

# RESTRICTED USE PESTICIDE

## DUE TO 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 statement and instructions for use in order to minimize potential for atrazine to reach ground and surface water.

GROUP

5

15

27

HERBICIDES

# RAVINE™

**An herbicide product for pre-emergence and post-emergence use in corn (field, seed, silage, sweet and yellow popcorn) and grain sorghum for control of grass and broadleaf weeds**

### Active Ingredients\*:

Metolachlor .....	19.00%
Atrazine .....	18.60%
Related active triazine compounds .....	0.48%
Mesotrione .....	2.44%

**Other Ingredients:** ..... 59.48%

**Total:** ..... **100.00%**

\*Equivalent to 1.70 lbs. a.i./gal. metolachlor; 0.218 lb. a.i./gal. mesotrione; and 1.66 lbs. a.i./gal. atrazine.

## KEEP OUT OF REACH OF CHILDREN CAUTION

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

See inside booklet for complete First Aid, Precautionary Statements and Directions For Use.

EPA Reg. No.: 83100-47-91395



Distributed By:  
**ALTITUDE CROP INNOVATIONS®, LLC**  
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Loveland, CO 80538

020717R040317A

## FIRST AID

<b>IF IN EYES:</b>	<ul style="list-style-type: none"><li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li><li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"><li>• Call a poison control center or doctor immediately for treatment advice.</li><li>• Have person sip a glass of water if able to swallow.</li><li>• Do not induce vomiting unless told to by the poison control center or doctor.</li><li>• Do not give anything to an unconscious person.</li></ul>
<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>IF INHALED:</b>	<ul style="list-style-type: none"><li>• Move person to fresh air.</li><li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li><li>• Call a poison control center or doctor for further treatment advice.</li></ul>

## HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For 24-Hour Medical Emergency Assistance (Human or Animal), call: **1-800-222-1222**. For Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), call CHEMTREC: **1-800-424-9300**.

## PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS & DOMESTIC ANIMALS CAUTION

Causes moderate eye irritation. Harmful if swallowed. 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.

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

### All Mixers, Loaders, Applicators, Flagger, and other handlers must wear:

- Coveralls over short-sleeved shirt and short pants
- Chemical-resistant gloves (e.g., barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinyl chloride (PVC) or Viton)
- 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:

- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. If pesticide gets on skin, wash immediately with soap and water.
- 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 wash water.

### GROUND WATER ADVISORY

Atrazine can travel (seep or leach) through soil and can enter ground water which may be used as drinking water. Atrazine has been found in ground water. Users are advised not to apply atrazine to sand and loamy sand soils where the water table (ground water) 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 ground water.

Metolachlor has the potential to leach through soil into ground water under certain conditions as a result of agricultural use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

### SURFACE WATER ADVISORY

The active ingredients in this product have the potential to contaminate surface water through ground spray drift. Under some conditions, the active ingredients may also have a high potential for runoff into surface water (primarily via dissolution in runoff water) for several months post-application. These include poorly drained or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas overlaying extremely shallow ground water, 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 overlaying tile drainage systems that drain to surface water.

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 for contamination of water from runoff. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours. Sound erosion control practices will reduce this product's contribution to surface water contamination.

### MIXING/LOADING INSTRUCTIONS

This product must be used in a manner that will prevent back siphoning into wells and prevent spills. Dispose of excess pesticide, spray mixtures or rinsates properly.

Mixing equipment must have check valves or anti-siphoning devices in use.

Do not mix or load this product within 50 feet of wells (including abandoned wells and drainage wells), sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. This restriction does not apply to plugged abandoned well or wells that are properly capped and does not apply to impervious pads or mixing/loading areas that are properly diked. This product must not be applied within 66 ft. of points where field surface water runoff enters perennial or intermittent streams and rivers or within 200 ft. of natural or impounded lakes and reservoirs. If this product is applied to highly erodible land, the 66-foot buffer or setback from runoff entry points must be planted to crop, or seeded with grass or other suitable crop.

Mixing, loading, rinsing, or washing of this product into or from pesticide handling or application equipment or containers within 50 feet of any well is strictly prohibited unless on an impervious pad constructed to withstand the weight of the heaviest load that could be on or moved across the pad. The pad must be designed and maintained to contain any product spills or equipment leaks, container or equipment rinse or wash water, and rainwater that may fall on the pad. Surface water must not be allowed to flow over or from the pad. To facilitate material removal, the pad must be sloped. A pad that is not under cover must have capacity to hold a minimum of 110% of the capacity of the largest pesticide product container or application equipment that will be on the pad. Covered pads that are completely protected from precipitation must have a minimum containment capacity of 100% of the capacity of the largest pesticide container or application equipment that will be on the pad. The containment capacities must be as specified and maintained at all times. Minimum specific containment capacities do not apply to vehicles that deliver pesticides to the mixing/loading site. There may be additional state requirements regarding containment and well setback restrictions. Consult local authorities for additional information.

**Tile-Outletted Terraced Fields Containing Standpipes:** One of the following restrictions must be used when making applications with atrazine to tile-terraced fields containing standpipes:

- Do not make applications within 66 ft. of standpipes in tile-outletted terraced fields.
- Make applications of this product to the entire tile-outletted terraced field. Incorporate it to a depth of 2 to 3 inches in the entire field immediately after application.
- Applications of this product may be made under a no-till practice to the entire tile-outletted terraced field only when a high crop residue management practice is practiced. This is described as a management practice where little or no crop residue is removed from the field during and after the crop is harvested.

### **Physical and Chemical Hazards**

Do not use or store near heat or open flame. Do not mix or allow to come in contact with oxidizing agents, as a hazardous chemical reaction may occur.

## **DIRECTIONS FOR USE**

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Read entire label before using this product.

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](http://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 ALTITUDE CROP INNOVATIONS, 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.

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.

**NOTE: Not for sale, distribution or use in Nassau or Suffolk Counties in New York.**

### 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.

The following PPE is required for early entry into 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:

- Coveralls over short-sleeved shirt and short pants
- Chemical-resistant footwear plus socks
- Chemical-resistant gloves (e.g., barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinyl chloride (PVC) or Viton)
- Chemical-resistant headgear for overhead exposure.

### PRODUCT INFORMATION

*RAVINE* is a mixture of three herbicides, metolachlor, mesotrione, and atrazine with a safener added. *RAVINE* works to control weeds by interfering with the plant's ability to germinate and develop. See **Weeds Controlled** section for additional information and a list of target weed species.

