

PM 25 10182-443 4/27/98

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SURPASS 7-E Booklet  
SURXXX.MAS-021198

**RESTRICTED USE PESTICIDE**

**Due to Oncogenicity**

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.

**SURPASS® 7E Herbicide**

**For Use Only on Field Corn, Production Seed Corn, Silage Corn and Popcorn**

**ACTIVE INGREDIENT:**

Acetochlor

2-chloro-2'-methyl-6'-ethyl-N-ethoxymethylacetanilide ..... 75.4%

**INERT INGREDIENTS:** ..... 24.6%

**TOTAL** ..... 100.0%

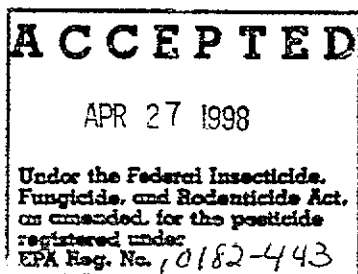
Contains 7.0 pounds active ingredient per gallon

EPA Reg. No. 10182-xxx

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION**

Made in U.S.A.  
ZENECA Ag Products  
ZENECA Inc.  
Wilmington, DE 19850-5458



## COMPLETE DIRECTIONS FOR USE

### CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

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**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.

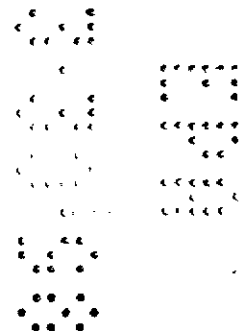
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The Directions for Use of this product should be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such 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 ZENECA or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold ZENECA and Seller harmless for any claims relating to such factors.

ZENECA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or ZENECA, and Buyer and User assume the risk of any such use. ZENECA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

In no event shall ZENECA or Seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF ZENECA 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 ZENECA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

ZENECA and Seller offer this product, and Buyer and User accept it, subject to the foregoing conditions of sale and limitations of warranty and of liability, which may not be modified except by written agreement signed by a duly authorized representative of ZENECA.



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### STATEMENT OF PRACTICAL TREATMENT

**IF SWALLOWED:** Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with a finger. If person is unconscious, do not give anything by mouth and do not induce vomiting.

**IF ON SKIN:** Wash with plenty of soap and water. Get medical attention if symptoms persist.

**IF IN EYES:** Flush eyes with plenty of water. Call a physician if irritation persists.

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**FOR 24-HOUR EMERGENCY MEDICAL ASSISTANCE, CALL 1-800-F-A-S-T-M-E-D (327-8633).**

**FOR CHEMICAL EMERGENCY: Spill, leak, fire, exposure, or accident call CHEMTREC 1-800-424-9300.**

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### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

##### CAUTION

Harmful if swallowed or absorbed through the skin. Causes moderate eye irritation. Avoid contact with eyes, skin, or clothing. Wear long sleeved shirt and long pants, socks, shoes, and chemical resistant gloves (such as Nitrile, Butyl, Neoprene, and/or Barrier Laminate). Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals. Wash thoroughly with soap and water.

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, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

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#### User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
  - Remove clothing 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.
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## ENVIRONMENTAL HAZARDS

This product is toxic to fish. 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 contaminate water when disposing of equipment washwaters.

This chemical 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.

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.

## PHYSICAL AND CHEMICAL HAZARDS

Do not use or store near heat or open flames.

## GENERAL INFORMATION

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

SURPASS® 7-E is a unique combination of the herbicide acetochlor and the antidote or safener dichlormid. While the acetochlor provides weed control the dichlormid safens corn against herbicide injury. SURPASS 7-E may be applied to the surface or incorporated into the top 1-2 inch layer of soil. It is recommended for control alone, or in tankmix combinations as indicated, for the weeds listed in the "TARGET WEEDS" section of these use directions. SURPASS 7-E controls weeds by interfering with normal germination and seedling development. SURPASS 7-E will not control established or germinated weeds present at application.

