

62719-368

12/20/2011

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

Kim Williamson  
Dow AgroSciences LLC  
9330 Zionsville Rd.  
Indianapolis, IN 46268-1054

DEC 20 2011

Subject: Keystone Herbicide  
EPA Registration Number: 62719-368  
Resubmission by email submitted on December 7, 2011  
Revised label emailed on 12/20/2011

Dear Ms. Williamson:

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act as amended is acceptable. Submit one (1) copy of final printed labeling incorporating the above changes before you release the product for shipment. Amended labeling will supercede all previously accepted ones. A stamped copy of labeling is enclosed for your records.

If you have any questions, please contact Hope Johnson at 703-305-5410.

Sincerely,

A handwritten signature in black ink, appearing to read "Kable Bo Davis", written over a horizontal line.

Kable Bo Davis  
Product Manager 25  
Herbicide Branch  
Registration Division (7505P)

(Base label):

**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 statements and instructions for use in order to minimize potential for atrazine to reach ground and surface water.

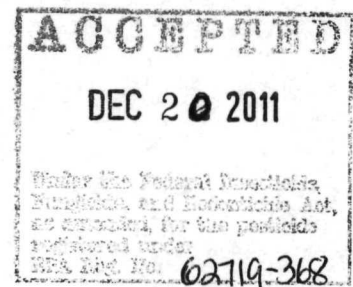
# Keystone<sup>®</sup> Herbicide

**A preemergence herbicide for control of annual grasses and broadleaf weeds in field corn, production seed corn, silage corn, sweet corn and popcorn.**

<b>Group</b>	<b>15</b>	<b>5</b>	<b>HERBICIDE</b>
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Active Ingredients:

acetochlor: 2-chloro-2'-methyl-6'-ethyl-N-ethoxymethylacetanilide .....	32.6%
atrazine: [2-chloro-4-(ethylamino)-6-(isopropylamino)-s-triazine] and related triazines .....	24.4%
Other Ingredients:.....	43.0%
Total .....	100.0%



Contains 3.0 pounds acetochlor and 2.25 pounds atrazine active ingredient per gallon.

**Keep Out of Reach of Children**  
**WARNING AVISO**

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

**Precautionary Statements**

**Hazards to Humans and Domestic Animals**

**Causes Substantial But Temporary Eye Injury • Harmful If Swallowed**

**Do not get in eyes or on clothing. Avoid contact with skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.**

**Personal Protective Equipment (PPE)**

Some materials that are chemical resistant to this product are polyethylene and polyvinylchloride. If you want more options, follow instructions for category A on an EPA chemical-resistance selection chart.

**Mixers, loaders, applicators and other handlers must wear:**

- Coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves
- Chemical-resistant footwear plus socks

- Protective eyewear
- Chemical-resistant headgear (If overhead exposure)
- A chemical-resistant apron when mixing/loading, cleaning up spills, or cleaning equipment, or otherwise exposed to the concentrate.

See Engineering Controls for additional requirements.

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

**Engineering Controls:** When handlers use closed systems or enclosed cabs 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.

**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 do so by a poison control center or doctor. Do not give anything by mouth to a 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.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 day or night, for emergency treatment information.

**Note to Physician:** Probable mucosal damage may contraindicate the use of gastric lavage.

**Environmental Hazards**

This pesticide is toxic to fish and aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high 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 washwaters.

Acetochlor demonstrates the properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the groundwater is shallow, may result in groundwater contamination.

[Editor's note (Overflow text on base label): The referral statement "See Environmental Hazards section of label booklet for Ground Water Advisory Statements." may be substituted for the following Ground Water Advisory statements on the base label.]

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.

Acetochlor has properties that may result in surface water contamination via dissolved runoff and runoff erosion. Practices should be followed to minimize the potential for dissolved runoff and/or runoff erosion.

### Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

#### Nonrefillable containers 5 gallons or less:

##### Storage and Disposal

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

**Pesticide Storage:** Store in original container only. Keep container closed when not in use. Do not store near food or feed. In case of spill or leak on floor or paved surfaces, soak up with vermiculite, earth, or synthetic absorbent.

**Pesticide Disposal:** Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

**Container Handling:** Nonrefillable container. Do not reuse or refill this container. 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.

Triple rinse or pressure 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. **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.

#### Refillable containers larger than 5 gallons:

##### Storage and Disposal

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

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**Container Handling:** 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% full with water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or

pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

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**Refer to label booklet for Directions for Use.**

**Notice:** Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies at end of label booklet. If terms are not acceptable, return at once unopened.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

EPA Reg. No. 62719-368

EPA Est. \_\_\_\_\_

®Trademark of Dow AgroSciences LLC

**Produced for  
Dow AgroSciences LLC  
9330 Zionsville Road  
Indianapolis, IN 46268**

**Net Contents** \_\_\_\_

Leaf 26

(cover/shipping container)

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Total ..... 100.0%

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**Net Contents** \_\_\_

(Page 1 through end):

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## Precautionary Statements

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### Hazards to Humans and Domestic Animals

# WARNING

#### Causes Substantial But Temporary Eye Injury • Harmful If Swallowed

**Do not get in eyes or on clothing. Avoid contact with skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.**

#### Personal Protective Equipment (PPE)

Some materials that are chemical resistant to this product are polyethylene and polyvinylchloride. If you want more options, follow instructions for category A on an EPA chemical-resistance selection chart.

#### Mixers, loaders, applicators and other handlers must wear:

- Coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear (If overhead exposure)
- A chemical-resistant apron when mixing/loading, cleaning up spills, or cleaning equipment, or otherwise exposed to the concentrate.

See Engineering Controls for additional requirements.

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

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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.

Acetochlor has properties that may result in surface water contamination via dissolved runoff and runoff erosion. Practices should be followed to minimize the potential for dissolved runoff and/or runoff erosion.

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### Directions for Use

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It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read all Directions for Use carefully before applying.

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 assessed through [www.atrazine-watershed info] or [1-866-365-3014]. If use of this product is prohibited in your watershed, you may return unopened product to your point of purchase or contact Dow AgroSciences 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 12 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
- Chemical-resistant gloves made of any waterproof material
- Shoes plus socks
- Protective eyewear

### Storage and Disposal

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

**Pesticide Storage:** Store in original container only. Keep container closed when not in use. Do not store near food or feed. In case of spill or leak on floor or paved surfaces, soak up with vermiculite, earth, or synthetic absorbent.

