflower)

Early Preplant (Spring Application)
Sulfentrazone 480 SC may be applied in the spring preceding the growing season as a broadcast or banded treatment up to 72 hours prior to transplanting head and stem brassica. Sulfentrazone 480 SC should be applied to the harvested crop stubble or soil surface without incorporation. Moisture will move and activate the product into the soil. Do not mechanically incorporate after application as this may destroy the herbicide barrier and weed escapes can occur. Do not apply to frozen soils to prevent Sulfentrazone 480 SC runoff from rain that may occur following application. Sulfentrazone 480 SC may be tank mixed with other burndown herbicides to control emerged weeds 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 480 SC, or split applications as needed.

BRASSICA, LEAFY GREENS (Crop Sub-group 4-13B)
Broccoli raab, Chinese (bok choy) cabbage, collards, kale, mizuna, mustard greens, mustard spinach, rape greens, arugula, Chinese broccoli

Early Preplant and Preemergence (Spring Application)
Sulfentrazone 480 SC may be applied in the spring preceding the growing season up to 72 hours prior to planting leafy *Brassica*. Sulfentrazone 480 SC should be applied to the harvested crop stubble or soil surface without incorporation. Moisture will move and activate theproduct into the soil. Do not mechanically incorporate after application as this may destroy the herbicide barrier and weed escapes can occur. Do not apply to frozen soils to prevent Sulfentrazone 480 SC runoff from rain that may occur following application. Sulfentrazone 480 SC may be tank mixed with other burndown herbicides to control emerged weeds in the spring or with residual soil herbicides that are labeled for use on leafy *Brassica*. Use the listed rates of burndown herbicides in combination with Sulfentrazone 480 SC, or split applications as needed.

HORSERADISH

Sulfentrazone 480 SC may be applied as a preplant or pre-emergent treatment by ground in a minimum of 150 L per ha of finished spray.

Early Pre-plant (Spring Application)
Sulfentrazone 480 SC may be applied in the spring preceding the growing season to control or suppress weeds prior to or up to the planting of horseradish. Sulfentrazone 480 SC should be applied to the harvested crop stubble or soil surface without incorporation. Moisture will move and activate the product into the soil. Do not mechanically incorporate after application as this may destroy the herbicide barrier and weed escapes may occur. Do not apply to frozen soils to prevent Sulfentrazone 480 SC runoff from rain that may occur following application. Sulfentrazone 480 SC may be tank mixed with other burndown herbicides to control emerged weeds or with residual soil herbicides that are labeled for use on horseradish. Use listed rates of burndown herbicides in combination with Sulfentrazone 480 SC, or split applications as needed.

Pre-Emergence (PRE)
Sulfentrazone 480 SC 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 480 SC may be applied as a banded treatment into the row middles after crop emergence. Sulfentrazone 480 SC may be applied with other pesticides registered for use on horseradish.

Restrictions

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 coarse soils.

SECTION 10.3.3 PERMANENT CROPS

Apples:

Preharvest Interval: 14 days

APPLICATION INFORMATION

Sulfentrazone 480 SC 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 pre-emergence control of weeds.

For best control, Sulfentrazone 480 SC should be applied when there are no weeds present or a post-emergence herbicide is tank mixed to eliminate emerged weeds.

For broadcast applications, a single application of Sulfentrazone 480 SC can be made every other year. The 24-month period is considered to begin when the initial application of Sulfentrazone 480 SC is applied.

For improved weed management, Sulfentrazone 480 SC can be applied in a tank mixture with other pre-emergence and postemergence burndown herbicides. DO NOT tank mix with herbicides containing flumioxazin or with other products containing sulfentrazone.

When applied as a banded treatment (50% band or less), refer to formula in chart for rate and volume in Section 11.1, GENERAL APPLICATION INSTRUCTIONS. Sulfentrazone 480 SC may be applied once every other year.

A minimum of 100 L of spray solution per ha should be used to ensure uniform spray coverage. Nozzle selection should meet manufacturer's spray volume and pressure recommendations for pre-emergence and post-emergence herbicide applications. The spray solution should have a pH between 5.0 and 9.0.

Sulfentrazone 480 SC 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 fruit.

Best results are obtained when the soil is moist at the time of application and the application will be followed by at least 13 mm (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.

