

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.

ImperiumTM

Preplant incorporated herbicide for weed control (including foxtails, crabgrass, barnyardgrass, and suppression of woolly cup grass, wild proso millet, and field sandbur) in field corn, production seed corn, silage corn, and popcorn.

ACTIVE INGREDIENT:	% By Wt.
EPTC: S-ethyl dipropylthiocarbamate.....	67.8%
Acetochlor: 2-chloro-2'-methyl-6'-ethyl-N-ethoxymethylacetanilide.....	16.9%
OTHER INGREDIENTS:.....	15.3%
	TOTAL 100.0%

Contains 7.0 lbs. active ingredient per gallon
(5.6 pounds active ingredient per gallon EPTC and 1.4 pounds active ingredient per gallon acetochlor).

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.)

FIRST AID	
If in eyes	<ul style="list-style-type: none">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 on skin or clothing	<ul style="list-style-type: none">Take off contaminated clothing.Rinse skin immediately with plenty of water for 15-20 minutes.Call a poison control center or doctor for treatment advice.
If swallowed	<ul style="list-style-type: none">Call a poison control center or doctor immediately for treatment advice.Have person sip a glass of water if able to swallow.Do not induce vomiting unless told to by a poison control center or doctor.Do not give anything by mouth to an unconscious person.
If inhaled	<ul style="list-style-type: none">Move person to fresh air.If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.Call a poison control center or doctor for further treatment advice.
NOTE TO PHYSICIAN Probable mucosal damage may contraindicate the use of gastric lavage. This product contains EPTC, a thiocarbamate that inhibits cholinesterase. If symptoms of cholinesterase inhibition are present, atropine by injection is antidotal. Pralidoxime chloride (2-PAM) is NOT recommended as an antidote for this compound. Thiocarbamates have been shown in laboratory animals to cause a disulfiram (Antabuse) type reaction in combination with alcohol.	
HOT LINE NUMBER Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-888-478-0798 for emergency medical treatment information.	

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS WARNING/AVISO

Causes substantial but temporary eye injury or skin irritation. Harmful if swallowed or absorbed through the skin. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

NET CONTENTS ____ GALLONS

Gowan[®]

EPA Reg. No. 10163-285
EPA Est. No. 070989-IA-001

Produced For:
Gowan Company
P.O. Box 5569
Yuma, AZ 85366-5569

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category E on an EPA chemical resistance category selection chart.

Applicators and Other Handlers must wear:

- Coveralls over short-sleeved shirt and short pants
- Chemical-resistant gloves, such as barrier laminate or nitrile gloves or neoprene rubber or viton
- Chemical resistant footwear and socks
- Protective eyewear

Mixers and Loaders exposed to the concentrate must wear a chemical-resistant apron.

In addition to the above PPE, applicators applying dry bulk fertilizers with a specialized truck designed to treat more than 80 acres must wear a NIOSH approved respirator with:

- An organic-vapor removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), or
- A canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G), or
- A NIOSH approved respirator with an (OV) cartridge, or
- A canister with any N,R,P, or HE prefilter

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.

Engineering Controls

Commercial (for hire) handlers engaged in impregnating this product onto dry bulk fertilizers must:

- Wear the personal protective equipment required for mixers/loaders, except shoes may be substituted for chemical-resistant footwear.
- Have immediately available for use in case of an accident a NIOSH approved respirator with:
 - An organic-vapor removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), or
 - A canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G), or
 - A NIOSH approved respirator with an (OV) cartridge, or
 - A canister with any N, R, P, or HE prefilter.

When other handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40CFR 120.240(d)(4-5)], the handler PPE requirements may be reduced or modified as specified in the WPS.

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment breakdown.

USER SAFETY RECOMMENDATIONS

Users should:

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

ENVIRONMENTAL HAZARDS

This product is toxic to mammals. Do not apply directly to water, or to areas where water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or 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.

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.

DIRECTIONS FOR USE

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

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, such as barrier laminate or nitrile gloves or neoprene rubber or viton
- Shoes plus socks
- Protective eyewear

FAILURE TO FOLLOW DIRECTIONS AND PRECAUTIONS ON THIS LABEL MAY RESULT IN CROP INJURY, POOR WEED CONTROL, OR ILLEGAL RESIDUES.