**Pesticide Disposal:** Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

#### Nonrefillable containers 5 gallons or less:

**Container Handling:** Nonrefillable container. Do not reuse or refill this container. 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.

Triple rinse or pressure 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. **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.

#### Refillable containers larger than 5 gallons:

**Container Handling:** 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% full with water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

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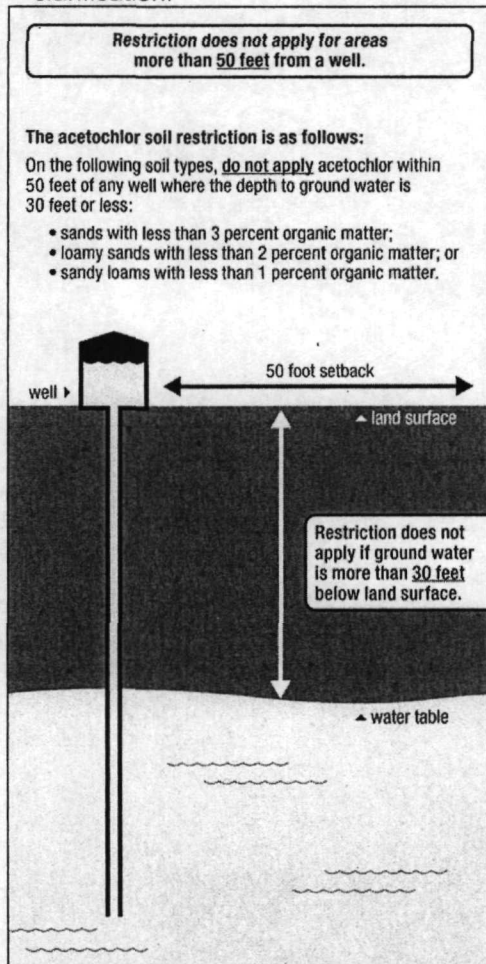
## Product Information

For use only on field corn, production seed corn, silage corn, sweet corn and popcorn. Corn in this label refers to: field corn, production seed corn, silage corn, sweet corn and popcorn.

Keystone<sup>®</sup> herbicide is a unique combination of the herbicides acetochlor and atrazine plus the antidote or safener, dichlormid. While the acetochlor and atrazine provide weed control, the dichlormid safens corn against herbicide injury. Keystone may be applied to the surface or incorporated into the top 1-2 inch layer of soil. It may be used for control alone, or in tank mix combinations, for the weeds listed in the "Target Weeds" section of these use directions. Keystone controls weeds by interfering with normal germination and seedling development. Keystone does not control established or germinated weeds present at application.

## Use Restrictions

- On the following soil types, do not apply this product within 50 feet of any well where the depth to groundwater is 30 feet or less: sands with less than 3% organic matter; loamy sands with less than 2% organic matter; or sandy loams with less than 1 percent organic matter. See the figure for additional clarification.



- This product may not be mixed or loaded within 50 ft. of intermittent streams and rivers, natural or impounded lakes and reservoirs. This product may not be applied by ground 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-foot buffer or setback from runoff entry points must be planted to crop, seeded with grass or other suitable crop.

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

- **Tile-Outletted Fields Containing Standpipes**

To ensure protection of surface water from runoff through standpipes with tile-outlets in fields, one of the following restrictions must be used in applying this product to tile-outletted fields containing standpipes:

1. Do not apply this product within 66 feet of standpipes in tile-outletted fields.
  2. Apply this product to the entire tile-outletted field and immediately incorporate it to a depth of 2-3 inches in the entire field.
  3. Apply this product to the entire tile-outletted field under a no-till practice only when high crop residue management practices are used. High crop residue management is described as a crop management practice where little or no crop residue is removed from the field during or after crop harvest.
- Do not apply Keystone to sweet corn as an early postemergence application
  - **Chemigation:** Do not apply this product through any type of irrigation system.
  - Do not use flood irrigation to apply or incorporate this product.
  - Product must be used in a manner that will prevent back siphoning in wells, spills or improper disposal of excess pesticide, spray mixtures or rinsates.
  - Do not apply under conditions that favor runoff or wind erosion of soil containing this product to non-target areas. To prevent off-site movement due to runoff or wind erosion:
    - Avoid treating powdery dry or light sandy 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 or frozen or snow covered soils.
    - Do not use tailwater from the first flood or furrow irrigation of treated fields to treat non-target crops unless at least 1/2 inch of rainfall has occurred between application and the first irrigation.
  - **Aerial Application: Do not apply this product using aerial application equipment.**
  - Do not apply when wind conditions favor drift to non-target sites. To minimize spray drift to non-target areas:
    - Use low-pressure application equipment capable of producing a large droplet spray.
    - Do not use nozzles that produce a fine droplet spray.
    - Minimize drift by using sufficient spray volume to ensure adequate coverage with large droplet size sprays.

- Keep ground-driven spray boom as low as possible above the target surface.
- Make application when the wind velocity favors on-target product deposition (approximately 3 to 10 mph). Do not apply when wind velocity exceeds 15 mph. Avoid application when gusts approach 15 mph.
- Low humidity and high temperatures increase the likelihood of spray drift to sensitive areas. Avoid spraying during conditions of low humidity and/or high temperatures. Do not apply during inversion conditions.
- **Maximum Atrazine Application Rates Per Calendar Year:**  
Maximum annual atrazine broadcast application rates for corn must be as follows:
  - If no atrazine was applied prior to corn emergence, apply a maximum of 2.0 pounds active ingredient (3.5 quarts Keystone) per acre. If postemergence treatment is required following an earlier herbicide application, the total atrazine applied may not exceed 2.5 pounds active ingredient per acre per calendar year. Note: One quart per acre Keystone delivers 0.5625 pound active ingredient atrazine per acre.
  - Apply a maximum of 2.0 pounds active ingredient (3.5 quarts Keystone) per acre if a single preemergence application is made on soils that are not highly erodible or on highly erodible soil if at least 30% of the soil is covered with plant residues, or
  - Apply a maximum of 1.6 pounds active ingredient (2.8 quarts Keystone) per acre as a single preemergence application on highly erodible soils if less than 30% of the soil is covered with plant residues; or 2.0 pounds active ingredient (3.5 quarts Keystone) per acre if only applied postemergence.
- **Maximum Acetochlor Application Rates Per Calendar Year:**  
Maximum annual acetochlor broadcast application rates for corn must not exceed 3.0 pounds active ingredient (4.0 quarts Keystone) per acre. Note: One quart per acre Keystone delivers 0.75 pound active ingredient acetochlor per acre.
- **Preharvest Interval:** Do not apply Keystone within 60 days of harvest of field corn for field corn forage uses or 45 days for sweet corn forage uses.
- Postemergence applications of atrazine to corn must be made before the crop reaches 12 inches in height.

