

VANDAL[®] S-MOC XRT

SULFENTRAZONE	GROUP	14	HERBICIDE
S-METOLACHLOR	GROUP	15	HERBICIDE

HERBICIDE
FOR USE IN DRY SHELLED PEAS, HORSERADISH, SOYBEANS AND SUNFLOWERS

ACTIVE INGREDIENTS:

Sulfentrazone	5.67%
S-metolachlor	51.20%

OTHER INGREDIENTS*:

.....	43.13%
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TOTAL:	100.00%
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Contains a total of 5.22 lb/gal which include 0.52 lb ai sulfentrazone and 4.7 lb ai s-metolachlor per gallon.

*Contains petroleum distillates.

KEEP OUT OF REACH OF CHILDREN CAUTION / PRECAUCIÓN

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).

For Chemical Spill, Leak, Fire, or Exposure, Call CHEMTREC (800) 424-9300

SEE INSIDE BOOKLET FOR FIRST AID AND ADDITIONAL PRECAUTIONARY STATEMENTS.

Not for Sale, Sale into, Distribution and/or Use in Nassau and Suffolk Counties of New York State.

EPA Reg. No.: 89168-89-89391

HERBICIDE



Distributed By:
INVICTIS[®] CROP CARE, LLC
1880 Fall River Drive, Suite 100
Loveland, CO 80538

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FIRST AID	
IF SWALLOWED:	<ul style="list-style-type: none"> • Immediately call a poison control center or doctor. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give any liquid to the person. • Do not give anything by mouth to an unconscious person.
IF IN EYES:	<ul style="list-style-type: none"> • Hold 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 center or doctor for treatment advice.
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
IF INHALED:	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For emergency information concerning this product, call the National Pesticides Information Center (NPIC) at 1-800-858-7378 or your poison control center at 1-800-222-1222 . For Chemical Spill, Leak, Fire or Exposure, call CHEMTREC 800-424-9300 .	
NOTE TO PHYSICIAN	
May pose an aspiration pneumonia hazard. Contains petroleum distillate.	

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION**

Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Coveralls over short-sleeved shirt and short pants.
- Chemical-resistant gloves made of barrier laminate, nitrile rubber \geq 14 mils, butyl rubber \geq 14 mils, or Viton \geq 14 mils
- Chemical-resistant footwear plus socks
- Appropriate protective eyewear
- Chemical-resistant headgear for overhead exposure
- 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 170.240(d)(4-6)), 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 170.240(d)(4-6)). When using the closed system, the mixers' and loaders' PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

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 high water mark. Drift and runoff may be hazardous to terrestrial and aquatic plants in neighboring areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

Groundwater Advisory

The active ingredients in this product are known to leach through soil into groundwater under certain conditions as a result of agricultural use. 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 classified as sand, which have less than 1% organic matter.

Surface Water Advisory

This product can contaminate surface water through spray drift. Under some conditions, this product may also have a high potential for runoff into surface water (primarily via dissolution in runoff water), for several to many months post-application. These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas overlying extremely shallow groundwater, areas with in-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas overlying tile drainage systems that drain to surface waters.

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 anti-siphoning devices must be used on all mixing and/or irrigation equipment.

This product may not be mixed or loaded within 50 feet of perennial or intermittent streams and rivers, natural or impounded lakes, and reservoirs. This product may not be mixed/loaded or used within 50 feet of all wells, including abandoned wells, drainage wells, and sink holes. 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 rain water 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-specified 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.

PHYSICAL AND CHEMICAL HAZARDS

Do not use or store near heat or open flame.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements, specific to your State or Tribe, consult the Agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

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

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours.

Exception: If the product is soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is: Coveralls over short-sleeved shirt and short pants, chemical-resistant gloves made of barrier laminate, nitrile rubber \geq 14 mils, butyl rubber \geq 14 mils, or Viton \geq 14 mils, and chemical-resistant footwear plus socks.

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RESISTANCE MANAGEMENT

For resistance management, this product contains both a Group 14 (sulfentrazone) and Group 15 (S-metolachlor) herbicide. Any weed population may contain plants naturally resistant to Group 14 and/or Group 15 herbicides. The resistant individual may dominate the weed population if these herbicides are used repeatedly in the same fields. Appropriate resistance-management strategies should be followed.

Weed Management

To delay herbicide resistance, take one or more of the following steps:

- Rotate the use of this product or other Group 14 and Group 15 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds in the field.
- Use tank mixtures with herbicides from a different group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or certified crop advisor if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use and crop rotation, and that considers tillage (or other mechanical control methods), cultural (e.g., higher crop seeding rates; precision fertilizer application method and timing to favor the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Scout before and after herbicide application to monitor weed populations for early signs of resistance development. 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. If resistance is suspected, prevent weed seed production in the affected area by an alternative herbicide from a different group or by a mechanical method such as hoeing or tillage. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- If a weed pest population continues to progress after treatment with this product, discontinue use of this product, and switch to another management strategy or herbicide with a different mode of action, if available.