*RAVINE* is a pre-emergence and post-emergence herbicide for use in corn (field corn, field corn seed, and field corn silage). *RAVINE* may also be applied to sweet corn, yellow popcorn and grain sorghum in pre-emergence application only prior to crop emergence, or severe adverse crop response may result.

*RAVINE* may be used as a pre-emergence application for control of most annual grasses and broadleaf weeds in the crops described above. *RAVINE* may also be applied as an early post-emergence application for the control of broadleaf weeds in field corn. See **Weeds Controlled** section for additional information. *RAVINE* will not provide consistent control of grasses that have emerged at the time of application.

### APPLICATION INFORMATION

Read all label directions and use instructions before using.

#### 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 of *RAVINE* per acre.

For soils with >3% organic matter content – use 3.5 quarts of *RAVINE* per acre.

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

## Use Restrictions

- Do not make applications more than 14 days before planting or to field corn that is taller than 12 inches.
- Do not apply more than 3.5 quarts/A of product per growing season.

### Atrazine Herbicide Rate Limitations

There may be use rate limitations established in certain states 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.

- 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 lbs. a.i./A broadcast. If a post-emergence treatment will be required following an earlier herbicide application, the total atrazine applied must not exceed 2.5 lbs. a.i./A per calendar year. When tank mixing or making applications sequentially with atrazine or products containing atrazine to corn, the total pounds of atrazine applied (lbs. a.i./A) must not exceed 2.5 pounds a.i./A per year.
  - Apply a maximum of one 2.0 lbs. a.i./A pre-emergence 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
  - Apply a maximum of one 1.6 lbs. a.i./A pre-emergence application on highly erodible soils if less than 30% of the surface is covered with plant residues, or 2.0 lbs. a.i./A if only applied post-emergence.

**Note:** For calculating total atrazine active ingredient in applications, *RAVINE* contains 1.71 lbs. a.i. atrazine per gallon.

- **Grazing Restriction:** Do not graze or feed forage from treated areas for 45 days following last application, to avoid possible illegal crop residues.
- **Pre-Harvest Interval (PHI):** Do not harvest forage, grain, or stover within 60 days after last application of product. Field corn may be treated up to 12 inches tall.
- Do not make applications with this product through any type of irrigation system.
- Do not make applications 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 exceed 3.5 qts. of *RAVINE* per growing season.
- Do not make applications of other solo HPPD inhibitor post-emergence herbicides such as Bellum™, Callisto®, Impact®, or Laudis® to areas that have been treated with *RAVINE* during the same season.
- Do not make applications of *RAVINE* in a tank mix with any carbamate or organophosphate insecticide to corn that has emerged, or severe corn injury may occur.
- Do not make applications with *RAVINE* on any crop other than field corn (for grain, seed, or silage), sweet corn (pre-emergence applications only), yellow popcorn (pre-emergence applications only) or grain sorghum (pre-emergence applications only).
- Do not make applications with *RAVINE* in white popcorn or ornamental (Indian) corn as crop injury may occur.
- Do not contaminate water used for domestic purposes or irrigation water used for crops other than field corn.
- Do not contaminate feed or food with this product.
- Do not store product near seeds, fertilizers, or foodstuffs.
- Keep all containers of *RAVINE* tightly closed when not in use.
- Do not make applications of product by air.

## Use Precautions

- To prevent movement to off-site areas due to runoff or wind erosion:
  - When conditions are favorable for wind erosion, avoid treating powdery dry or light sand soils. Allow the soil surface to settle by rainfall or irrigation first under these types of conditions.
  - Do not make applications to impervious substrates, such as paved or highly compacted surfaces.
  - Unless at least 0.5 inch of rainfall has occurred between the time of application and the first irrigation, do not use tail water from the first flood or furrow irrigation of treated fields to treat non-target crops.
- Weed control effectiveness may be reduced in dry weather conditions following pre-emergence application of *RAVINE*. Cultivate the field if weeds develop in conventional tillage corn.
- Thoroughly clean sprayer or other application device before using. Dispose of cleaning solution in a responsible manner. Do not use a sprayer or applicator contaminated with other materials, or crop damage or sprayer clogging of the application device may occur.
- This product will not provide consistent control of most emerged grass weeds.
- Severe adverse crop response and corn injury can result if applying *RAVINE* post-emergence to corn that has emerged and that has received an at-plant application of Counter<sup>®</sup> insecticide. If *RAVINE* is applied to emerged corn where an organophosphate insecticide other than Counter<sup>®</sup> has been applied at planting temporary corn injury may occur.
- Severe crop injury may result to corn that has emerged with application of any carbamate or organophosphate insecticide applied within 7 days before or 7 days after a *RAVINE* application.
- Avoid drift onto adjacent crops and non-target areas. Avoid spray overlap, as adverse crop response or crop injury may result.

*RAVINE* will not harm the treated crop if applications are made according to directions and under normal growing conditions. 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. Using *RAVINE* under these conditions could result in adverse crop response or crop injury.

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.

## Resistance Management

*RAVINE* contains metolachlor, atrazine, and mesotrione, classified in Groups 15, 5, and 27 herbicide modes of action, respectively. There is potential risk of resistance development in some weeds against the herbicides that have been used repeatedly. While the development of resistance is well understood, it is not easily predicted. Therefore, herbicides must be used in conjunction with resistance management strategies in the area. Consult the local or State agricultural advisors for details. If weed resistance develops in the area, this product used alone may not continue to provide sufficient levels of weed control. If the reduced levels of control cannot be attributed to improper application timing, unfavorable weather conditions or abnormally high weed pressure, a resistant strain may have developed.

To reduce the potential for weed resistance, use this product in a rotation program with other classes of chemistry and modes of action. Always apply this product at the specified labelled rates and in accordance with the use directions. Do not use less than specified label rates alone or in tank mixtures. Do not use reduced rates of the tank mix partner. For optimum performance, scout fields carefully and begin applications when weeds are smaller rather than larger. If resistance is suspected, contact the local or State agricultural advisors.

To reduce the risk of weeds developing resistance to HPPD inhibitors, do not make applications of solo post-emergence HPPD inhibitor herbicides (Behum<sup>™</sup>, Callisto<sup>®</sup>, Impact<sup>®</sup>, or Laudis<sup>®</sup>) during the same season or on the same field where *RAVINE* has been applied. A good weed resistance management strategy includes an herbicide spray program that contains two or more modes of action. *RAVINE* contains three herbicide active ingredients and three modes of action and can be an effective component of a resistance management strategy.

