

EPA Reg. No. 279-3370	EPA Est. 279-
Active Ingredient:	By Wt.
Sulfentrazone	
Other Ingredients:	
-	100.0%

Contains 4 pounds of active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN CAUTION

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

FIRST AID

If Swallowed: Call a poison control center 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 the poison control center or doctor. Do not give anything by mouth to an unconscious person. If on Skin or Clothing: 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: 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.

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 center or doctor for treatment advice.

HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-331-3148 for emergency medical treatment information.

FOR USE ONLY IN THE STATE OF CALIFORNIA



PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Harmful if swallowed. Harmful if absorbed through skin. 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, mixers, loaders, and other pesticide handlers must wear:
- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride ≥ 14 mils
- Shoes plus socks.

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

User Safety Recommendations:

Users should:

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

Environmental Hazards

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

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

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

<u>Surface water advisory</u>: Sulfentrazone can contaminate surface water through spray drift. Under some conditions, sulfentrazone may also have a high potential for runoff into surface water (primarily via dissolution in runoff water), for 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 over-lying tile drainage systems that drain to surface waters.

Physical/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.

For use only in the State of California.

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

Do not apply more than the allowed amount of Zeus Herbicide per acre per twelve-month period as stated in Table 3. The twelvemonth period is considered to begin upon the initial Zeus Herbicide 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 12 hours.

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

Coveralls.

Chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride \ge 14 mils. Shoes plus socks.

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Re-entry Statement: Do not allow people (other than applicator) or pets on treatment area during application. Do not enter treatment area until spray has dried.

WEED RESISTANCE MANAGEMENT

Zeus Herbicide, which contains the active ingredient sulfentrazone is a group 14 herbicide based on the mode of action classification system of the Weed Science Society of America.

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is a best practice. A diversified weed management program may include the use of multiple herbicides with different sites of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using the labeled rate and directions for use is important to delay the selection for resistance.

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

- Scout fields before application for weeds for identification of species and sizes.
- Start with a clean field, using either a burndown herbicide application or tillage.
- Control weeds early when they are relatively small (less than 4 inches).
- Apply full rates of Zeus Herbicide for the most difficult to control weed in the field at the specified time (correct weed size) to minimize weed escapes.
- Scout fields after application to detect any poor performance or likely resistance in weeds.
- Control weed escapes before they reproduce by seed or proliferate vegetatively.
- Report any incidence of non-performance of this product against a particular weed to your local retailer or county extension agent.
- Contact your crop advisor or extension agent to find out if suspected resistant weeds to this MOA have been found in your region. Do not assume that each listed weed is being controlled by multiple sites of action. Products with multiple active ingredients are intended to broaden the spectrum of weeds that are controlled by multiple sites of action. Some weeds may be controlled by only one of the active ingredients in this product.
- If resistance is suspected, treat weed escapes with an herbicide having a site of action other than Group 14 and/or use nonchemical methods to remove escapes, as practical, with the goal of preventing further seed production.
- Suspected herbicide-resistant weeds may be identified by these indicators:
 - Failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;
 - A spreading patch of non-controlled plants of a particular weed species; and
 - Surviving plants mixed with controlled individuals of the same species.

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

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

PRODUCT INFORMATION

Zeus Herbicide is a selective soil-applied herbicide for the control of susceptible broadleaf, grass and sedge weeds. Zeus Herbicide is formulated as a 4 pounds per gallon flowable containing the active ingredient, sulfentrazone. If adequate moisture (1/2" to 1") from rainfall or irrigation is not received within 7 to 10 days after the Zeus Herbicide treatment, a shallow incorporation may be needed to obtain desired weed control. When activating moisture is received after dry conditions, Zeus Herbicide will provide a reduced level of control of susceptible germinating weeds. Soil applications of Zeus Herbicide 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.

It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

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

Mode of Action

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

Mechanism of Action

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

SOIL CLASSIFICATION CHART

Table 1

COARSE	MEDIUM	<u>FINE</u>
Sand	Sandy clay loam	Silty clay loam
Loamy sand	Sandy clay	Silty clay
Sandy loam	Loam	Clay loam
	Silt Ioam	Clay
	Silt	

Influence of Soil type, organic matter and pH on Zeus Herbicide 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 affect on sulfentrazone availability in the soil solution. As soil pH increases, sulfentrazone availability increases. Accurate soil pH information will require an accurate analysis of representative soil samples.

The total amount of sulfentrazone available in solution, in any given soil, is determined by the interaction of soil type (clay content), % organic matter and pH. The application timing (relative to the emergence of the crop and weeds) and amount of rainfall and/or irrigation received will ultimately determine, in conjunction with the soil parameters and pH, the amount of sulfentrazone in soil solution. It is important to note that Zeus Herbicide can await activating moisture. However, diminished weed control may result due to the successive increase in weed growth versus timing of activation.

It is important to note that irrigation with highly alkaline water (high pH) following a Zeus Herbicide 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 Zeus Herbicide application rate, timing, amount and pH of irrigation water and sensitivity of the crop and it's growth stage when irrigated. The risk of adverse crop response will lessen with the advance in growth stage among most crops.

The following Crop Specific Use Directions have been designed with specific Zeus Herbicide directions for each crop based on the soil type, soil organic matter, and soil pH interactions described above. The user is cautioned that crop tolerance and weed control performance are based on strict adherence to these directions.

APPLICATION INSTRUCTIONS

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

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

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

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

SPRAY DRIFT

Ground Application

Utilize a boom and nozzle sprayer equipped with the appropriate nozzles, spray tips and screens and adjusted to provide optimum spray distribution and coverage at the appropriate operating pressures. 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 used as a preemergent/preplant application. Select medium to very coarse droplet size when used postemergence with a contact burndown herbicide. Do not apply as spray droplets smaller than medium to coarse (defined by the ASABE standard). Apply a minimum of 10 gallons of finished spray per acre by ground for preemergence use and 15 gallons per acre for use in a tank mix with one or more contact, burndown herbicides. Be aware that overlaps and slower ground speeds while starting, stopping or turning while spraying may result in excessive application and subsequent crop response.

Do not apply when wind speed favors drift beyond the area intended for treatment. Applicators may spray only when wind speed is between 3 and 10 mph. Ground applications should not be made at a height greater than 30 inches from the soil.

SPRAY DRIFT REDUCTION ADVISORIES

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT.

BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMETAL CONDITONS.

Information on Droplet Size

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

Controlling Spray Droplet Size

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

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

Do not exceed the nozzle 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 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.

Application Height - Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Wind – Drift potential is lowest between wind speeds of 3-10 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 often begin to form as the sun sets and may often continue into the morning. The presence of a temperature inversion may be indicated by ground fog. However if fog is not present, the movement of smoke from a ground source or an aircraft smoke generator can also identify inversions. Smoke that remains in layers and moves laterally in a concentrated cloud (under low speed wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

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

Off-Target Movement of Zeus Herbicide

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

BAND TREATMENT APPLICATIONS

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



Chemigation Application

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

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

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

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

Zeus Herbicide should be metered into the irrigation system continuously for the duration of the water application. Zeus Herbicide 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 Zeus Herbicide 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. Zeus Herbicide may be applied through irrigation systems, which may be **supplied** by a public water system **only if** water from the water system is discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and to top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe. Before beginning chemigation, always make sure that the air gap exists and that there is no blockage of the overflow of the reservoir tank.

Application with Dry Fertilizers

Zeus Herbicide may be applied impregnated on dry fertilizers. When applied as directed with adequate soil coverage, Zeus Herbicide dry bulk fertilizer mixtures will provide satisfactory weed control.

Follow all Zeus Herbicide label directions regarding product use rates per acre, registered crops, incorporation, special instructions and precautions.

Apply Zeus Herbicide/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 Zeus Herbicide/dry fertilizer mixture.

Impregnation Directions

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

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

DO NOT impregnate Zeus Herbicide onto coated ammonium nitrate or limestone because these materials will not absorb the herbicide.

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

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

2000		Zeus Herbicide use		fl oz of Zeus Herbicide
pounds dry fertilizer per acre	Х	rate in fl oz/A	=	to be applied per ton of fertilizer

RATE CHART FOR IMPREGNATION OF DRY BULK FERTILIZERS WITH Zeus Herbicide Table 2

Dry Fertilizer	fl oz Zeus Herbicide per ton of fertilizer		
Rate	Zeus Herbicide Use Rate Per Acre		r Acre
(lb/acre)	8.0 fl oz/A	10.1 fl oz/A	12.0 fl oz/A
200	80	101	120
250	64	80.8	96
300	53.3	67.3	80
350	45.7	57.7	68.6
400	40	50.5	60
450	35.6	44.9	53.3

Application with Liquid Fertilizer

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

Herbicide mixing, solution stability and/or compatibility problems can occur when liquid fertilizers are used as a carrier. Compatibility tests must be conducted prior to mixing to insure tank mixture compatibility and stability. The use of federally approved 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. Prepare a slurry of Zeus Herbicide in a clean container with clean water using equal volumes of Zeus Herbicide and clean water. Slowly add the Zeus Herbicide/water slurry to the spray tank. Carefully rinse the slurry container, adding the rinsate to the spray tank. Better mixing of the Zeus Herbicide/water slurry may be achieved if the slurry is added using induction systems on the sprayer fill plumbing system.

Complete filling the spray tank to the desired level. Sufficient and continuous spray tank agitation is required at all times to maintain a homogenous spray solution. The spray system must be designed such that there is sufficient flow capacity to uniformly apply the spray mixture and maintain adequate tank agitation. Some systems may require separate pumps to simultaneously supply the spray system and the spray tank agitation system. Insure the Zeus Herbicide 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. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

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

Do not premix Zeus Herbicide spray solutions in nurse tanks.

Follow all Zeus Herbicide 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 Zeus Herbicide and fertilizer mixture.

MIXING AND LOADING INSTRUCTIONS

Zeus Herbicide may be applied alone, or in tank mixtures with other herbicides for the control of additional weed species. Mixtures with some other pesticides have not been tested. Conduct appropriate compatibility tests prior to tank mixing with other pesticides. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

It is important that spray equipment is clean and free of existing pesticide residues before preparing Zeus Herbicide spray mixtures. Follow the spray tank clean out procedures specified on the label of the product or products previously applied.

