RESTRICTED USE PESTICIDE

(GROUND AND SURFACE WATER CONCERNS)

FOR RETAIL SALE TO AND USE ONLY BY CERTIFIED APPLICATORS OR PERSONS UNDER THEIR DIRECT SUPERVISION, AND ONLY FOR THOSE USES COVERED BY THE CERTIFIED APPLICATOR'S CERTIFICATION. THIS PRODUCT IS A RESTRICTED-USE HERBICIDE DUE TO GROUND AND SURFACE WATER CONCERNS. USERS MUST READ AND FOLLOW ALL PRECAUTIONARY STATEMENTS AND INSTRUCTIONS FOR USE IN ORDER TO MINIMIZE POTENTIAL FOR ATRAZINE TO REACH GROUND AND SURFACE WATER.

CONTAINS SAFENER FOR CORN

RAVINE®

METOLACHLOR	GROUP	15	HERBICIDE
ATRAZINE	GROUP	5	HERBICIDE
MESOTRIONE	GROUP	27	HERBICIDE

A PREEMERGENCE AND POSTEMERGENCE HERBICIDE FOR CONTROL OF ANNUAL GRASS AND BROADLEAF WEEDS IN FIELD CORN, FIELD SEED CORN, FIELD SILAGE CORN, SWEET CORN, YELLOW POPCORN AND GRAIN SORGHUM

ACTIVE INGREDIENTS*:	**% BY WT.**
Metolachlor	19.00%
Atrazine	18.60%
Atrazine Related Compounds	0.48%
Mesotrione	2.44%
OTHER INGREDIENTS:	59.48%
TOTAL:	100.00%

*Equivalent to 1.70 pounds of Metolachlor, 1.66 pounds of atrazine and 0.218 pounds of mesotrione active ingredients per gallon.

KEEP OUT OF REACH OF CHILDREN

CAUTION / PRECAUCIÓN

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. Para traducción al español,escanee el código QR.
(If you do not understand the label, find someone to explain it to you in detail. For Spanish translation, scan the QR code)

For Chemical Spill, Leak, Fire, or Exposure, Call CHEMTREC (800) 424-9300.
SEE INSIDE BOOKLET FOR FIRST AID AND ADDITIONAL PRECAUTIONARY STATEMENTS.
Not for Sale, Sale into, Distribution and/or Use in Nassau and Suffolk Counties of New York State.

EPA Reg. No.: 89168-94-89391

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

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HERBICIDE

INNVICTIS CROP CARE

SPECIMEN

FIRST AID	
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.
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 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 mouth-to mouth, if possible. • Call a poison control center or doctor for further treatment advice.

HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For emergencies call the poison control center at **1-800-222-1222**. For non-emergency resource information concerning this product, call the National Pesticides Information Center (NPIC) at **1-800-858-7378** Monday – Friday 8 am – Noon Pacific Time, (NPIC Web site: www.npic.orst.edu).
For Chemical Spill, Leak, Fire or Exposure, call CHEMTREC **800-424-9300**.

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION

Harmful if swallowed. Harmful if absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. 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)

Mixers, Loaders, Applicators, Flaggers, and other handlers must wear:

- Coveralls over short-sleeved shirt and short pants
- Chemical-resistant gloves made of barrier laminate, nitrile rubber ≥14 mils, neoprene rubber ≥14 mils, Viton ≥14 mils
- Chemical-resistant footwear plus socks
- Chemical-resistant apron, when mixing/loading, cleaning up spills, or cleaning equipment, or otherwise exposed to the concentrate.
- Chemical-resistant headgear for overhead exposure.

See Engineering Controls for additional requirements.

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. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. **DO NOT** reuse them.

Engineering Control Statements

When handlers use closed systems, enclosed cabs or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(5)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

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

ENVIRONMENTAL HAZARDS

This pesticide is toxic to aquatic invertebrates. **DO NOT** apply directly to water, to areas where surface water is present, or to intertidal areas below the mean water mark. **DO NOT** apply when weather conditions favor drift from treated areas. Runoff and drift from treated areas may be hazardous to aquatic organisms in neighboring areas. **DO NOT** contaminate water when disposing of equipment washwater.

Groundwater Advisory

Atrazine can travel (seep or leach) through soil and can enter groundwater which may be used as drinking water. Atrazine has been found in groundwater. Users are advised not to apply atrazine to sand and loamy sand soils where the water table (groundwater) is close to the surface and where these soils are very permeable, i.e., well-drained. Your local agricultural agencies can provide further information on the type of soil in your area and the location of groundwater.

Metolachlor iand Mesotrione are known to leach through soil into groundwater under certain conditions as a result of label use. These chemicals may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

Surface Water Advisory

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

Non-Target Organism Advisory

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

Reporting Ecological Incidents:

To report ecological incidents, including mortality, injury, or harm to plants and animals, call 855-466-8428.

MIXING/LOADING INSTRUCTIONS

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

This product must not be mixed/loaded or used within 50 feet of all wells, including abandoned wells, drainage wells, and sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. Operations that involve mixing, loading, rinsing, or washing of this product into or from pesticide handling or application equipment or containers within 50 feet of any well are prohibited, unless conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be positioned on or moved across the pad. Such a pad shall be designed and maintained to contain any product spills or equipment leaks, container or equipment rinse or wash water, and rain water that may fall on the pad. Surface water shall not be allowed to either flow over or from the pad, which means the pad must be self-contained. The pad shall be sloped to facilitate material removal. An

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unroofed pad shall be of sufficient capacity to contain at a minimum 110% of the capacity of the largest pesticide container or application equipment on the pad. A pad that is covered by a roof of sufficient size to completely exclude precipitation from contact with the pad shall have a minimum containment capacity of 100% of the capacity of the largest pesticide container or application equipment on the pad. Containment capacities as described above shall be maintained at all times. The above-specified minimum containment capacities **DO NOT** apply to vehicles when delivering pesticide shipments to the mixing/loading site.

This product must not be mixed or loaded within 50 feet of perennial or intermittent streams and rivers, natural or impounded lakes and reservoirs. This product may not be applied within 66 feet of the points where field surface water runoff enters perennial or intermittent streams and rivers or within 200 feet around natural or impounded lakes and reservoirs. If this product is applied to highly erodible land, the 66 feet buffer or setback from runoff entry points must be planted to crop, or seeded with grass or other suitable crop.

Additional State imposed requirements regarding well-head setbacks and operational area containment must be observed.

Tile-Outletted Terraced Fields Containing Standpipes

One of the following restrictions must be used in applying atrazine to tile-outletted terraced fields containing standpipes.