Certain broadleaf weed species have naturally occurring biotypes with resistance to triazines or ALS inhibiting herbicides. No known resistance to this product exists and there are no known instances of cross resistance between this herbicide and other classes of herbicides. If biotypes of ALS inhibitor-resistant weeds are present in the field and are listed in the **WEEDS CONTROLLED** section of this label, this product should control them.

## **Integrated Pest (Weed) Management**

Integrate *RAVINE* 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**

Before making applications of this product, determine the soil organic matter content of the field. The application use rate for *RAVINE* 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, it is recommended to tank mix *RAVINE* with a burndown herbicide such as Gramoxone Inteon®, Touchdown® brands, Roundup® brands or equivalents. 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.

## **SPRAY EQUIPMENT**

### **Ground Application**

Space spray nozzles uniformly using the same size and type nozzle to provide accurate and uniform application. To avoid drift and produce good coverage, use nozzles that will produce medium to coarse size droplets. Only use 50-mesh or coarser screens in all inline strainer and nozzle screens. Using agitation, maintain proper product dispersion in the tank, and use a pump that can maintain pressure of at least 35 to 40 PSI at the nozzles. If using extended range or drift reduction nozzles, reduced pressure may be used provided that adequate coverage is maintained. Ensure proper and consistent agitation during spraying through duration until spraying is complete – even when there are brief periods of time where spraying has stopped. Stop and run a full agitation before resuming spray if the spray tank is allowed to sit for more than 5 minutes to re-suspend the solution.

### **Pre-Emergence Applications**

Make pre-emergence applications of *RAVINE* in a spray volume of 10 to 80 gals./A.

### **Early Post-Emergence Applications**

For optimum weed control, good weed coverage is essential. For broadcast, over-the-top applications, boom height should be at least 15 inches above the crop canopy, but just high enough to give good, uniform coverage. Make applications in a spray volume of 10 to 30 gals./A. If weed pressure is high and foliage is dense, use a minimum spray volume of 20 gals./A. For post-emergence applications, use flat fan nozzles of 80° or 110° angled forward at 45° for best coverage. Do not use flood jet nozzles or controlled droplet application.

### **Spray Drift**

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR. The interaction of equipment and weather related factors determine the potential for drift. The applicator is responsible for considering these factors when making an application decision.

Do not apply when weather conditions may cause drift to non-target areas. Drift may result in injury to adjacent crops and vegetation. To avoid spray drift, DO NOT apply when the wind speed is greater than 10 mph or during periods of temperature inversions.

### **Information on Droplet Size**

The most effective way to reduce spray drift potential is to apply larger droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions.



## Controlling Droplet Size

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. Use higher rate nozzles instead of increasing pressure when higher flow rates are needed.
- **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.

## Application Height

Applications should be made at the lowest height above the target area that still provides uniform coverage of the target. Making applications at the lowest yet effective height reduces exposure of droplets to wind.

## Wind

Drift potential is lowest between wind speeds 10 mph or less. However, many factors, including droplet size, pressure, and equipment type determine drift potential at any given wind speed. **Note:** Local terrain can influence wind patterns.

Leave a sufficient buffer downwind of the application to avoid drift to sensitive crops. This buffer may be untreated corn rows or field border species maintained for this purpose. The width of the buffer needed for a specific application will depend on the wind speed, distance to sensitive crops, and application equipment parameters.

## 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 light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates, indicates good vertical air mixing.

## Sensitive Areas

*RAVINE* should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

## ADDITIVES

For applications where an adjuvant will be used, it is recommended to select one that meets the standards of the Chemical Producers and Distributors Association (CPDA) adjuvant certification.

A non-ionic surfactant at 0.25% v/v (1 qt./100 gals.) may be used when *RAVINE* is applied after field corn has emerged. Using a crop oil concentrate (COC) may result in temporary crop injury. If COC is used as an adjuvant, use at a rate that does not exceed 1% v/v (1 gal./100 gals.) or no more than 1 qt./A. Unless directed for a specific tank mix on this label or as a part of a supplemental *RAVINE* label, do not use methylated seed oil (MSO) or nitrogen based adjuvants (AMS or UAN) with *RAVINE* when applied alone to emerged field corn, or when the application of *RAVINE* is made as a post-emergence tank mixture with other products. Any of these adjuvants may be used at pre-plant or pre-emergence timing (where the corn plant has not yet emerged) to increase burndown activity on existing weeds. Do not make applications of *RAVINE* to emerged sweet corn, yellow popcorn or grain sorghum as severe adverse crop response or crop injury may result.

**Tank Mixtures with Liberty® or Ignite®:** AMS may be added as directed on the Liberty® or Ignite® label for *RAVINE* tank mixture applications with either of these products to emerged field corn (LibertyLink® hybrids only). AMS should be the only adjuvant added to this tank mixture, or severe adverse crop response or crop injury may result. 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.

**Early Pre-Plant:** Make applications of *RAVINE* up to 14 days before planting.

**Pre-Emergence Surface:** Do not exceed 3.5 qts. of *RAVINE* per crop season. Make applications of *RAVINE* to the soil surface as a broadcast or banded application.

**Banding Pre-Emergence:** Make applications of *RAVINE* in a 10-15 inch band after corn planting but before corn emergence.

**Band Applications:** Using row and band width measurements in inches, calculate the amount of product to be applied per acre as follows:

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

**Early Post-Emergence:** Make applications of *RAVINE* after field corn emergence. Refer to the **Additives** section of this label for adjuvant recommendations. Do not make applications early post-emergence to field corn with liquid fertilizer or severe adverse crop response or crop injury may result. Make applications of this treatment to small broadleaf weeds (no taller than 5 inches) and before the field corn reaches 12 inches in height. Field corn leaf burn may result, but this will not affect later crop growth or yield. Do not make applications of *RAVINE* to sweet corn or yellow popcorn that has emerged or severe adverse crop response or crop injury may result.

**Emerged Grass Weeds:** This product will not provide consistent control of grass weeds that have emerged. For control of grassweeds that have emerged, a tank mix with another herbicide may be necessary (refer to the **Tank Mix** section of this label for additional information).