For best results fill spray tank with one half of the volume of clean water needed for the field to be treated. Start agitation system. Prepare a slurry of Zeus Herbicide in a clean container using clean water. Slowly add the Zeus Herbicide/water slurry to the spray tank. Carefully rinse the slurry container, adding the rinsate to the spray tank. Complete filling the spray tank to the desired level. Continuous spray tank agitation is required at all times to maintain a uniform spray solution. Make sure Zeus Herbicide is thoroughly mixed before application or before adding another product to the spray tank.

Use the Zeus Herbicide spray mixture immediately after mixing. Do not store the sprayer overnight or for any extended period of time with the Zeus Herbicide spray mixture remaining in the tank.

Do not premix Zeus Herbicide spray solutions in nurse tanks.

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

Operations that involve mixing, loading, rinsing, or washing of this product into or from pesticide handling or application equipment or containers within 50 feet of any well are prohibited unless conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be positioned on or moved across the pad. Such a pad shall be designed and maintained to contain any product spills or equipment leaks, container or equipment rinse or washwater, and rainwater that may fall on the pad. Surface water shall not be allowed to either flow over or from the pad, which means the pad must be self-contained. The pad shall be sloped to facilitate material removal. An unroofed pad shall be of sufficient capacity to contain at a minimum 110% of the capacity of the largest pesticide container or application equipment on the pad. A pad that is covered by a roof of sufficient size to completely exclude precipitation from contact with the pad shall have a minimum containment capacity of 100% of the capacity of the largest pesticide container or application equipment on the pad. Containment capacities as described above shall be maintained at all times. The above specific minimum containment capacities 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.

SPRAYER EQUIPMENT CLEAN-OUT

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

- 1. Drain sprayer tank, hoses, spray boom and spray nozzles. Use a high-pressure detergent wash to remove physical sediment and residues from the inside of the sprayer tank and thoroughly rinse. Then, thoroughly flush sprayer hoses, spray boom and spray nozzles with a clean water rinse. Remove and clean spray tips and all filters and screens (tank, spray hose and spray tips) separately in the ammonia solution of Step 2.
- 2. Next, prepare a sprayer cleaning solution by adding three gallons of ammonia (containing at least 3% active) per 100 gallons of clean water. Prepare sufficient cleaning solution to allow the operation of the spray system for a minimum of 15 minutes to thoroughly flush hoses, spray boom and spray nozzles.
- 3. Convenient and thorough cleaning of the sprayer can be achieved if the ammonia solution or fresh water is left in the spray tank, hoses, spray booms and spray nozzles overnight or during storage.
- 4. Before using the sprayer, completely drain the sprayer system. Rinse the tank with clean water and flush through the hoses, spray boom, and spray nozzles with clean water. Remove and clean spray tips and all filters and screens (tank, spray hose and spray tip) separately in an ammonia solution.
- 5. Properly dispose of all cleaning solution and rinsate in accordance with Federal, State, and local regulations and guidelines. Do not apply sprayer cleaning solutions or rinsate to sensitive crops.

Do not store the sprayer overnight or for any extended period of time with Zeus Herbicide spray solution remaining in the tank, spray lines, spray boom plumbing, spray nozzles or strainers.

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

Should small quantities of Zeus Herbicide 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. FMC accepts no liability for any effects due to inadequately cleaned equipment.

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

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

CALIFORNIA ONLY SPECIFIC RESTRICTIONS ON APPLICATIONS OF ZEUS HERBICIDE

Artificial Recharge Basins. Do not use below the high water line inside artificial recharge basins (a surface facility, such as an infiltration pond or basin, or spreading ground that is specifically designed and managed to increase the infiltration of introduced surface water supplies into a ground water basin), unless this product is applied six months or more before the basin is used to recharge ground water.

Unlined Canals and Ditches. Do not use below the high water line inside unlined canals and ditches unless either (a) the pesticide user can document that the percolation rate of the canal or ditch is equal to or less than 0.2 inches per hour (0.002 gallons per minute per square foot), or (b) the pesticide is applied six months before water is run in the canal or ditch.

Rights-of-Way. Do not use on engineered rights-of-way in areas established by the California Department of Pesticide Regulation as leaching or runoff ground water protection areas* unless either (a) any runoff from the treated right-of-way shall pass through a noncrop fully vegetated area adjacent, and equal in area, to the treated area, or spread out onto an adjacent unenclosed fallow field that is at least 300 feet long and that will not be irrigated for six months following application with the exception of the addition of adequate moisture that is required for herbicidal activation following application as described under Product Application Instructions, with full consideration of any plantback restrictions, or (b) the property operator complies with any permit issued pursuant to the storm water provisions of the federal Clean Water Act pertaining to the treated area.

Runoff Ground Water Protection Areas. Do not use in areas identified by the California Department of Pesticide Regulation as a runoff ground water protection areas* unless one of the following management practices can be met:

- (a) Soil disturbance. Within seven days before this product is applied, the soil to be treated shall be disturbed by using a disc, harrow, rotary tiller, or other mechanical method. This subsection does not apply to the area to be treated that is immediately adjacent to the crop row and that does not exceed 33 percent of the distance between crop rows or, in citrus, to the band from the tree row to the dripline; or
- (b) Incorporation of the pesticide. Within 48 hours after the day this product is applied, the pesticide shall be incorporated on at least 90 percent of the area treated; using a disc, harrow, rotary tiller, or other mechanical method, or by sprinkler or low flow irrigation, including chemigation where allowed by the label, using a minimum of ¼ inch of irrigation water and a maximum of one inch as described under Product Application Instructions, at application rates that do not cause surface water runoff from the treated property or to wells on the treated property; or
- (c) Band treatment. This product is applied as a band treatment immediately adjacent to the crop row so that not more than 33 percent of the distance between rows is treated or, in citrus, not more than the area from the tree row to the dripline is treated; or
- (d) Timing of application. This product is applied between April 1 and July 31; or
- (e) Retention of runoff on field. For six months following the application, the field shall be designed, by berms, levees, or nondraining circulation systems, to retain all irrigation runoff and all precipitation on, and drainage through, the field. The retention area on the field shall not have a percolation rate of more than 0.2 inches per hour (5 inches per 24 hours); or
- (f) Retention of runoff in a holding area off the field. For six months following the application, all runoff shall be channeled to a holding area off the application site, under the control of the property operator, that is designed to retain all irrigation runoff and all precipitation on, and drainage through, the treated field and all other areas draining into that holding area. The holding area shall not have a percolation rate of more than 0.2 inches per hour (5 inches per 24 hours); or
- (g) Runoff onto a fallow field. For six months following application, runoff shall be managed so that it runs off onto an adjacent unenclosed fallow field at least 300 feet long that is not irrigated for six months after application with the exception of the addition of adequate moisture that is required for herbicidal activation following application as described under Product Application Instructions, with full consideration of any plant back restrictions.

Leaching Ground Water Protection Areas. Do not use in areas designated by the California Department of Pesticide Regulation as leaching ground water protection areas* unless either (a) the user does not apply any irrigation water for six months following application of this product or (b) the user applies this product to the planting bed or the berm above the level of irrigation water in the furrow or basin and the water level shall remain at or below that level for six months following application of the pesticide with the exception of the addition of adequate moisture that is required for herbicidal activation following application as described under Product Application Instructions, or (c) irrigation is managed so that the ratio of the amount of irrigation water applied divided by the net irrigation requirement is 1.25 or less for six months following application of this product.

* Consult with your County Agricultural Commissioner to determine whether the application will be within an area designated by the California Department of Pesticide Regulation as either a Runoff Ground Water Protection Area or a Leaching Ground Water Protection Area. Details regarding the locations of these Areas are also available via the internet at www.cdpr.ca.gov/docs/emon/grndwtr/gwp_regs.htm.

MAXIMUM ALLOWABLE ZEUS HERBICIDE USE PER ACRE PER 12 MONTH PERIOD*

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

Table 3

Сгор	fl oz/A Zeus Herbicide	lb ai/A Sulfentrazone
Fallow	8.0	0.25
Row Crops	· · ·	
Soybeans	12.0	0.375
Sugarcane	12.0	0.375
Sunflowers	8.0	0.25
Vegetable Crops	•	
Asparagus	12.0	0.375
Cabbage (transplanted only)	12.0	0.375
Horseradish	8.0	0.25
Strawberry	12.0	0.375
Tomato (transplant only)	12.0	0.375
Oil Crops		
Flax	12.0	0.375
Mint	12.0	0.375
Turf		
Sod Production	12.0	0.375
Permanent Crops		
Grapes: Wine, Raisin, Table and Juice	12.0	0.375
Lemon	12.0	0.375
Orange	12.0	0.375
Pistachio	12.0	0.375
Walnut (Black and English)	12.0	0.375

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

CROP ROTATIONAL RESTRICTIONS

The following Table 4 shows the minimum interval in months from the time of the last Zeus Herbicide application until Zeus Herbicide treated soil can be replanted to the crops listed. When Zeus Herbicide is tank mixed with another herbicide, refer to the partner label for recropping instructions, following the directions that are most restrictive. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

For all other crops not listed below, the rotational interval is a minimum of 12 months. Some crops have rotational intervals greater than 12 months after a Zeus Herbicide 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 sulfentrazone.