- Contact your local extension specialist or certified crop advisors for 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 INNICTS CROP CARE, LLC at 855-466-8428.

Management of Resistant Biotypes

Since the occurrence of resistant weeds cannot be determined until after product use and scientific confirmation, manufacturer is not responsible for any losses that may result from the failure of this product to control resistant weed biotypes.

The following good agronomic practices are recommended to reduce the spread of resistant biotypes:

- If a naturally occurring resistant biotype is present in your application site, this product should be tank-mixed or applied sequentially with an appropriately labeled herbicide with a different mode of action to achieve control.
- Cultural and mechanical control practices (e.g. crop rotation or tillage) may also be used as appropriate.
- Scout treated application site after herbicide applications and control escaping weeds including resistant biotypes before they set seed.
- Thoroughly clean equipment before leaving fields known to contain resistant biotypes.
- Contact your local sales representative, crop advisor, or extension agent to find out if suspected resistant weeds to these Mode of Action has been found in your region. Do not assume that each listed weed is being controlled by multiple mechanisms of action. Co-formulated active ingredients are intended to broaden the spectrum of weeds that are controlled. Some weeds may be controlled by only one of the active ingredients in this product.

Integrated Pest (Weed) Management

This product may be integrated into an overall weed pest management strategy whenever the use of an herbicide is required. Practices known to reduce weed development (tillage, crop competition) and herbicide use (weed scouting, proper application timing, banding) should be followed wherever possible. Consult local agricultural and weed authorities for additional IPM strategies established for your area.

PRODUCT INFORMATION

VANDAL S-MOC XRT is a soil-applied herbicide for the control of susceptible broadleaf, grass and sedge weeds.

If adequate moisture (1/2 to 1 inch) from rainfall or irrigation is not received within 7 to 10 days after the **VANDAL S-MOC XRT** 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 inch) is not received **VANDAL S-MOC XRT** will provide a reduced level of control of susceptible germinating weeds.

VANDAL S-MOC XRT can be mixed with water, liquid fertilizer, or mixtures of water and liquid fertilizer and applied as a preplant or preemergence treatment to labeled crops. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Under normal growing conditions, **VANDAL S-MOC XRT** exhibits excellent crop safety. Soil applications of this product must be made before crop seed germination to prevent injury to the emerging crop seedlings. **VANDAL S-MOC XRT** 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 this product can contribute to crop response. Refer to the specific directions of use for a particular crop or 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 this product.

2. 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. Seeding disease, nematodes, cold weather, deep planting (more than 2 inches), excessive moisture, high salt concentration, or drought may weaken soybean seedlings and increase the possibility of crop injury.

Restrictions

- Do not apply other products containing sulfentrazone or s-metolachlor to the crop unless specified in the individual crop section.
- Do not use in nurseries, turf or landscape plantings.
- 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.
- When tank mixing, follow the most restrictive use rates and precautions of the mixing partners.

Mechanism of Action

Following the application of *VANDAL S-MOC XRT* to soil, germinating seeds and seedlings take up this product from the soil solution. The amount of *VANDAL S-MOC XRT* in soil solution available for weed uptake is determined primarily by soil type, soil organic matter and soil pH. Similar to other herbicides, this product 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 *VANDAL S-MOC XRT* 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 *VANDAL S-MOC XRT*. 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 this product 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 *VANDAL S-MOC XRT* soil application can also significantly increase the amount of this product 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 *VANDAL S-MOC XRT* 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 and Aerial Application

Use a sprayer equipped with the appropriate nozzles providing optimum spray distribution and coverage at the appropriate operating pressures. Utilize nozzles that produce minimal amounts of fine spray droplets to avoid spray drift. Apply a minimum of 10 gallons of finished spray solution per acre by ground or 5 gallons by air. Calibrate the sprayer properly 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.

Restrictions

- Do not apply when wind speed favors drift beyond the area intended for treatment.
- Do not apply under conditions which favor runoff or wind erosion of soil containing this product to non-target areas. To prevent off-site movement due to runoff or wind erosion:

1. Do not treat powdery dry or light sand soils when conditions are favorable for wind erosion. Under these conditions, the soil surface must first be settled by rainfall or irrigation.
2. Do not apply to impervious substrates, such as paved or highly compacted surfaces.
3. Do not use tailwater from the first flood or furrow irrigation of treated fields to treat non-target crops, unless at least 1/2 inch of rainfall has occurred between application and the first irrigation.