If Stalwart® Xtra or Bicep II Magnum®, Stalwart Xtra Lite or Bicep Lite II Magnum®, Atrazine 4L or AAtrex® (atrazine), Stalwart or Dual Magnum®, or Stalwart C or Dual II Magnum® or equivalents have been used in applications preceding *RAVINE* application, limit the *RAVINE* early post-application to a total maximum of 2.5 lbs. of active ingredient of atrazine or 3.75 lbs. of metolachlor active per acre, or illegal crop residues may result.

**Sprinkler Irrigation:** Do not make applications of *RAVINE* by sprinkler irrigation. After application of *RAVINE*, a sprinkler irrigation system set to deliver 0.5 to 1 inch of water may be used to incorporate the product. Do not make applications or incorporate this product with flood irrigation.

## CULTIVATION

A shallow cultivation or rotary hoeing will typically improve weed control if weeds should develop. Cultivate less than half the depth of incorporation if *RAVINE* was incorporated.

If cultivation becomes necessary because of 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

### Carrier

**Pre-Emergence Applications:** Use either clean water or liquid fertilizers (excluding suspension fertilizers) as carriers for pre-emergence applications. If using fluid fertilizers, a compatibility test must be conducted. See **COMPATIBILITY TEST** section for additional information. Even if *RAVINE* is determined to be physically compatible with a fluid fertilizer, constant agitation will be necessary to maintain a uniform solution during application.

**Post-Emergence Applications:** When making applications of *RAVINE* after field corn emergence, use only clean water as the carrier. Do not apply *RAVINE* to sweet corn or yellow popcorn that has emerged.

## Adding *RAVINE* to the Spray Tank

The spray tank must be thoroughly rinsed, decontaminated and clean before adding either *RAVINE* alone or with tank mix partners. Use only clean water, if water is used as the carrier.

***RAVINE* Applied Alone:** If making applications of *RAVINE* alone, add the specified amount of product to the spray tank when the tank is half full of the carrier, then add the remaining water or fluid fertilizer. Provide agitation during mixing and application so that uniform mixture is maintained.

***RAVINE* Applied in Tank Mixtures:** Refer to specific tank mix recommendation sections in this label. Always refer to the tank mix partner label(s) for mixing directions and precautions. Do not exceed maximum label use rates, or combined total maximum seasonal use rates for mesotrione, metolachlor, or atrazine. Do not mix this product with any product bearing a label prohibition against such mixing. If a tank mixture is used, a compatibility test must be conducted. See **COMPATIBILITY TEST** section below for information on conducting a compatibility test.

### **COMPATIBILITY TEST (Based on a 25 gals./A spray volume)**

To ensure compatibility of a tank mix partner with *RAVINE*, a compatibility test should be conducted.

Complete liquid fertilizers or nitrogen solutions (excluding suspension fertilizers) may replace all or part of the water in the spray, as recommended in directions for use. Always conduct compatibility test and make actual applications according to label directions and use recommended carrier. Always check compatibility of liquid fertilizers with pesticide(s) before use because, even within the same analysis, liquid fertilizers vary. Tank mixtures incompatibility is more common with mixtures of fertilizers and pesticides.

### **COMPATIBILITY TEST PROCEDURE**

1. Add 1.0 pt. of water or fertilizer carrier to each of **two** - 1 quart jars with tight lids. It is important to use the same source of water that will be used in the tank mix and to conduct the test at the same temperature the tank mix will be applied as water and temperature can affect compatibility.
2. Add 1/4 tsp. or 1.2 mL of a compatibility agent approved for the intended use to **one of the jars** (1/4 tsp. equals 2.0 pts/100 gals. of spray). Mix by shaking or gently stirring (if shaking place lid on jar).
3. Add the appropriate amount of pesticide(s) based on specified label rates to **both jars**. If more than one pesticide product will be used, add them separately in the order as described in the **MIXING PROCEDURES** section of this label. Shake or stir gently after each addition to thoroughly mix (if shaking place lid on jar).
4. After all ingredients have been added, place lids on tightly, and invert each jar ten times. Allow the mixtures to stand 15 to 30 minutes. Look for separation, precipitates, gels, heavy oily film on the jar, large flakes, or other signs of incompatibility. Compare the two jars to determine if the compatibility agent is needed. If mixtures separate, but can be easily and readily remixed, the mixture can be sprayed but good agitation must be used. If it is determined the mixtures are incompatible, use the following methods to test for improving compatibility:
  - a) Make a slurry of the dry pesticide(s) in water before addition, or
  - b) Add 1/2 of the compatibility agent to the carrier (fertilizer or water) and the other 1/2 to the emulsifiable concentrate (EC) or flowable pesticide before adding to the mixture. If mixture is still not compatible, do not use the mixture.
5. Dispose of any pesticide wastes in accordance with the Storage and Disposal section in this label.

### Tank Mix Instructions

If the tank mix partner is determined to be compatible, fill the tank half full of the carrier. Begin agitation and maintain throughout mixing and application. Make sure all return lines to the spray tank discharge below the liquid level. Prepare the tank mixture components and add to the tank in the following order:

1. If using a wettable powder or dry flowable formulation, make a slurry with water first and then add it slowly through the screen into the tank. Maintain agitation during this step.
2. If using a flowable formulation, add slowly through screen into the tank. Diluting the flowable with water before adding to the tank may improve mixing and compatibility with dry flowable formulations.
3. Add **RAVINE**.
4. Add any other tank mix products, adding emulsifiable concentrates last.
5. If an adjuvant will be used, add as the final step. Maintain agitation.
6. Complete filling the spray tank with the carrier and maintain agitation. Make application as soon as possible after spray mixture is prepared. Do not leave mixture in spray tank overnight unattended or without agitation.

### Cleaning Equipment Post Application

Careful attention must be used when cleaning equipment before spraying a crop other than field corn following applications with this product. Mix the volume of spray solution based on the area of application and mix only as much spray solution as needed.