CROP ROTATIONAL RESTRICTIONS**

Table 4

Crop	Interval (Months)
Alfalfa	12
Almonds	24
Asparagus	Anytime
Barley	4
Berries	1
Cabbage transplant	Anytime
Canola	24
Cereal Grains (Buckwheat, Oats, Pearl Millet, Proso Millet, Teosinte, Wild Rice)	12
Chia	Anytime
Citrus	1
Corn, Field	10
Corn, Pop	18
Corn, Sweet	18
Cotton	18
Dry Shelled Beans	4
Dry Shelled Peas	Anytime
Edamame	Anytime
Flax	Anytime
Grapes	1
Horseradish	Anytime
Lemon	1
Melons	Anytime
Mint	Anytime
Onions	24
Orange	1
Peanuts	4
Pecans	1
Pistachio	1
Potatoes	4
Rhubarb	Anytime
Rice	10
Rye	4
Safflowers	Anytime
Sorghum	10 *
Soybeans	Anytime
Strawberry	Anytime
Succulent peas	Anytime
Sugar Beets	36
Sugarcane	Anytime
Sunflowers	Anytime
Sweet Potatoes	12
Teff	4
Tobacco	Anytime
Tomato (transplant only)	Anytime
Triticale	4 Anutime
Turf	Anytime
Turnips	Anytime
Walnut (Black and English)	1

*Sorghum – 18-month rotation for rates above 8.0 fl oz/A

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

REPLANTING INSTRUCTIONS

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

MIXING AND LOADING INSTRUCTIONS

Zeus Herbicide may be applied alone, or in tank mixtures with other herbicides for the control of additional weed species. Mixtures with some other pesticides have not been tested. Conduct appropriate compatibility tests prior to tank mixing with other pesticides. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

It is important that spray equipment is clean and free of existing pesticide residues before preparing Zeus Herbicide spray mixtures. Follow the spray tank clean out procedures specified on the label of the product or products previously applied.

For best results fill spray tank with one half of the volume of clean water needed for the field to be treated. Start agitation system. Prepare a slurry of Zeus Herbicide in a clean container using clean water. Slowly add the Zeus Herbicide/water slurry to the spray tank. Carefully rinse the slurry container, adding the rinsate to the spray tank. Complete filling the spray tank to the desired level. Continuous spray tank agitation is required at all times to maintain a uniform spray solution.

Make sure Zeus Herbicide is thoroughly mixed before application or before adding another product to the spray tank.

Use the Zeus Herbicide spray mixture immediately after mixing. Do not store the sprayer overnight or for any extended period of time with the Zeus Herbicide spray mixture remaining in the tank.

Do not premix Zeus Herbicide spray solutions in nurse tanks.

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

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

Product must be used in a manner that will prevent back siphoning in wells, spills or improper disposal of excess pesticide, spray mixtures or rinsates.

SPRAYER EQUIPMENT CLEAN-OUT

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

- 1. Drain sprayer tank, hoses, spray boom and spray nozzles. Use a high-pressure detergent wash to remove physical sediment and residues from the inside of the sprayer tank and thoroughly rinse. Then, thoroughly flush sprayer hoses, spray boom and spray nozzles with a clean water rinse. Remove and clean spray tips and all filters and screens (tank, spray hose and spray tips) separately in the ammonia solution of Step 2.
- 2. Next, prepare a sprayer cleaning solution by adding three gallons of ammonia (containing at least 3% active) per 100 gallons of clean water. Prepare sufficient cleaning solution to allow the operation of the spray system for a minimum of 15 minutes to thoroughly flush hoses, spray boom and spray nozzles.
- 3. Convenient and thorough cleaning of the sprayer can be achieved if the ammonia solution or fresh water is left in the spray tank, hoses, spray booms and spray nozzles overnight or during storage.
- 4. Before using the sprayer, completely drain the sprayer system. Rinse the tank with clean water and flush through the hoses, spray boom, and spray nozzles with clean water. Remove and clean spray tips and all filters and screens (tank, spray hose and spray tip) separately in an ammonia solution.
- 5. Properly dispose of all cleaning solution and rinsate in accordance with Federal, State, and local regulations and guidelines. Do not apply sprayer cleaning solutions or rinsate to sensitive crops.

Do not store the sprayer overnight or for any extended period of time with Zeus Herbicide spray solution remaining in the tank, spray lines, spray boom plumbing, spray nozzles or strainers.

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

Should small quantities of Zeus Herbicide 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. FMC accepts no liability for any effects due to inadequately cleaned equipment.

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.

WEEDS LIST

Use Restrictions:

This product, Zeus Herbicide may only be used in accordance with the Application information and the specific crop use directions, Zeus Herbicide applied alone or in listed tank mixtures will provide control of the following weeds. Refer to the specific crop section.

Table 5

Common Name	Scientific Name	Common Name	Scientific Name
Amaranth, livid	Amaranthus lividus	Morningglory, scarlet	Ipomoea coccinea
Amaranth, Palmer	Amaranthus palmeri	Morningglory, smallflower	Jacquemontia tamnifolia
Amaranth, Powell	Amaranthus powellii	Morningglory, tall	Ipomoea, purpurea
Amaranth, spiny	Amaranthus spinosus	Mustard, tumble (suppression)	Sisybrium altissimum
Amaranth, spleen	Amaranthus dubius	Nightshade, black	Solanum nigrum
Anoda, spurred	Anoda cristata	Nightshade, Eastern black	Solanum ptycanthum
Bedstraw, catchweed	Galium aparine	Orchardgrass	Dactylis glomerata
Carpetweed	Mollugo verticillata	Panicum, fall	Panicum dichotomiflorum
Chickweed, common (suppression)	Stellaria media	Pigweed, redroot	Amaranthus retroflexus
Copperleaf, hophornbeam	Acalypha ostryeafolia	Pigweed, smooth	Amaranthus hybridus
Copperleaf, Virginia	Acalypha virginica	Plantain, blackseed	Plantago rugelii decne
Crabgrass, large (suppression)	Digitaria sanguinalis	Plantain, narrow-leaved	Plantago lanceolata
Crabgrass, smooth (suppression)	Digitaria ischaemum	Poorjoe	Diodia teres
Crabgrass, Southern	Digitaria ciliaris	Porophyllum	Porophyllum rederale
Croton, tropic	Croton glandulosus	Poinsettia, wild	Euphorbia heterophylla
Crownbeard, golden	Verbesina encelioides	Purslane, common	Portulaca oleracea
Cupgrass, wooly	Erichloa villosa	Redmaids	Calandrinia ciliata
Cyperus, hedgehog	Cyperus compressus	Redweed	Melochia corchorifolia
Daisy, American	Eclipta alba	Sedge, annual	Carex spp.
Devilsclaw	Proboscidea louisiana	Senna, coffee	Cassia occidentalis
Dock, curly	Rumex crispus	Shepherd's-purse (suppression)	Capsella bursa-pastoris
Eclipta	Eclipta prostrata	Sida, prickly	Sida spinosa
Filaree, redstem	Erodium cicutarium	Sida, Southern	Sida acuta
Flixweed	Descurainia sophia	Signalgrass, broadleaf	Brachiaria platyphylla
Galinsoga, hairy	Galinsoga ciliata	Smartweed, PA (seedling)	Polygonum pensylvanicum
Goosegrass	Eleusine indica	Smellmellon	Cucumis melo
Groundcherry, clammy (seedling)	Physalis heterophylla	Starbur, bristly	Acanthospermum hispidum
Groundcherry, cutleaf	Physalis angulata	Stinkgrass	Eragrostis cilianensis
Jimsonweed	Datura stramonium	Toadflax, yellow	Linaria vulgaris
Kochia (ALS and Triazine Resistant)	Kochia scoparia	Tassleflower, red	Emilio sonchifolia
Ladysthumb	Polygonum persicaria	Thistle, Russian	Salsola kali
Lambsquarters, common	Chenopodium album	Waterhemp, common	Amaranthus rudis
Lettuce, miners	Montia perfoliata	Waterhemp, tall	Amaranthus tuberculatos
Mallow, common	Malva neglecta wall r.	Waterprimrose, winged	Ludwigia decurrens
Mayweed, Chamomile	Anthemis cotula I.	Witchgrass	Panicum capillare
Milkweed, honeyvine (suppression)	Ampelamus albidus		
Morningglory, entireleaf	Ipomoea hederacea integriuscula	NUTSEDGE SUPPRESSION	
Morningglory, ivyleaf	Ipomoea hederacea		
Morningglory, palmleaf	Ipomoea wrightii	Common Name	Scientific Name
Morningglory, purple	Ipomoea turbinata	Nutsedge, purple	Cyperus rotundus
Morningglory, red	Ipomoea, coccinea L.	Nutsedge, yellow	Cyperus esculentus

Zeus Herbicide will aid in the management of yellow and purple nutsedge populations by weakening existing nutsedge plants. The degree of suppression depends on the rate of Zeus Herbicide applied, moisture, soil conditions, the depth of nutsedge nutlets, weather, and the interval between Zeus Herbicide application and nutsedge emergence in the spring.

Soil uptake is the major means of uptake by sedges however, postemergence applications to sedges allow Zeus Herbicide to be taken into the sedge through the foliage as well as soil uptake through the roots. Good spray coverage is required for optimum control of sedges especially when applying postemergence to the sedges. Use a quality federally approved nonionic surfactant (NIC) at the rate of 0.25% v/v when applying postemergence. Best suppressive activity is attained when nutsedge plants are small with 6 or fewer leaves.

FALLOW OR POST HARVEST BURNDOWN

Zeus Herbicide may be applied in the fall following crop harvest or in existing fallow fields. Refer to Crop Rotational Restrictions Table 4 for plant back restrictions.

	(Fallow or Post I	e Use Rate Table Harvest Burndown) Fallow Applications	
Broadcast Rate fl oz/A Zeus Herbicide			
Г	Soil Texture		
% Organic Matter	Coarse	Medium	Fine
<1.5	3.0 - 3.75	3.0 - 4.5	3.75 – 5.25
1.5-3.0	3.75 - 5.25	3.75 - 6.0	4.5 - 6.75
>3	4.5 - 6.0	4.5 - 8.0	5.25 - 8.0
•		RSE, MEDIUM, and FINE categor ver rates for pH greater than 7.0 w	

Fall Application

Zeus Herbicide may be applied in the fall following crop harvest or in existing fallow fields to control or suppress weeds the following season. The Zeus Herbicide Rotational Crop Guidelines in Table 4 must be followed if crops are planted the next season. Zeus Herbicide should be applied to the harvested crop stubble or soil surface without incorporation. Moisture in the form of rain or snow will move and activate the product. Do not mechanically incorporate in the fall or spring after application because this activity may destroy the herbicide barrier and weed escapes can occur. Zeus Herbicide may be tank mixed with herbicides to control emerged weeds. Sequential applications may be needed depending on weed size. In situations where weed size may interfere with Zeus Herbicide reaching the soil surface, a separate burndown application prior to the application of Zeus Herbicide will be required. Use listed rates of burndown herbicides in combination with Zeus Herbicide, or sequential applications as needed. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Zeus Herbicide can be tank mixed with other herbicides. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Spring Preemerge Application

Zeus Herbicide may be applied as a fallow treatment early in the spring provided the application is made prior to weed emergence, and adequate moisture is available to activate the Zeus Herbicide. Follow the same use rate specifications and application guidelines listed under the Fall Application section above.