## USE RESTRICTIONS

- Do not apply to the following soils if groundwater depth is 30 feet or less: sand with less than 3% organic matter; loamy sand with less than 2% organic matter; or sandy loam with less than 1% organic matter.
- This product may not be mixed or loaded within 50 feet of any wells (including abandoned wells and drainage wells), sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas.
- Operations that involve mixing, loading, rinsing, or washing of this product into or from pesticide handling or application equipment or containers within 50 feet of any well are prohibited unless conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be positioned on or moved across the pad. Such a pad shall be designed and maintained to contain any product spills or equipment leaks, container or equipment rinse or washwater, and rainwater that may fall on the pad. Surface water shall not be allowed to either flow over or from the pad, which means the pad must be self contained. The pad shall be sloped to facilitate material removal. An unroofed pad shall be of sufficient capacity to contain at a minimum 110% of the capacity of the largest pesticide container or application equipment on the pad. A pad that is covered by a roof of sufficient size to completely exclude precipitation from contact with the pad shall have a minimum containment capacity of 100% of the capacity of the largest pesticide container or application equipment on the pad. Containment capacities as described above shall be maintained at all times. The above specified minimum containment capacities do not apply to vehicles when delivering pesticide shipments to the mixing/loading site. States may have in effect additional requirements regarding wellhead setbacks and operational containment.
- 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 which will prevent back siphoning in wells, spills or improper disposal of excess pesticide, spray mixtures or rinsates.
- Do not apply under conditions which favor runoff or wind erosion of soil containing this product to non-target areas. To prevent off-site movement due to runoff or wind erosion:
  - Avoid treating powdery dry or light sandy soils when conditions are favorable for wind erosion. Under these conditions, the soil surface must 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 ½ inch of rainfall has occurred between application and the first irrigation.
- 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.

#### GENERAL USE PRECAUTIONS

Read all label directions before using.

- Do not use SURPASS 7-E on any crop other than field corn, production seed corn, silage corn and popcorn.
- Do not allow SURPASS 7-E to contaminate feed or food.
- SURPASS 7-E should not be stored near seeds or fertilizers.
- All containers of SURPASS 7-E should be kept tightly closed when not in use.
- Do not overdose or use rates higher than specified on this label.
- Do not apply more than 3.4 pints of SURPASS 7-E per acre per season.
- ROTATIONAL CROPS: (1) If crop treated with SURPASS 7-E is lost, field corn; production seed corn; silage corn; or popcorn may be replanted immediately. Do not make a second application of SURPASS 7-E. (2) Do not rotate to crops other than corn, soybeans, sorghum, wheat, or tobacco. Wheat may be planted 4 months after application. Corn, soybeans, sorghum, or tobacco may be planted the spring following application.



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## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with this labelling.

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.

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## 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.
  - Waterproof gloves.
  - Chemical-resistant footwear plus socks.
  - Protective eyewear.
  - Chemical-resistant headgear for overhead exposure.
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## STORAGE AND DISPOSAL

**PROHIBITIONS:** Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited. Do not reuse empty container.

**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 DISPOSAL:** Triple rinse (or equivalent); then offer for recycling or reconditioning, 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.

### FOR BULK AND MINI-BULK CONTAINERS:

**Container Disposal:** Triple rinse (or equivalent); then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by other procedures approved by state and local authorities.

**Container Precautions:** Before refilling, inspect thoroughly for damage such as cracks, punctures, bulges, dents, abrasions, and damaged or worn threads on closure devices.

**REFILL ONLY WITH SURPASS 7-E herbicide.** The contents of this container cannot be completely removed by cleaning. Refilling with materials other than SURPASS 7-E will result in contamination and may weaken container.

After filling and before transporting, check for leaks.

Do not refill or transport damaged or leaking container.

Circulation before dispensing is required.

**CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER!**

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## GENERAL APPLICATION DIRECTIONS

### 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 with these must be done before combining in the spray tank. See Appendix I for details of the compatibility testing procedure. Even if SURPASS 7-E is physically compatible with a fluid fertilizer, constant agitation is necessary to maintain a uniform mixture during application.

**Dry Bulk Fertilizer:** SURPASS 7-E may be impregnated on dry bulk fertilizer and applied as the fertilizer is spread. See Appendix II for details including which fertilizers are compatible.

### ADDING TO SPRAY TANK

The spray tank must be clean, thoroughly rinsed and decontaminated before adding either SURPASS 7-E alone or in tankmix combinations. If water is used as the carrier, use clean water.

**Used Alone:** If SURPASS 7-E is used alone, add the recommended amount to the spray tank before the tank is half filled. The addition of the remaining water or fluid fertilizer carrier can aid in the thorough agitation and mixing of the spray solution.