Restrictions

- Use ground equipment only. Do not apply Sulfentrazone 480 SC using airblast sprayers or by air. Do not apply using a mechanically pressurized handgun.
- Apply to crops that have been growing for at least one full year and are in good condition.
- 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).
- Do not apply to powdery soils or soils where wind may displace the soil, unless irrigation can be applied immediately after application.

WEED CONTROL INFORMATION

Sulfentrazone 480 SC is a selective soil-applied herbicide for the control of susceptible broadleaf and grass weeds. Adequate moisture of at least 13 mm 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 13 mm 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 480 SC with a burndown herbicide and use an appropriate adjuvant when

weeds are present at the time of application. Refer to the tank mix partner's product label for the proper use rates by weed sizes.

Residual weed control may be reduced when Sulfentrazone 480 SC is applied where heavy crop trash such as leaves and branches and /or weed residues exists. It is best to rake or blow off the leaves and trash when they fall and prior to the Sulfentrazone 480 SC application.

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.

The DIRECTIONS FOR USE for the uses described in this section of the label were developed by persons other than Farmer's Business Network Canada, Inc. under the User Requested Minor Use Label Expansion program. For these uses, Farmer's Business Network Canada, Inc. has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

DIRECTIONS FOR USE IN TAME MUSTARD

Sulfentrazone 480 SC may be applied pre-plant at a rate of 219 ml/ha to control kochia in tame mustard.

Alternatively, in Western Canada only, Sulfentrazone 480 SC can be applied in the fall to control or suppress labelled weeds in the spring prior to planting tame mustard. Refer to the "Timing of Application" section for directions for fall application.

Precautions
Do not apply to coarse soils.
DO NOT apply if seeds have germinated. Do not apply to soil with an organic matter content less than 1.5% or greater than 6%.
Do not apply to soils with pH > 7.8.
Crop injury may occur in years with greater than normal rainfall.
DO NOT mechanically incorporate in the fall or spring.
DO NOT apply to frozen soils or existing snow cover.

Sulfentrazone 480 SC can be applied once per 24-month period. DO NOT apply any additional products containing sulfentrazone in this 24-month period. The 24-month period is considered to begin when the initial application of Sulfentrazone 480 SC is applied.

These Crop Specific Use directions are based upon the interactive effects of Sulfentrazone 480 SC (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 presented under General Application Instructions, General Sulfentrazone 480 SC Product Use Rates, Rotational Crop Guidelines, Replanting Instructions, Weeds 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 480 SC. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information

on Sulfentrazone 480 SC under specific local conditions.

SECTION 10.4: TANK MIXES

This product may be tank mixed with (a fertilizer, a supplement, or with) registered pest control products, whose labels also allow tank mixing, provided the entirety of both labels, including Directions for Use, Precautions, Restrictions, Environmental Precautions, and Spray Buffer Zones are followed for each product. In cases where these requirements differ between the tank mix partner labels, the most restrictive label must be followed. Do not tank mix products containing the same active ingredient unless specifically listed on this label.

In some cases, tank mixing pest control products can result in reduced pesticide efficacy or increased host crop injury. The user should contact Farmer's Business Network Canada, Inc. at 1-844-200-FARM (3276) for information before applying any tank mix that is not specifically recommended on this label.

SULFENTRAZONE 480 SC PLUS EXPRESS® SG HERBICIDE AND GLYPHOSATE FOR FABABEAN, FIELD PEA, SOYBEAN AND WHEAT (SPRING AND DURUM)

For control of broadleaf weeds and grasses pre-seed to fababean, field pea, soybean and wheat (spring and durum).

Fields treated with this tank mix in the spring can be seeded to fababean, field pea, soybean or wheat (spring and durum; 219 mL/ha rate only) a minimum of 24 hours after application.

Alternatively, in Western Canada only, this tank mix can be applied in the fall after harvest if fababeans, field peas, soybeans or wheat (spring and durum; 219 mL/ha rate only) are to be planted the following spring.

Apply Sulfentrazone 480 SC at 219 ml/ha for wheat (spring and durum) or 219 or 292 mL/ha for fababean, field pea and soybean plus EXPRESS® SG Herbicide at 15 g/ha, tank mixed with glyphosate (present as potassium salt, isopropylamine salt, ammonium salt) at 450 to 810 g ae/ha in a total spray volume of 100 L/ha.