### Use Precautions

- Failure to strictly follow label directions may result in exceeding the maximum annual atrazine use rates as stipulated by the Environmental Protection Agency.
- **Note:** This product contains atrazine and thus may not control weeds that are known or suspected to be triazine resistant. Following many years of continuous use of atrazine and chemically related products, biotypes of some of the weeds listed on this label have been reported which cannot be effectively controlled by atrazine and related herbicides. Where this is known or suspected and weeds controlled by atrazine are expected to be present along with resistant biotypes, it is recommended that atrazine be used in combinations or in sequence with other registered herbicides which are not triazines. If only resistant biotypes are expected to be present, use a registered non-triazine herbicide.
- Do not use Keystone on any crop other than field corn, production seed corn, silage corn and popcorn.
- Keystone should not be used on corn seed stock such as Breeders, Foundation, or Increase.
- Do not contaminate irrigation water used for crops other than corn or water used for domestic purposes.
- Do not apply Keystone before pre-irrigation in irrigated areas.
- Do not allow Keystone to contaminate feed or food.
- Keystone should not be stored near seeds, fertilizers, or foodstuffs.
- All containers of Keystone should be kept tightly closed when not in use.
- Applied according to directions and under normal growing conditions, Keystone will not harm the treated crop. During germination and early stages of growth, 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 create

abnormal conditions that weaken crop seedlings. Keystone used under these abnormal conditions could result in crop injury.

### Rotational Crop Restrictions:

When tank mixing with other herbicides, follow the most restrictive crop rotation guidelines on the label of each product used. The following rotational crops may be planted as indicated:

Rotational Crop	Timing or Interval
corn (1)	0 months after application
sorghum, soybeans(2)	Spring following application
alfalfa, barley, dry beans (3), lupin (4), millet, pearl or proso, oats, pea (6), potatoes, rye, sugar beets, sunflower, tobacco (7), triticale, wheat, wild rice	15 months after application (5)

Numbers within parentheses (-) in the table refer to Specific Rotational Crop Requirements below.

- (1) If crop treated with Keystone is lost, corn may be replanted immediately. Do not make a second application of Keystone. Do not apply Keystone after June 10, unless only corn will be planted the following year.
- (2) Due to the risk of atrazine carryover, injury may occur to soybeans the year following corn when planted in north central and northwest Iowa, south central and southwest Minnesota, northern Nebraska and southeast South Dakota on soils having a calcareous surface layer and relatively high pH
- (3) Dry beans includes: adzuki, kidney, lima, navy, pinto
- (4) Lupin includes: grain, white, white sweet
- (5) Approved rotation crops list does not include any species of succulent beans and peas.
- (6) Pea includes: blackeyed, chick, cow, Crowder, field, pigeon, Southern
- (7) Because of atrazine carryover, injury may occur to tobacco.

### Weed Resistance Management Guidelines

Acetochlor and atrazine, the active ingredients in this product, are Group 15 and Group 5 herbicides, respectively, based on the mode of action classification system of the Weed Science Society of America. Any weed population may contain plants naturally resistant to Group 15 or Group 5 herbicides. Such resistant weed plants may not be effectively managed using Group 15 or Group 5 herbicides but may be effectively managed utilizing another herbicide alone or in mixtures from a different Group and/or by using cultural or mechanical practices. However, any herbicide mode of action classification by itself may not adequately address specific weeds that are resistant to specific herbicides. Consult your Dow AgroSciences representative, state cooperative extension service, professional consultants, or other qualified authorities to determine appropriate actions for treating specific resistant weeds.

### Best Management Practices

Proactively implementing diversified weed control strategies to minimize selection for weed populations resistant to one or more herbicides is recommended. A diversified weed management program may include the use of multiple herbicides with different modes of action and overlapping weed spectrum with or without tillage operations and/or other cultural practices. Research has demonstrated that using full labeled rates and following directions for use is important to delay the selection for resistance. Scouting after a herbicide application is important because it can facilitate the early identification of weed shifts and/or weed resistance and thus provide direction on future weed management practices. One of the best ways to contain resistant populations is to implement measures to avoid allowing weeds to reproduce by seed or to proliferate vegetatively. Cleaning equipment between sites and avoiding movement of plant material between sites will greatly aid in retarding the spread of resistant weed seed.

### General principles of herbicide resistance management:

1. Apply integrated weed management practices. Use multiple herbicide modes-of-action with overlapping weed spectrums in rotation, sequences, or mixtures.
2. Use the full recommended herbicide rate and proper application timing for the hardest to control weed species present in the field.
3. Scout fields after herbicide application to ensure control has been achieved. Avoid allowing weeds to reproduce by seed or to proliferate vegetatively.
4. Monitor site and clean equipment between sites.

**For annual cropping situations also consider the following:**

- Start with a clean field and control weeds early by using a burndown herbicide treatment or tillage in combination with a soil-applied residual herbicide as appropriate.
- Use cultural practices such as cultivation and crop rotation, where appropriate.
- Use good agronomic principles that enhance crop competitiveness.
- Use new commercial seed that is as free of weed seed as possible.

**Report any incidence of repeated non-performance of this product on a particular weed to your Dow AgroSciences representative, local retailer, or county extension agent.**

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## **Application Directions - Corn**

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### **Carriers**

**Liquids:** Either water or liquid fertilizers such as solutions, slurries or suspensions may be used as liquid carriers. If fluid fertilizers are used, a physical compatibility test with these must be done **before combining** in the spray tank. See Appendix I for details of the compatibility testing procedure. Even if Keystone is physically compatible with a fluid fertilizer, constant agitation is necessary to maintain a uniform mixture during application.