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

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

- Mix and disperse wettable powders or dry flowables first. Premix wettable powders or dry flowables in a little water in a pail or bucket before adding to the spray tank to improve the compatibility of the final tankmix. Thoroughly disperse them in the tank before adding SURPASS 7-E.
- Add SURPASS 7-E to the tank last.
- Finish filling spray tank with liquid carrier while at the same time providing agitation.
- Tankmix combinations should not be left in the spray tank for prolonged periods as settling may occur. Batches should be mixed and applied the same day.

### VOLUME

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

**Dry Bulk Fertilizer:** Use at least 200 pounds of dry bulk fertilizer per acre. See Appendix II for more details.

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## **PRESSURE**

If liquid carriers are used, the pressure at the nozzle should be 15 to 40 psi to ensure good distribution of the spray pattern. Consult spray tip manufacturer's recommendation on appropriate pressure for the nozzles and screens you are using.

## **APPLICATION TIMING AND METHODS**

In reduced or no-till systems, a burndown herbicide such as GRAMOXONE® EXTRA, TOUCHDOWN®, or 2,4-D may be tank mixed with SURPASS 7-E if emerged weeds are present at the time of application.

**Early Preplant:** SURPASS 7-E and certain tank mixtures may be applied up to 30 days before planting.

**Preplant Incorporation:** SURPASS 7-E and certain tankmixes may be mechanically incorporated in the top 2 inches of the soil by mechanical means such as field cultivators, finishing discs, rotary hoes, spring tooth harrows, or power driven cultivation equipment. Do not apply more than 14 days before planting. Improper incorporation, excessive crop residues, or poor soil tilth may result in erratic, streaked or otherwise unsatisfactory weed control. Avoid moving or shaping soil after incorporation. If two passes are used to incorporate SURPASS 7-E, the second pass should be shallower and at an angle to the first pass.

**Preemergence Surface:** SURPASS 7-E and certain tankmixes may be applied to the soil surface as a broadcast or banded application. Existing soil moisture, irrigation or rain is necessary to bring SURPASS 7-E 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. Care should be taken not to remove SURPASS 7-E from the weed control zone such as the band. The device used should be run at a shallow depth to prevent disturbing the corn seed.

**Postplant-Preemergence:** SURPASS 7-E and certain tankmixes may be applied 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 incorporate the herbicide. Care should be taken not to remove SURPASS 7-E from the weed control zone. The device used should be run at a shallow depth to prevent disturbing the germinating corn.

**Banding-Preemergence:** SURPASS 7-E and certain tank mixtures 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. Be careful not to move SURPASS 7-E from the band or dilute it with untreated soil. Do not disturb the germinating corn.

**Early Postemergence:** SURPASS 7-E may be used early postemergence (up to 11" tall) in corn. 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 tankmix product labels.

**Fall Application - For use in IA (North of Route 30), MN, ND, SD:** Following soybean harvest, apply to soybean stubble after October 15, when the sustained soil temperature at 4-inch depth is less than 50°F, but before ground freezes. Use on medium and fine textured soils with greater than 2.5% organic matter. Only corn may be planted the following spring.

Ground may be tilled before or after application. Do not exceed 2-inch incorporation depth if tilled after application.

If a spring application is made, the total rate of the fall plus spring application must not exceed the maximum labeled rate for corn grown on that soil.

**Sprinkler Irrigation:** Do not apply SURPASS 7-E by sprinkler irrigation. Use a sprinkler system only to incorporate SURPASS 7-E after applying by ground equipment. After SURPASS 7-E has been applied, a sprinkler irrigation system set to deliver  $\frac{1}{4}$  to  $\frac{3}{4}$  inches of water per acre may be used to activate the product. Using more than  $\frac{3}{4}$  inches of water could result in reduced performance. On sandy soil low in organic matter, use no more than  $\frac{1}{2}$  inch of water. Do not use flood irrigation to apply or activate SURPASS 7-E.

## PLANTING

Planting should be done within 30 days of application of SURPASS 7-E. This allows SURPASS 7-E to provide effective weed control during the time it is most critical in the production of corn.

## CULTIVATION

If rotary hoeing is necessary due to soil crusting or compaction, 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. Should weeds develop, a shallow cultivation or rotary hoeing will generally result in improved weed control.

**SOIL TEXTURE AND ORGANIC MATTER**

The soils are grouped into three classes, coarse, medium and fine. Once the soil type has been determined, the texture group can be found in the Table 1.