1. **DO NOT** apply this product within 66 feet of standpipes in tile-outletted terraced fields.
2. Apply this product to the entire tile-outletted terraced field and immediately incorporate it to a depth of 2 to 3 inches in the entire tile-outletted terraced field.
3. Apply this product to the entire tile-outletted terraced field under a no-till practice only when a high crop residue management practice is practiced. High crop residue management is described as a crop management practice where little or no crop residue is removed from the field during and after crop harvest.

PHYSICAL AND CHEMICAL HAZARDS

DO NOT use or store near heat or open flame.

DIRECTIONS FOR USE

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

ANY USE OF THIS PRODUCT IN AN AREA WHERE USE IS PROHIBITED IS A VIOLATION OF FEDERAL LAW. Before using this product, you must consult the Atrazine Watershed Information Center (AWIC) to determine whether the use of this product is prohibited in your watershed. AWIC can be accessed through www.atrazine-watershed.info or 1-866-365-3014. If use of this product is prohibited in your watershed, you may return this product to your point of purchase or contact INNVICTIS CROP CARE, LLC for a refund.

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

AGRICULTURAL USE REQUIREMENTS

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

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

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

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

- Coveralls over short-sleeved shirt and short pants
- Chemical-resistant gloves made of barrier laminate, nitrile rubber ≥14 mils, neoprene rubber ≥14 mils, Viton ≥14 mils
- Chemical-resistant footwear plus socks
- Chemical-resistant headgear for overhead exposure

FAILURE TO FOLLOW THE DIRECTIONS FOR USE, RESTRICTIONS AND PRECAUTIONS ON THIS LABEL MAY RESULT IN REDUCED WEED CONTROL, ADVERSE CROP RESPONSE, OR ILLEGAL CROP RESIDUES.

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

WEED RESISTANCE MANAGEMENT

For resistance management, this product contains Group 5 (atrazine), Group 15 (metolachlor) and Group 27 (mesotrione) herbicides. Any weed population may contain plants naturally resistant to Group 5, Group 15 and/or Group 27 herbicides. The resistant individual may dominate the weed population if these herbicides are used repeatedly in the same fields. Appropriate resistance-management strategies should be followed.

Weed Management

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

- Rotate the use of this product or other Group 5, Group 15 and Group 27 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds in the field.
- Use tank mixtures with herbicides from a different group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or certified crop advisor if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use and crop rotation, and that considers tillage (or other mechanical control methods), cultural (e.g., higher crop seeding rates; precision fertilizer application method and timing to favor the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Scout before and after herbicide application to monitor weed populations for early signs of resistance development. Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species. If resistance is suspected, prevent weed seed production in the affected area by an alternative herbicide from a different group

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or by a mechanical method such as hoeing or tillage. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- If a weed pest population continues to progress after treatment with this product, discontinue use of this product, and switch to another management strategy or herbicide with a different mode of action, if available.
- Contact your local extension specialist or certified crop advisors for additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact INNVICTIS CROP CARE, LLC at 855-466-8428.

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

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

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

Soil Organic Matter
The organic matter of the soil on which the application is to be made must be known or determined prior to application. The use rate of this product is based on percent soil organic matter.

Reduced and No-Till Systems
RAVINE may be used in reduced and no-till systems. To obtain optimum control, make applications as close to planting as possible. In reduced or no-till systems where weeds are present at application and the corn has not yet emerged, this product can be tank mixed with a burndown herbicide such as glyphosate, paraquat or 2,4-D. 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.

PRODUCT INFORMATION

RAVINE may be used preemergence and postemergence in field corn, field seed corn and field corn silage. This product may also be applied to sweet corn, yellow popcorn and grain sorghum, but application must be made prior to crop emergence (preemergence) or severe crop injury may occur.

RAVINE may be used for preemergence control of most annual grasses and broadleaf weeds in the crops described above. This product may also be applied early postemergence for the control of broadleaf weeds in field corn and preemergence only in sweet corn, yellow popcorn and grain sorghum. See **Tables 1** and **2** for a list of the weeds controlled. This product will not consistently control grasses that are merged at the time of application.

RAVINE is a combination of three herbicides, Metolachlor, atrazine and mesotrione with a safener added. This product controls weeds by interfering with normal germination and seedling development. It is intended for management of the weed species listed in **Tables 1** and **2**.

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

***RAVINE* USE RATES**
Before making applications of this product, determine the soil organic matter content of the field.
- For soils with <3% organic matter content, use 3.0 quarts (1.28 lbs ai Metolachlor, 1.28 lbs ai Atrazine and 0.166 b ai Mesotrione) of this product per acre.
- For soils with >3% organic matter content, use 3.5 quarts (1.49 lbs ai Metolachlor, 1.50 lbs ai Atrazine and 0.193 lb ai Mesotrione) of this product per acre.

Use of this product on soils with greater than 10% organic matter is not recommended and may result in poor weed control.

Precautions
- Where reference is made to weeds partially controlled or suppressed, this can be defined as inconsistent control from good to poor or consistent control at a level below what is typically considered acceptable for commercial weed control.
- Weed control effectiveness may be reduced in dry weather conditions following preemergence application of this product. Cultivate the field if weeds develop in conventional tillage corn.
- Sprayer or applicator contaminated with other materials may cause crop damage or sprayer clogging of the application device. Thoroughly clean sprayer or other application device before using. Dispose of cleaning solution in a responsible manner.
- This product will not provide consistent control of most emerged grass weeds.
- Severe adverse crop response and corn injury can result if applying this product postemergence to corn that has emerged and that has received an at-plant application of Terbufos insecticide. If this product is applied to emerged corn where an organophosphate insecticide other than Terbufos has been applied at planting temporary corn injury may occur.
- Postemergence applications of any carbamate or organophosphate insecticide within 7 days before or 7 days after an application of this product may result in severe corn injury.
- Avoid drift onto adjacent crops and non-target areas.
- Avoid spray overlap as crop injury may occur.
- **To Prevent Drift to Off-Site Areas Due to Runoff or Wind Erosion**
  - Avoid treating powdery dry or light sand soils when conditions are favorable for wind erosion. Under these conditions, the soil surface should first be settled by rainfall or irrigation.
  - **DO NOT** apply to impervious substrates such as paved or highly compacted surfaces.
  - **DO NOT** use tail water from the first flood or furrow irrigation of treated fields to treat non-target crops, unless at least 1/2 inch of rainfall has occurred between application and the first irrigation.