**Dry Bulk Fertilizer:** Keystone may be impregnated on dry bulk fertilizer and applied as the fertilizer is spread. See Appendix II for directions and restrictions including which fertilizers are compatible.

### **Adding to Spray Tank**

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

**Used Alone:** When Keystone is used alone, add the specified amount to the spray tank when the tank is half filled with carrier, then add the rest of the water or fluid fertilizer. Provide sufficient agitation during mixing and application to maintain a uniform emulsion.

**Tank Mixed:** If a tank mixture is used, it is recommended that a compatibility test be done before actual tank mixing. See Appendix I for details on the procedure for such a test.

Once compatibility is confirmed for the tank mix, fill the tank half full of carrier. Start and continue agitation throughout mixing. All return lines to the spray tank must discharge below the liquid level. Add components in the following order of formulation:

- 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.
- If a flowable formulation is used, add slowly through screen into the tank. Mixing and compatibility may be improved when the flowable is diluted with water before adding to the tank.
- Add Keystone next.

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- Add ammonium sulfate then Durango<sup>®</sup> DMA<sup>®</sup> herbicide, 2,4-D herbicide, and a nonionic surfactant last, if needed.
- Complete filling the sprayer tank and continue agitation.
- Batches should be mixed and applied the same day.

## Volume

**Liquid:** Use a minimum of 10 gallons per acre in broadcast boom equipment for ground applications.

**Dry Bulk Fertilizer:** Use a minimum of 200 pounds of dry bulk fertilizer per acre. See Appendix II for directions and restrictions.

## Pressure

If liquid carriers are used, the pressure at the nozzle should be 15 to 40 psi to ensure good distribution in the spray pattern. Use appropriate nozzles and 50-mesh or coarser screens, if needed. Maintain sufficient agitation to ensure the mixture is suspended in the spray tank.

## Application Timing and Methods

For the optimum period of effective weed control during the time most critical to corn production, preplant applications of Keystone should occur as close as possible to planting. Preemergence applications should occur as close as possible to planting, but prior to weed emergence.

**Note:** Do not apply Keystone to sweet corn as an early postemergence application.

**Early Preplant:** On medium and fine textured soils (Table 1), Keystone may be applied up to 30 days prior to planting.

**Preplant Incorporation:** Keystone and certain tank mixes may be mechanically incorporated in the top 2 inches of the soil with field cultivators, discs, or spring tooth harrows at any time within 14 days prior to planting. Improper incorporation, excessive crop residues, or poor soil tillage may result in erratic, streaked or otherwise unsatisfactory weed control. Avoid moving or shaping soil after incorporation.

**Preemergence Surface:** Keystone and certain tank mixes may be applied to the soil surface as a broadcast or banded application. Precipitation or sprinkler irrigation of at least 0.25 inch is required to bring Keystone into contact with germinating seeds. If rain or sprinkler irrigation does not occur within 7 days after application, weed control may be improved by using a rotary hoe, or similar device, to incorporate the herbicide. The device used should be run at a shallow depth to prevent disturbing the corn seed. Do not remove Keystone from the weed control zone or dilute it with untreated soil.

**Postplant-Preemergence:** Keystone may be applied immediately after planting but prior to corn emergence. If rain or sprinkler irrigation does not occur within 7 days after application, weed control may be improved by using a rotary hoe, or similar device, to shallowly incorporate the herbicide. Do not disturb the germinating corn. Do not remove Keystone from the weed control zone or dilute it with untreated soil.

**Banding-Preemergence:** Keystone may be applied in a 10 to 14 inch band after corn planting but prior to corn emergence. If rain or sprinkler irrigation does not occur within 7 days after application, weed control may be improved by using a rotary hoe or similar device to incorporate the herbicide. Do not disturb the germinating corn. Do not remove Keystone from the weed control zone or dilute it with untreated soil.

**Early Postemergence:** Keystone may be applied early postemergence to corn up to 11" tall. Applications must be made prior to weed seedling emergence or in a tank mixture that controls the emerged weeds. Read and follow restrictions and directions on tank mix product labels.



**Sprinkler Irrigation: Do not apply Keystone through sprinkler irrigation systems.** Use a sprinkler system only to incorporate Keystone after application. After Keystone has been applied, a sprinkler irrigation system set to deliver 0.25 to 0.75 inch of water per acre may be used to incorporate the product. Using more than 0.75 inch of water could result in reduced performance. On sandy soils low in organic matter, use no more than 0.5 inch of water. Do not use flood irrigation to apply or incorporate Keystone.

**Planting**

Planting should be done as close to the time of application of Keystone as possible. This allows Keystone to provide effective weed control during the time it is most critical in the production of corn.

**Cultivation**

Cultivation should be delayed as long as possible. If weeds develop, a shallow cultivation or rotary hoeing will generally result in improved weed control. If Keystone was incorporated, cultivate to a depth of less than half the depth of incorporation.

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

**Soil Texture and Organic Matter**

The use rate of Keystone is determined by a combination of two factors, soil texture and organic matter, which must be determined prior to application. Soils are grouped into three textural classes (coarse, medium and fine), as outlined in Table 1.

**Table 1: Soil Texture Groupings for Keystone Use Rate Selection.**

Coarse	Medium	Fine
Sand	Loam	Silty Clay Loam
Loamy Sand	Silt	Sandy Clay Loam
Sandy Loam	Silt Loam	Sandy Clay
		Silty Clay
		Clay Loam
		Clay

**Use Rates in Conventional Tillage Systems**

**Table 2: Keystone Use Rates (qt/acre) by Soil Texture and Organic Matter Content in Conventional Tillage Systems.**

The following use rates are for preplant incorporated, preemergence, and early postemergence applications (see Application Timing and Methods). Consult Table 3 if no-till applications are made or application is made more than 14 days prior to planting under conventional tillage.

Soil Texture	Soil Organic Matter Content	
	Less than 3%	3% or Greater
Coarse	2.2 – 2.4	2.4 – 2.6
Medium	2.4 – 2.8	2.6 – 2.8
Fine	2.6 – 3.0 <sup>†</sup>	2.6 – 3.4 <sup>†</sup>

<sup>†</sup> On highly erodible soils with less than 30% plant residue, do not apply more than 2.8 quarts/acre.