**TABLE 1**  
**Soil Texture Groupings for SURPASS 7-E Use Rate Selection.**

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

The soil texture and organic matter of the field on which the application is to be made must be known prior to application to select the correct rate. The use rate of SURPASS 7-E is determined by a combination of these two factors.

**USE RATES IN CONVENTIONAL TILLAGE SYSTEMS**

The soil texture and organic matter level of the field on which SURPASS 7-E is to be applied should be determined prior to selecting the rate from Table 2.

**TABLE 2**  
**SURPASS 7-E Use Rates by Soil Texture and Organic Matter Content**  
**in Conventional Tillage Systems. Rates are in Pints per acre.**

SOIL TEXTURE	SOIL ORGANIC MATTER CONTENT		
	Less than 3%	3% or Greater	Greater than 7%
Coarse	1.25 - 1.75 pts.	1.75 - 2.25 pts.	2.25 - 2.75 pts.
Medium	1.75 - 2.25 pts.	1.75 - 2.25 pts.	2.25 - 3.4 pts.
Fine	1.75 - 2.5 pts.	2.25 - 2.75 pts.	2.75 - 3.4 pts.

These rates are for applications from 2 weeks before planting through emergence of the corn. Use Table 3 if applications are made more that 2 weeks prior to planting.

**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 given in Table 2. If the organic matter content is at the upper end of the range, use the higher rates given in the rate range.

**Weed Infestation:** If the weed infestation is light, 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 texture and organic matter.

### USE RATES FOR REDUCED AND NO-TILL SYSTEMS

SURPASS 7-E may be used in reduced and no-till systems. Application can take place from up to 30 days prior to planting or after planting. The highest levels of control will be obtained when applications are made as close to planting as possible but before the weeds emerge. Apply a residual herbicide like AAtrex®, Bladex®, or Extrazine® with SURPASS 7-E in reduced or no-till systems. If weeds are present at application, a burndown herbicide like GRAMOXONE EXTRA, TOUCHDOWN®, or 2,4-D may be added to the tank mixture.

**TABLE 3<sup>1</sup>**  
**SURPASS 7-E Use Rates by Soil Texture and Organic Matter Content**  
**in Reduced and No-Till Systems. Rates are in pints per acre.**

SOIL TEXTURE	SOIL ORGANIC MATTER CONTENT		
	Less than 3%	3% or Greater	Greater than 7%
Coarse	1.75 pts.	1.75 pts.	2 - 3 pts.
Medium	1.75 - 2.25 pts.	2.25 pts.	2.25 - 3.4 pts.
Fine	2.75 pts.	2.75 pts.	2.75 - 3.4 pts.

<sup>1</sup> Rates are for single applications. SURPASS 7-E may be split applied. If the rate is split, apply 60% of the recommended rate up to 30 days before planting. The remaining 40% should be applied after planting.

### BAND APPLICATIONS

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

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

**WEEDS CONTROLLED:**

SURPASS 7-E applied as directed in this label will provide control or partial control (reduce competition) of the weeds listed in Table 4. Partially controlled weeds will be severely stunted, or experience reduced height, vigor, or population compared to untreated areas. Depending on the infestation level or density, a follow-up treatment with another herbicide registered for use on corn may be needed to provide complete control.

Additional weeds may be controlled with certain tankmixes. See the "Tankmix Combinations" section for recommended tankmix combinations and the additional weeds controlled. Always consult the tankmix product labels for specific rates and use directions. Always follow the most restrictive label when tank mixing SURPASS 7-E with another product.

**TABLE 4**  
**Weeds Controlled or Partially Controlled by SURPASS 7-E at Recommended Use Rates.**

COMMON NAMES	WEED TYPE <sup>1</sup>	SCIENTIFIC NAME	C = CONTROL PC = PARTIAL CONTROL
Black nightshade	B	<i>Solanum nigrum</i>	C
Carpetweed	B	<i>Mollugo verticillata</i>	C
Common ragweed	B	<i>Ambrosia artemisiifolia</i>	C
Florida beggarweed	B	<i>Desmodium tortuosum</i>	PC
Florida pusley	B	<i>Richardia scabra</i>	C
Galinsoga	B	<i>Galinsoga parviflora</i>	C
Hairy nightshade	B	<i>Solanum sarachoides</i>	C
Kochia	B	<i>Kochia scoparia</i>	PC
Lambsquarters, common	B	<i>Chenopodium album</i>	C <sup>3</sup>
Pigweed	B	<i>Amaranthus</i> spp.	C
Prickly sida	B	<i>Sida spinosa</i>	PC
Purslane, common	B	<i>Portulaca oleracea</i>	C