Weeds Controlled

When applied according to directions, Zeus Herbicide will provide control of:

Filaree, redstem	Pigweed, redroot
Kochia (ALS and Triazine Resistant)	Pigweed, smooth
Lambsquarters, common	Thistle, Russian
Morningglory, ivyleaf	Waterhemp, common
Morningglory, tall	Waterhemp, tall
Nightshade, Eastern Black	

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

These Crop Specific Use directions are based upon the interactive effects of Zeus Herbicide (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, Zeus Herbicide 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 Zeus Herbicide. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on Zeus Herbicide under specific local conditions.

Use Restrictions

Do not apply more than 8.0 fl oz/A (0.25 lb ai/A) per twelve-month period.

Do not apply more than 8.0 fl oz/A (0.25 lb ai/A) in a single application.

Do not apply more than two applications per year when using reduced application rate equal to or less than 4.0 fl oz/A of this product.

The twelve-month period is considered to begin upon the initial Zeus Herbicide application.

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

SUNFLOWERS

Zeus Herbicide Use Rate Table (Sunflowers) Fall, Early Spring Preplant, Preemergence, and Preplant Incorporated Applications			
Broadcast Rate fl oz/A Zeus Herbicide			
Soil Texture			
% Organic Matter	Coarse	Medium	Fine
<1.5	3.0 - 3.75	3.0 - 4.5	3.75 – 5.25
1.5-3.0	3.0 – 4.5	3.75 – 6.0	4.5 - 6.75
>3 3.75 - 6.0 4.5 - 6.75 6.0 - 8.0			
	on on soil types under the COAR oils of pH less than 7.0 and lowe		

Fall Applications

Zeus Herbicide may be applied in the fall as a preplant treatment to control or suppress weeds prior to planting the following spring. Zeus Herbicide should be applied to the stubble or soil surface and allow moisture from rainfall or snow to move the product into the soil. Do not mechanically incorporate in the fall or spring as this can destroy the herbicide barrier and allowing weed escapes to occur. Do not apply to frozen soils or to existing snow cover to prevent Zeus Herbicide runoff from rain or snow melt that may occur following application. Zeus Herbicide may be tank mixed with other residual soil herbicides that are labeled for fall use on sunflowers. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. If weeds are emerged at the time of Zeus Herbicide or split application as needed. Select the appropriate rate from Table above within the correct soil type and organic matter range. When applying Zeus Herbicide in the fall, use a mid to high rate within the rate range for the appropriate soil type and organic matter.

Early Preplant and Preemergence (Spring Applications)

Zeus Herbicide may be applied preplant on the soil surface in the spring to control weeds. Zeus Herbicide can be applied early preplant prior to planting up to 3 days after planting as a preemerge soil application if seedlings have not broken the soil surface and if the seed furrow is completely closed. For preemerge applications greater than 3 weeks prior to planting, use the high rate within the appropriate rate range for the soil and organic matter type listed in the use rate chart above. If applying Zeus Herbicide to course textured soils with less than 1.5% organic matter, wait a minimum of 7 days after application before planting. Zeus Herbicide can be tank mixed with other preemerge herbicides labeled for sunflowers. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. If dry conditions persist following preemerge application of Zeus Herbicide, a shallow incorporation may be needed to incorporate and activate the herbicide. If weeds are emerged at the time of Zeus Herbicide application, use a burndown herbicide at the full- labeled rate in combination with Zeus Herbicide or split application as needed. It is the pesticide user's responsibility to ensure that all products in the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product the most restrictive directions for use and activate the herbicide or split application as needed. It is the pesticide user's responsibility to ensure that all products in the tank mixtures.

Preplant Incorporated (PPI)

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

Weeds Controlled

When applied according to directions, Zeus Herbicide will provide control of:

Amaranth, Palmer	Filaree, redstem
Kochia (ALS and Triazine Resistant)	Lambsquarters, common
Morningglory, ivyleaf	Morningglory, tall
Nightshade, Eastern black	Pigweed, redroot
Pigweed, smooth	Sida, prickly
Thistle, Russian	Waterhemp, tall
Waterhemp, common	

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

Common Name	Scientific Name
Nutsedge, purple	Cyperus rotundus
Nutsedge, yellow	Cyperus esculentus

Zeus Herbicide will aid in the management of yellow and purple nutsedge populations by weakening existing nutsedge plants. The degree of suppression depends on the rate of Zeus Herbicide applied, moisture, soil conditions, the depth of nutsedge nutlets, weather, and the interval between Zeus Herbicide application and nutsedge emergence in the spring.

Soil uptake is the major means of uptake by sedges however, postemergence applications to sedges allow Zeus Herbicide to be taken into the sedge through the foliage as well as soil uptake through the roots. Good spray coverage is required for optimum control of sedges especially when applying postemergence to the sedges. Use a quality federally approved nonionic surfactant (NIC) at the rate of 0.25% v/v when applying postemergence. Best suppressive activity is attained when nutsedge plants are small with 6 or fewer leaves.

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

Some adverse crop response may occur on coarse textured soils with low organic matter (less than 1.5%) and pH of 7.8 or higher, or on highly eroded soils, or in areas of calcareous outcroppings. Zeus Herbicide use rates should be reduced in those areas. Inadequate seed furrow closure or shallow planting (less than 1.0 inch) may result in undesirable crop response. As expected, poor growing conditions such as excessive moisture, low temperatures, soil compaction and diseases may also cause undesirable crop response.

These Crop Specific Use directions are based upon the interactive effects of Zeus Herbicide (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, Zeus Herbicide 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 Zeus Herbicide. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on Zeus Herbicide under specific local conditions.

Restrictions

Do not apply more than 8.0 fl oz/A (0.25 lb ai/A) of Zeus Herbicide per twelve-month period to sunflowers.

Do not apply more than 8.0 fl oz/A (0.25 lb ai/A) in a single application.

Do not apply more than two applications per year when using reduced application rate equal to or less than 4.0 fl oz/A of this product.

The twelve-month period is considered to begin upon the initial Zeus Herbicide application.

Do not apply to frozen soils or existing snow cover to prevent Zeus Herbicide runoff from rain or snowmelt that may occur following application.

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

Do not incorporate greater than 2 inches deep.

VEGETABLE CROPS

ASPARAGUS

Broadcast Rate	fl oz/A Zeus Herbicide		
Γ	Soil Texture		
% Organic Matter	Coarse	Medium	Fine
<1.5	4.5 - 6.0	6.0 - 8.0	8.0
1.5-3	6.0 - 8.0	8.0 - 10.1	10.1
>3.0	8.0 - 10.1	10.1 – 12.0	12.0

Apply Zeus Herbicide as a broadcast treatment to crowns established for one or more years.

Apply in the spring before the crop and weeds emerge. Zeus Herbicide should be applied at 4.5 to 12.0 fl oz/A (0.141 to 0.375 lb ai/A) in 10 to 40 gallons of finished spray per acre. Zeus Herbicide may be applied with other pesticides registered for use with asparagus.

Weeds Controlled

When Applied according to directions, Zeus Herbicide will provide control of:

Amaranth, Palmer	Nightshade, Eastern black
Galinsoga, hairy	Pigweed, redroot
Lambsquarters, common	Pigweed, smooth
Morningglory, ivyleaf	

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

NUTSEDGE SUPPRESSION

Common Name	Scientific Name
Nutsedge, purple	Cyperus rotundus
Nutsedge, yellow	Cyperus esculentus

Zeus Herbicide will aid in the management of yellow and purple nutsedge populations by weakening existing nutsedge plants. The degree of suppression depends on the rate of Zeus Herbicide applied, moisture, soil conditions, the depth of nutsedge nutlets, weather, and the interval between Zeus Herbicide application and nutsedge emergence in the spring.

Soil uptake is the major means of uptake by sedges however, postemergence applications to sedges allow Zeus Herbicide to be taken into the sedge through the foliage as well as soil uptake through the roots. Good spray coverage is required for optimum control of sedges especially when applying postemergence to the sedges. Use a quality federally approved nonionic surfactant (NIC) at the rate of 0.25% v/v when applying postemergence. Best suppressive activity is attained when nutsedge plants are small with 6 or fewer leaves.

These Crop Specific Use directions are based upon the interactive effects of Zeus Herbicide (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, Zeus Herbicide 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 Zeus Herbicide. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on Zeus Herbicide under specific local conditions.

Restrictions

Do not apply within 14 days prior to harvest.

Do not apply more than 12.0 fl oz/A (0.375 lb ai/A) per 12-month period.

Do not apply more than 12.0 fl oz/A (0.375 lb ai/A) in a single application.

Do not make more than one Zeus Herbicide application per acre per 12-month period.

The twelve-month period is considered to begin upon the initial Zeus Herbicide application.

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

CABBAGE; CABBAGE, CHINESE, NAPA (Transplanted Only)

Zeus Herbicide Use Rate Table (Cabbage) Fall or Spring Early Preplant, Preemergence, and Preplant Incorporated Applications			
Broadcast Rate fl oz/A Zeus Herbicide			
	Soil Texture		
% Organic Matter	Coarse	Medium	Fine
<1.5%	2.25 - 3.0	3.0 – 4.5	3.0 - 6.0
1.5-3.0 %	3.0 - 6.0	6.0 - 9.0	6.0 - 9.0
>3.0 %	6.0 - 9.0	6.0 - 12.0	6.0 - 12.0
Refer to the previous information on soil types under the COARSE, MEDIUM, and FINE categories. Use higher specified rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range.			