**Organic Matter:** If the organic matter content of the soil is at the lower end of the range, use the lower rates in the rate range provided in Table 2. If the organic matter content is at the upper end of the range, use the higher rates.

**Weed Infestation:** If the weed infestation is lighter, use a rate at the lower end of the rate range for the soil texture and organic matter content. If the weed infestation is heavier, use the higher rates in the rate range for the soil conditions.

### Use Rates for Reduced Tillage Systems

Keystone may be used in reduced or no-tillage systems. Applications may be made from up to 30 days prior to planting or after planting but before the corn emerges. Optimal weed control will be obtained when applications are made as close to planting as possible but before the corn emerges. It is recommended that a burndown herbicide such as Durango DMA or 2,4-D be tank mixed with Keystone in reduced or no-tillage systems to control emerged weeds.

**Table 3: Keystone Use Rates<sup>†</sup> (qt/acre) by Soil Texture in Reduced or No-Tillage Systems**

Soil Texture	Time Of Application Relative To Planting		
	Greater Than 14 Days Before Planting	Less Than 14 Days Before Planting or After Planting But Prior to Corn Emergence	After Planting and/or Corn Emergence
Coarse	Do not apply more than 14 days before planting on coarse textured soils	2.2 – 2.6	2.2 – 2.6
Medium	2.4 – 3.4	2.4 – 2.8	2.4 – 2.8
Fine	2.8 – 3.4	2.6 – 3.4	2.6 – 3.4

<sup>†</sup> Rates are for single applications. Split applications of Keystone may be used; apply at least 60% of the specified rate up to 30 days before planting and the remaining balance, up to 40%, at planting.

### Band Applications

For band applications, use row and band width measurements (inches) to calculate the amount of Keystone to be applied per acre as follows:

$$\begin{array}{l} \text{Band width in inches} \\ \text{Row width in inches} \end{array} \times \begin{array}{l} \text{Rate per acre for a} \\ \text{broadcast treatment} \end{array} = \begin{array}{l} \text{Amount of Keystone} \\ \text{to apply per acre} \end{array}$$

### Weeds Controlled

Keystone applied as directed in this label will control or partially control the weeds listed in Table 4. Additional weeds may be controlled with tank mixes. See the "Tank Mix Combinations" section of this label for tank mix directions. Always consult the tank mix product labels for specific use rates and directions. Always follow the most restrictive label when tank mixing Keystone with another product. Keystone may be tank mixed with any other registered corn product as long as compatibility is verified and tank mixing is not prohibited by the tank mix product label. Note: This product contains atrazine and may not control weeds that are known or suspected to be triazine resistant.

**Table 4: Weeds Controlled or Partially Controlled by Keystone at Specified Use Rates.**

<b>Grasses and Sedges</b>	<b>C = Control PC = Partial Control</b>	<b>Broadleaves</b>	<b>C = Control PC = Partial Control</b>
barnyardgrass	C	beggarweed, Florida	C
crabgrass spp.	C	carpetweed	C
crowfootgrass	C	cocklebur (2)	PC
cupgrass, southwestern	C	galinsoga	C
cupgrass, woolly	PC	jimsonweed	C
foxtail, giant	C	kochia	PC
foxtail, green	C	lambsquarters, common	C
foxtail, robust (purple, white)	C	morningglory spp.	C
foxtail, yellow	C	nightshade, black	C
goosegrass	C	nightshade, hairy	C
johnsongrass, seedling	PC	pigweed, redroot	C
millet, foxtail	C	purslane, common	C
millet, wild proso	PC	pusley, Florida	C
nutsedge, yellow (1,2)	C	ragweed, common	C
panicum, browntop	C	ragweed, giant	PC
panicum, fall	C	sicklepod	C
panicum, Texas	C (3)	sida, prickly	C
rice, red	C	smartweed spp.	C
sandbur, field	PC	velvetleaf (2)	PC
shattercane	PC	waterhemp, tall	C
signalgrass, broadleaf	C (3)		
sprangletop, red	C		
witchgrass	C		

- (1) Yellow nutsedge requires a minimum of 2.7 quarts. Incorporation will improve control.
- (2) Activity may be reduced under dry conditions or following early (more than 14 days) preplant applications. Sequential herbicides or additional atrazine may be needed for complete control.
- (3) Best control is achieved when Keystone is applied within 5 days of planting and rainfall occurs shortly after application or mechanical incorporation is used to activate the herbicide. If rainfall does not occur within 7 days after application, shallow cultivation will enhance activity. Excessive rainfall after application may reduce control. Under adverse weather conditions and/or heavy infestations, a cultivation or follow-up herbicide may be needed.

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### **Keystone Tank Mix Combinations**

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**When tank mixing or sequentially applying atrazine or simazine or products containing either a.i. to corn, the total pounds of simazine and/or atrazine applied (lb ai/A) must not exceed 2.5 pounds of active ingredient per year.**

**For all applications, do not exceed the maximum rate of acetochlor as specified in the Maximum Acetochlor Application Rates per Calendar Year section of this label.**

### **Use of Spray Adjuvants**

Keystone is a preemergence herbicide for which spray adjuvants have little or no effect on performance. However, several herbicides used in tank mixtures with Keystone require use of adjuvants to aid in the burndown of emerged weeds. Use only those adjuvants specified on tank mix product labels and approved for agricultural crop use. Adjuvants and/or low rate liquid fertilizers (28%, 30% or 32% UAN) or

ammonium sulfate (AMS) may be used with tank mixes applied preplant or preemergence to the crop.

Note: Do not use liquid fertilizer as the carrier when Keystone is applied postemergence to corn as severe injury may result. The addition of liquid fertilizers used as adjuvants with Keystone tank mixes applied postemergence to corn under environmental stress conditions may result in significant crop injury and should be avoided if the risk of crop injury is unacceptable.

### Preemergence Tank Mix Combinations

Tank mix combinations may be used in either conventional, reduced or no-till systems and be applied by the same methods and at the same timings as Keystone unless otherwise specified in the tank mix product label.