COMMON NAMES	WEED TYPE <sup>1</sup>	SCIENTIFIC NAME	C = CONTROL PC = PARTIAL CONTROL
Smartweed spp.	B	<i>Polygonum</i> spp.	PC
Tall waterhemp	B	<i>Amaranthus tuberculatos</i>	C
Barnyardgrass	G	<i>Echinochloa crus-galli</i>	C
Bristly foxtail	G	<i>Setaria verticillata</i>	C
Broadleaf signalgrass	G	<i>Brachiaria platyphylla</i>	C <sup>4</sup>
Browntop panicum	G	<i>Panicum fasciculatum</i>	C
Crabgrass	G	<i>Digitaria</i> spp.	C
Crowfootgrass	G	<i>Dactyloctenium aegyptium</i>	C
Fall panicum	G	<i>Panicum dichotomiflorum</i>	C
Field sandbur	G	<i>Cenchrus pauciflorus</i>	PC
Foxtail millet	G	<i>Setaria italica</i>	C
Giant foxtail	G	<i>Setaria faberi</i>	C
Goosegrass	G	<i>Eleusine indica</i>	C
Green foxtail	G	<i>Setaria viridis</i>	C
Prairie cupgrass	G	<i>Eriochloa contracta</i>	C
Red rice	G	<i>Oryza sativa</i>	C
Red sprangletop	G	<i>Leptochloa filiformis</i>	C
Robust foxtail (purple, white)	G	<i>Setaria</i> spp.	C
Seedling johnsongrass	G	<i>Sorghum halepense</i>	PC
Shattercane	G	<i>Sorghum bicolor</i>	PC
Southern sandbur	G	<i>Cenchrus echinatus</i>	C
Southwestern cupgrass	G	<i>Eriochloa gracilis</i>	C

COMMON NAMES	WEED TYPE <sup>1</sup>	SCIENTIFIC NAME	C = CONTROL PC = PARTIAL CONTROL
Texas panicum	G	<i>Panicum texanum</i>	C <sup>4</sup>
Wild proso millet	G	<i>Panicum miliaceum</i>	PC
Witchgrass	G	<i>Panicum capillare</i>	C
Woolly cupgrass	G	<i>Eriochloa villosa</i>	PC
Yellow foxtail	G	<i>Setaria lutescens</i>	C
Yellow nutsedge <sup>2</sup>	S	<i>Cyperus esculentus</i>	C

<sup>1</sup> B = Broadleaf, G = Grass, S = Sedge

<sup>2</sup> Yellow nutsedge requires a minimum of 2½ pints. Incorporation will improve control.

<sup>3</sup> Light to moderate infestations will be controlled. Heavy infestations may require a tank mixture or sequential herbicide.

<sup>4</sup> Best control is achieved when SURPASS 7-E is applied within 5 days of planting and rainfall occurs shortly after application or mechanical incorporation is used to activate the herbicide. If it does not rain within 7 days, 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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## TANKMIX COMBINATIONS

### USE OF SPRAY ADJUVANTS

SURPASS 7-E is a preemergence herbicide for which spray adjuvants have little or no influence on performance. However, several herbicides used in tank mixtures with SURPASS 7-E require use of adjuvants to aid in the burndown of emerged weeds. Use only those adjuvants to aid in the burndown of emerged weeds. Use only those adjuvants approved for agricultural crop use. Surfactants and/or low rate fertilizer (28%, 30% or 32% UAN or ammonium sulfate) adjuvants may be used with tankmixes applied preplant or preemergence to the crop.

### PREEMERGENCE TANKMIX COMBINATIONS

Tankmix 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 SURPASS 7-E unless otherwise specified in the tankmix product label. Three way or multiple tank mixtures are allowed if not restricted by the respective product labels. Check all tankmix product labels for proper rates for 3 way or multiple tankmixes.

#### **SURPASS 7-E & ATRAZINE, BLADEX OR BANVEL®/CLARITY®:**

Check the atrazine label, county extension office, or state university for the recommended use rate in your area. SURPASS 7-E is more active on broadleaf weeds and atrazine rates can be reduced up to 30% while maintaining control of target broadleaf weeds.