Restrictions for Ground Application

- Ground applicators must use a minimum finished spray volume of 10 gallons per acre.
- When tank mixed with a contact down herbicide, ground applicators must use a minimum spray volume of 15 gallons per acre.
- For boom spraying, the maximum release height is 30 inches from the soil for ground applications.

Restrictions for Aerial Application

- Aerial application is allowed only when environmental conditions prohibit ground application. Aerial application will be allowed when the field is too wet to safely apply pesticides using ground equipment.
- When this product is allowed to be applied by air, applicator must use a minimum finished spray volume of 5 gallons per acre.
- The maximum release height must be 10 feet from the top of the crop canopy, unless a greater application height is required for pilot safety.

Chemigation Application

Apply this product in 0.25 to 1 inch of water. Use the lower water volume on coarse textured soil and higher volume on the fine textured soils. Applying >1 inch 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. This product 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.

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

When using water from public water systems; do not apply this product 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. This product 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 soil application of this product 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

- 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.
- Do not apply this product through any other type of irrigation system.
- Do not connect any irrigation system (including greenhouse systems) used for pesticide application to a public water system.

Application with Dry Fertilizers

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

Impregnation Directions

To impregnate *VANDAL S-MOC XRT* 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 *VANDAL S-MOC XRT* in a clean container using clear water. Slowly add the *VANDAL S-MOC XRT*/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 *VANDAL S-MOC XRT* 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 *VANDAL S-MOC XRT* dry bulk fertilizer with an accurately calibrated dry fertilizer spreader. The *VANDAL S-MOC XRT* 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 *VANDAL S-MOC XRT* use rates could result in possible crop response.

A minimum of 200 pounds of dry bulk fertilizer impregnated with the listed amount of *VANDAL S-MOC XRT* must be applied per acre to achieve adequate soil coverage for satisfactory weed control.

Refer to the appropriate crop section of the *VANDAL S-MOC XRT* label to determine the rate of *VANDAL S-MOC XRT* to be applied per acre. Use the following table to determine the amount of *VANDAL S-MOC XRT* to be impregnated on a ton (2000 pounds) of dry bulk fertilizer based on the rate of fertilizer that will be applied per acre.

For those rates not listed in Table 2, calculate the amount of *VANDAL S-MOC XRT* to be impregnated on a ton of dry bulk fertilizer using the following formula:

$$\frac{2000}{\text{Pounds dry fertilizer per acre}} \times \frac{\text{VANDAL S-MOC XRT use rate in fluid ounces per acre}}{\text{Fluid ounces of VANDAL S-MOC XRT to be applied per ton of fertilizer}} =$$

Table 2: Rate Chart for Impregnation of Dry Bulk Fertilizers with *VANDAL S-MOC XRT*

Dry fertilizer rate per acre lb/acre	Fluid Ounces <i>VANDAL S-MOC XRT</i> per ton of fertilizer		
	<i>VANDAL S-MOC XRT</i> Use Rate Per Acre		
	19 fl oz/acre	35 fl oz/acre	47 fl oz/acre
200	190	350	470
250	152	280	376
300	127	233	313
350	109	200	269
400	95	175	235
450	84	156	209

Precaution

- To avoid crop injury, do not use the herbicide/fertilizer mixture on crops where bedding occurs.

Restrictions

- Do not impregnate this product onto coated ammonium nitrate, potassium nitrate, or sodium nitrate (either alone or in blends with other fertilizers because these materials will not absorb the herbicide).
- Do not use this product alone or in mixtures on straight limestone, since absorption will not be achieved. Fertilizer blends containing limestone can be impregnated.

Application with Liquid Fertilizer

VANDAL S-MOC XRT 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 *VANDAL S-MOC XRT* with water prior to adding to the spray tank. Carefully rinse the empty container, adding the rinse 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. Ensure the *VANDAL S-MOC XRT* 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 *VANDAL S-MOC XRT* spray mixture immediately after mixing. It is not recommended to store the sprayer overnight or for any extended period of time with the *VANDAL S-MOC XRT* 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 *VANDAL S-MOC XRT* is mixed and loaded in nurse tanks, thorough agitation of spray solution is required prior to off-loading and application.

Follow all *VANDAL S-MOC XRT* 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 *VANDAL S-MOC XRT* and fertilizer mixture.

SPRAY DRIFT MANAGEMENT

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses, or to applications using dry formulations:

- The distance of the outermost nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
- Nozzles must always point backward parallel with the air stream and never be pointed downward more than 45 degrees.
- When states have more stringent regulations, they must be observed.