This tank mix will control weeds listed on this label, corresponding to the rate of Sulfentrazone 480 SC applied, as well as those listed in the following table.

Tank Mix Partner	Application Rate	Application Stage	Weeds Controlled	Weeds Suppressed*
Express® SG Herbicide + Glyphosate (present as potassium salt,	15 g/ha + 450 g ae/ha	Up to 8 cm	Canada fleabane, common ragweed, narrow leaved hawk's beard	Scentless chamomile
		Up to 10 cm		Wild carrot

isopropylamine salt, ammonium salt)		Up to 15 cm	Dandelion, downy brome, flixweed, giant foxtail, green foxtail, hemp nettle, kochia, lady's thumb, lamb's-quarters, Persian darnel, redroot pigweed, stinkweed, volunteer barley, volunteer canola (including glyphosate-tolerant varieties), volunteer flax, volunteer wheat, wild mustard, wild oats	Tufted vetch
		Up to 3-leaf	Cow cockle, wild buckwheat	
		Up to 8-leaf	Common chickweed	
		Rosette		Canada thistle, White cockle
Express® SG Herbicide + Glyphosate (present as potassium salt, isopropylamine salt, ammonium salt)	15 g/ha + 810 g ae/ha	Weeds up to 15 cm in height	All annual grasses listed above plus crab grass (large and smooth) and annual bluegrass. All annual broadleaf weeds listed above plus prickly lettuce, shepherd's purse, annual sow thistle and narrow-leaved vetch.	

*Weed suppression is a visual reduction in weed competition (reduced population or vigour) as compared to an untreated area. Degree of suppression will vary with size of weed and environmental conditions prior to and following treatment.

For pre-seed applications in the spring, injury to pulse crops may occur on in fields with variable soils, gravely areas, sandy areas or eroded knolls.

Do not apply to soils with an organic matter content less than 3% or greater than 6%
Do not apply to soils classified as coarse-textured.
Do not use on soils with a pH of 7.8 or greater.
Do not mechanically incorporate in the fall or spring.
Do not apply to frozen soils or existing snow cover.

This tank mix can be applied once per 24-month period. DO NOT apply any additional products containing sulfentrazone in this 24-month period. The 24-month period is considered to begin when the initial application of Sulfentrazone 480 SC is applied.
Do not apply this tank mix in the spring to spring wheat if an application of FOCUS® Herbicide (or any other product containing pyroxasulfone) was applied in the previous fall.
For spring wheat, do not follow a fall application of this tank mix with any product that contains pyroxasulfone in the spring.

SECTION 11: APPLICATION INFORMATION

SECTION 11.1: GENERAL APPLICATION INSTRUCTIONS

Sulfentrazone 480 SC can be applied with conventional ground spraying equipment.
For certain crops, Sulfentrazone 480 SC may be applied pre-plant or pre-emergence **AS A SINGLE GROUND APPLICATION**. Sulfentrazone 480 SC can be applied prior to planting or, for crops where pre-emergence application is permitted, up to 3 days after planting, but before seed germination. When applications after planting are delayed greater than 3 days, injury may occur if seeds are germinating. Sulfentrazone 480 SC applied near or after crop emergence may cause severe injury to the crop. Do not make fall applications to a crop unless it is specifically recommended on this label.

Water must be used as the carrier for Sulfentrazone 480 SC. Do not allow spray mixtures to sit overnight due to potential settling of product and difficulty in resuspending may occur. Avoid spray drift to adjacent plants as injury to other plants may occur.

Ground Application

Utilize a boom and nozzle sprayer or boomless ground 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 pressures that produce a medium spray as classified by the American Society of Agricultural Engineers and Biological Engineers (ASABE) to avoid spray drift or inadequate foliar and soil coverage. Consult with spray nozzle manufacturer's charts to determine the correct nozzle and pressure combination required to achieve a medium spray. Utilize nozzles that produce minimal amounts of fine spray droplets to avoid spray drift orinadequate foliar and soil coverage. Do not exceed 175 kPa spray pressure unless otherwise required by the manufacturer of drift reducing nozzles or boomless application systems. Apply a minimum of 100 litres of finished spray per hectare by ground. Be aware that spray pattern overlaps and slower ground speeds while starting, stopping or turning while spraying may result in excessive application and subsequent crop response.