Early Preplant (Fall Application or Spring Application)

Zeus Herbicide may be applied in the fall or spring preceding the growing season to control weeds prior to or up to the planting or transplanting of cabbage. Zeus Herbicide may be applied in the spring from 60 days prior to planting up to planting time. Zeus Herbicide should be applied to the harvested crop stubble or soil surface without incorporation. Moisture in the form of rain or snow will move and activate the product into the soil. Do not mechanically incorporate in the fall or spring after application as this may destroy the herbicide barrier and weed escapes can occur. Do not apply to frozen soils to prevent Zeus Herbicide runoff from rain or snow that may occur following application. Zeus Herbicide may be tank mixed with other burndown herbicides to control emerged weeds in the fall or spring or with residual soil herbicides that are labeled for fall use on cabbage. Use the listed rates of burndown herbicides in combination with Zeus Herbicide, or split applications as needed. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Preplant Incorporated (PPI)

Zeus Herbicide may be applied as a preplant incorporated treatment in the spring prior to transplanting of cabbage. Do not incorporate to depths greater than 2 inches. Zeus Herbicide can be tank mixed with other burndown or soil-applied herbicides labeled for use in cabbage. Use the listed rates of burndown herbicides or split applications as needed. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Transplant Cabbage

Zeus Herbicide may be applied pre-emergence as a broadcast or banded treatment to transplanted cabbage only. Applications should be made broadcast or banded treatment prior to transplanting. Zeus Herbicide may be applied as a banded treatment into the row middles within 72 hours after transplanting. Refer to Band Treatment Application section for rate and volume.

Weeds Controlled

When Applied according to directions, Zeus Herbicide will provide control of:

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

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

These Crop Specific Use directions are based upon the interactive effects of Zeus Herbicide (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, Zeus Herbicide 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 Zeus Herbicide. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on Zeus Herbicide under specific local conditions.

Restrictions

Do not apply more than 12.0 fl oz/A (0.375 lb ai/A) of Zeus Herbicide per twelve-month period.

Do not apply more than 12.0 fl oz/A (0.375 lb ai/A) in a single application.

Do not apply more than one application per year.

The twelve-month period is considered to begin upon the initial Zeus Herbicide application.

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

Do not incorporate to depths greater than 2 inches.

HORSERADISH

Zeus Herbicide Use Rate Table (Horseradish) Fall or Spring Early Preplant, Preemergence, and Preplant Incorporated Applications			
Broadcast Rate	Broadcast Rate fl oz/A Zeus Herbicide		
	Soil Texture		
% Organic Matter	Coarse	Medium	Fine
<1.5%	2.25 - 4.5	3.0 – 4.5	3.0 – 4.5
1.5-3.0 %	4.5 - 6.0	6.0 - 8.0	6.0 - 8.0
>3.0 %	6.0 - 7.5	6.0 - 8.0	6.0 - 8.0
Refer to the previous information on soil types under the COARSE, MEDIUM, and FINE categories. Use higher specified rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range.			

Zeus Herbicide may be applied as a preplant preemerge or preplant incorporated treatment by ground in a minimum of 15 gallons of finished spray.

Early Preplant (Fall Application or Spring Application)

Zeus Herbicide may be applied in the fall or spring preceding the growing season to control or suppress weeds prior to or up to the planting of horseradish. Zeus Herbicide may be applied in the spring from 60 days prior to planting up to planting. Zeus Herbicide should be applied to the harvested crop stubble or soil surface without incorporation. Moisture in the form of rain or snow will move and activate the product into the soil. Do not mechanically incorporate in the fall or spring after application as this may destroy the herbicide barrier and weed escapes may occur. Do not apply to frozen soils to prevent Zeus Herbicide runoff from rain or snow that may occur following application. Zeus Herbicide may be tank mixed with other burndown herbicides to control emerged weeds in the fall or spring or with residual soil herbicides that are labeled for use on horseradish. Use listed rates of burndown herbicides in combination with Zeus Herbicide, or split applications as needed. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Preplant Incorporated (PPI)

Zeus Herbicide may be applied as a preplant incorporated treatment in the spring prior to planting of horseradish. Do not incorporate to depths greater than 2 inches. Zeus Herbicide can be tank mixed with other burndown or soil-applied herbicides labeled for use on horseradish. Use the listed rates of burndown herbicides or split applications as needed. Observe all precautions, instructions and rotational cropping guidelines of each product's label when tank mixing including all references to potential carryover and crop injury warnings or restrictions.

Pre-Emergence (PRE)

Zeus Herbicide 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. Zeus Herbicide may be applied as a banded treatment into the row middles after crop emergence. Refer to Band Treatment Application section for rate and volume. Use the higher Zeus Herbicide rates on clay soils and/or soils with greater than 1% organic matter. Zeus Herbicide may be applied with other pesticides registered for use on horseradish.

Weeds Controlled

When applied according to directions, Zeus Herbicide will provide control of:

Lambsquarters, common	Pigweed, redroot
Morningglory, ivyleaf	Waterhemp, common
Waterhemp, tall	

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

These Crop Specific Use directions are based upon the interactive effects of Zeus Herbicide (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, Zeus Herbicide 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 Zeus Herbicide. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on Zeus Herbicide under specific local conditions.

Restrictions

Do not apply more than 8.0 fl oz/A (0.25 lb ai/A) of Zeus Herbicide per twelve-month period.

Do not apply more than 8.0 fl oz/A (0.25 lb ai/A) in a single application.

Do not apply more than two applications per year when using the reduced application rate equal to or less than 4.0 fl oz/A of this product.

The twelve-month period is considered to begin upon the initial Zeus Herbicide application.

Do not apply directly on the crop after the crop emerges or if the seedling sprouts are close to the soil surface.

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

Do not incorporate to depths greater than 2 inches.

STRAWBERRY

Zeus Herbicide Use Rate Table (Strawberry)			
Broadcast Rate	fl oz/A Zeus Herbicide		
	Soil Texture		
% Organic Matter	Coarse	Medium	Fine
<1.5%	2.25 - 3.0	3.0 - 4.5	3.0 - 6.0
1.5-3.0 %	4	6.0 - 8	6.0 - 8
>3.0 %	6.0 - 8	6.0 - 8	6.0 - 8
Refer to the previous information on soil types under the COARSE, MEDIUM, and FINE categories.			

Use higher specified rates for soils of pH less than 7.0 and lowest rates for pH greater than 7.0 within the rate range.

NEW STRAWBERRY PLANTINGS

Pre-Transplant

Zeus Herbicide can be applied prior to transplanting and before weed seedlings have emerged. Use a burndown herbicide labeled for use on strawberry beds if emerged weeds are present. For increased weed control, Zeus Herbicide may be applied in combination with or, followed by other herbicides labeled for use on strawberries.

For strawberries grown with plastic or organic mulches, apply Zeus Herbicide to the soil surface prior to installing the mulch. Condensation under plastic mulch will provide adequate moisture to activate the herbicide. DO NOT apply Zeus Herbicide over the top of plastic or organic mulch.

ESTABLISHED STRAWBERRY PLANTINGS

Dormancy

Apply to established plantings at dormancy. Zeus Herbicide applications to desirable foliage may cause severe crop injury. If emerged weeds are present at the time of application, tank mix Zeus Herbicide with another herbicide labeled for use in strawberries with post emergent activity. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. Do not apply within 56 days of harvest.

Row Middles (wheel rows)

Apply Zeus Herbicide in a band to row middles between planting beds using a directed spray or, hooded or shielded sprayers. Do not allow spray to contact emerged crops. Severe crop injury will occur if spray solutions of Zeus Herbicide contact desirable vegetation, stems, fruit, or blooms. Any spray contacting strawberry foliage, flowers, or fruit will cause severe crop damage. If emerged weeds are present, tank mix with Zeus Herbicide with another herbicide labeled for use in strawberries with post emergent activity. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. Do not apply within 3 days of harvest.

Minimize spray contact with the plastic bed cover to prevent crop plants from contacting treated plastic or washing of the herbicide into the plant hole. DO NOT apply directly to plastic mulch.

Weeds Controlled

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

Tank mix Zeus Herbicide 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. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Bindweed, field (seedling) suppression	Nightshade, Black
Cheeseweed (Common Mallow and Little Mallow)	Nightshade, Eastern Black
Groundsel, common	Pigweed, prostrate
Knotweed, common	Pigweed, redroot
Ladysthumb	Pigweed, smooth
Lambsquarters, common	Pineapple weed (suppression)
Mayweed	Prostrate knotweed
Mallow, Common	Purslane, common
Mallow, Little	Shepherd's-purse (suppression)
Morningglory, lvyleaf	Waterhemp, common
Nettle, Burning	Waterhemp, tall

When applied according to directions, Zeus Herbicide will provide control of:

ANNUAL AND PERENNIAL SEDGE CONTROL OR SUPPRESSION INCLUDING NUTSEDGE

Zeus Herbicide may provide control or suppression of sedges whether applied preemergence or postemergence to the sedges. Postemergence applications to sedges allow Zeus Herbicide to be taken into the sedge through the foliage as well as soil uptake through the roots. Soil uptake is the major means of uptake by sedges. Good spray coverage is required for optimum control of sedges especially when applying postemergence to the sedges. Use a quality federally approved nonionic surfactant (NIC) at the rate of 0.25% v/v when applying postemergence.

When applied as directed, Zeus Herbicide will provide control or suppression of the following sedges.

Common Name	Scientific Name
Kyllinga, green	Kyllinga brevifolia
Kyllinga, false green	Kyllinga gracillima
Nutsedge, purple	Cyperus rotundus
Nutsedge, yellow	Cyperus esculentus
Sedge, cylindrical	Cyperus retrorsus
Sedge, globe	Cyperus globulosus
Sedge, Surinam	Cyperus surinamensis
Sedge, Texas	Cyperus polystachyos

Zeus Herbicide will aid in the management of yellow and purple nutsedge populations by weakening existing nutsedge plants. The degree of suppression depends on the rate of Zeus Herbicide applied, moisture, soil conditions, the depth of nutsedge nutlets, weather, and the interval between Zeus Herbicide application and nutsedge emergence in the spring.