Information on Droplet Size

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

Controlling Droplet Size

- **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. Avoid spray pressures >40 psi unless specified by the manufacturer of drift reducing spray tips and nozzles. Do not exceed the nozzle manufacturer's recommended pressures. Lower pressure produces larger droplets in many types of nozzles.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Type** - Use nozzles to provide uniform coverage that are designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low drift nozzles for both ground and aerial applications.
- **Spray Nozzles and Droplet Size** - 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 S-572. Select coarse to very coarse droplet size when product is used as a preemergent/preplant application. Select medium to very coarse droplet size when product is used postemergence with a contact burndown herbicide. Applicators may spray only when wind speed is between 3 and 10 mph. Do not apply as spray droplets smaller than medium to coarse (defined by the ASABE standard).

Boom Length

For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

Application Height

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

Swath Adjustment

When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.)

Wind

Drift potential is lowest between wind speeds of 3 to 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given wind speed. Application should be avoided below 3 mph due to variable wind direction and high inversion potential. **Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they may potentially affect spray drift.

Temperature and Humidity

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

Temperature Inversions

Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small-suspended droplets

to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the low speed and variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common during conditions of limited cloud cover and little to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified 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.

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 this product 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 VANDAL S-MOC XRT

Drift of dilute spray mixtures containing VANDAL S-MOC XRT 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. This product can cause damage by drift on sensitive crops and other plants. This symptomology may manifest initially as discreet, localized spots where contacted by VANDAL S-MOC XRT 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 fruit or crops, delimitation of affected foliage could result.

MAXIMUM ALLOWABLE VANDAL S-MOC XRT

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 premerge treatments.

Table 3

Crop	VANDAL S-MOC XRT fl. oz./A	Total Lb ai /A	Lb ai sulfentrazone/A	Lb ai s-metolachlor/A
Dry Beans and Peas	52	2.12	0.21	1.91
Horseradish	33.5	1.37	0.14	1.23
Soybeans	52	2.12	0.21	1.91
Sunflowers	52	2.12	0.21	1.91

Restriction

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

CROP ROTATIONAL RESTRICTIONS

The following Table 4 shows the minimum interval in months from the time of the last VANDAL S-MOC XRT application until VANDAL S-MOC XRT treated soil can be replanted to the crops listed. When this product 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 VANDAL S-MOC XRT 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 this product.

Restriction

- Do not rotate to food or feed crops other than those listed on the label.

CROP ROTATIONAL RESTRICTIONS

Table 4

Crop	Interval (Months)
Alfalfa	12 ¹
Barley	4,5
Cabbage (transplant only)	2
Cereal Grains (Oats, Pearl Millet, Proso Millet, Teosinte, Wild Rice)	12
Buckwheat	12
Corn, Field	4
Corn, Pop	10
Corn, Sweet	12
Cotton	18 or 12 ²
Cowpea (succulent)	8
Dry Shell Peas	Anytime
Dry Shell Beans	4
Horseradish	Anytime
Limas Beans-Tennessee Only	4
Peanuts	4
Potatoes	4
Rice	10
Rye	4,5
Safflower	Anytime
Sorghum	10
Soybeans	Anytime
Succulent peas	8
Sugar Beets	36 or 24 ³
Sunflowers	Anytime
Triticale	4,5
Tobacco	10
Tomato	4
Wheat	4,5

¹ To avoid injury to rotational alfalfa, (1) Do not apply more than 1.9 lb ai S-metolachlor per acre in the previous crop, and (2) Do not make lay-by or other postemergent applications of products containing s-metolachlor in the previous crop.

² Cotton may be planted after 12 months where this product was applied at rates 48.25 fluid ounces (0.20 lb ai Sulfentrazone and 1.77 lb ai S-metolachlor) per acre or less and meets the following conditions:

- Medium and fine soils
- Soil pH <7.2
- Rainfall or irrigation must exceed 15 inches after application of this product to rotate to cotton

³ Sugar beets can be planted after 24 months with a successful bioassay.

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

REPLANTING INSTRUCTIONS

If initial planting of labeled crops fails to produce a stand, only crops labeled for *VANDAL S-MOC XRT* 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 this product or other 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:

$$\frac{\text{Band Width in Inches}}{\text{Row Width in Inches}} \times \text{Broadcast Rate Per Acre} = \text{Band Rate}$$

$$\frac{\text{Band Width in Inches}}{\text{Row Width in Inches}} \times \text{Broadcast Volume Per Acre} = \text{Band Volume}$$

MIXING AND LOADING INSTRUCTIONS

VANDAL S-MOC XRT 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.

It is important that spray equipment is clean and free of existing pesticide residues before preparing *VANDAL S-MOC XRT* 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 *VANDAL S-MOC XRT* 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 this product is thoroughly mixed before application.