Pre-emergence Application
For certain crops, Sulfentrazone 480 SC alone, or in certain tank mixes, may be applied to the soil surface as a broadcast spray after planting of the crop but prior to weed emergence or crop germination.

Pre-emergence application may be made in all tillage systems (conventional, conservation, minimum tillage, etc.).

Rainfall and/or overhead sprinkler irrigation is necessary to move Sulfentrazone 480 SC into the upper soil layer where weed seeds germinate.

Dry weather conditions as well as excessive rainfall or irrigation following application may reduce weed control.

Do not apply heavy irrigation immediately after application.

Band Application

If a band application is desired, the chemical may be applied as described below by using proportionally less Sulfentrazone 480 SC per hectare. Weeds between treated bands should be removed by cultivating, as needed, using protective fenders to keep freshly turned soil off treated bands.

When applied as a banded treatment (50% band or less), refer to formula in chart below for rate and volume. Sulfentrazone 480 SC may be applied once every other year.

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

$$\frac{\text{Band width in centimetres}}{\text{Row width In centimeteres}} \times \text{Broadcast rate per hectare} = \text{Band rate per hectare}$$

$$\frac{\text{Band width in centimetres}}{\text{Row width In centimeteres}} \times \text{Broadcast volume per hectare} = \text{Band volume per hectare}$$

Spray Drift Management

Minimizing 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.

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 manufacturer's recommended pressures. Lower pressure produces larger droplets in many types of nozzles.

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 ground applications.

Consult with spray nozzle manufacturer's charts to determine the correct nozzle and pressure combination required to achieve a medium spray.

Use 50 mesh filter screens or larger (metal or nylon).

Moisture Requirement

All soil applications of Sulfentrazone 480 SC require adequate moisture (at least 13 mm) 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 pH. In crop situations, dependent on rainfall, Sulfentrazone 480 SC can await activating moisture for extended periods (10 to 14 days or longer) depending on the soil parameters described above. Once activated, Sulfentrazone 480 SC will provide activity on existing weeds. In circumstances where prolonged periods without rainfall or irrigation are not possible, alternative or additional weed management practices (e.g., post-applied herbicides) may be required.

When activating moisture is received after dry conditions, Sulfentrazone 480 SC may provide a reduced level of control of susceptible germinating weeds. Soil applications of Sulfentrazone 480 SC 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.

Mode of Action

Sulfentrazone, the active ingredient in Sulfentrazone 480 SC, is a potent inhibitor of the enzyme Protoporphyrinogen Oxidase IX (Protox) required for the formation of chlorophyll. Inhibition of the 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 480 SC 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 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.

Soil Classification Chart

Coarse*	Medium	Fine
Sand, loamy sand, sandy loam	Sandy clay loam, sandy clay, loam, silt loam, silt	Silty clay loam, silty clay, clay loam, clay

***DO NOT** apply to coarse soils.

Influence of Soil Type, Organic Matter and pH on Sulfentrazone 480 SC 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. Determining soil pH requires an accurate analysis of representative soil samples. ***DO NOT** apply to coarse soils.

The total amount of sulfentrazone available in solution, in any given soil, is determined by the interaction of soil type (primarily 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 480 SC 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 an Sulfentrazone 480 SC 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 480 SC 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 advances in growth stages among most crops.

Sulfentrazone is persistent and will last in the soils (carryover) for one to two years. DO NOT APPLY Sulfentrazone 480 SC TO FIELDS PREVIOUSLY TREATED WITH ANY SULFENTRAZONE-CONTAINING PRODUCT IN CONSECUTIVE YEARS (24 MONTHS). In case of drought in any of those years, a subsequent application of Sulfentrazone 480 SC should be further delayed by the equivalent number of years in which drought occurred. Sulfentrazone 480 SC requires at least 13 mm of rain or irrigation water to be effective.

SECTION 11.2: ROTATIONAL CROP GUIDELINES

The following table shows the minimum interval in months from the time of the last Sulfentrazone 480 SC application until Sulfentrazone 480 SC treated soil can be replanted to the crops listed as follows.

Rotational crops and replant intervals for Sulfentrazone 480 SC.