Tank mixtures with atrazine will increase the spectrum of weeds controlled. Where AAtrex® formulations have been specified other brands of atrazine may be used. Read and follow all atrazine label directions and restrictions. Table 5 provides a list of the weeds controlled or partially controlled by atrazine or Bladex in combination with SURPASS 7-E.

Use Banvel tank mixture on flat-planted field corn (no furrows) in IL, IN, IA, MN, NE, OH, SD, and WI ONLY to control the weeds listed in Table 5. Read and follow all precautions and directions for use on the Banvel label.

Apply SURPASS 7-E + Banvel preemergence. Tank mix 1 pt./acre Banvel with the recommended rate of SURPASS for medium or fine textured soils. Do not apply this tankmix on coarse textured soils with less than 2% organic matter.

**TABLE 5**  
**Weeds Controlled (C) or Partially Controlled (PC) by atrazine or Bladex**

COMMON NAME	WEED TYPE*	ATRAZINE	BLADEX	BANVEL/ CLARITY
Morningglory spp.	B	C	C	PC
Cocklebur	B	C	PC	PC
Groundcherry spp.	B	C	—	—
Jimsonweed	B	C	C	PC
Kochia	B	C	C	—
Mustards	B	C	C	C
Giant Ragweed	B	C	C	C
Sicklepod	B	C	C	PC
Velvetleaf	B	C	PC	PC

\* B=Broadleaf, G=Grass

**Caution:** Following many years of continuous use of atrazine and chemically related products, biotypes of some of the weeds listed above 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.

In certain atrazine management areas, atrazine rates are further restricted due to potential groundwater or surface water contamination. If rates in this table exceed the rate of application allowed in your area - use the lower rate. Consult your county extension office or state university for further information.

## SURPASS 7-E ADDITIONAL TANKMIX COMBINATIONS

TANKMIXES	RATE (MAX)	COMMENTS
Extrazine	See Label	- mixture of Bladex and atrazine
Prowl®	See Label	- triazine resistant weeds - velvetleaf - preemergence only
ERADICANE® 6.7-E OR SUTAN®+ 6.7-E	4 - 6 pts/acre	- tankmix with 1-1½ pints SURPASS 7-E - improved grass control - must be incorporated
Lorox® DF	See Label	- enhanced lambsquarter and pigweed control
Princep® 4L	See Label	- improved crabgrass or fall panicum control
Pursuit®	See Label	- tolerant corn hybrids required
GRAMOXONE EXTRA	3 pts/acre	- controls emerged annuals, suppresses perennials
TOUCHDOWN	6.33 pts/acre	- controls annuals and some perennials
WARRIOR™	3.84 fl oz/acre	- for control of many insects such as cutworm

## SURPASS 7-E &amp; GRAMOXONE EXTRA, TOUCHDOWN, 2,4-D

In reduced or no-till corn, GRAMOXONE EXTRA, TOUCHDOWN, and/or 2,4-D will burndown existing weeds. GRAMOXONE EXTRA should be applied to emerged weeds when they are small. Weeds 1 to 6 inches in height are the easiest to control. Large weeds may be more difficult to control. Tankmixes with atrazine and Bladex will often aid in control of difficult weeds. Consult the GRAMOXONE EXTRA, TOUCHDOWN, or 2,4-D product label for further information on weeds controlled.

GRAMOXONE EXTRA is a RESTRICTED USE pesticide. Refer to the GRAMOXONE EXTRA label for rates, directions, precautions, and limitations relative to its use.

## POSTEMERGENCE TANKMIX COMBINATIONS

SURPASS 7-E may be applied before, with, or following the use of one or more of the following herbicides: Accent®, atrazine, Banvel®, Basis®, Basis Gold, Beacon®, Bladex®, Buctril®, Buctril/atrazine, Clarity®, Exceed®, Extrazine® II, Headline™, Liberty, Lightning™, Marksman®, Peak®, Permit®, Poast (Plus and HC), Princep, Prowl®, Pursuit, Scorpion™ III, Shotgun™. When SURPASS 7-E is tank mixed with a triazine herbicide, use only water as the carrier to avoid crop injury. Read the other product label(s) for directions for use, precautions and restrictions, and a list of weeds controlled. SURPASS 7-E may be tank mixed with any product approved for use on corn unless it is prohibited on the other manufacturer's label.