### Tank and Sprayer Clean Out

1. Use clean water to flush the tank, hoses, boom, and nozzles.
2. Add 1 gal. of household ammonia per 25 gals. of water. Or alternatively, use a commercially available spray tank cleaner.
3. Using pressure washer, clean the inside of the spray tank with this solution. Wash all parts of the tank, including the inside and top surface. If there is not a pressure washer available, fill the sprayer completely with the cleaning solution to provide contact with all internal surfaces of the tank and plumbing. Begin agitation in the sprayer and thoroughly recirculate the solution in the tank for at least 15 minutes. Remove all visible deposits from the spray equipment.
4. Use the cleaning solution to flush the hoses, spray lines, and nozzles for at least 1 minute.
5. Flush dead space areas with water by removing boom end caps, and then replace caps.
6. Dispose of rinseate from the clean-out according to all local State and federal regulations.
7. Repeat the steps 2 to 5 above.
8. After completing the above procedures, remove and clean the nozzles, screens, and strainers separately in the cleaning solution.
9. Completely rinse the spray tank and equipment with clean water.

### WEEDS CONTROLLED

Make a burndown herbicide application or till the field to destroy emerged or germinating weeds before planting. Immediately after tillage, plant crop into moist soil.

Make applications of **RAVINE** as directed in this label to control or suppress the weeds listed in the tables below. Tank mixtures may control additional weeds. See the **Tank Mixture** sections of this label for specific and additional information. Always refer to the tank mix partner label(s) for specific use rates, directions and restrictions.

Weed control may be reduced, if a sufficient rainfall is not received within 7 days after application. Apply 0.5 to 1 inch of water, if irrigation is available. Conduct a uniform, shallow cultivation as soon as weeds emerge, if irrigation is not available.

## Pre-Emergence Applications: Weeds Controlled or Suppressed

Common Name	Scientific Name	C = Control S=Suppressed
<b>BROADLEAF WEEDS</b>		
Amaranth, Palmer	<i>Amaranthus palmeri</i>	C
Amaranth, Powell	<i>Amaranthus powellii</i>	C
Bedstraw, catchweed	<i>Galium aparine</i>	S
Beggarweed, Florida	<i>Desmodium tortuosum</i>	C
Buckwheat, wild	<i>Polygonum convolvulus</i>	C
Buffalobur	<i>Solanum rostratum</i>	C
Carpetweed	<i>Mollugo verticillata</i>	C
Chickweed, common	<i>Stellaria media</i>	C
Cocklebur, common	<i>Xanthium strumarium</i>	S
Deadnettle, purple	<i>Lamium purpureum</i>	C
Devil's claw	<i>Proboscidea louisianica</i>	C
Galinsoga	<i>Galinsoga parviflora</i>	C
Henbit	<i>Lamium amplexicaule</i>	C
Horseweed (marestail)	<i>Conyza canadensis</i>	C
Jimsonweed	<i>Datura stramonium</i>	C
Kochia	<i>Kochia scoparia</i>	C
Lambsquarters, common	<i>Chenopodium album</i>	C
Mallow, Venice	<i>Hibiscus trionum</i>	C
Morningglory, entireleaf	<i>Ipomoea hederacea</i>	S
Morningglory, ivyleaf	<i>Ipomoea hederacea</i>	S
Mustard, wild	<i>Brassica kaber</i>	C
Nightshade, black	<i>Solanum nigrum</i>	C
Nightshade, Eastern black	<i>Solanum ptycanthum</i>	C
Nightshade, hairy	<i>Solanum sarachoides</i>	C
Pigweed, redroot	<i>Amaranthus retroflexus</i>	C
Pigweed, smooth	<i>Amaranthus hybridus</i>	C
Puncturevine	<i>Tribulus terrestris</i>	S
Purslane, common	<i>Portulaca oleracea</i>	C
Pusley, Florida	<i>Richardia scabra</i>	C
Radish, wild	<i>Raphanus raphanistrum</i>	C
Ragweed, common	<i>Ambrosia artemisiifolia</i>	C
Ragweed, giant	<i>Ambrosia trifida</i>	S
Sesbania, hemp	<i>Sesbania exaltata</i>	C
Shepherd's purse	<i>Capsella bursa-pastoris</i>	C
Sicklepod	<i>Senna obtusifolia</i>	S
Sida, prickly	<i>Sida spinosa</i>	C

(continued)

Common Name	Scientific Name	C = Control S=Suppressed
<b>BROADLEAF WEEDS</b>		
Smartweed, ladysthumb	<i>Polygonum persicaria</i>	C
Smartweed, Pennsylvania	<i>Polygonum pennsylvanicum</i>	C
Sunflower, common	<i>Helianthus annuus</i>	S
Velvetleaf	<i>Abutilon theophrasti</i>	C
Waterhemp, common	<i>Amaranthus rudis</i>	C
Waterhemp, tall	<i>Amaranthus tuberculatus</i>	C
Common Name	Scientific Name	C = Control S=Suppressed
<b>GRASSES</b>		
Barnyardgrass	<i>Echinochloa crus-galli</i>	C
Crabgrass	<i>Digitaria</i> spp.	C
Crowfootgrass	<i>Dactyloctenium aegyptium</i>	C
Cupgrass, prairie	<i>Eriochloa contracta</i>	C
Cupgrass, Southwestern	<i>Eriochloa gracilis</i>	C
Cupgrass, woolly	<i>Eriochloa villosa</i>	S
Foxtail, giant	<i>Setaria faberi</i>	C
Foxtail, green	<i>Setaria viridis</i>	C
Foxtail, robust (purple, white)	<i>Setaria</i> spp.	C
Foxtail, yellow	<i>Setaria pumila</i>	C
Goosegrass	<i>Eleusine indica</i>	C
Johnsongrass, seedling	<i>Sorghum halepense</i>	S
Millet, foxtail	<i>Setaria italica</i>	C
Millet, wild proso	<i>Panicum miliaceum</i>	S
Panicum, browntop	<i>Panicum fasciculatum</i>	C
Panicum, fall	<i>Panicum dichotomiflorum</i>	C
Panicum, Texas	<i>Panicum texanum</i>	S
Rice, red	<i>Oryza sativa</i>	C
Sandbur, field	<i>Cenchrus incertus</i>	S
Shattercane	<i>Sorghum bicolor</i>	S
Signalgrass, broadleaf	<i>Brachiaria platyphylla</i>	S
Signalgrass, narrowleaf	<i>Brachiaria piligera</i>	C
Sprangletop, red	<i>Leptochloa filiformis</i>	C
Starbur, bristly	<i>Acanthospermum hispidum</i>	C
Witchgrass	<i>Panicum capillare</i>	C
Common Name	Scientific Name	C = Control S=Suppressed
<b>SEDGES</b>		
Nutsedge, yellow	<i>Cyperus esculentus</i>	C