GENERAL INFORMATION

IMPERIUM is a selective soil-applied herbicide which must be mixed or incorporated into the soil for control of weeds listed on this label. This herbicide controls weeds by interfering with normal germination and seedling development. It 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), sinkholes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious 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 wash water, 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 nontarget 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 tail water from the first flood or furrow irrigation of treated fields to treat nontarget 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 nontarget sites. To minimize spray drift to nontarget 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 this product on any crop other than corn.
- If crop treated with this product is lost, corn may be replanted immediately. Do not make a second application of IMPERIUM.
- IMPERIUM can be stored at temperatures as low as minus 25°F.
- IMPERIUM should be used for recommended purposes and at recommended rates. Do not overdose.
- IMPERIUM is recommended for use only on mineral soils (those soils containing less than 10% organic matter).
- Do not use IMPERIUM on corn seed stock such as Breeders, Foundation, or Increase.
- IMPERIUM may be used on production seed corn.
- Do not use IMPERIUM on sorghum or milo.
- Do not allow IMPERIUM to contaminate water to be used on susceptible crops and ornamentals, or for domestic purposes.
- Do not allow IMPERIUM to contaminate feed or food.

- IMPERIUM should not be stored near seeds or fertilizers.
- All containers of IMPERIUM should be kept tightly closed when not in use.
- IMPERIUM will not harm the treated crop nor leave harmful soil residues past harvest when applied properly and environmental conditions exist for normal plant growth during the season.
- Adverse conditions such as unusually cold and wet or hot and dry weather during germination and early growth; insect, nematode, or plant disease attack; carryover soil residues of persistent herbicides; or use of certain soil-applied systemic insecticides can create abnormal conditions that weaken crop seedlings. IMPERIUM used under these conditions could result in crop injury.
- Continuous use of IMPERIUM in the same fields consecutively year after year can in some areas lead to a decrease in the level of performance. As a precaution, IMPERIUM treated fields should be rotated with another crop or herbicide classification on an annual program.
- ROTATIONAL CROPS: Corn, soybeans, sorghum, or tobacco may be planted the spring following application. Wheat may be planted 4 months after application.
- Do not rotate to crops other than corn, soybeans, sorghum, tobacco, or wheat.

APPLICATION DIRECTIONS

Carriers

Liquids - Either water or fluid 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 IMPERIUM is physically compatible with a fluid fertilizer, constant agitation is necessary to maintain a uniform mixture during application.

Dry Bulk Fertilizer - IMPERIUM may be impregnated on dry bulk fertilizer and applied as the fertilizer is spread.

Bulk fertilizer impregnated with IMPERIUM should be applied immediately, not stored.

It is recommended that all bulk containers be tightly covered while the product is being transported and applied to reduce probability of EPTC loss via volatilization.

When application and incorporation are done in separate operations, impregnated fertilizer must be incorporated on the same day as applied.

When separate operations delay incorporation, applications must be made on a soil surface dry to ½ inch deep and free from dew and incidental moisture.

See APPENDIX II and consult your local dealer for details including what fertilizers are compatible.

Adding to Spray Tank

If IMPERIUM is used alone:

Add the recommended amount to a clean (thoroughly rinsed and decontaminated) spray tank before it is half filled so that addition of the remaining water or fluid fertilizer carrier can aid in the thorough agitation and mixing of the spray solution.

If a tank mixture is used:

See specific directions under the "TANKMIX COMBINATIONS" of this label.

Volume

Apply in 10 to 60 gallons of water or fluid fertilizers per acre using a properly calibrated sprayer having good agitation.

Pressure

Use 20 to 40 psi to ensure good distribution in the spray pattern.

Soil Moisture and Tillth

Improper incorporation or poor tillth such as large clods may result in erratic or unsatisfactory weed control.

The soil should be dry enough to permit good soil mixing or incorporation.

Any application of IMPERIUM that is not immediately incorporated in the same operation must be made to a soil surface dry to at least ½ inch deep and free from dew and incidental moisture.

Incorporation Timing

Application and incorporation should be done in the same operation when possible.

Applications in water or fluid fertilizers must not have more than a 4-hour delay between application and incorporation.

When application and incorporation are separate operations in the semi-arid areas of Eastern Washington, Eastern Oregon and Idaho, IMPERIUM must be incorporated the same day as applied. See "SOIL MOISTURE AND TILTH"

IMPERIUM impregnated on dry bulk fertilizer must be incorporated on the same day as application. See "SOIL MOISTURE AND TILTH."