When tank mixed, read the other product label and follow the additional use directions given in this table:

SURPASS 7-E can be applied to corn up to 11" tall

### SURPASS 7-E PLUS:

PRODUCT	RATE	COMMENTS
Banvel Clarity Marksman	0.5 - 1 pt/A 8 - 16 oz/A 2 - 3.5 pt/A	<ul style="list-style-type: none"> <li>• Apply preplant or preemergence in reduced/no- till systems.</li> <li>• Preemergence on all soils; medium and fine textured with &gt; 2% OM.</li> <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> </ul>
Buctril Buctril/atrazine Shotgun	1.5 pt/A 2 pt/A 2 - 3 pt/A	<ul style="list-style-type: none"> <li>• Refer to product label for use directions.</li> <li>• Refer to Shotgun label for timing and use directions.</li> </ul>
Atrazine	.5 - 2.0 lb ai/A	<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.</li> </ul>
Bladex Extrazine II	1.0 - 2.0 lb ai/A 1.0 - 2.0 lb ai/A	<ul style="list-style-type: none"> <li>• Postemergence (up to 4-leaf stage of corn) but before weeds are more than 1.5" tall. Apply in water only. Do not spray emerged corn plants with a mixture containing liquid fertilizer. These mixtures are not recommended on sand or loamy sand soils with less than 1% organic matter.</li> </ul>
Liberty	16 - 28 oz/A	<ul style="list-style-type: none"> <li>• FOR USE ON LIBERTY TOLERANT CORN ONLY. Apply until the corn is 24" tall or in the V-7 stage of growth. Apply to grass and broadleaves up to 6" tall. Do not add additional surfactant.</li> </ul>

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Lightning	1.28 oz/A	• FOR USE ON IMI CORN ONLY. Use a NIS at .25%v/v and a liquid nitrogen fertilizer at 1-2 qts per acre or ammonium sulfate at 2.5 lbs per acre.																
Poast Plus	16 - 24 oz/A	• FOR USE ONLY ON SETHOXYDIM RESISTANT (SR) FIELD CORN. Use for postemergence control of certain annual and perennial grass weeds. Add Dash HC or crop oil concentrate. Severe crop injury will occur to corn hybrids not labeled as SR corn.																
Poast HC	7.0 - 10.5 oz/A																	
Prowl 3.3 EC	1.8 - 3.6 pt/A	• Preemergence to early postemergence (up to 3" tall corn) but before weeds are more than 1" tall.																
Princep	1.0 - 3.0 lb ai/A	• Preplant surface, preplant incorporated, preemergence to corn.																
Pursuit 2.5L	4 fl oz/A	• Use only on Pursuit resistant (IR) or tolerant (IT) varieties. • Apply preplant surface, preplant incorporated, preemergence or early postemergence (up to 3" tall weeds).																
Pursuit 70DG	1.4 fl oz/A																	
Resource	4 - 6 oz/A	• Apply up to 10 leaf corn to weeds less than 5" tall. Add a crop oil concentrate at 1-2 pt/A and either 28% nitrogen at 2% v/v or ammonium sulfate at 2.5 lb/A. May cause some burn or spotting to corn leaves.																
2,4-D Ester		• Apply preplant surface or preemergence to control emerged broadleaf weeds in corn.																
Accent 75WDG	¼ - ¾ oz/A	• Minimum SURPASS 7-E use rates (pts/Acre): <table><tr><td>Soil</td><td>&lt; 3%OM</td><td>3-7%OM</td><td>&gt; 7%OM</td></tr><tr><td>Coarse</td><td>1.25</td><td>1.25</td><td>1.75</td></tr><tr><td>Medium</td><td>1.25</td><td>1.25</td><td>1.75</td></tr><tr><td>Fine</td><td>1.25</td><td>1.25</td><td>1.75</td></tr></table> • Always add NIS at .25% (v/v); and in addition if applied in dry conditions, add 4% (v/v) clear liquid fertilizer. • Banvel, Clarity, Marksman, Buctril, Buctril/atrazine may be added to this mixture to provide burndown and residual control of broadleaf weeds.	Soil	< 3%OM	3-7%OM	> 7%OM	Coarse	1.25	1.25	1.75	Medium	1.25	1.25	1.75	Fine	1.25	1.25	1.75
Soil	< 3%OM		3-7%OM	> 7%OM														
Coarse	1.25		1.25	1.75														
Medium	1.25		1.25	1.75														
Fine	1.25		1.25	1.75														
Beacon 75WDG	.76 fl oz/A																	
Basis	¼ - ¾ oz/A																	