## Early Post-Emergence Applications\*: Weeds Controlled or Suppressed

Common Name	Scientific Name	C = Control S=Suppressed
<b>BROADLEAF WEEDS</b>		
Amaranth, Palmer	<i>Amaranthus palmeri</i>	C
Amaranth, Powell	<i>Amaranthus powellii</i>	C
Beggarweed, Florida	<i>Desmodium tortuosum</i>	C
Buckwheat, wild	<i>Polygonum convolvulus</i>	C
Buffalobur	<i>Solanum rostratum</i>	C
Carpetweed	<i>Mollugo verticillata</i>	C
Chickweed, common	<i>Stellaria media</i>	C
Cocklebur, common	<i>Xanthium strumarium</i>	C
Dandelion	<i>Taraxacum officinale</i> Weber	S
Deadnettle, purple	<i>Lamium purpureum</i>	C
Devil's claw	<i>Proboscidea louisianica</i>	C
Galinsoga	<i>Galinsoga parviflora</i>	C
Hemp	<i>Cannabis sativa</i> L.	C
Henbit	<i>Lamium amplexicaule</i>	C
Horsenettle	<i>Solanum carolinense</i>	C
Horseweed (marestail)	<i>Conyza canadensis</i>	C
Jimsonweed	<i>Datura stramonium</i>	C
Kochia	<i>Kochia scoparia</i>	C
Lambsquarters, common	<i>Chenopodium album</i>	C
Mallow, Venice	<i>Hibiscus trionum</i>	C
Marestail	<i>Hippuris vulgaris</i> L.	C
Morningglory, entireleaf	<i>Ipomoea hederacea</i>	C
Morningglory, ivyleaf	<i>Ipomoea hederacea</i>	C
Mustard, wild	<i>Brassica kaber</i>	C
Nightshade, black	<i>Solanum nigrum</i>	C
Nightshade, Eastern black	<i>Solanum ptycanthum</i>	C
Nightshade, hairy	<i>Solanum sarrachoides</i>	C
Pigweed, redroot	<i>Amaranthus retroflexus</i>	C
Pigweed, smooth	<i>Amaranthus hybridus</i>	C
Pokeweed	<i>Phytolacca americana</i>	C
Potatoes, volunteer	<i>Solanum</i> spp.	C
Purslane, common	<i>Portulaca oleracea</i>	C
Pusley, Florida	<i>Richardia scabra</i>	C

(continued)

Common Name	Scientific Name	C = Control S=Suppressed
<b>BROADLEAF WEEDS</b>		
Radish, wild	<i>Raphanus raphanistrum</i>	C
Ragweed, common	<i>Ambrosia artemisiifolia</i>	C
Ragweed, giant	<i>Ambrosia trifida</i>	C
Sesbania, hemp	<i>Sesbania exaltata</i>	C
Shepherd's purse	<i>Capsella bursa-pastoris</i>	C
Sida, prickly	<i>Sida spinosa</i>	C
Smartweed, ladysthumb	<i>Polygonum persicaria</i>	C
Smartweed, Pennsylvania	<i>Polygonum pennsylvanicum</i>	C
Sunflower, common	<i>Helianthus annuus</i>	C
Thistle, Canada	<i>Cirsium arvense</i> (L.) SCOP.	C
Velvetleaf	<i>Abutilon theophrasti</i>	C
Waterhemp, common	<i>Amaranthus rudis</i>	C
Waterhemp, tall	<i>Amaranthus tuberculatus</i>	C
Common Name	Scientific Name	C = Control S=Suppressed
<b>GRASSES</b>		
Signalgrass, broadleaf	<i>Bracharia platyphylla</i>	C**
Common Name	Scientific Name	C = Control S=Suppressed
<b>SEDGES</b>		
Nutsedge, yellow	<i>Cyperus esculentus</i>	S

\* This product will not provide consistent control of most grass weeds that have already emerged.

\*\* Make application prior to weed reaching 2 inches in height.

#### ROTATIONAL CROPS

Following application of *RAVINE* refer to the following rotational crop information:

- If crop is lost, field corn, field corn seed, field corn silage, sweet corn, yellow popcorn and grain sorghum (seed treated with Concep® only) may be replanted immediately. Do not make another application of *RAVINE*.
- If application of *RAVINE* is made after June 1, rotating to crops other than corn (all types) or sorghum the following spring may result in crop injury.
- Do not rotate to crops other than corn (all types), cotton, small cereal grains, soybeans, sorghum or peanuts the spring following application of *RAVINE*.
- For soils having a calcareous surface layer, crop injury may result to soybeans planted the year following application of this product (ex. soils found within the Clarion-Nicollet-Webster soil series in Northern Iowa and Southern Minnesota).
- Do not rotate to soybeans for at least 18 months following application of this product if the combined atrazine rate applied was greater than 2.0 lbs. a.i./A, or equivalent band application rate in the Dakotas (eastern region), KS, MN (western region), and NE, or soybean crop injury may result.
- Where rainfall is sparse or erratic or where irrigation is required, in the High Plains and Intermountain areas of the West, 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.
- Rotational crop interval is 18 months for all other crops.



## CORN - USE DIRECTIONS

*RAVINE* may be used as a pre-emergence application for control of most annual grass and broadleaf weeds in field corn, field corn seed, field silage corn, sweet corn, and yellow popcorn. *RAVINE* may also be applied as an early post-emergence for the control of broadleaf weeds in field corn, field corn seed, and field silage corn. Do not make applications of *RAVINE* to emerged sweet corn or yellow popcorn, or severe adverse crop response or crop injury will result.

See the **Weeds Controlled** tables for a list of weeds controlled or suppressed. *RAVINE* will not provide consistent control of grasses that have already emerged at the time of application.

### **RAVINE Use Rate:**

- Use 3.0 qts. of *RAVINE* per acre, if soil organic matter content is less than 3%.
- Use 3.5 qts. of *RAVINE* per acre, if soil organic matter content is 3% or greater.
- Do not make applications to field corn taller than 12 inches, or apply greater than 3.5 qts./A of *RAVINE* per growing season.
- *RAVINE* is not recommended on soils that have greater than 10% organic matter, or poor weed control may occur.

### **RAVINE Applications - Alone**

**Early Pre-Plant:** Make applications of *RAVINE* up to 14 days before planting.

**Pre-Emergence Surface:** Do not exceed 3.5 qts. of *RAVINE* per season. Make applications to the soil surface as a broadcast or banded application.