Use the *VANDAL S-MOC XRT* spray mixture immediately after mixing. Avoid storing the sprayer overnight or for any extended period of time with the *VANDAL S-MOC XRT* spray mixture remaining in the tank.

If *VANDAL S-MOC XRT* is tank mixed with other labeled herbicides, it is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

SPRAYER EQUIPMENT CLEAN-OUT

As soon as possible after spraying this product 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 this product as required on the other product labels. More complete cleaning can be achieved if the spray system is cleaned immediately following the application.

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

5. Properly dispose of all cleaning solution and rinsate in accordance with Federal, State, and local regulations and guidelines.

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 this product 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. INNVICTIS accepts no liability for any effects due to inadequately cleaned equipment.

Restrictions

- 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 solutions of this product remaining in the tank, spray lines, spray boom plumbing, spray nozzles or strainers.
- Do not drain of 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.

DRY SHELLED PEAS

Blackeyed pea, cowpea, crowder pea, southern pea, pea (*Pisum*) (includes field pea and chickpea) and pigeon pea.

Table 5

VANDAL S-MOC XRT Use Rate (Dry Shelled Peas)			
Fall or Spring Early Preplant, Preemergence and Preplant Incorporated Applications			
Broadcast Rate	Fluid Ounces of VANDAL S-MOC XRT per acre		
% Organic Matter	Soil Texture		
	Coarse	Medium	Fine
< 1.5	Do not use	25.5 – 35 (0.10 – 0.14 lb ai Sulfentrazone 0.94 – 1.28 lb ai S-metolachlor)	25.5 – 35 (0.10 – 0.14 lb ai Sulfentrazone 0.94 – 1.28 lb ai S-metolachlor)
1.5 – 3.0	25.5 – 35 (0.10 – 0.14 lb ai Sulfentrazone 0.94 – 1.28 lb ai S-metolachlor)	28 – 43 (0.12 – 0.17 lb ai Sulfentrazone 1.03 – 1.58 lb ai S-metolachlor)	35 – 43 (0.14 – 0.17 lb ai Sulfentrazone 1.28 – 1.58 lb ai S-metolachlor)
>3	28 – 35 (0.11 – 0.14 lb ai Sulfentrazone 1.03 – 1.28 lb ai S-metolachlor)	35 – 43 (0.14 – 0.17 lb ai Sulfentrazone 1.28 – 1.58 lb ai S-metolachlor)	43 – 52 (0.17 – 0.21 lb ai Sulfentrazone 1.58 – 1.91 lb ai S-metolachlor)
Refer to the previous information on soil types under the COARSE, MEDIUM, and FINE categories. For soil 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 VANDAL S-MOC XRT has shown control or suppression. The level of control will vary per use rate, cropping system, environmental conditions, moisture levels and soil type. This product 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	Morningglory, tall
Barnyardgrass	Nightshade, black
Fall Panicum	Nightshade, Eastern black
Foxtail, giant	Pigweed, red root
Foxtail, green	Pigweed, smooth
Foxtail, yellow	Thistle, Russian
Kochia (ALS and Triazine Resistant)	Waterhemp, common
Lambsquarters, common	Waterhemp, tall
Morningglory, nyleaf	Witch grass

Note: Partial control will occur under dry conditions, under heavy pest pressure or at low use rates under 35 fluid ounces (0.14 lb ai Sulfentrazone and 1.28 lb ai S-metolachlor) Under these conditions plan to use a labeled post-emergence herbicide for improved control.

FALL APPLICATION

VANDAL S-MOC XRT may be applied in the fall following crop harvest or in existing fallow fields to control or suppress weeds the following season. This product 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 VANDAL S-MOC XRT runoff from rain or snow that may occur following application. This product 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 inch) is not received this product 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 VANDAL S-MOC XRT may require a follow up grass herbicide treatment as grass escapes may occur.

VANDAL S-MOC XRT 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.

VANDAL S-MOC XRT 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 Preplant and Preemergence (Spring Applications)

VANDAL S-MOC XRT can be applied early preplant or preemergence 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 inch) is required for herbicide activation from rainfall. If adequate moisture is not received within 7 to 10 days after the VANDAL S-MOC XRT 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 inch) is not received this product 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 VANDAL S-MOC XRT application, use a burndown herbicide such as carfentrazone-ethyl, glyphosate or paraquat at the full-labeled rate in combination with this product as needed.