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Restrictions

- **Atrazine Rate Restrictions**
  Certain states may have established rate limitation within specific geographical areas for the use of atrazine. These more restrictive and protective requirements must be followed. Consult your state pesticide control agency for additional information. It is a violation of the law and this label to deviate from state use regulations.
  - The total pounds of atrazine applied (pounds ai per acre) must not exceed 2.5 pounds ai per acre per year.
  - Maximum application rates for atrazine in field corn, field corn seed, field corn silage, sweet corn, and yellow popcorn must be as follows:
    - If no applications of atrazine were made prior to corn emergence, apply a maximum of 2.0 pounds ai per acre as a broadcast spray.
    - If a postemergence treatment is required following an earlier herbicide application, the total atrazine applied may not exceed 2.5 pounds ai per acre per calendar year.
    - When tank mixing or sequentially applying atrazine or products containing atrazine, **DO NOT** exceed 2.5 pounds ai per acre of atrazine for any single application.
    - **DO NOT** apply more than 2.0 pounds ai per acre as a single preemergence application on soils that are not highly erodible or on highly erodible soils if at least 30% of the soil is covered with plant residues; or
    - **DO NOT** apply more than 1.6 pounds ai per acre as a single preemergence application on highly erodible soils if less than 30% of the surface is covered with plant residues, or 2.0 pounds ai per acre if only applied postemergence.
- **DO NOT** apply more than 3.5 quarts (1.49 lb ai metolachlor, 1.50 lbs ai atrazine and 0.193 lb ai mesotrione) per acre per year.
- **DO NOT** make applications more than 14 days before planting or to field corn that is taller than 12 inches.
- **DO NOT** exceed label rates, nor combined maximum seasonal rates for metolachlor, atrazine or mesotrione.
- **Grazing Restriction: DO NOT** graze or feed forage from treated areas for 45 days following application.
- **Preharvest Interval (PHI):** Field corn may be treated up to 12 inches tall. **DO NOT** harvest forage, grain or stover within 60 days after application.
- **DO NOT** apply this product through any type of irrigation system.
- **DO NOT** apply via mechanically pressurized handguns to sweet corn.
- **DO NOT** apply under conditions which favor runoff or wind erosion to soil that has been treated with this product or drift to non-target areas.
- **DO NOT** apply other solo HPPD inhibitor postemergence herbicides such as Mesotrione, Topramezone or Tembotrione to areas that have been treated with this product during the same season.
- **DO NOT** make postemergence applications of this product in a tank mix with any carbamate or organophosphate insecticide.
- **DO NOT** use with this product on any crop other than field corn (for grain, seed, or silage), sweet corn (preemergence applications only), yellow popcorn (preemergence applications only) or grain sorghum (preemergence applications only).
- **DO NOT** use this product in white popcorn or ornamental (Indian) corn.
- **DO NOT** contaminate water used for domestic purposes or irrigation water used for crops other than field corn.
- **DO NOT** apply this product by air.
- **DO NOT** contaminate feed or food with this product.
- **DO NOT** store product near seeds, fertilizers, or foodstuffs.
- Keep all containers of this product tightly closed when not in use.
- Not for use in the states of Hawaii or Alaska, or in the U.S. territories (Puerto Rico, Guam, American Samoa, the U.S. Virgin Islands, and the North Mariana Islands).
- Use on roadsides, Conservation Reserve Program (CRP) land, conifers, including Christmas Tree plantings, timber, forestry; and, Miscanthus and other perennial bioenergy crops is prohibited.

Applied according to directions and under normal growing conditions, ***RAVINE*** will not harm the treated crop. Extended periods of unusually cold and wet or hot and dry weather, insect or plant disease attack, carryover pesticide residues, the use of certain soil-applied systemic insecticides, improperly placed fertilizers or soil insecticides, may weaken crop seedlings during germination and early stages of growth. This product used under these conditions could result in crop injury.

GROUND APPLICATION

Spray Equipment

Spray nozzles should be the same size and type, spaced uniformly and should provide accurate and uniform application. Use spray nozzles that provide coarse or coarser droplet size to avoid drift yet provide good coverage. Ensure that all in-line strainer and nozzle screens in the sprayer are 50 mesh or coarser. Use a pump that can maintain pressure of at least 35 to 40 psi at the nozzles and provide proper agitation within the tank to keep the product dispersed. Lower pressures may be used with extended range or drift reduction nozzles as long as adequate coverage is maintained. Always ensure that agitation is maintained until spraying is completed, even if stopped for brief periods of time. If the agitation is stopped for more than 5 minutes, re-suspend the spray solution by running on full agitation prior to spraying.

Preemergence

Apply ***RAVINE*** in a spray volume of 10 to 80 gallons per acre.

Early Postemergence

Good weed coverage is essential for optimum weed control. Boom height for broadcast over-the-top applications should be based on the height of the crop - at least 15 inches above the crop canopy, but high enough to give uniform coverage. Apply in a spray volume of 10 to 30 gallons per acre. When weed foliage is dense, use a minimum spray volume of 20 gallons per acre. Flat fan nozzles of 80° or 110° are recommended for optimum postemergence coverage. **DO NOT** use flood jet nozzles or controlled droplet application equipment for postemergence applications. Nozzles may be angled 45° forward to enhance penetration of the crop and provide better coverage.

MANDATORY SPRAY DRIFT MANAGEMENT

Ground Boom Applications:

- User must only apply with the release height recommended by manufacturer, but no more than 3 feet above the ground or crop canopy.
- Applicators are required to use a coarse or coarser droplet size (ASABE S572).
- **DO NOT** apply when wind speeds exceed 10 miles per hour at the application site.
- User must maintain a 15 foot (4.6 meter) in-field downwind buffer (in the direction in which the wind is blowing from the edge of streams and rivers, as well as high-tide line for all estuarine/marine environments.
- **DO NOT** apply during temperature inversions.

Boomless Ground Applications:

- Applicators are required to use a coarser or coarser droplet size (ASABE S572) for all applications.
- User must maintain a 15 foot (4.6 meter) in-field downwind buffer (in the direction in which the wind is blowing from the edge of streams and rivers, as well as high-tide line for all estuarine/marine environments.
- **DO NOT** apply when wind speeds exceed 10 miles per hour at the application site.
- **DO NOT** apply during temperature inversions.

SPRAY DRIFT ADVISORIES

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

IMPORTANCE OF DROPLET SIZE

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

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Controlling Droplet Size – Ground Boom

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

Boomless Ground Applications:

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

Handheld Technology Applications

Take precautions to minimize spray drift.