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

**Band Applications:** Using row and band width measurements in inches, calculate the amount of product to be applied per acre as follows:

$$\frac{\text{Band width (inches)}}{\text{Row width (inches)}} \times \text{Rate/acre for a Broadcast treatment} = \text{Amount needed per acre}$$

**Early Post-Emergence:** Make applications of *RAVINE* after field corn has emerged. See the **Additives** section of this label for specific recommendation if using an adjuvant. Do not apply early post-emergence to field corn in liquid fertilizer or severe adverse crop response or crop injury may result. Make applications of this product to small broadleaf weeds (no greater than 5 inches tall) and before the field corn reaches 12 inches in height. Field corn leaf burn may result, but this will not affect later crop growth or yield. Do not make applications of *RAVINE* to sweet corn or yellow popcorn that has emerged or severe adverse crop response or crop injury may result.

This product will not provide consistent control of grass weeds that have emerged. A tank mix with another herbicide may be required for control of emerged weed grasses (Refer to the **Tank Mix** section of this label.).

If applications of Stalwart® Xtra or Bicep II Magnum, Stalwart Xtra Lite or Bicep Lite II Magnum, Atrazine 4L or AAtrex (atrazine), Stalwart or Dual Magnum, or Stalwart C or Dual II Magnum or equivalents have been made before this product, limit the amount of *RAVINE* as an early post-application to no greater than a total of 2.5 lbs. of active ingredient of atrazine or 3.75 lbs. of metolachlor active ingredient per acre, or illegal crop residues may occur.

**Split Application:** Split applications of *RAVINE* may be made in field corn, field corn seed, and field silage corn. For a split application program, make applications of 1.5 - 2.0 qts./A of *RAVINE* before crop had emerged, followed by a second application of *RAVINE* at a rate of 1.25 - 1.75 qts./A as a post-application after corn has emerged. The total amount of *RAVINE* applied in the split application program must not exceed 3.0 qts./A in soils with less than 3% soil organic matter and must not exceed 3.5 qts./A in soils with greater than 3% organic matter. Reference the **Early Post-Emergence** section above for additional information on post-emergence applications.

## **RAVINE Applications - Tank Mixtures**

### **Use of Spray Adjuvants in Tank Mixtures**

Used as a pre-emergence herbicide, prior to weed emergence, spray adjuvants make little or no impact on product performance. Where weeds have emerged and the corn has not, an adjuvant may be used with *RAVINE* applied alone or applied in tank mixture as a burndown application with a tank mix partner burndown herbicide as directed on the individual tank mix partner label(s). Use only adjuvants approved for agricultural crop use. Refer to the **Additives** section for additional information and directions. 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.

**Reduced Tillage Burndown Combinations** In reduced or no-till corn and prior to crop emergence, *RAVINE* tank mixtures with Gramoxone Inteon® or Touchdown® brands (or equivalent glyphosate products such as Roundup® brands) will burndown weeds that have emerged. For optimum results, tank mix applications of *RAVINE* plus Gramoxone Inteon® should be made to weeds that are 1 to 6 inches in height. Refer to the Gramoxone Inteon, Touchdown® brand, or glyphosate product label for additional information on weeds controlled, directions for use, restrictions and precautions.

### **Applications Prior to Crop Emergence: Pre-Emergence Tank Mixtures**

The tank mix products listed in the table below may be used in conventional, reduced, or no-till cropping systems and be applied using the same methods and same application timings as *RAVINE* unless otherwise directed in the tank mix partner label. Follow all tank mix product labels for directions for use and restrictions. Be sure to conduct a compatibility test to application. 2,4-D products, vary greatly with regard to compatibility and should be checked during every application where a water or carrier source, water or carrier temperature, product source, or tank mixture recipe is altered. Tank mixtures with 2,4-D may be made, but extreme care should be taken to ensure compatibility before mixing a load or making an 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.

### **Tank Mix Recommendations for Pre-Emergence Applications with *RAVINE***

<b>Tank Mix Recommendation</b>	<b>Target Use</b>
Atrazine 4L, AAtrex® or other atrazine solo products	Broadleaf and grass weed control improved
Gramoxone Inteon®	Burndown of emerged existing weeds
Princep, Sim-Trol® 4L or other simazine solo products	Broadleaf and grass weed control improved
Touchdown® brands	Burndown of emerged existing weeds.
Roundup® or equivalents	Burndown of emerged existing weeds
Warrior® or equivalents	Insect control (see product label)

### **Applications after Crop Emergence: Early Post-Emergence Tank Mix Recommendations**

The tank mix products listed in the table below may be used in conventional, reduced, or no-till systems and may be applied using the same methods and same application timings as *RAVINE* unless otherwise directed in the tank mix partner label. Follow all tank mix product label directions for use and restrictions. Conduct a compatibility test before spraying the tank mixture. Do not make applications of *RAVINE* tank mixtures to sweet corn or yellow popcorn crops that have emerged.

## Tank Mix Recommendations for Early Post-Emergence Weed Control with *RAVINE*

Tank Mix*	Objective
Atrazine 4L or other solo atrazine products	Broadleaf and grass weed control improved
Warrior® or equivalents	Insect control (see product label)
Accent®, Primero® or other solo nicosulfuron products	Control of grass weeds that have emerged
Basis®	Control of grass weeds that have emerged
Liberty (corn hybrids designated as LibertyLink® only)	Control of grass weeds that have emerged
Steadfast®	Control of grass weeds that have emerged

\*Refer to the **Additives** section of this label for recommendations when making applications of *RAVINE* alone or in tank mixture to field corn that has emerged.

### ***RAVINE* Applications with Glyphosate to Glyphosate Tolerant Corn**

Make applications of *RAVINE* early post-emergence at 2.25 qts./A in tank mix with a solo glyphosate product (example: Touchdown® or Roundup® brands) that is registered for use for over-the-top use in glyphosate tolerant field corn (example: Roundup® Ready or Agrisure™ GT Corn). To reduce weed competition with the crop, application of this mixture should be targeted to weeds that are 1 to 2 inches. Do not make applications of this mixture to corn that is higher than 12 inches. If the glyphosate product has an adjuvant included in the formulation (the product label does not call for an adjuvant being added), only spray-grade ammonium sulfate (AMS) at 8.5 lbs./100 gals. should be added to the tank mixture. If the glyphosate product label recommends an adjuvant in addition to AMS, add a non-ionic surfactant (NIS) at 0.25% v/v and AMS to this spray tank mixture. 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. Read and follow all directions for use, precautions and restrictions on the tank mix partner glyphosate label.