Preplant Incorporated (PPI)

VANDAL S-MOC XRT can be applied as a Preplant Incorporated treatment in the spring prior to planting in reduced and conventional tillage dry peas. This product should be shallowly incorporated in the soil no deeper than 2 inches. Incorporating this product 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 5 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 inch) is required for herbicide activation from rainfall. If adequate moisture is not received within 7 to 10 days after treatment with this product, 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 inch) is not received this product will provide a reduced and inconsistent level of control of susceptible germinating 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. Use rates of this product should be reduced to 17 fluid ounces (0.07 lb ai Sulfentrazone and 0.62 lb ai S-metolachlor) 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 *VANDAL S-MOC XRT* 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, *VANDAL S-MOC XRT* Product Use Rates, Rotational Crop Guidelines, Replanting Instructions, Weeds 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 this product. 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 this product under specific local conditions.

Restrictions

- Do not apply more than 52 fluid ounces (0.21 lb ai Sulfentrazone and 1.91 lb ai S-metolachlor) per acre of this product per crop year.
- Do not apply additional sulfentrazone containing products to dry peas if this product 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 runoff of this product 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 this product.
- Do not cut for hay within 120 days after an application of this product.

HORSERADISH

Apply a single application of *VANDAL S-MOC XRT* at a broadcast rate of 25.5 to 33.5 fluid ounces (0.10 to 0.14 lb ai Sulfentrazone and 0.94 to 1.23 lb ai S-metolachlor) 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.

Following the application of *VANDAL S-MOC XRT* to soil, germinating seeds and seedlings take up this product from the soil solution. The amount of this product in soil solution available for weed uptake is determined primarily by soil type, soil organic matter and soil pH. Similar to other herbicides, this product 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 inch of rainfall or irrigation). If an activating rainfall (1/2 to 1 inch) is not received this product will provide a reduced level of control of susceptible germinating weeds.

Harvest horseradish at normal timing.

Weeds Controlled:

The following is a general list of weeds for which *VANDAL S-MOC XRT* has shown control or suppression. The level of control will vary per use rate, cropping system, environmental conditions, moisture levels and soil type. This product 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
Foxtail, giant	Black palmer amaranth
Foxtail, green	Pennsylvania smartweed
Foxtail, yellow	Pigweed, red root
Morningglory, entrelleaf	Pigweed, smooth
Morningglory, leaflet	Waterhemp, common
Morningglory, pitted	Waterhemp, tall
Morningglory, smallflower	

Restrictions

- Do not exceed 33.5 fluid ounces (0.14 lb ai sulfentrazone and 1.23 lb ai S-metolachlor) per acre per cropping season.
- Do not use on soils classified as sand, which have less than 1% organic matter.
- Do not apply directly on the crop after the crop emerges or if the seedling sprouts are close to the soil surface.

SOYBEANS

Table 6

VANDAL S-MOC XRT Use Rate (Soybeans)			
Fall, Spring Early Preplant, Preemergence and Preplant Incorporated Applications			
Broadcast Rate	Fluid Ounces of VANDAL S-MOC XRT per acre		
% Organic Matter	Soil Texture		
	Coarse	Medium	Fine
< 1.5	25.5 – 33.5 (0.10 – 0.14 lb ai Sulfentrazone 0.94 – 1.23 lb ai S-metolachlor)	33.5 – 43 (0.14 – 0.17 lb ai Sulfentrazone 1.23 – 1.58 lb ai S-metolachlor)	33.5 – 43 (0.14 – 0.17 lb ai Sulfentrazone 1.23 – 1.58 lb ai S-metolachlor)
1.5 – 3.0	33.5 (0.14 lb ai Sulfentrazone 1.23 lb ai S-metolachlor)		43 – 52 (0.17 – 0.21 lb ai Sulfentrazone 1.58 – 1.91 lb ai S-metolachlor)
>3	33.5 (0.14 lb ai Sulfentrazone 1.23 lb ai S-metolachlor)		

Refer to the previous information on soil types under the COARSE, MEDIUM, and FINE categories.
For soil 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 *VANDAL S-MOC XRT* has shown control or suppression. The level of control will vary per use rate, cropping system, environmental conditions, moisture levels and soil type. This product may not control all of the weeds listed under all crop conditions.

Common Name	Scientific Name
Amaranth, Palmer	<i>Amaranthus palmeri</i>
Amaranth, spiny	<i>Amaranthus spinosus</i>
Amaranth, spleen	<i>Amaranthus subius</i>
Barnyardgrass	<i>Echinochloa crus-galli</i> (L.) Beauv.