Incorporation Equipment and Methods

IMPERIUM must be incorporated into the soil to prevent loss of the herbicide.

Field Cultivator: Use on soils in good tilth. Equip with 3 to 4 rows of sweeps spaced at 7 inches or less and staggered from row to row to leave no soil unturned or undisturbed. Set the field cultivator to cut 4 inches deep. Operate at 6 mph or more. Follow by a harrow or leveling device. Chisel plows or point should not be used. If field sandbur, wild proso millet, and/or woolly cup grass are present, use two passes to improve control.

Tandem Disk: Can be used on all soil types. Set disc to cut 4 inches deep. Operate disc at 4 to 6 mph. Follow disc by a harrow or leveling device slightly wider than that of the disc. Two passes in different directions will improve incorporation. On the second pass the disc should be operated 1 inch shallower than on the first pass. If field sandbur, wild proso millet, and/or woolly cup grass are present, a second incorporation will improve control or suppression.

Sprinkler Irrigation: Do not apply IMPERIUM by sprinkler irrigation. Use a sprinkler system only to incorporate IMPERIUM after applying by ground equipment as follows:

In the semi-arid areas of eastern Washington, eastern Oregon, and Idaho, IMPERIUM may be surface-applied immediately after planting. See "SOIL MOISTURE AND TILTH."

The IMPERIUM can then be incorporated, using ½ to ¾ inch of water within 36 hours following application.

The application and incorporation must be done within 5 days after the last tillage operation since poor results will occur if weeds have germinated.

PLANTING

Planting should occur as soon as possible after application and always within 2 weeks after treatment.

Plant seed to a maximum depth of 2 inches.

Avoid moving or shaping soil after incorporation since this can remove IMPERIUM from the row and result in a loss of weed control.

CULTIVATION

Should weeds develop, a shallow cultivation or rotary hoeing will generally result in better weed control.

A shallow cultivation is less than ½ the depth of incorporation.

WEEDS CONTROLLED AND USE RATES

Consult "TABLE 1" and "TABLE 2." **NOTE COMMENTS AND RESTRICTIONS IN "TABLE 1" AND "TABLE 2."**

Table 1.

BROADCAST RATE (Pints) OF IMPERIUM PER ACRE

The annual broadleaf weeds listed below will be controlled only if treatment is made when conditions are favorable for weed seed germination and growth. Under prolonged conditions of very cold soil, control of the listed broadleaf weeds may not be adequate.

Annual Grass and Broadleaf Weeds	Scientific Name	U.S. (Except CA, AZ, FL)	C=Control PC=Partial Control	Comments and Restrictions
Barnyardgrass (Watergrass)	<i>Echinochloa spp.</i>	4.5 to 7	C	GENERAL
Foxtail, Giant	<i>Setaria Faberi</i>	4.5 to 7	C	Use the lower rate for light infestations and coarse textured soils.
Foxtail, Green	<i>Setaria viridis</i>	4.5 to 7	C	
Foxtail, Yellow	<i>Setaria lutescens</i>	4.5 to 7	C	
Crabgrass	<i>Digitaria spp.</i>	4.5 to 7	C	Do not exceed 8 pints per acre per year.
Panicum, Fall	<i>Panicum dichotomiflorum</i>	4.5 to 7	C	
Lambsquarters, Common	<i>Chenopodium album</i>	5 to 7	C	When IMPERIUM is used in the southeastern U. S. on silage corn, do not seed small grains until September.
Nightshade, Black	<i>Solanum nigrum</i>	5 to 7	C	
Nightshade, Hairy	<i>Solanum sarachoides</i>	5 to 7	C	
Pigweed, Redroot (Common)	<i>Amaranthus retroflexus</i>	5 to 7	C	When furrow irrigation is used on flat-planted corn on the western slope of Colorado, do not form furrows until corn is in the three-leaf stage.
Tall Waterhemp	<i>Amaranthus spp.</i>	5 to 7	C	
Field Sandbur ¹	<i>Cenchrus paucitorus</i>	6 to 8	PC	Soils lacking enough moisture for seed germination must be pre-irrigated prior to IMPERIUM application.
Wild Proso Millet ¹	<i>Panicum miliaceum</i>	6 to 8	PC	
Woolly Cupgrass ¹	<i>Eriochloa viridis</i>	6 to 8	PC	
Volunteer Barley	<i>Hordeum vulgare</i>	5 to 7	PC	
Volunteer Oats	<i>Avena sativa</i>	5 to 7	PC	
Volunteer Wheat	<i>Triticum aestivum</i>	5 to 7	PC	
Wild Oats	<i>Avena Fatua</i>	5 to 7	C	

¹ Double incorporate to improve control.