Soil uptake is the major means of uptake by sedges however, postemergence applications to sedges allow Zeus Herbicide to be taken into the sedge through the foliage as well as soil uptake through the roots. Good spray coverage is required for optimum control of sedges especially when applying postemergence to the sedges. Use a quality federally approved nonionic surfactant (NIC) at the rate of 0.25% v/v when applying postemerge. Best suppressive activity is attained when nutsedge plants are small with 6 or fewer leaves.

Optimum control of purple nutsedge may be obtained using split applications of Zeus Herbicide. Apply 4-6 fluid ounces per acre followed by a second application to actively growing purple nutsedge. Do not exceed the maximum rate of 12 fluid ounces (0.375 lb ai/A) per year. Zeus Herbicide symptoms on purple nutsedge will be observed as reduced nutsedge stands, necrosis, chlorosis, and/or stunting. Optimum control may not be observed until the second year after the original treatment.

These Crop Specific Use directions are based upon the interactive effects of Zeus Herbicide (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, Zeus Herbicide 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 Zeus Herbicide. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on Zeus Herbicide under specific local conditions.

Severe crop injury will occur if spray solutions of Zeus Herbicide contact desirable vegetation, stems, fruit, or blooms. Any spray contacting strawberry foliage, flowers, or fruit will cause severe crop damage.

Restrictions

Do not apply more than 8 fl oz/A (0.25 lb ai/A) of Zeus Herbicide per twelve-month period for preplant, dormant, or postemergent uses combined.

Do not apply more than 8 fl oz/A (0.25 lb ai/A) in a single application.

Do not apply more than one application per year.

The twelve-month period is considered to begin upon the initial Zeus Herbicide application.

Do not apply directly on the crop after the crop emerges.

Do not retreat sooner than 60 days after previous treatment.

Apply using ground equipment only; do not use airblast sprayer or apply by air.

Tomatoes (Transplant Only)

Zeus Herbicide Use Rate Table Tomatoes (Transplant Only) Preplant Applications			
Broadcast Rate fl oz/A Zeus Herbicide			
% Organic Matter	<u>Coarse</u>	<u>Medium</u>	<u>Fine</u>
<1.5%	2.25 - 3.0	3.0 - 4.5	3.0 - 6.0
1.5-3.0 %	3.0 - 6.0	6.0	6.0 - 8.0
>3.0 %	6.0 - 8.0	8.0	8.0
Refer to the previous information on soil types under the COARSE, MEDIUM, and FINE categories. Use higher specified rates for soils of pH less than 7.0 and lowest rates for pH greater than 7.0 within the rate range.			

Preplant Applications

Zeus Herbicide may be applied preemergence as a broadcast or banded treatment on transplanted tomatoes. Applications must be made prior to transplant. Zeus Herbicide can be tank mixed with other burndown or soil-applied herbicides labeled for use on transplanted tomatoes. Use the listed rates of burndown herbicides or split applications as needed. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the in- tended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Preplant Incorporated (PPI)

Zeus Herbicide may be applied as a preplant incorporated treatment in the spring prior to transplanting tomatoes. Do not incorporate to depths greater than 2 inches. Zeus Herbicide can be tank mixed with other burndown or soil-applied herbicides labeled for use on transplanted tomatoes. Use the full, listed rates of burndown herbicides or split applications as needed. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Weeds Controlled

When applied according to directions, Zeus Herbicide will provide control of:

Lambsquarters, common	Waterhemp, common
Morningglory, ivyleaf	Waterhemp, tall
Pigweed, redroot	

NUTSEDGE SUPPRESSION

Common Name	Scientific Name
Nutsedge, purple	Cyperus rotundus
Nutsedge, yellow	Cyperus esculentus

Zeus Herbicide will aid in the management of yellow and purple nutsedge populations by weakening existing nutsedge plants. The degree of suppression depends on the rate of Zeus Herbicide applied, moisture, soil conditions, the depth of nutsedge nutlets, weather, and the interval between Zeus Herbicide application and nutsedge emergence in the spring.

Soil uptake is the major means of uptake by sedges however, postemergence applications to sedges allow Zeus Herbicide to be taken into the sedge through the foliage as well as soil uptake through the roots. Good spray coverage is required for optimum control of sedges especially when applying postemergence to the sedges. Use a quality federally approved nonionic surfactant (NIC) at the rate of 0.25% v/v when applying postemergence. Best suppressive activity is attained when nutsedge plants are small with 6 or fewer leaves.

These Crop Specific Use directions are based upon the interactive effects of Zeus Herbicide (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously pre-sented under Application Instructions, Zeus Herbicide 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 Zeus Herbicide. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on Zeus Herbicide under specific local conditions.

Restrictions

Do not apply more than 12.0 fl oz/A (0.375 lb ai/A) per twelve-month period.

Do not apply more than 8.0 fl oz/A (0.25 lb ai/A) in a single application.

Do not apply more than two applications per year when using the reduced application rate equal to or less than 6.0 fl oz/A of this product.

The twelve-month period is considered to begin upon the initial Zeus Herbicide application.

Do not apply to frozen soils or existing snow cover to prevent Zeus Herbicide runoff from rain or snowmelt that may occur following application.

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

Fa		e Rate Table (Flax)	3
Broadcast Rate fl oz/A Zeus Herbicide			
% Organic Matter	Coarse	Medium	Fine
<1.5%	3.0 - 3.75	3.0 - 4.5	3.75 – 5.25
1.5-3.0 %	3.0 - 4.5	3.75 - 6.0	4.5 - 6.75
>3.0 %	3.75 - 6.0	4.5 - 6.75	6.0 - 8.0
•		SE, MEDIUM, and FINE categories trates for pH greater than 7.0 w	

Fall Applications

Zeus Herbicide may be applied in the fall as a preplant treatment to control or suppress weeds prior to planting flax the following spring. Zeus Herbicide should be applied to the stubble or soil surface and allow moisture from rainfall or snow to move the product into the soil. Do not mechanically incorporate in the fall or spring as this can destroy the herbicide barrier and allow weed escapes to occur. Do not apply to frozen soils or to existing snow cover to prevent Zeus Herbicide runoff from rain or snow melt that may occur following application. If weeds are emerged at the time of Zeus Herbicide application, use a labeled burndown herbicide at the full-labeled rate in combination with Zeus Herbicide or a sequential application as needed. Select the appropriate rate from the Table above within the correct soil type and organic matter range. When applying Zeus Herbicide in the fall, use a mid to high rate within the rate range for the appropriate soil type and organic matter.

Early Preplant and Preemergence (Spring Applications)

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

Preemergence

Zeus Herbicide can be applied prior to planting to anytime after planting but before seedlings have emerged. Zeus Herbicide applied after crop emergence may cause severe injury to the crop. Zeus Herbicide can be applied alone or in combination with other labeled flax herbicides. Zeus Herbicide may be followed by labeled postemergence flax herbicides for increased control of grass and broadleaf weeds. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. When using Zeus Herbicide in no-till or minimum till cropping systems, tank mix with an appropriate burndown herbicide for improved control of existing weeds.

When applied according to directions, Zeus Herbicide will provide control of:

Copperleaf, hophornbeam	Morningglory, tall
Kochia (ALS and Triazine Resistant)	Nightshade, Eastern black
Morningglory, entireleaf	Pigweed, redroot
Morningglory, ivyleaf	Pigweed, smooth

When applying Zeus Herbicide to coarse textured soils, growers are to allow a minimum of 7-14 days from application to planting. Some 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. Zeus Herbicide use rates should be reduced to 3.0 oz/A in those areas or Zeus Herbicide should not be used in those areas. Inadequate seed furrow closure or shallow planting (less than 1.0 inch) may result in undesirable crop response. As expected, poor growing conditions such as excessive moisture, low temperatures, soil compaction and diseases may also cause undesirable crop response.

These Crop Specific Use directions are based upon the interactive effects of Zeus Herbicide (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, Zeus Herbicide 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 Zeus Herbicide. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on Zeus Herbicide under specific local conditions.

Restrictions

Do not apply more than 12.0 fl oz/A (0.375 lb ai/A) of Zeus Herbicide per twelve-month period.

Do not apply more than 8.0 fl oz/A (0.25 lb ai/A) in a single application.

Do not apply more than two applications per year when using reduced application rate equal to or less than 6.0 fl oz/A of this product.

The twelve-month period is considered to begin upon the initial Zeus Herbicide application.

Do not apply to frozen soils or existing snow cover to prevent Zeus Herbicide runoff from rain or snowmelt that may occur following application.

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

Do not incorporate greater than 2 inches deep.

Do not apply directly on the crop after the crop emerges or if the seedling sprouts are close to the soil surface.

MINT (Spearmint, Peppermint)

Zeus Herbicide Use Rate Table (Mint)				
For Dormant and New Planting Applications				
Broadcast Rate fl oz/A Zeus Herbicide				
	Soil Texture			
% Organic Matter	Coarse	<u>Medium</u>	<u>Fine</u>	
<1.5%	4.5 - 6.0 6.0 - 8.0 8.0			
1.5 - 3.0 %	6.0 - 8.0	8.0 - 10.1	10.1	
>3.0 %	8.0 - 10.1 10.1 - 12.0 12.0			
Refer to the previous information on soil types under the COARSE, MEDIUM, and FINE categories.				

Use higher specified rates for soils of pH less than 7.0 and lower rates for pH greater than 7.0 within the rate range.

Dormant Applications

Apply Zeus Herbicide to established stands of dormant mint after post harvest and/or spring land cultivation has been completed and before emergence of new mint growth.

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

Apply Zeus Herbicide in tank-mixtures with a registered burndown herbicide to control emerged weeds at the time of application. A federally approved surfactant is recommended with these tank mixtures to improve control of the emerged weeds.

Zeus Herbicide may also be applied in tank mixtures with other products registered for use in mint. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

New Planting Applications

Zeus Herbicide 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 for particular soil characteristics. Refer to Zeus Herbicide Use Rate Table above for the appropriate use rate for the soil type and organic matter content. The higher rates in the range are recommended for soils of pH less than 7.0.