Rotational Crop	Replant Interval (Months)
Broccoli, cabbage, cauliflower, chickpea, faba bean, field pea, flax, horseradish, soybean, sunflowers, tame mustard (low rate only), wheat (spring and durum; low rate only)	0
Winter wheat	4
Alfalfa, barley, canola, field corn, wheat (spring and durum; highrate)	12
Sweet and popcorn, lentils, sorghum	24

For crops listed in the rotational crop table, the minimum replant interval listed in the table must be observed. For crops not listed in the rotational crop table, A MINIMUM ROTATIONAL CROP INTERVAL OF 36 MONTHS must be observed, and a representative bioassay of the field must be conducted with the rotational crop and adequate soil moisture to evaluate potential crop sensitivity.

If there is a lack of adequate or normal soil moisture due to drought conditions following an application of Sulfentrazone 480 SC, the minimum rotational crop interval listed in the table must be extended for one additional year and a representative bioassay of the field must be conducted with the potential rotational crop and adequate soil moisture to determine the crop sensitivity to Sulfentrazone 480 SC.

REPLANTING INSTRUCTIONS

If initial planting of labeled crops fails to produce a stand, only labeled crops for Sulfentrazone 480 SC, may be planted. **DO NOT** retreat field with Sulfentrazone 480 SC. 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.

SECTION 12: MIXING AND LOADING INSTRUCTIONS

Spray Tank Preparation

It is important that spray equipment is clean and free of existing pesticide deposits before using this product. Follow the spray tank clean out procedures specified on the label of product previously applied before adding Sulfentrazone 480 SC to the tank.

Mixing and Loading Instructions

Sulfentrazone 480 SC is a suspension concentrate intended for dilution with water. For best results, fill spray tank with one half of the volume of clean water needed for the area to be treated. Start the agitation system. Slowly add the Sulfentrazone 480 SC 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 Sulfentrazone 480 SC is thoroughly

mixed before application.

Use the Sulfentrazone 480 SC mixture immediately after mixing.

Do not store the sprayer overnight or for any extended period of time with the sulfentrazone spray mixture remaining in the tank.

Premixing Sulfentrazone 480 SC spray solutions in nurse tanks is not recommended.

Tank Mixtures: Fill spray tank one-half to two-thirds full of water. With agitator operating, add the recommended amount of ingredients using the following order:

- **W**ettable powders and dispersible granules
- **A**gitate tank mix thoroughly
- **M**icro-encapsulated suspensions
- **L**iquid flowables and suspensions
- **E**mulsifiable concentrate formulations
    - Fill spray tank nearly full of water
- **G**lyphosate formulations
- **S**urfactants
    - Complete filling the spray tank to the desired level

SECTION 13: SPRAYER EQUIPMENT CLEANOUT

After spraying Sulfentrazone 480 SC and before using sprayer equipment for any other applications, the sprayer must be thoroughly cleaned using the following procedure:

1. Drain sprayer tank, hoses, and spray boom. 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 all sprayer hoses, booms, and nozzles withclean water.

2. Prepare a sprayer cleaning solution by adding three litres of ammonia (containing at least 3% active) per 100 litres 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. Drain the sprayer system. Rinse the tank with clean water and flush through the hoses, boom, and nozzles. Remove and clean spray tips and all strainers and screens separately in an ammonia solution.

5. Properly dispose of all cleaning solution and rinsate in accordance with provincial/territorial guidelines and regulations.

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 plants or crops.

SECTION 14: RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, Sulfentrazone 480 SC is a Group 14 herbicide. Any weed population may contain or develop plants naturally resistant to Sulfentrazone 480 SC and other Group 14 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of Sulfentrazone 480 SC or other Group 14 herbicides within a growing season (sequence) or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group when such use is permitted. To delay resistance, the less resistance-prone partner should control the target weed(s) as effectively as the more resistance-prone partner.
- Herbicide use should be based on an integrated weed management program that includes scouting, historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical control methods), cultural (for example, higher crop seeding rates; precision fertilizer application method and timing to favour the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Monitor weed populations after herbicide application for signs of resistance development (for example, only one weed species on the herbicide label not controlled). If resistance is suspected, prevent weed seed production in the affected area if possible by an alternative herbicide from a different group. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- Have suspected resistant weed seeds tested by a qualified laboratory to confirm resistance and identify alternative herbicide options.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact Farmer's Business Network Canada, Inc. at www.fbn.ca.