As an alternative, a pre-emergence application of *RAVINE* may be made at 2.25 qts./A as part of a two-pass weed control program when followed by a post-emergence application of a glyphosate-containing product in glyphosate tolerant corn (example: Roundup® Ready or Agrisure® GT Corn). When this type of application is made, *RAVINE* will provide reduced competition of the weeds listed in the **Pre-Emergence Applications: Weeds Controlled or Suppressed** table for a period of 30+ days, improving the flexibility in application timing and effectiveness of the glyphosate-based product application. Follow all directions for use, precautions and restrictions on the glyphosate product label.

### ***RAVINE* Applications in LibertyLink Corn**

Make early post-emergence applications of *RAVINE* at 2.25 qts./A in tank mixture with either Liberty® or Ignite® applied over-the-top in LibertyLink® field corn. To reduce weed competition with the crop, application of this mixture should be targeted to weeds that are 1 to 2 inches in height. Do not make applications of this mixture to corn that is higher than 12 inches. Ammonium sulfate (AMS) may be used as a spray adjuvant as directed on the Liberty® or Ignite® label. AMS should be the only adjuvant used in this tank mix. Do not use urea ammonium nitrate (UAN), crop oil concentrate (COC), non-ionic surfactants (NIS), or methylated seed oil (MSO) type adjuvants in these tank mixes, or crop injury may result. Follow all directions for use, precautions and restrictions on the Liberty® and Ignite® product labels.

As an alternative, a pre-emergence application of *RAVINE* may be made at 2.25 qts./A as part of a two-pass weed control program when followed by a post-emergence application of Liberty® or Ignite® in field corn designated as LibertyLink®.

When this type of application is made, *RAVINE* will provide reduced competition of the weeds listed in the **Pre-Emergence Applications: Weeds Controlled or Suppressed** table for a period of 30+ days, improving the flexibility in application timing and effectiveness of the Liberty® or Ignite® application. Follow all directions for use precautions and restrictions on the Liberty® and Ignite® product labels.

### ***RAVINE* Applications in Grain Sorghum**

Make a non-incorporated, pre-plant application of *RAVINE* in sorghum that has been seed-treated with Concep® III up to 21 days before planting and up through pre-emergence for weed control. See the **Pre-Emergence Applications: Weeds Controlled or Suppressed** table for a listing of weeds.

Make a broadcast, non-incorporated spray application at 3.0 qts./A starting at 21 days pre-plant and up through planting, but before sorghum has emerged. Making application less than 7 days before the sorghum planting can increase the risk of crop injury, particularly if there is rainfall or irrigation after the application. Symptoms of crop injury include temporary bleaching of young sorghum leaves, or in severe conditions, stunting or partial stand loss. Making the application of *RAVINE* at greater than 7 days (and no more than 21 days) before the sorghum planting will reduce the risk of adverse crop response.

When *RAVINE* application is made before planting, do not incorporate and minimize soil disturbance of the treatment area during planting to minimize the potential for reduced weed control.

Split applications of *RAVINE* may be made to sorghum as an early pre-plant (7 to 21 day prior to planting), non-incorporated application at 1.5 to 1.75 qts./A of *RAVINE* following with a second application of *RAVINE* made at 1.25 to 1.5 qts./A before the sorghum has emerged. Do not exceed 3.0 qts./A of product for the split applications.

It is recommended to use a non-ionic surfactant (NIS) type adjuvant at 0.25% v/v or a crop oil concentrate (COC) at 1% v/v in the spray solution if weeds are present at the time of application. A spray grade UAN at 2.5% v/v or AMS at 8.5 lbs./100 gallons of spray may also be added in addition to the COC or NIS to the mixture to improve control of weeds that have already emerged. The addition of additives is not recommended, if weeds have not emerged at the time of application.

#### **Sorghum Use Restrictions:**

- Do not make applications of more than 3.0 quarts of *RAVINE* per growing season.
- Do not make applications of *RAVINE* to sorghum that is grown on sandy soils (sand, sandy loam, or loamy sand).
- Do not make applications of *RAVINE* to grain sorghum that has emerged or severe crop injury will result.
- Do not make applications of *RAVINE* to sorghum grown for forage, sweet sorghum (sorgo), sudangrass, sorghum-sudangrass hybrids, or dual-purpose sorghum.
- Seeds must be treated with Concep® III herbicide or an alternate seed safener that provides tolerance to metolachlor before planting, or severe adverse crop response and injury may result.
- Do not apply *RAVINE* to sorghum that is grown south of Interstate 20 (I-20) or east of Highway 277 in the state of Texas.

## STORAGE AND DISPOSAL

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

### **Pesticide Storage**

Keep container tightly closed when not in use. Do not store near seeds, fertilizers, or foodstuffs. Keep away from heat and flame.

Ground water contamination may be reduced by diking and flooring of permanent liquid bulk storage sites with an impermeable material.

### **Pesticide Disposal**

Open dumping is prohibited. Waste resulting from the use of this product may 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 [less than 5 gallons]**

Non-refillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. 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 and disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

### **Container Handling [greater than 5 gallon]**

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 person refilling. To clean 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 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer 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.

**DO NOT USE CONTAINERS FOR THE STORAGE OF FOOD, FEED, OR DRINKING WATER!**

## 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, presence of other materials or other influencing factors in the use of the product, which are beyond the control of ALTITUDE CROP INNOVATIONS, 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 ALTITUDE CROP INNOVATIONS, LLC and Seller harmless for any claims relating to such factors.

ALTITUDE CROP INNOVATIONS, 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. To the extent consistent with applicable law, 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 ALTITUDE CROP INNOVATIONS, LLC, and Buyer and User assume the risk of any such uses. **TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, ALTITUDE CROP INNOVATIONS, LLC MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.**

To the extent consistent with applicable law, in no event shall ALTITUDE CROP INNOVATIONS, LLC or Seller 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 ALTITUDE CROP INNOVATIONS, 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 ALTITUDE CROP INNOVATIONS, LLC OR SELLER, THE REPLACEMENT OF THE PRODUCT.

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