(cont'd next page)

Common Name	Scientific Name
Broadleaf signalgrass	<i>Urochloa platyphylla</i> (Nash) R. D. Webster
Copperleaf, hophornbeam	<i>Acalypha ostryifolia</i> Riddell
Crabgrass spp.	<i>Digitaria</i> spp.
Crowfootgrass	<i>Dactyloctenium aegyptium</i> (L.) Willd.
Cupgrass, prairie	<i>Eriochloa contracta</i> Hitchc.
Cupgrass, southwestern	<i>Eriochloa acuminata</i> (J. Presl) Kunth
Fall Panicum	<i>Panicum dichotomiflorum</i> Michx.
Florida pusley	<i>Richardia scabra</i> L.
Foxtail, giant	<i>Setaria faberii</i> Herm.
Foxtail, green	<i>Setaria viridis</i> (L.) Beauv.
Foxtail, robust	<i>Setaria viridis</i> var. <i>robusta</i>
Foxtail, yellow	<i>Setaria glauca</i> (L.) Beauv.
Foxtail, bristly	<i>Setaria verticillata</i> (L.) Beauv.
Goosegrass	<i>Eleusine indica</i> (L.) Gaertn.
Groundcherry, cutleaf	<i>Physalis angulata</i> L.
Hairy galinsoga	<i>Galinsoga ciliata</i> (Raf.) Blake
Kochia (ALS and Triazine Resistant)	<i>Kochia scoparia</i> (L.) Schrad.
Lambsquarters, common	<i>Chenopodium album</i>
Morningglory, entireleaf	<i>Ipomea hederacea integriscus</i>
Morningglory, ivyleaf	<i>Ipomea hederacea hederacea</i>
Morningglory, Palmleaf	<i>Ipomea Wrightii</i>
Morningglory, pitted	<i>Ipomoea lacunosa</i> L.
Morningglory, purple	<i>Ipomea turbinate</i>
Morningglory, red	<i>Ipomea coccinea</i>
Morningglory, scarlet	<i>Ipomea hederifolia</i>
Morningglory, small flower	<i>Jacquemontia taminifolia</i> (L.) Griseb.
Morningglory, tall	<i>Ipomea purpurea</i>
Nightshade, black	<i>Solanum nigrum</i>
Nightshade, Eastern black	<i>Solanum americanum</i>
Pigweed, red root	<i>Amaranthus retroflexus</i>
Pigweed, smooth	<i>Amaranthus hybridus</i>
Pigweed, spiny	<i>Amaranthus</i>
Sida, prickly	<i>Sida spinosa</i> L.
Smartweed, Pennsylvania (seedling)	<i>Polygonum pennsylvanicum</i> L.
Star of Bethlehem	<i>Ornithogalum umbellatum</i> L.
Texas panicum	<i>Panicum texanum</i> L.
Thistle, Russian	<i>Salsola tragus</i> L.
Tropical Spiderwort	<i>Commelina benghalensis</i> L.
Waterhemp, common	<i>Amaranthus rudis</i>
Waterhemp, tall	<i>Amaranthus tuberculatus</i>
Witch grass	<i>Panicum capillare</i> L.

Common Name	Scientific Name
SEDGES (suppression only)	
Nutsedge, purple	<i>Cyperus rotundus</i>
Nutsedge, yellow	<i>Cyperus esculentus</i>
Sedge, annual	<i>Cares</i> spp.

Fall Applications

VANDAL S-MOC XRT may be applied as a fall treatment to the stubble of harvested crops for preemergence control of labeled weeds the following spring in no-till and conservation tillage production systems. Fall applications of this product must be made in weed control programs that include, as needed, spring application of preplant, preemergence or postemergence 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°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 Preplant, Preplant Incorporated and Preemergence 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, WY. **VANDAL S-MOC XRT** can be applied Early Preplant, Preplant Incorporated or Preemergence up to 3 days after planting but prior to emergence. For preplant incorporated applications, incorporation must be uniform and no deeper than 2 inches. Improper soil incorporation may result in erratic weed control and/or crop injury. This product applied near or after crop emergence may cause severe injury to the crop. This product 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 ai per acre per year. This product may be followed by labeled postemergence soybean herbicides for increased control of grass and broadleaf weeds. Always follow the most restrictive label when tank mixing. When using **VANDAL S-MOC XRT** 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 this product 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 52 fluid ounces (0.21 lb ai Sulfentrazone and 1.91 lb ai S-metolachlor per acre of this product per crop year.
- Do not apply more than 0.375 lb ai sulfentrazone total per acre per year.
- Do not apply more than 2.387 lb ai S-metolachlor 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 runoff of this product from rain or snowmelt that may occur following application.
- Do not apply after crop seed germination.