**When tank mixing Keystone with atrazine, do not exceed the maximum allowable rate of atrazine in your county or state. In some atrazine management areas, atrazine is more restricted. Consult your county extension office or state university for further information.**

#### Conventional Tillage Corn (Keystone Plus):

Tank Mix Herbicide <sup>†</sup>	Comments
Atrazine 4L	<ul style="list-style-type: none"> <li>• Preplant surface, preplant incorporated, preemergence. If emerged weeds are greater than 1.5 inches tall at the time of application, add an appropriate postemergence herbicide</li> <li>• Longer growing season areas</li> <li>• High rainfall areas</li> <li>• Heavy broadleaf weed pressure</li> </ul>
Balance Pro	<ul style="list-style-type: none"> <li>• Not labeled in all states; please refer to the Balance Pro label for precautionary statements, directions for use, geographic and other restrictions</li> <li>• Field corn only</li> <li>• Refer to the use rates section for Keystone for minimum use rates</li> </ul>
Hornet WDG	<ul style="list-style-type: none"> <li>• Tank mixing 3.0 – 4.0 oz/acre Hornet<sup>®</sup> WDG herbicide provides consistent control of velvetleaf, lambsquarters, pigweed species, waterhemp and triazine resistant varieties of these species. Will also provide improved control of cocklebur, common ragweed, giant ragweed, common sunflower and jimsonweed.</li> </ul>
Princep 4L	<ul style="list-style-type: none"> <li>• Improve crabgrass or fall panicum control.</li> </ul>
Python WDG	<ul style="list-style-type: none"> <li>• Tank mixing 0.8 – 1.0 oz/acre Python<sup>®</sup> WDG herbicide provides consistent control of velvetleaf, lambsquarters, pigweed species, waterhemp and triazine resistant varieties of these species.</li> </ul>
Surpass EC	<ul style="list-style-type: none"> <li>• Tank mix 1 pt/acre for enhanced grass and nutsedge control</li> </ul>

<sup>†</sup> Formulations that are not listed may be used: Perform a compatibility test and check the label of the tank mix product label for application rates, applicable use directions, precautions and limitations.

#### Reduced or No-Tillage Corn (Keystone Plus):

Tank Mix Herbicide <sup>†</sup>	Comments
Atrazine 4L	<ul style="list-style-type: none"> <li>• Longer growing season areas</li> <li>• High rainfall areas</li> <li>• Heavy broadleaf weed pressure</li> <li>• If emerged weeds are greater than 1.5 inches tall at the time of application, add an appropriate postemergence herbicide</li> </ul>
Balance Pro	<ul style="list-style-type: none"> <li>• Not labeled in all states; refer to the label for Balance Pro label for precautionary statements, directions for use, geographic and other use restrictions</li> <li>• Field corn only</li> </ul>

	<ul style="list-style-type: none"> <li>Refer to use rate section for Keystone for minimum use rates</li> </ul>
Banvel/Clarity Marksman	<ul style="list-style-type: none"> <li>Apply preplant or preemergence in reduced/ no-till systems for burndown of existing weeds</li> <li>Preemergence on all soils; medium and fine textured with &gt;2% OM</li> </ul>
Durango DMA, Roundup WeatherMAX, Touchdown	<ul style="list-style-type: none"> <li>Burndown existing weeds</li> </ul>
Gramoxone Inteon	<ul style="list-style-type: none"> <li>Control annuals, suppress perennials</li> </ul>
Pendimax® / Prowl	<ul style="list-style-type: none"> <li>Preemergence to early postemergence (up to 3" tall corn) but before weeds are more than 1" tall.</li> </ul>
Princep 4L	<ul style="list-style-type: none"> <li>Improved crabgrass or fall panicum control</li> </ul>
Surpass EC	<ul style="list-style-type: none"> <li>Enhanced grass and nutsedge control</li> </ul>
2,4-D	<ul style="list-style-type: none"> <li>Burndown existing weeds</li> </ul>

† Formulations that are not listed may be used: Perform a compatibility test and check the product label for application rates, applicable use directions, precautions and limitations.

### Keystone and Durango DMA, 2,4-D

In reduced or no-tillage corn, Durango DMA, Roundup WeatherMAX, Gramoxone Inteon, Touchdown, and/or 2,4-D can be used to burn down existing weeds. Burndown herbicides should be applied to emerged weeds when they are small; weeds less than 6 inches in height are easiest to control. Consult the burndown product labels for further information on weeds controlled.

### Postemergence Tank Mix Combinations

Keystone may be applied before, with, or following the use of one or more of the following herbicides: Accent, Aim, atrazine, Banvel, Basis, Basis Gold, Beacon, Buctril, Buctril/atrazine, Clarity, Distinct, Hornet WDG, Liberty, Lightning, Marksman, Peak, Permit, Prowl, Pendimax, Pursuit, Shotgun, Spirit, and Steadfast. Refer to the tank mix product label(s) regarding use directions, precautions and restrictions, and the list of weeds controlled. Keystone may be tank mixed with any product approved for use on corn unless it is prohibited on the tank mix product label. Note: Do not use liquid fertilizer as the carrier when Keystone is applied postemergence to corn as severe injury may result. The addition of liquid fertilizers used as adjuvants with Keystone tank mixes applied postemergence to corn under environmental stress conditions may result in significant crop injury and should be avoided if the risk of crop injury is unacceptable.

When **tank mixing**, refer to the tank mix product label and follow the additional use directions given in this table. **Keystone can be applied to corn up to 11" tall.**

### Postemergence Tank Mixes (Keystone Plus):

Tank Mix Herbicide	Rate	Comments
Hornet WDG	2-5 oz/acre	<ul style="list-style-type: none"> <li>Always add NIS at 0.25% v/v or COC at 1% v/v.</li> </ul>
Aim herbicide	0.3 oz/acre	<ul style="list-style-type: none"> <li>Always add a NIS at 0.25% v/v.</li> </ul>
Banvel Clarity Marksman	0.5 - 1.0 pt/acre 0.5 - 1.0 pt/acre 2 - 3.5 pt/acre	<ul style="list-style-type: none"> <li>Early postemergence up to 8" tall corn on all soils. If grasses are more than 2- leaf stage, combine with another herbicide to control these weeds.</li> <li>The maximum atrazine application rate for corn is 2.5 pounds active ingredient per calendar year or 2.0 pounds atrazine active ingredient for postemergence application if no atrazine was applied preemergence.</li> </ul>