BOOM HEIGHT – Ground Boom

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

SHIELDED SPRAYERS

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

TEMPERATURE AND HUMIDITY

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

TEMPERATURE INVERSIONS

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

WIND

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

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

ADDITIVES / ADJUVANTS

Where this product is applied after field corn has emerged, a non-ionic surfactant at 0.25% v/v (1 quart per 100 gallons) may be used. This use of a crop oil concentrate (COC) may result in temporary crop injury. If used, add COC at a rate that does not exceed 1% v/v (1 gallon per 100 gallons) or no more than 1 quart per acre. **DO NOT** use nitrogen based adjuvants (AMS or UAN) or methylated seed oil (MSO) with this product when applied alone to emerged field corn or when this product is applied as a postemergence tank mixture with other products, unless directed for a specific tank mix on this label or as a part of a supplemental label of this product. Any of these adjuvants may be used as a preemergence or preplant timing, i.e., where the corn crop has not yet emerged to increase burndown activing on existing weeds. **DO NOT** apply this product to emerged sweet corn or yellow popcorn or severe crop injury may occur.

Tank Mixtures with Glufosinate: For tank mixtures of this product with glufosinate applied to emerged field corn (glufosinate-tolerant hybrids only, e.g. LibertyLink®), AMS may be added as directed on the glufosinate product label. However, AMS should be the only adjuvant added to this tank mixture or severe crop injury may occur. 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.

Early Preplant: This product may be applied up to 14 days before planting.

Preemergence Surface: This product may be applied to the soil surface as a broadcast or banded application. **DO NOT** exceed 3.5 quarts of this product per year.

Banded Preemergence: Make applications of ***RAVINE*** in a 10- to 15-inch band after corn planting but before corn has emerged.

Band Applications: For banded applications, using row and band width measurements in inches, calculate the amount of product to be applied per acre as follows:

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Rate per acre for a broadcast treatment} = \text{Amount needed per acre}$$

Early Postemergence: ***RAVINE*** may be applied after field corn has emerged. See the **Adjuvants** section of this label for specific recommendation if using an adjuvant. **DO NOT** make applications early postemergence to field corn with liquid fertilizer or severe adverse crop response or crop injury may result. Apply this treatment to small broadleaf weeds (less than 5 inches tall) and before the field corn exceeds 12 inches in height. Occasional field corn leaf burn may result, but this will not affect later growth or corn yield. **DO NOT** make applications of this product to sweet corn or yellow popcorn that has emerged or severe adverse crop response or crop injury may result.

Emerged Grass Weeds: ***RAVINE*** will not provide consistent control of emerged grass weeds. For control of emerged grass weeds a grass herbicide tank mix may be required (see ***RAVINE*** **Applied in Tank Mixtures** section).

Sprinkler Irrigation

DO NOT apply this product by sprinkler irrigation. Use a sprinkler system only to incorporate this product after application. After this product has been applied, a sprinkler irrigation system set to deliver 0.5 to 1 inch of water may be used to incorporate the product. **DO NOT** use flood irrigation to apply or incorporate this product.

CULTIVATION

Should weeds develop, a shallow cultivation or rotary hoeing will generally result in improved weed control. If this product was incorporated, cultivate less than half the depth of incorporation.

If cultivation is necessary due to escaped weeds, compaction, or soil crusting, adjust equipment to run shallow and minimize soil movement. This will decrease the potential of diluting or moving the herbicide away from the weed control zone.

MIXING PROCEDURES

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

Preemergence Applications: Use either clean water or liquid fertilizers (excluding suspension fertilizers) as carriers for preemergence applications. If using fluid fertilizers, a compatibility test must be conducted. See **Compatibility Test** section for additional information. Even if this product is determined to be physically compatible with a fluid fertilizer, constant agitation will be necessary to maintain a uniform solution during application.

Postemergence Applications: Use only clean water as the carrier when making applications of this product after field corn emergence.

Postemergence Restriction

- **DO NOT** apply this product to sweet corn, yellow popcorn or grain sorghum that has emerged.

Adding *RAVINE* to the Spray Tank

The spray tank must be clean, thoroughly rinsed and decontaminated before adding either this product alone or with tank mix partners. If water is used as carrier, use clean water.

RAVINE **Applied Alone:** When this product is used alone, add the specified amount of this product to the spray tank when the tank is half full of the carrier, then add the rest of the water or fluid fertilizer. Provide sufficient agitation during mixing and application to maintain a uniform mixture.

SPECIMEN

***RAVINE* Applied in Tank Mixtures:** Refer to the sections on this label for listed tank mixes. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

DO NOT exceed label dosage rates, nor combined maximum seasonal doses for Metolachlor, atrazine or mesotrione. This product cannot be mixed with any product bearing a label prohibition against such mixing. If a tank mixture is used, a compatibility test must be done. See **Compatibility Test** section for details on the procedure for such a test.

COMPATIBILITY TEST

To ensure compatibility of a tank-mixture of this product with other pesticides, conduct a compatibility test using the following test. The following test assumes a spray volume of 25 gallons per acre. For other spray volumes, make appropriate changes in the ingredients.

Note: Nitrogen solutions or complete liquid fertilizers, excluding suspension fertilizers, may replace all or part of the water in the spray. Because liquid fertilizers vary, even within the same analysis, always check compatibility with pesticide(s) before use. Incompatibility of tank-mixtures is more common with mixtures of fertilizer and pesticides.

Compatibility Test Procedure

1. Add 1.0 pint of water or fertilizer carrier to each of two - 1 quart jars with tight lids. Use the same source of water that will be used for the tank mix and conduct the test at the temperature the tank mix will be applied.
2. To one of the jars, add 1/4 teaspoon or 1.2 mL of a compatibility agent approved for the intended use, such as Innvictis Envelop™ (1/4 teaspoon equals 2.0 pints per 100 gallons of spray). Shake or stir gently to mix.
3. To both jars, add the appropriate amount of pesticide(s) in their relative proportions based on specified label rates. If more than one pesticide product will be used, add them separately with dry pesticides first, flowables next and emulsifiable concentrates last. After each addition, shake or stir gently to thoroughly mix.
4. After adding all ingredients, put lids on and tighten and invert each jar ten times to mix. Let the mixtures stand 15 to 30 minutes and then look for separation, large flakes, precipitates, gels, heavy oily film on the jar or other signs of incompatibility. Determine if the compatibility agent is needed in the spray mixture by comparing the two jars. If either mixture separates, but can be remixed readily, the mixture can be sprayed as long as good agitation is used. If the mixtures are incompatible, test the following methods of improving compatibility: (a) slurry the dry pesticide(s) in water before addition or (b) add one-half the compatibility agent to the fertilizer or water and the other one-half to the emulsifiable concentrate or flowable pesticide before addition to the mixture. If incompatibility is still observed, **DO NOT** use the mixture.
5. After compatibility testing is complete, dispose of any pesticide wastes in accordance with the **STORAGE AND DISPOSAL** section in this label.