Renovation (For use between cuttings and post harvest)

For the first application, apply the appropriate rate for the soil type and organic matter as specified by above, not to exceed 8.0 fl oz/A of Zeus Herbicide (0.25 lb ai/A) as a broadcast application to the soil at dormancy to control various broadleaf weeds and grasses. At a minimum of 100 days after the first application, mow/cut the mint and remove mint from the field within 1-3 days after cutting. After removing the mint, a second broadcast application may be made at 4 fl oz/A of Zeus Herbicide (0.125 lb ai/A). Do not make more than two applications per year. Application intervals should be no shorter than 100 days with the last application at least 55 days before harvest.

Weeds Controlled

When Applied according to directions, Zeus Herbicide will provide control of:

Amaranth, Powell	Nutsedge, yellow
Bedstraw, catchweed	Pigweed, redroot
Chamomile, mayweed	Shepherd's-purse (suppression)
Kochia (ALS and Triazine Resistant)	Toadflax, yellow
Lambsquarters, common	Thistle, Russian
Morningglory, ivyleaf	Waterhemp, common
Nightshade, Eastern black	Waterhemp, tall

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

Dormant and New Planting: Apply Zeus Herbicide only to dormant mint, post-harvest (renovation), or new mint plantings before new growth emerges. Applications made to mint that has emerged will result in severe injury to exposed plant tissue.

Apply only to healthy mint fields. Applications to mint under stress from disease, pests and cultural or environmental conditions may result in crop injury. Moisture in the form of rainfall or overhead irrigation is required after application to activate the herbicide

These Crop Specific Use directions are based upon the interactive effects of Zeus Herbicide (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Application Instructions, Zeus Herbicide 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 Zeus Herbicide. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on Zeus Herbicide under specific local conditions.

Restrictions

Apply Zeus Herbicide only to dormant mint or new mint plantings before new growth emerges.

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

Do not apply by air.

Do not apply more than 12.0 fl oz/A (0.375 lb ai/A) per twelve-month period.

Do not apply more than 12.0 fl oz/A (0.375 lb ai/A) in a single application.

Do not apply more than two applications per year when using the reduced application rate equal to or less than 6.0 fl oz/A of this product.

The twelve-month period is considered to begin upon the initial Zeus Herbicide application.

Do not apply to frozen soils or existing snow cover to prevent Zeus Herbicide runoff from rain or snowmelt that may occur following application.

PHI is 92 days for dormant and new planting applications. PHI is 55 days for renovation applications.

PERMANENT CROPS

Grapes (Wine, Raisin, Table and Juice)

Lemon and Orange

Pistachio and Walnut (Black and English)

APPLICATION INFORMATION

Zeus Herbicide should be applied as a uniform broadcast soil application to orchard and vineyard floors or as a uniform band application directed to the base of the trunk in trees and vines to provide preemergence control of weeds listed in the table below.

For best control, Zeus Herbicide should be applied when there are no weeds present or a postemergence herbicide is tank mixed to eliminate emerged weeds. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

For broadcast applications, a single application of Zeus Herbicide should be made at 4 to 12 fl oz/A (0.125 to 0.375 lb ai/A). Do not apply more than 12 fl oz/A (0.375 lb ai/A) per twelve-month period. The twelve-month period is considered to begin when the initial application of Zeus Herbicide is applied.

For improved weed management, Zeus Herbicide can be applied in a tank mixture with other preemergence and postemergence burndown herbicides. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. Burndown herbicides may include, carfentrazone-ethyl, glyphosate, paraquat, glufosinate-ammonium, and 2,4-D. Do not tank mix with flumioxazin or with other products containing sulfentrazone or flumioxazin.

When applied as a banded treatment (50% band or less), refer to formula in chart below for rate and volume. Zeus Herbicide may be applied twice per year. Do not apply more than 12 fl oz/A product (0.375 lb ai/A) on a broadcast application basis per year. Allow a minimum of 60 days between applications.

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

Band Width in Inches	Broadcast	=	Band Rate
Row Width in Inches	Dioaucasi	-	Danu nale
Band Width in Inches x	Broadcast	=	Band Volume
Row Width in Inches	Divaucasi	-	Danu Volume

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

For grapes, lemon, oranges, and pistachio, only apply Zeus Herbicide to crops that have been established for two full growing seasons and are in good health and vigor. For Walnuts, only apply Zeus Herbicide to crops that have been established for three full growing seasons 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.

Use ground equipment only. Do not apply using an airblast sprayer or by air. Do not apply using a mechanically pressurized handgun.

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

WEED CONTROL INFORMATION

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

Tank mix Zeus Herbicide 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. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Residual weed control may be reduced when Zeus Herbicide 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 Zeus Herbicide 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.

Permanent Crop Weed List

Common Name	Scientific Name
Amaranth, livid	Amaranthus lividus
Amaranth, Palmer	Amaranthus palmeri
Amaranth, Powell	Amaranthus powellii
Amaranth, spiny	Amaranthus spinosus
Amaranth, spleen	Amaranthus dubius
Anoda, spurred	Anoda cristata
Barnyardgrass, common (suppression)	Echinochloa crus-galli
Bedstraw, catchweed	Galium aparine
Bindweed, field (suppression)	Convolvulus arvensis
Carpetweed	Mollugo verticillata
Cheeseweed species	Malva spp.
Chickweed, common (suppression)	Stellaria media
Crabgrass, large (suppression)	Digitaria sanguinalis
Crabgrass, smooth (suppression)	Digitaria ischaemum
Devilsclaw	Proboscidea louisiana
Eveningprimrose, cutleaf	Oenothera laciniata
Fiddleneck species	Amsinckia spp.
Filaree, broadleaf	Eroduim botrys
Filaree, redstem	Erodium cicutarium
Filaree, whitestem	Erodium moschatum
Fleabane, hairy (suppression)	Conyza bonariensis
Goosefoot, nettleleaf	Chenopodium murale
Groundcherry, clammy (seedling)	Physalis heterophylla
Groundcherry, cutleaf	Physalis angulata
Groundsel, common	Senecio vulgaris
Henbit	Lamium amplexicaule
Horseweed (Marestail) (suppression)	Conyza canadensis
Knotweed, common	Polygonum arenastrum
Kochia (ALS and Triazine Resistant)	Kochia scoparia
Ladysthumb	Polygonum persicaria
Lambsquarters, common	Chenopodium album
Lettuce, miners	Montia perfoliata
Lovegrass species (suppression)	Eragrostis spp.

Common Name	Scientific Name	
Mallow, common	Malva neglecta wall r.	
Mallow, little	Malva parviflora	
Milkweed, honeyvine (suppression)	Ampelamus albidus	
Morningglory, entireleaf	Ipomoea hederacea integriuscula	
Morningglory, ivyleaf	Ipomoea hederacea hederacea	
Morningglory, palmleaf	Ipomoea wrightii	
Morningglory, purple	Ipomoea turbinata	
Morningglory, red	Ipomoea, coccinea L.	
Morningglory, scarlet	Ipomoea coccinea	
Morningglory, smallflower	Jacquemontia tamnifolia	
Morningglory, tall	Ipomoea, purpurea	
Mustard, Species (suppression)	Brassica spp.	
Nettle, burning	Urtica urens	
Nightshade, black	Solanum nigrum	
Nightshade, Eastern black	Solanum ptycanthum	
Pigweed, prostrate	Amaranthus blitoides	
Pigweed, redroot	Amaranthus retroflexus	
Pigweed, smooth	Amaranthus hybridus	
Pigweed, Tumble	Amaranthus albus	
Pineapple-weed (suppression)	Chamomilla suaveolens	
Puncturevine (suppression)	Tribulus terrestris	
Purslane, common	Portulaca oleracea	
Redmaids	Calandrinia ciliata	
Rocket, London (suppression)	Sisymbrium irio	
Shepherd's-purse (suppression)	Capsella bursa-pastoris	
Sowthistle species (suppression)	Sonchus spp.	
Spurge, spotted (suppression)	Chamaesyce maculate	
Thistle, Russian	Salsola kali	
Waterhemp, common	Amaranthus rudis	
Waterhemp, tall	Amaranthus tuberculatos	
Waterprimrose, winged	Ludwigia decurrens	
Willowleaf, panicle-leaf	Epilobium brachycarpum	

ANNUAL AND PERENNIAL SEDGE CONTROL OR SUPPRESSION INCLUDING NUTSEDGE

Zeus Herbicide applied at 12 fl oz/A (0.375 lb ai/A) may provide control or suppression of sedges whether applied preemergence or postemergence to the sedges. Postemergence applications to sedges allow Zeus Herbicide to be taken into the sedge through the foliage as well as soil uptake through the roots. Soil uptake is the major means of uptake by sedges. Good spray coverage is required for optimum control of sedges especially when applying postemergence to the sedges. Use a quality federally approved nonionic surfactant (NIC) at the rate of 0.25% v/v when applying postemergence.

When applied as directed, Zeus Herbicide will provide control or suppression of the following sedges.

Common Name	Scientific Name
Kyllinga, green	Kyllinga brevifolia
Kyllinga, false green	Kyllinga gracillima
Nutsedge, purple	Cyperus rotundus
Nutsedge, yellow	Cyperus esculentus
Sedge, cylindrical	Cyperus retrorsus
Sedge, globe	Cyperus globulosus
Sedge, Surinam	Cyperus surinamensis
Sedge, Texas	Cyperus polystachyos

Optimum control of purple nutsedge may be obtained using split applications of Zeus Herbicide. Apply 4-6 fl oz/A followed by a second application to actively growing purple nutsedge. Do not exceed the maximum rate of 12 fl oz/A (0.375 lb ai/A) per twelve-month period. Zeus Herbicide symptoms on purple nutsedge will be observed as reduced nutsedge stands, necrosis, chlorosis, and/or stunting. Optimum control may not be observed until the second year after the original treatment.

REPLANTING IN NEW OR ESTABLISHED ORCHARDS AND VINEYARDS

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

These Crop Specific Use directions are based upon the interactive effects of Zeus Herbicide (sulfentrazone) and the primary soil and environmental factors, which affect its activity on various weed species and tolerance among crops. The user is required to observe the instructions and guidance previously presented under Product Application Instructions, General Zeus Herbicide 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 Zeus Herbicide. Consult university or extension weed management specialists for additional information on specific local varieties or cultivars and any other pertinent information on Zeus Herbicide under specific local conditions. Do not tank mix this product with other products containing sulfentrazone or other WSSA Group 14 preemergent herbicides as crop injury may occur.