Buctril Buctril/atrazine Shotgun herbicide	1.5 pt/acre 2.0 pt/acre 2 - 3 pt/acre	<ul style="list-style-type: none"> <li>Refer to product label for use directions.</li> <li>Refer to label for Shotgun herbicide for timing and use directions.</li> </ul>																
Atrazine	0.5 - 2.0 lb ai/acre	<ul style="list-style-type: none"> <li>Preplant surface, preplant incorporated, preemergence or early postemergence (up to 8" tall corn). If emerged weeds are greater than 1.5 inches tall at the time of application, add an appropriate postemergence herbicide. Note: The maximum atrazine application rate for corn is 2.5 pounds atrazine active ingredient per acre per calendar year.</li> </ul>																
Distinct	4.0 - 6.0 oz/acre	<ul style="list-style-type: none"> <li>Always add a NIS at 0.25% v/v and 1.25% UAN.</li> <li>Can be applied up to 10-inch corn.</li> </ul>																
Liberty	16 - 28 oz/acre	<ul style="list-style-type: none"> <li><b>For use on liberty tolerant corn only.</b> Apply to grass and broadleaves up to 6" tall. Do not add additional surfactant.</li> </ul>																
Lightning	1.28 oz/acre	<ul style="list-style-type: none"> <li><b>For use on Clearfield corn only.</b> Use a NIS at 25%v/v and a liquid nitrogen fertilizer at 1 - 2 qt per acre or ammonium sulfate at 2.5 lb per acre.</li> </ul>																
Pendimax / Prowl	1.8 - 3.6 pt/acre	<ul style="list-style-type: none"> <li>Preemergence to early postemergence (up to 3" tall corn) but before weeds are more than 1" tall.</li> </ul>																
Pursuit 2.5L Pursuit 70DG	4.0 fl oz/acre 1.4 fl oz/acre	<ul style="list-style-type: none"> <li>Use only on <b>Clearfield</b> varieties.</li> <li>Apply preplant surface, preplant incorporated, preemergence or early postemergence (up to 3" tall weeds).</li> </ul>																
Resource	4.0 - 6.0 oz/acre	<ul style="list-style-type: none"> <li>Apply to weeds less than 5" tall. Add a crop oil concentrate at 1 - 2 pt/acre and either 28% nitrogen at 2% v/v or ammonium sulfate at 2.5 lb/acre. May cause some burn or spotting to corn leaves.</li> </ul>																
Spirit	1.0 oz/acre	<ul style="list-style-type: none"> <li>Always add crop oil concentrate at 1% v/v.</li> <li>See label for geographic restrictions.</li> </ul>																
2,4-D Ester	See Label	<ul style="list-style-type: none"> <li>Apply preplant surface or preemergence to control emerged broadleaf weeds in corn.</li> </ul>																
Accent 75WDG Beacon 75WDG Basis Steadfast	1/4 - 2/3 oz/acre 0.76 oz/acre 1/4 - 2/3 oz/acre 0.75 oz/acre	<ul style="list-style-type: none"> <li>Minimum Keystone use rates (qt/acre):  <table border="1"> <thead> <tr> <th>Soil</th> <th>&lt;3%OM</th> <th>3-7%OM</th> <th>&gt;7%OM</th> </tr> </thead> <tbody> <tr> <td>Coarse</td> <td>1.8</td> <td>1.8</td> <td>2.4</td> </tr> <tr> <td>Medium</td> <td>1.8</td> <td>1.8 - 2.4</td> <td>2.6 - 2.8</td> </tr> <tr> <td>Fine</td> <td>1.8</td> <td>1.8-2.4</td> <td>2.8</td> </tr> </tbody> </table> </li> <li>Always add NIS at .25% (v/v); and in addition if applied in dry conditions, add 4% (v/v) clear liquid fertilizer.</li> <li>Banvel, Clarity, Marksman, Buctril, Buctril/atrazine may be added to this mixture to provide burndown and residual control of broadleaf weeds.</li> </ul>	Soil	<3%OM	3-7%OM	>7%OM	Coarse	1.8	1.8	2.4	Medium	1.8	1.8 - 2.4	2.6 - 2.8	Fine	1.8	1.8-2.4	2.8
Soil	<3%OM	3-7%OM	>7%OM															
Coarse	1.8	1.8	2.4															
Medium	1.8	1.8 - 2.4	2.6 - 2.8															
Fine	1.8	1.8-2.4	2.8															
Basis Gold	14.0 oz/acre	<ul style="list-style-type: none"> <li>Minimum Keystone use rates (qt/acre):  <table border="1"> <thead> <tr> <th>Soil</th> <th>&lt;3%OM</th> <th>3-7%OM</th> <th>&gt;7%OM</th> </tr> </thead> <tbody> <tr> <td>Coarse</td> <td>1.8</td> <td>1.8</td> <td>2.4</td> </tr> <tr> <td>Medium</td> <td>1.8</td> <td>1.8 - 2.4</td> <td>2.6 - 2.8</td> </tr> <tr> <td>Fine</td> <td>1.8</td> <td>1.8-2.4</td> <td>2.8</td> </tr> </tbody> </table> </li> <li>Always add crop oil concentrate at 1.0% v/v or under dry arid conditions, 2.0% v/v and 28% liquid nitrogen at 2 qt/acre or ammonium sulfate</li> </ul>	Soil	<3%OM	3-7%OM	>7%OM	Coarse	1.8	1.8	2.4	Medium	1.8	1.8 - 2.4	2.6 - 2.8	Fine	1.8	1.8-2.4	2.8
Soil	<3%OM	3-7%OM	>7%OM															
Coarse	1.8	1.8	2.4															
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Fine	1.8	1.8-2.4	2.8															

		<p>at 2 lb/acre.</p> <ul style="list-style-type: none"> <li>• Banvel, Clarity, Marksman, Buctril, or Tough herbicide may be added to this mixture to provide burndown and residual control of broadleaf weeds.</li> <li>• The maximum atrazine application rate for corn is 2.5 pounds active ingredient per calendar year or 2.0 pounds atrazine active ingredient for postemergence application if no atrazine was applied preemergence.</li> </ul>
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## Appendix I

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### Procedure for Testing the Compatibility of Keystone and Tank Mixes with Fluid Fertilizers.