TANK MIXTURES

Tank Mix Instructions

If the tank mix partner is compatible, fill the tank half full of the carrier. Start and continue agitation throughout mixing and spraying. All return lines to the spray tank must discharge below the liquid level. Prepare the components and add in the following order:

1. If a wettable powder or dry flowable formulation is used, make a slurry with water and add it slowly through the screen into the tank. Agitate during the procedure.
2. If a flowable formulation is used, add slowly through screen into the tank. Mixing and compatibility may be improved when a dry flowable is diluted with water before adding to the tank.
3. Add this product.
4. Add any other tank mix products next with emulsifiable concentrates added last.
5. Add adjuvant last, if needed.
6. Complete filling the sprayer tank and continue agitation. Apply as soon as possible after spray mixture is prepared. **DO NOT** leave mixture in spray tank overnight without agitation or unattended.

Cleaning Equipment After Application

Special attention must be given to cleaning equipment before spraying crops other than field corn. Mix only as much spray solution as needed.

1. Flush tank, hoses, boom and nozzles with clean water.
2. Prepare a cleaning solution of 1 gallon of household ammonia per 25 gallons of water. Many commercial spray tank cleaners may be used.
3. Use a pressure washer to clean the inside of the spray tank with this solution. Wash all parts of the tank, including the inside top surface. If a pressure washer is not available, completely fill the sprayer with the cleaning solution to ensure contact of the cleaning solution with all internal surfaces of the tank and plumbing. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
4. Flush hoses, spray lines and nozzles for at least 1 minute with the cleaning solution.
5. Dispose of rinsate from steps 1 to 3 in an appropriate manner according to state and federal regulations.
6. Repeat steps 2 to 5.
7. Remove nozzles, screens and strainers and clean separately in the ammonia solution after completing the above procedures.
8. Rinse the complete spraying system with clean water.

WEEDS CONTROLLED

RAVINE applied as directed in this label will control or partially control the weeds listed in **Tables 1** and **2**. Tank mixtures may control additional weeds. See the **Tank Mix Instructions** section of this label for additional information. 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.

Thoroughly till soil or make an application of a burndown herbicide to destroy germinating and emerged weeds prior to planting. Plant crop into moist soil immediately after tillage.

If a significant rainfall does not occur within 7 days after application, weed control may be decreased. If irritation is available, apply 0.5 to 1 inch of water. If irrigation is not available, a uniform shallow cultivation is recommended as soon as weeds emerge.

Table 1. Weeds Controlled or Partially Controlled by Preemergence Applications of *RAVINE*

Common Name	Scientific Name	Control (C) Partial Control (PC)
BROADLEAF WEEDS		
Amaranth, Palmer	*Amaranthus palmeri*	C
Amaranth, Powell	*Amaranthus powellii*	C
Bedstraw, catchweed	*Galium aparine*	PC
Beggarweed, Florida	*Desmodium tortuosum*	C
Buckwheat, wild	*Polygonum convolvulus*	C
Buffalobur	*Solanum rostratum*	C
Carpetweed	*Mollugo verticillata*	C
Chickweed, common	*Stellaria media*	C
Cocklebur, common	*Xanthium strumarium*	PC
Deadnettle, purple	*Lamium purpureum*	C
Devil's claw	*Proboscidea louisianica*	C
Galinsoga	*Galinsoga parviflora*	C
Henbit	*Lamium amplexicaule*	C
Horseweed (marestail)	*Conyza canadensis*	C
Jimsonweed	*Datura stramonium*	C

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PREVIEW

Common Name	Scientific Name	Control (C) Partial Control (PC)
Kochia	*Kochia scoparia*	C
Lambsquarters, common	*Chenopodium album*	C
Mallow, Venice	*Hibiscus trionum*	C
Morningglory, entireleaf	*Ipomoea hederacea*	PC
Morningglory, ivyleaf	*Ipomoea hederacea*	PC
Mustard, wild	*Brassica kaber*	C
Nightshade, black	*Solanum nigrum*	C
Nightshade, Eastern black	*Solanum ptycanthum*	C
Nightshade, hairy	*Solanum sarrachoides*	C
Pigweed, redroot	*Amaranthus retroflexus*	C
Pigweed, smooth	*Amaranthus hybridus*	C
Puncturevine	*Tribulus terrestris*	PC
Purslane, common	*Portulaca oleracea*	C
Pusley, Florida	*Richardia scabra*	C
Radish, wild	*Raphanus raphanistrum*	C
Ragweed, common	*Ambrosia artemisiifolia*	C
Ragweed, giant	*Ambrosia trifida*	PC
Sesbania, hemp	*Sesbania exaltata*	C
Shepherd's purse	*Capsella bursa-pastoris*	C
Sicklepod	*Senna obtusifolia*	PC
Sida, prickly	*Sida spinosa*	C
Smartweed, ladysthumb	*Polygonum persicaria*	C
Smartweed, Pennsylvania	*Polygonum pensylvanicum*	C
Sunflower, common	*Helianthus annus*	PC
Velvetleaf	*Abutilon theophrasti*	C
Waterhemp, common	*Amaranthus rudis*	C
Waterhemp, tall	*Amaranthus tuberculatus*	C
GRASSES		
Barnyardgrass	*Echinochloa crus-galli*	C
Crabgrass	*Digitaria spp.*	C
Crowfootgrass	*Dactyloctenium aegyptium*	C
Cupgrass, prairie	*Eriochloa contracta*	C
Cupgrass, Southwestern	*Eriochloa gracilis*	C
Cupgrass, woolly	*Eriochloa villosa*	PC
Foxtail, giant	*Setaria faberi*	C
Foxtail, green	*Setaria viridis*	C
Foxtail, robust (purple, white)	*Setaria spp.*	C
Foxtail, yellow	*Setaria pumila*	C
Goosegrass	*Eleusine indica*	C
Johnsongrass, seedling	*Sorghum halepense*	PC
Millet, foxtail	*Setaria italica*	C
Millet, wild proso	*Panicum miliaceum*	PC
Panicum, browntop	*Panicum fasciculatum*	C
Panicum, fall	*Panicum dichotomiflorum*	C
Panicum, Texas	*Panicum texanum*	PC
Rice, red	*Oryza sativa*	C
Sandbur, field	*Cenchrus incertus*	PC
Shattercane	*Sorghum bicolor*	PC
Signalgrass, broadleaf	*Brachiaria platyphylla*	PC
Signalgrass, narrowleaf	*Brachiaria piligera*	C
Sprangletop, red	*Leptochloa filiformis*	C
Starbur, bristly	*Acanthospermum hispidum*	C
Witchgrass	*Panicum capillare*	C
SEDGES		
Nutsedge, yellow	*Cyperus esculentus*	C

Table 2. Weeds Controlled or Partially Controlled by Early Postemergence Applications of *RAVINE**