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

Restrictions

- Use ground equipment only.
- Do not apply Zeus Herbicide using airblast sprayers or by air.
- Do not apply using a mechanically pressurized handgun.
- Do not apply more than 12.0 fl oz/A (0.375 lb ai/A) per twelve-month period.
- Do not apply more than 12.0 fl oz/A (0.375 lb ai/A) in a single application.
- Do not apply more than three applications per year when using reduced application rate equal to or less than 4.0 fl oz/A of this product.
- The twelve-month period is considered to begin when the initial application of Zeus Herbicide is applied.
- For grapes, lemons, oranges, and pistachio only apply to crops that have been established for at least 2 full growing seasons and are in good health and vigor.
- For walnuts, only apply to crops that have been established for at least 3 full growing seasons and are in good health and vigor.
- Do not apply to powdery soils or soils where wind may displace the soil, unless irrigation can be applied immediately after application.
- Pre-harvest Interval (PHI) for lemons, oranges, grapes, walnuts and pistachio: 3 days
- Do not apply to almonds.
- If two banded treatments are made in a growing season, allow a minimum of 60 days between applications; however, do not exceed the single and annual use rate.
- Do not apply to frozen soils or existing snow cover to prevent Zeus Herbicide runoff from rain or snowmelt that may occur following application.

COMMERCIAL SOD FARMS

Zeus Herbicide is a selective preemergence and post emergence herbicide which controls annual grasses and broadleaf weeds in established turf areas including commercial sod farms. To broaden the spectrum for preemergence control or suppression of annual grasses and/or broadleaf weeds, Zeus Herbicide should be tank mixed with an EPA registered annual grass herbicide. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

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

Turf Grass Tolerance

When applied as directed, the following established turf grasses are tolerant to Zeus Herbicide at the listed use rates. Table 6 Tolerant grasses

Grass Type	Maximum Use Rate*** For Single Application	
Cool Season Grasses**	fl oz/A Zeus Herbicide	lb ai/A
Bentgrass, creeping	4	0.125
Bluegrass, Kentucky (Poa pratensis) Bluegrass, Rough (Poa trivialis) Fescue, fine * (Festuca rubra) Fescue, tall * (Festuca arundinacea) Ryegrass, perennial (Lolium perenne)	4-8	0.125-0.25
Warm Season Grasses**		
Bahiagrass (Paspalum notatum) Bermudagrass (Cynadon dactylon) Bermudagrass Hybrids Buffalograss (Buchloe dactyloides) Carpetgrass (Axonopus affinis) Centipedegrass (Eremochloa ophuioides) Kikuyugrass (Pennisetum clandestinum) Seashore Paspalum (Paspalum vaginatum) St. Augustinegrass (Stenotaphrum secundatum) Zoysiagrass (Zoysia japonica)	8-12	0.25-0.375

* Applications of Zeus Herbicide to certain varieties of Chewings Fine Fescue or Tall Fescue may result in undesirable plant response.

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

***Do not apply more than 12 fl oz/A (0.375 lb ai/A) of Zeus Herbicide per twelve month period. The twelve-month period is considered to begin upon the initial Zeus Herbicide application.

Applications to Reseeded, Overseeded or Sprigged Areas

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

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

Adjuvant use

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

Postemergence Control of Sedges

Zeus Herbicide may be applied at the rate of 4-12 fl oz/A to established turf grasses for the control or suppression of sedges. Select the correct Zeus Herbicide use rate from Table 6.

When applied as directed, Zeus Herbicide will provide control or suppression of the following sedges.

Common Name	Scientific Name
Kyllinga, green	Kyllinga brevifolia
Kyllinga, false green	Kyllinga gracillima
Nutsedge, purple	Cyperus rotundus
Nutsedge, yellow	Cyperus esculentus
Sedge, cylindrical	Cyperus retrorsus
Sedge, globe	Cyperus globulosus
Sedge, Surinam	Cyperus surinamensis
Sedge, Texas	Cyperus polystachyos

Purple nutsedge: For optimum control of purple nutsedge, split applications are listed below. Apply Zeus Herbicide using rates listed below as an initial application followed by a second application when evidence of actively growing purple nutsedge is visible. Do not exceed the maximum rate per acre based on the turf variety as listed in Table 6; tolerant grasses.

Split Application Rates for Optimum Purple Nutsedge Control

Grass Type	First Application (fl oz/A)	Second Application (fl oz/A)
Cool Season Grasses	2-4	2-6
Warm Season Grasses	4-6	4-6

Allow 35 days after first application for second application.

Postemergence Control of Grassy Weeds

Zeus Herbicide will control or suppress specific annual grasses when applied at a rate of 4-12 fl oz/A. Apply the highest rate consistent with the rate needed for turfgrass tolerance in Table 6. Rates lower than 12 fl oz/A will generally control grasses for at least 60 days. Zeus Herbicide works best if applied when the annual grasses are small (pre tiller stage) and actively growing.

Common Name	Scientific Name	
Goosegrass	Eleusine indica	

Postemergence Control of Broadleaf Weeds

Zeus Herbicide will control or suppress the weeds listed in the broadleaf chart below when applied alone shortly after weeds have emerged. Zeus Herbicide may be applied at the rate of 4-12 fl oz/A to established turf grasses for the control or suppression of broadleaf weeds. Select the correct Zeus Herbicide use rate from Table 6. For optimum results, Zeus Herbicide applications should be made shortly after weeds have emerged.

Zeus Herbicide may be tank mixed with other herbicides, insecticides and fungicides registered for use on turfgrasses. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

When applied as directed, Zeus Herbicide will provide control or suppression of the following broadleaf weeds.

Broadleaves	Scientific Names
Bittercress	Cardamine spp.
Black Medic	Medicago lupulina
Buttercup	Carolina geranium
Ranunculus spp.	Geranium carolinianum
Carpetweed	Mollugo verticillata
Chickweed, common (suppression)	Stellaria media
Chickweed, mousear	Cerastium vulgatum
Cinquefoil	Potentilla spp.
Clover	Trifolium spp.
Cudweed	Gnaphalium spp.
Dandelion	Taraxacum officinale
Dock, curly	Rumex crispus
Evening primrose	Oenothera biennis
Fiddleneck	Amsinckia spp.
Filaree	Erodium spp.
Garlic, wild	Allium vineale
Goldenrod	Solidago spp.
Ground ivy	Glechema hederasea
Henbit	Lamium amplexicaule
Knotweed, prostrate	Polygonum aviculare
Kochia	Kochia scoparia
Lambsquarters, common	Chenopodium album
Lawn burweed	Soliva pterosperma
Lespedeza, common	Lespedeza striata

Broadleaves	Scientific Names
Mallow, common	Malva neglecta
Onion, wild	Allium canadense
Parsley piert	Alchemilla arvensis
Pigweed, redroot	Amaranthus retroflexus
Pigweed, tumble	Amaranthus albus
Pineapple weed (suppression)	Matricaria matricariodes
Plantain, buckhorn	Plantago lanceolata
Puncture weed	Tribulus terrestris
Purslane, common	Portulaca oleracea
Pusley, Florida	Richardia scabra
Redweed	Melochia corchorifolia
Rocket, London (suppression)	Sisymbrium irio
Smartweed, PA	Polygonum pensylvanicum
Sorrel, red	Rumex acetosella
Speedwell	Veronica spp.
Spurge, annual	Euphorbia spp.
Spurge, prostrate	Euphorbia humistrata
Spurge, spotted (suppression)	Euphorbia maculata
Star of Bethlehem	Omithogalum umbellatum
Velvetleaf	Abutilon theophrasti
Violet, wild	Viola pratincola
Woodsorrel, creeping	Oxalis corniculata
Woodsorrel, yellow	Oxalis stricta

Restrictions

Do not apply more than 12.0 fl oz/A (0.375 lb ai/A) of Zeus Herbicide per twelve-month period.

Do not apply more than 12.0 fl oz/A (0.375 lb ai/A) in a single application.

Do not apply more than three applications per year when using reduced application rate equal to or less than 4.0 fl oz/A of this product.

The twelve-month period is considered to begin upon the initial Zeus Herbicide application.

Sod production areas must be established three (3) months prior to the initial treatment of Zeus Herbicide.

Do not apply Zeus Herbicide to turf grasses not listed on this label.

Do not apply with surfactants.

Do not graze or feed forage harvested from Zeus Herbicide treated areas.

Do not apply to landscape ornamental plants or ornamental beds.

Do not apply Zeus Herbicide to golf course putting greens or tees.

Do not harvest sod within three (3) months of Zeus Herbicide application.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal. Do not use or store around the home.

Pesticide Storage

Store product in original container only, away from other pesticides, fertilizer, food or feed.

Store in a cool, dry place and avoid excess heat.

In Case of Spill

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

To Confine Spill

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

Pesticide Disposal

Waste resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

Container Handling

Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: (For containers greater than 5 gallons) Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available, or reconditioning, or puncture and dispose of in a sanitary landfill, or other procedures allowed by state and local authorities. (For containers 5 gallons or less) 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. Then offer for recycling if available, or recondition equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available, or reconditioning, or puncture and dispose of in a sanitary landfill, or other procedures allowed by state and local authorities.

Returnable/Refillable Containers - Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

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. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions beyond the control or FMC or Seller. All such risks shall be assumed by Buyer and User, and, to the extent consistent with applicable law, Buyer and User agree to hold FMC and Seller harmless for any claims relating to such factors.

Seller warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the Directions for Use when used in accordance with the directions under normal conditions of use. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, FMC MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, NOR ANY OTHER EXPRESS OR IMPLIED WARRANTIES WITH RESPECT TO THE SELECTION, PURCHASE, OR USE OF THIS PRODUCT. Any warranties, express or implied,

having been made are inapplicable if this product has been used contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to (or beyond the control of) seller or FMC, and, to the extent consistent with applicable law, buyer assumes the risk of any such use.

To the extent consistent with applicable law, FMC or seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF FMC AND SELLER FOR ANY AND ALL CLAIMS. LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF FMC OR SELLER, THE REPLACEMENT OF THE PRODUCT.

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