Since fluid fertilizers vary, the following procedure is suggested for determining whether Keystone may be combined with a specific fluid fertilizer for spray tank application.

#### Materials Needed:

- Keystone and any tank mix products.
- Fluid fertilizer to be used.
- Adjuvant for fertilizer tank mix: Use any adjuvant cleared for use on growing crops under 40 CFR 180.1001 to improve the compatibility of Keystone with fluid fertilizers. The adjuvant that provides the best emulsification depends on the specific fertilizer under consideration.
- Two 1 quart, wide mouth glass jars with lid or stopper.
- Measuring spoons (a 25-ml pipette or graduated cylinder provides more accurate measurement).
- Measuring cup, 8 ounces (257 ml).

#### Procedure:

1. Pour a pint (about 473 ml) of the fluid fertilizer into each of the quart jars.
2. Add Keystone and any tank mix combination to the jars. The order of addition is wettable powders first with mixing, followed by flowables with mixing and the EC's last. The rate of wettable powders and dry flowables is 1½ teaspoon per pound of product per acre to be applied. EC's should be added at the rate of ½ teaspoon for each pint per acre to be applied. Premixing the wettable powders in 1 ounce of water before adding to the pint of fluid fertilizer will improve the compatibility of the final mixture.
3. Add 1/2 teaspoon (2 ml) adjuvant to one of the jars, label it as "with", and mix. The rate of ½ teaspoon per pint is equal to 3 pints of adjuvant per 100 gallons of fluid fertilizer.
4. Close both jars with lids or stoppers and mix the contents by turning the jars upside down ten times.
5. Inspect the surface and body of the mixtures:
  - (a) Immediately after completing the jar inversions
  - (b) After allowing the jars to stand quietly for 30 minutes
  - (c) And then again after turning the jars upside down 10 times after the 30 minute inspection

#### Evaluation:

If either mixture remains uniform for 30 minutes, the combination may be used. Should either mixture separate after 30 minutes, but readily remix uniformly with 10 jar inversions, the mixture can be used if adequate agitation is maintained in the tank. If the mixture with adjuvant is satisfactory but the mixture without adjuvant is not, be sure to use the adjuvant in the spray tank. Add the adjuvant first at a rate of 3 pints per 100 gallons of fluid fertilizer. Foaming may be minimized by using only moderate agitation. **If non-dispersible oil, sludge, or clumps of solids form in the mixtures, the combination should not be used.**

## Appendix II

### Dry Bulk Fertilizer Impregnation

Impregnation of bulk fertilizer is restricted to commercial facilities. On-farm fertilizer impregnation is prohibited. No more than 500 tons of bulk fertilizer can be impregnated per day. No single facility may impregnate fertilizer with this product for more than 30 days per calendar year."

The commercial facility impregnating the dry bulk fertilizer must inform, in writing, the user (applicator) of the dry bulk fertilizer that:

- Applicator must wear long-sleeved shirt, long pants, shoes, and socks
- The restricted entry interval is 12 hours.

All individual state regulations relating to dry bulk fertilizer blending, registration, labeling and application are the responsibility of the individual and/or company selling the Keystone. When applying Keystone alone or in tank mixes with dry bulk fertilizers, follow all directions for use and precautions on the respective tank mix product labels regarding rates, soil texture, application methods and rotational restrictions. Use a minimum of 200 pounds dry fertilizer per acre.

**Table 5:** Approved Dry Fertilizer Ingredients for Use with Keystone.

Fertilizer	N	P	K
Ammonium Phosphate-Sulfate	16	20	0
Ammonium Sulfate	21	0	0
Diammonium Phosphate	18	46	0
Monoammonium Phosphate	11	56	0
Potassium Chloride	0	0	60
Potassium Sulfate	0	0	52
Urea <sup>†</sup>	45	0	0

<sup>†</sup> Some ureas may be phytotoxic when high rates are applied to corn. Use only urea rates known to be safe for corn application.

For impregnating the pesticides on dry fertilizers, use an appropriate mixer equipped with suitable spraying equipment. The spray nozzles should be positioned inside the mixer to provide uniform spray coverage of the tumbling fertilizer. The Keystone should be sprayed uniformly onto the fertilizer using a fine spray pattern. Tank mix components may be applied as separate ingredients with powders and dry flowables added first or they may be mixed in a slurry in the proper ratio and added jointly. Keystone may also be impregnated on the go and applied with pneumatic applicators.

The following table provides a reference to determine the amount of Keystone to be mixed per ton of dry bulk fertilizer for a range of herbicide rates.



Fertilizer Rate (lbs per acre)	Acres per Ton	Keystone Fertilizer Impregnation Rate Conversion Table		
		Quarts of Keystone per Ton of Fertilizer to Deliver:		
		2.2 qt/acre	2.7 qt/acre	3.2 qt/acre
200	10	22.0	27.0	32.0
250	8	17.6	21.6	25.6
300	6.7	14.7	18.0	21.3
350	5.7	12.6	15.4	18.3
400	5	11.0	13.5	16.0
450	4.5	9.8	12.0	14.2

To determine the amount of Keystone needed for other fertilizer rates, use the following formula:

$$\frac{\text{Keystone (quarts/acre)}}{\text{Pounds of fertilizer/acre}} \times 2000 = \text{Quarts of Keystone per ton of fertilizer}$$

If the herbicide/fertilizer mixture is too wet, use of a drying agent is required to provide a dry, free-flowing mixture. For mixtures to be used in spinning-disc applicators, Micro-Cel E calcium silicate powder (Manville, Filtration & Minerals) is recommended for use as a drying agent. Mixtures to be used in pneumatic applicators should use Micro-Cel E or Agsorb 16/30 RVM-MS granular clay (Oil-Dri Corporation). The drying agents should be added separately and uniformly to the prepared pesticide/fertilizer mixture, in a quantity that is sufficient to provide a suitable free-flowing mixture. Generally, less than 2% Micro-Cel E or 5% Agsorb 16/30 RVM-MS by weight is required.

**Precaution:** To avoid potential for explosion, do not impregnate Keystone on ammonium sorbate nitrate, potassium nitrate, or sodium nitrate fertilizer or fertilizer blends. Do not impregnate on single (0-20-0) or triple (0-46-0) super phosphate. Do not impregnate on agricultural limestone because Keystone will not be absorbed.

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