Common Name	Scientific Name	Control (C) Partial Control (PC)
BROADLEAF WEEDS		
Amaranth, Palmer	*Amaranthus palmeri*	C
Amaranth, Powell	*Amaranthus powellii*	C
Bedstraw, catchweed	*Galium aparine*	PC
Beggarweed, Florida	*Desmodium tortuosum*	C
Buckwheat, wild	*Polygonum convolvulus*	C
Buffalobur	*Solanum rostratum*	C
Carpetweed	*Mollugo verticillata*	C
Chickweed, common	*Stellaria media*	C
Cocklebur, common	*Xanthium strumarium*	C
Dandelion	*Taraxacum officinale Weber*	PC
Deadnettle, purple	*Lamium purpureum*	C
Devil's claw	*Proboscidea louisianica*	C
Galinsoga	*Galinsoga parviflora*	C
Hemp	*Cannabis sativa L.*	C
Henbit	*Lamium amplexicaule*	C
Horsenettle	*Solanum carolinense*	C
Horseweed (marestail)	*Conyza canadensis*	C
Jimsonweed	*Datura stramonium*	C
Kochia	*Kochia scoparia*	C
Lambsquarters, common	*Chenopodium album*	C
Mallow, Venice	*Hibiscus trionum*	C
Marestail	*Hippuris vulgaris L.*	C
Morningglory, entireleaf	*Ipomoea hederacea*	C
Morningglory, ivyleaf	*Ipomoea hederacea*	C

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Common Name	Scientific Name	Control (C) Partial Control (PC)
Mustard, wild	*Brassica kaber*	C
Nightshade, black	*Solanum nigrum*	C
Nightshade, Eastern black	*Solanum ptycanthum*	C
Nightshade, hairy	*Solanum sarrachoides*	C
Pigweed, redroot	*Amaranthus retroflexus*	C
Pigweed, smooth	*Amaranthus hybridus*	C
Pokeweed	*Phytolacca americana*	C
Potatoes, volunteer	*Solanum spp.*	C
Purslane, common	*Portulaca oleracea*	C
Pusley, Florida	*Richardia scabra*	C
Radish, wild	*Raphanus raphanistrum*	C
Ragweed, common	*Ambrosia artemisiifolia*	C
Ragweed, giant	*Ambrosia trifida*	C
Sesbania, hemp	*Sesbania exaltata*	C
Shepherd's purse	*Capsella bursa-pastoris*	C
Sida, prickly	*Sida spinosa*	C
Smartweed, ladysthumb	*Polygonum persicaria*	C
Smartweed, Pennsylvania	*Polygonum pensylvanicum*	C
Sunflower, common	*Helianthus annus*	C
Thistle, Canada	*Cirsium arvense*	C
Velvetleaf	*Abutilon theophrasti*	C
Waterhemp, common	*Amaranthus rudis*	C
Waterhemp, tall	*Amaranthus tuberculatus*	C
GRASSES		
Crabgrass, large	*Digitaria spp.*	C**
Signalgrass, broadleaf	*Brachiaria platyphylla*	C**
SEDGES		
Nutsedge, yellow	*Cyperus esculentus*	PC

* This product will not provide consistent control of emerged weeds.
** Apply before weed exceeds 2 inches in height.

ROTATIONAL CROPS

When rotating crops following an application of this product:

- **DO NOT** rotate to crops other than corn (all types), cotton, peanuts, small grain cereals, sorghum or soybeans, the Spring following application of this product.
- If crop is lost, field corn, field seed corn, field silage corn, sweet corn, yellow popcorn and grain sorghum (seed treated with a seed safener that provides tolerance to Metolachlor) may be replanted immediately. **DO NOT** reapply this product.
- If this product is applied after June 1, rotating to crops other than corn (all types) or sorghum the next Spring may result in crop injury.
- Injury may occur to soybeans planted the year following application on soils having a calcareous surface layer, e.g., those found within the Clarion-Nicollet-Webster soil series of Northern Iowa and Southern Minnesota.
- In eastern parts of the Dakotas, Kansas, Western Minnesota and Nebraska, **DO NOT** rotate to Soybeans for 18 months following application if the combined atrazine rate applied was more than 2.0 pounds ai per acre or equivalent band application rate or soybean injury may occur.
- In the High Plains and Intermountain areas of the West, where rainfall is sparse and erratic or where irrigation is required, use only when corn (all types) or sorghum is to follow field corn or a crop of untreated corn (all types) or sorghum is to precede other rotational crops.
- For all other crops, wait for 18 months.

CROP USE DIRECTIONS

This product contains 1.70 pounds of metolachlor, 1.66 pounds of atrazine and 0.218 pounds mesotrione active ingredients (a.i.) per gallon. The equivalent amount of active ingredient contained in this product is shown below.

Amount of *RAVINE* (Quarts per Acre)	Pounds of AI Contained in *RAVINE*		
	Metolachlor ai	Atrazine ai	Mesotrione ai
1	0.42	0.41	0.05
1.25	0.53	0.52	0.07
1.5	0.64	0.62	0.08
1.75	0.74	0.73	0.09
2	0.85	0.83	0.11
2.25	0.96	0.93	0.12
3	1.27	1.24	0.16
3.5	1.49	1.45	0.19

CORN
(Field Corn, Seed Corn, Corn Silage, Sweet Corn and Yellow Popcorn)

RAVINE is for preemergence use to control most annual grass and broadleaf weeds in field corn, field seed corn, field corn silage, sweet corn and yellow popcorn. This product may also be applied early postemergence to control broadleaf weeds in field corn, field seed corn and field corn silage.

See **Tables 1** and **2** for a list of weeds controlled or partially controlled. This product will not consistently control grasses that have emerged at the time of application. A tank mix with another herbicide may be required for control of emerged weed grasses (refer to the Tank Mixtures section of this label).

RAVINE USE RATES

Make application of *RAVINE* at 3.0 to 3.5 quarts per acre for control or suppression of the weeds listed in **Tables 1** and **2**. The soil organic matter content of the field on which this product is to be applied must be known. **DO NOT** make applications to field corn taller than 12 inches, or apply more than 3.5 quarts per acre per year.

***RAVINE* Use Rates in Corn**

% Organic Matter	*RAVINE* Use Rate per Acre
<3%	3.0 quarts
≥3%	3.5 quarts
Use of this product on soils with >10% soil organic matter is not recommended and may result in poor weed control.	

RAVINE APPLIED ALONE

Early Preplant: This product may be applied up to 14 days before planting.

Preemergence Surface: This product may be applied to the soil surface as a broadcast or banded application.

Banded Preemergence: Make applications of this product in a 10- to 15-inch band after corn planting but before corn has emerged.