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Basis Gold	14 oz/A	<ul style="list-style-type: none"><li>• Minimum SURPASS 7-E use rates (pts/Acre): <u>Soil</u>   <u>&lt; 3%OM</u>   <u>3-7%OM</u>   <u>&gt; 7%OM</u> Coarse      1.25      1.25      1.75 Medium      1.25      1.25      1.75 Fine          1.25      1.25      1.75</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/A or ammonium sulfate at 2 lb/A.</li><li>• Banvel, Clarity, Marksman, Buctril, Scorpion III, or Tough may be added to this mixture to provide burndown and residual control of broadleaf weeds.</li></ul>
WARRIOR	1.92 - 3.84 fl oz/A	<ul style="list-style-type: none"><li>• For control of many insects such as cutworms and stalk borer.</li></ul>

#### SURPASS 7-E PHYSICAL DATA

- Specific Gravity: 1.112 at 68°F (20°C)
- Pounds/Gallon: 9.25 lb/gal
- Flash Point: 190°F
- Viscosity: Sprayable to 32°F (0°C)



## APPENDIX I

### Procedure for Testing the Compatibility of SURPASS 7-E and Tankmixes with Fluid Fertilizers

Since fluid fertilizers vary, the following procedure is suggested for determining whether SURPASS 7-E may be combined with a specific fluid fertilizer for spray tank application.

#### MATERIALS NEEDED:

- SURPASS 7-E and any tankmix products.
- Fluid fertilizer to be used.
- Adjuvant for fertilizer tankmix: Use any adjuvant cleared for use on growing crops under 40 CFR 180.1001 to improve the compatibility of SURPASS 7-E with fluid fertilizers. The adjuvant which 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 SURPASS 7-E and any tankmix 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 ½ 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 one 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 moderate agitation. IF NONDISPERSIBLE OIL, SLUDGE, OR CLUMPS OF SOLIDS FORM IN THE MIXTURES, THE COMBINATION SHOULD NOT BE USED.

## APPENDIX II

### Dry Bulk Fertilizer Impregnation

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 SURPASS 7-E, SURPASS 7-E plus atrazine, or SURPASS 7-E plus Bladex fertilizer mixtures.

When applying SURPASS 7-E alone or in tankmixes with dry bulk fertilizers, follow all directions for use and precautions on the respective tankmix product labels regarding rates, soil texture, application methods and rotational restrictions.

#### Approved Dry Fertilizer Ingredients for Use with SURPASS 7-E<sup>1</sup>.

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
Single Superphosphate	0	20	0
Treble Superphosphate	0	46	0
Urea <sup>2</sup>	45	0	0

<sup>1</sup> Do not impregnate on fertilizers containing ammonium nitrate, potassium nitrate, or sodium nitrate.

<sup>2</sup> Some Ureas may be phytotoxic when high rates are applied to corn. Use only urea rates known to be safe for corn application.

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For impregnating the pesticides on dry fertilizers, use suitable mixers equipped with suitable spraying equipment. The spray nozzles should be positioned inside the mixer to provide uniform spray coverage of the tumbling fertilizer. The SURPASS 7-E should be sprayed uniformly onto the fertilizer using a fine spray pattern. Tankmix 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.

SURPASS 7-E may also be impregnated on dry bulk fertilizer in the field while the fertilizer is being spread using a pneumatic applicator equipped to impregnate herbicides.

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.

The following table provides a reference to determine the amount of SURPASS 7-E to be mixed per ton of dry bulk fertilizer for a range of herbicide rates.

FERTILIZER RATE (LB/ACRE)	ACRES COVERED (PER TON)	SURPASS 7-E PINTS/ACRE		
		2 Pt/A	2.5 Pt/A	3 Pt/A
		Pints Herbicide/Ton Fertilizer		
200	10.0	20.0	25.0	30.0
300	6.7	13.4	16.8	20.1
400	5.0	10.0	12.5	15.0
500	4.0	8.0	10.0	12.0
600	3.3	6.6	8.3	9.9
700	2.9	5.8	7.3	8.7

To determine the amount of SURPASS 7-E needed for other rates of fertilizer, use this formula:

$$\frac{\text{SURPASS 7-E (pints/acre)} \times 2000}{\text{pounds fertilizer/acre}} = \text{Pints of SURPASS 7-E per ton fertilizer}$$

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