SUNFLOWERS

Table 7

VANDAL S-MOC XRT Use Rate (Sunflowers) Preemergence and Preplant Incorporated Applications			
Broadcast Rate	Fluid Ounces of VANDAL S-MOC XRT per acre		
% Organic Matter	Soil Texture		
	Coarse	Medium	Fine
< 1.5	25.5 – 28 (0.10 – 0.14 lb ai Sulfentrazone 0.94 – 1.03 lb ai S-metolachlor)	25.5 – 33.5 (0.10 – 0.14 lb ai Sulfentrazone 0.94 – 1.23 lb ai S-metolachlor)	28 – 40.25 (0.11 – 0.16 lb ai Sulfentrazone 1.03 – 1.48 lb ai S-metolachlor)
1.5 – 3.0	25.5 – 33.5 (0.10 – 0.14 lb ai Sulfentrazone 0.94 – 1.23 lb ai S-metolachlor)	28 – 43 (0.11 – 0.17 lb ai Sulfentrazone 1.03 – 1.58 lb ai S-metolachlor)	33.5 – 43 (0.14 – 0.17 lb ai Sulfentrazone 1.23 – 1.58 lb ai S-metolachlor)
>3	28 – 33.5 (0.11 – 0.14 lb ai Sulfentrazone 1.03 – 1.23 lb ai S-metolachlor)	33.5 – 43 (0.14 – 0.17 lb ai Sulfentrazone 1.23 – 1.58 lb ai S-metolachlor)	43 – 52 (0.17 – 0.21 lb ai Sulfentrazone 1.58 – 1.91 lb ai S-metolachlor)
Refer to the previous information on soil types under the COARSE, MEDIUM, and FINE categories. For soil 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, *VANDAL S-MOC XRT* will provide control of:

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

Note: Partial control will occur under dry conditions, under heavy pest pressure or at low use rates under 35 fluid ounces (0.14 lb ai Sulfentrazone, and 1.28 lb ai S-metolachlor). Under these conditions plan to use a labeled post-emergence herbicide for improved control.

Preemergence (Spring Applications)

VANDAL S-MOC XRT can be applied preemergence 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 inch) is required for herbicide activation from rainfall or irrigation. If adequate moisture is not received within 7 to 10 days after treatment with this product, 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 rain/fall (1/2 to 1 inch) is not received this product 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 *VANDAL S-MOC XRT* application, use a labeled burndown herbicide such as carfentrazone-ethyl, glyphosate or paraquat at the full-labeled rate in combination with this product as needed.

Spring Preplant Incorporated (PPI)

When planting into soil treated preplant with *VANDAL S-MOC XRT* minimize soil disturbance to maintain the herbicide barrier on the soil surface to achieve maximum weed control. This product can be applied as a Preplant Incorporated treatment in the spring up to 2 weeks prior to planting in reduced and conventional tillage sunflowers. This product should be shallowly incorporated in the soil no deeper than 2 inches. Incorporating this product deeper than 2 inches can result in inconsistent weed control. Use the appropriate rate from Table 7 above for the soil texture, soil organic matter, and soil pH level.

Precautions

- Plant sunflowers 1.5 inches 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. Use rates of this product should be reduced to 18.75 fluid ounces (0.08 lb ai Sulfentrazone and 0.70 lb ai S-metolachlor) 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 *VANDAL S-MOC XRT* 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, *VANDAL S-MOC XRT* 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 this product. 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 this product under specific local conditions.

Restrictions

- Do not apply more than 52 fluid ounces (0.21 lb ai Sulfentrazone and 1.91 lb ai S-metolachlor) per acre of this product per crop year.
- Do not apply herbicides containing sulfentrazone to sunflowers if this product has been previously applied within the same twelve-month period.
- Do not apply to frozen soils or existing snow cover to prevent runoff of this product 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.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage and 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. Do not store below 32°F. 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, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills. In the event of a major spill, fire, or other emergency, call CHEMTREC, 1-800-424-9300, day or night. **To confine spill:** If liquid, dike surrounding area or absorb with sand, cat litter or commercial clay. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

Pesticide Disposal: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance. Waste resulting from the use of this product must be disposed of at an approved waste disposal facility.

Container Handling

NONREFILLABLE CONTAINER (EQUAL TO OR LESS THAN 5 GALLONS): Do not reuse or refill this container. Triple rinse or pressure rinse container promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 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. Offer for recycling, if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

NONREFILLABLE CONTAINER (GREATER THAN 5 GALLONS): Do not reuse or refill this container. Triple rinse or pressure rinse container promptly after emptying. **Triple rinse as follows:** 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. Offer for recycling, if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Pressure rinse as follows (all sizes): Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available, or reconditioning, or puncture and dispose of in a sanitary landfill, or other procedures allowed by state and local authorities.

REFILLABLE CONTAINER: Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. After triple rinsing is complete, and the container is not suitable for refilling or reconditioning, offer the container for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

CONDITIONS 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 INNVICTIS CROP CARE, 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 INNVICTIS CROP CARE, LLC and Seller harmless for any claims relating to such factors.

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