Band Applications: For banded applications, using row and band width measurements in inches, calculate the amount of product to be applied per acre as follows:

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$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Rate per acre for a broadcast treatment} = \text{Amount needed per acre}$$

Early Postemergence: ***RAVINE*** may be applied after field corn has emerged. See the **Adjuvants** section of this label for specific recommendation if using an adjuvant. Apply this treatment to small broadleaf weeds (less than 5 inches tall) and before the field corn exceeds 12 inches in height. Occasional field corn leaf burn may result, but this will not affect later growth or corn yield.

If applications of metolachlor or s-metolachlor, and atrazine (either alone or in combination) have been made prior to an application of this product, limit the amount of this product as an early postemergent application to no more than a total of 2.5 lbs. of atrazine active ingredient or 3.75 lbs. of metolachlor active ingredient per acre, or illegal crop residues may result.

Split Application: ***RAVINE*** may be applied as split application in field corn, field corn seed corn and field corn silage. For a split application program, apply 1.5 to 2.0 quarts of this product per acre prior to crop emergence followed by a second application of this product at a rate of 1.25 to 1.75 quarts per acre as post-application after corn emergence. The total amount of this product applied in the split application program cannot exceed 3.0 quarts per acre in soils with <3% organic matter and cannot exceed 3.5 quarts per acre in soils with ≥ 3% organic matter. Refer to the **Early Postemergence** section above for instructions on postemergence applications.

RAVINE **IN TANK MIXTURES**

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

Use of Spray Adjuvants in Tank Mixtures

When ***RAVINE*** is used as a preemergence herbicide and before weeds have emerged, spray adjuvants have little or no influence on performance. However, in burndown situations where the weeds have emerged and corn has not, an adjuvant may be used with this product applied alone or when applied in tank-mixture with a burndown herbicide as allowed on the individual product labels. Use only those adjuvants suitable for agricultural crop use. See **Adjuvants** section for further instructions.

Reduced Tillage Burndown Combinations

In reduced or no-till corn and prior to crop emergence, ***RAVINE*** tank mixtures with glyphosate or paraquat will burndown weeds that have emerged. For optimum results, tank mix applications of ***RAVINE*** plus paraquat should be made to weeds that are 1 to 6 inches in height. Consult the paraquat or glyphosate product label for further information on weeds controlled and application timings

Preemergence Tank-mixtures Applied Before Corn Emergence

The tank mix partners listed in **Table 3** may be used in either conventional, reduced or no-till systems and be applied by the same methods and at the same timings as this product unless otherwise specified in the tank-mix product label. Follow all tank mix product labels for use rates, precautions and restrictions. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Perform a compatibility test prior to spraying the tank mix application. Tank-mixtures with 2,4-D are allowed, but should only be done with extreme care with regard to ensuring compatibility before mixing a load. 2,4-D products (and even their batches), vary greatly with regard to compatibility and should be checked each time a water or carrier source, water or carrier temperature, product source or tank-mixture recipe is changed.

Table 3. Tank Mixtures of *RAVINE* for Preemergence Application in Corn

TANK MIX PARTNER	PURPOSE
Atrazine	Improved broadleaf and grass weed control
Glyphosate	Burndown existing weeds
Paraquat	Burndown existing weeds
Simazine	Improved broadleaf and grass weed control
Lambda-cyhalothrin	Insect control

Early Postemergence Tank Mixtures Applied After Corn Emergence

The tank-mix partners listed in **Table 4** may be used in conventional, reduced or no-till systems and can be applied by the same methods and timings as this product unless otherwise specified in the tank mix product label. Follow all tank mix product labels for use rates and restrictions. Perform a compatibility test prior to spraying the tank mix application. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Table 4. Tank Mixtures of *RAVINE* for Early Postemergence Application in Corn

TANK MIX PARTNER*	PURPOSE
Atrazine	Improved broadleaf and grass weed control
Glufosinate (only for corn hybrids designated as glufosinate-tolerant, e.g. LibertyLink)	Emerged grass control
Nicosulfuron	Emerged grass control
Nicosulfuron + Rimsulfuron	Emerged grass control
Rimsulfuron + Thifensulfuron methyl	Emerged grass control
Lambda-cyhalothrin	Insect control
* Refer to the **Adjuvants** section for directions when applying this product in postemergence tank mixtures to field corn.	

Programs for Use of *RAVINE* with Glyphosate to Glyphosate Tolerant Corn

RAVINE may be applied early postemergence at a rate down to 2.25 quarts per acre in tank mix with a solo glyphosate product that is registered for use for over-the-top use in glyphosate tolerant field corn.

To minimize weed competition with the crop, target the application of this mixture to weeds in the 1 to 2 inch range. If the glyphosate product has a built-in adjuvant system (the product label does not for additional adjuvant), only spray-grade ammonium sulfate (AMS) at 8.5 pounds per 100 gallons should be added to the tank mixture. If the glyphosate product label calls for an adjuvant in addition to AMS, add a non-ionic surfactant (NIS) at 0.25% v/v and AMS to this spray tank mixture. Read and follow all directions for use, precautions and restrictions on the tank mix partner glyphosate label.

Alternatively, ***RAVINE*** may be applied preemergence at a rate down to 2.25 quarts per acre as part of a two-pass weed control program when followed by a postemergence application of a glyphosate-containing product in glyphosate-tolerant corn. When used in this manner, this product will provide reduced competition of the weeds listed **Table 1** for a period of 30 or more days, improving the timing flexibility and effectiveness of the glyphosate-based product application. Follow all directions for use, precautions and restrictions on the glyphosate product label.

Programs for Use of *RAVINE* in Glufosinate Tolerant Corn

RAVINE may be applied early postemergence at a rate down to 2.25 quarts per acre in tank mixture with glufosinate and applied over-the-top in field corn designated as glufosinate-tolerant. To minimize weed competition with the crop, target the application of this mixture to weeds in the 1 to 2 inch range. Ammonium sulfate (AMS) may be added as a spray adjuvant

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as directed on the glufosinate label. However, AMS should be the only adjuvant added to this tank-mixture. Follow all directions for use and restrictions on the glufosinate product label.

Alternatively, ***RAVINE*** may be applied preemergence at a rate down to 2.25 quarts per acre as part of a two-pass weed control system when followed by a postemergence application of glufosinate in field corn designated as glufosinate-tolerant. When used in this manner, this product will provide reduced competition of the weeds listed in **Table 1** for a period of 30 or more days, improving the timing flexibility and effectiveness of the glufosinate application. Follow all directions for use and restrictions on the glufosinate product label.

Precautions

- It is not advised to apply this product on soils with greater than 10% organic matter or poor weed control may result.
- **DO NOT** apply early postemergence to field corn in liquid fertilizer or severe adverse crop response or crop injury may result.
- **Glyphosate-tolerant Corn**
  - **DO NOT** use urea ammonium nitrate (UAN), crop oil concentrate (COC), or methylated seed oil (MSO) type adjuvants in these tank mixtures, or crop injury may result.
- **Glufosinate-tolerant Corn**
  - **DO NOT** add urea ammonium nitrate (UAN), crop oil concentrate (COC), nonionic surfactants or methylated seed oil (MSO) type adjuvants to these mixtures or crop injury may occur.

Restrictions

- **DO NOT** apply this product to emerged sweet corn or yellow popcorn.
- **DO NOT** apply to field corn taller than 12 inches.
- **DO NOT** apply via mechanically pressurized handguns to sweet corn.
- **DO NOT** apply more than the labeled rate for a given soil texture per year, either as a split or single treatment.
- Except for the split application, **DO NOT** make more than one application per year.
- **Early Postemergence**
  - **DO NOT** apply more than of 3.75 pounds of metolachlor ai or 2.5 pounds of atrazine ai per acre if products containing metolachlor or atrazine have been applied prior to application of this product.
  - **DO NOT** apply to field corn in liquid fertilizer or severe crop injury may occur.
- **Early Postemergence Tank Mixtures Applied After Corn Emergence**
  - **DO NOT** apply tank-mixtures of this product to emerged sweet corn or yellow popcorn.
- **Glyphosate-tolerant Corn**
  - **DO NOT** apply this mixture to corn that is greater than 12 inches tall.
- **Glufosinate-tolerant Corn**
  - **DO NOT** apply this mixture to corn that is greater than 12 inches tall.

GRAIN SORGHUM

RAVINE can be applied preplant non-incorporated (up to 21 days before planting) through preemergence for weed control in sorghum that was seed treated with a seed safener that provides tolerance to Metolachlor. For a listing of weeds controlled or partially controlled by this product, see **Table 1**.

Apply ***RAVINE*** at a rate of 3.0 quarts per acre as a broadcast non-incorporated spray beginning at 21 days before planting through planting but prior to sorghum emergence. Applying this product less than 7 days before sorghum planting will increase the risk of crop injury especially if irrigation or rainfall is received following application. Injury symptoms include temporary bleaching of newly emerging sorghum leaves or in extreme conditions, stunting or partial stand loss. Applying this product more than 7 days (but not more than 21) prior to sorghum planting will reduce the risk of crop injury.

If ***RAVINE*** is applied prior to planting, minimize disturbance of the herbicide treated soil barrier during the planting process in order to lessen the potential for poor weed control in the disturbed soil zone.

RAVINE may also be applied as a split application to grain sorghum. For split application program, apply this product at 1.5 to 1.75 quarts per acre as a non-incorporated early preplant (7 to 21 days before planting) followed by a second application of this product at the rate of 1.25 to 1.5 quarts per acre as a preemergence prior to sorghum emergence. The total amount of this product applied in the split application program cannot exceed 3.0 quarts per acre.

If weeds are present at the time of application, add a nonionic surfactant type of adjuvant at a rate of 0.25% v/v or crop oil concentrate at a rate of 1% v/v to the spray solution. In addition to COC or NIS, a spray grade UAN at a rate of 2.5% v/v or AMS at a rate of 8.5 pounds per 100 gallons of spray may be added to the solution for improved control of emerged weeds. If weeds are not emerged at the time of application, no additives are needed.

Restrictions

- **DO NOT** apply more than 3.0 quarts (1.29 lb ai metolachlor, 1.28 lb ai atrazine and 0.166 lb ai mesotrione) per acre per application.
- **DO NOT** apply more than 3.0 quarts (1.29 lb ai metolachlor, 1.28 lb ai atrazine and 0.166 lb ai mesotrione) per acre per year.
- Except for the split application, **DO NOT** make more than one application per year.
- **DO NOT** apply this product to sorghum grown on sandy soils (sand, sandy loam or loamy sand).
- **DO NOT** apply this product to emerged grain sorghum or severe injury will occur.
- **DO NOT** use this product in the production of forage sorghum, sweet sorghum (sorgo), sudangrass, sorghum-sudangrass hybrids or dual purpose sorghum.
- Sorghum seed must be treated with a seed safener that provides tolerance to Metolachlor prior to planting, or severe crop injury may occur.
- **DO NOT** apply atrazine and propazine products to the same sorghum acre.
- **In Texas: DO NOT** apply this product to sorghum grown South of Interstate 20 (1-20) or East of Highway 277.

SPECIMEN

STORAGE AND DISPOSAL

DO NOT contaminate water, food, or feed by storage or disposal.

Pesticide Storage

Store in original container. Keep container tightly closed when not in use. **DO NOT** store near seeds, fertilizers, or foodstuffs. **DO NOT** use containers for the storage of food, feed or drinking water. Keep away from heat and flame. In case of spill or leak on floor or paved surfaces, soak up with sand, earth, or synthetic absorbent. Remove to chemical waste area.

Pesticide Disposal

Open dumping is prohibited. Waste resulting from the use of this product must be disposed of on site or at an approved waste disposal facility. Rinse spray equipment. Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of as described above, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

Container Handling:

NONREFILLABLE CONTAINER (EQUAL TO OR LESS THAN 5 GALLONS): DO NOT reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Offer for recycling, if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

NONREFILLABLE CONTAINER (GREATER THAN 5 GALLONS): DO NOT reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Offer for recycling, if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

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

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

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

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

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather, presence of other materials or other influencing factors in the use of the product, which are beyond the control of INNVICTIS CROP CARE, LLC or Seller. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW all such risks shall be assumed by Buyer and User and Buyer and User agree to hold INNVICTIS CROP CARE, LLC and Seller harmless for any claims relating to such factors.

INNVICTIS CROP CARE, LLC warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or INNVICTIS CROP CARE, LLC, and TO THE EXTENT CONSISTENT WITH APPLICABLE LAW Buyer and User assume the risk of any such use. To the extent consistent with applicable law INNVICTIS CROP CARE, LLC MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

To the extent consistent with applicable law, neither INNVICTIS CROP CARE, LLC nor Seller shall 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 INNVICTIS CROP CARE, LLC 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 INNVICTIS CROP CARE, LLC OR SELLER, THE REPLACEMENT OF THE PRODUCT.

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Use of this product in certain portions of California, Oregon, and Washington is subject to the January 22, 2004 Order for injunctive relief in Washington Toxics Coalition, et al. v. EPA, C01-0132C, (W.D. WA). For further information, please refer to https://www.epa.gov/endangered-species/endangered-species-case-washington-toxics-coalition-v-epa.

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