For band applications, calculate the amount to be applied per acre as follows:

Table 2.

<u>Bandwidth in inches</u>		Rate per acre for a		Amount needed
Row width in inches	X	broadcast treatment	=	for a band treatment

TANK MIX COMBINATIONS

Balance® Herbicide Combinations

See Balance label for Balance use rates. Not labeled in all states. Please refer to the Balance label for precautionary statements, directions for use, and geographic and other restrictions. Refer to IMPERIUM use rate section for minimum IMPERIUM use rates.

AtrazineE® Herbicide Combinations

For control of additional weeds and increased control of labeled broadleaf weeds, Atrazine may be tank mixed and applied preplant incorporated with recommended use rates of IMPERIUM.

Do not apply Atrazine through any irrigation system.

Atrazine combinations may be impregnated on dry bulk fertilizer. See "APPENDIX II" and consult your local dealer for details including what fertilizers are compatible.

As an alternative, Atrazine at recommended rates may be applied pre emergence to the soil surface following a preplant incorporated treatment of IMPERIUM at recommended rates.

If a preemergence application of Atrazine is sued, consult the directions on the Atrazine label.

A preemergence application of Atrazine may require a rotary hoeing or shallow cultivation if rainfall or sprinkler irrigation has not occurred within 10 days of the surface application.

GENERAL USE PRECAUTIONS FOR ATRAZINE

Follow all the use precautions and warnings that appear on the Atrazine labels and supplemental literature.

Make only one application per crop.

After a treatment of Atrazine, do not plant any crop except corn until the following year or injury may occur.

CARRIERS

Liquids – The tank mix combinations may be applied, using the same liquid carriers as IMPERIUM used alone. 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 the tank mix is physically compatible with a fluid fertilizer, constant agitation is necessary to maintain a uniform mixture during application.

Dry Bulk Fertilizer – Tank mixes with Atrazine combinations may be impregnated on dry bulk fertilizer. Follow all directions and precautions listed on this label under IMPERIUM applied alone on impregnated dry bulk fertilizer.

ADDING TO SPRAY TANK

It is recommended that the compatibility of any tank mix combination be tested on a small scale, such as a jar test, before actual tank mixing. See "APPENDIX I" for details on the procedure for such a test.

Fill a thoroughly rinsed and decontaminated spray tank 2/3 full of clean water.

Start and continue moderate agitation throughout mixing. Excessive agitation may cause the Atrazine to settle out and set up in the spray tank.

All return lines to the spray tank must discharge below liquid level.

For some combinations, premixing wettable powders in a little water in a pail or bucket before adding them to the spray tank will improve the compatibility of the final mixture.

Premix the Atrazine, making sure it is thoroughly wetted and dispersed in the tank before adding the IMPERIUM.

Add the IMPERIUM to the tank that is 2/3 full of water already mixed with the approved tank mix products and continue filling tank.

The tank mix combinations should not be left in the spray tank for prolonged periods. Batches should be mixed and applied the same day.

VOLUME

Apply all tank mixes in 20 to 60 gallons of liquid per acre.

PRESSURE

Use 20 to 40 psi to ensure good distribution in the spray pattern.

SOIL MOISTURE AND TILTH

Same as for IMPERIUM alone.

INCORPORATION TIMING

Same as for IMPERIUM alone.

INCORPORATION EQUIPMENT AND METHODS

Same as for IMPERIUM alone.

Do not apply IMPERIUM or Atrazine through a center pivot sprinkler irrigation system.

PLANTING

Same as for IMPERIUM alone.

CULTIVATION

Same as for IMPERIUM alone.

Banvel®, 2,4-D, and other herbicides:

A sequential application of 2,4-D, Banvel, Clarity®, Marksman®, Buctril®, Buctril/Atrazine, Basagran®, Laddock®, or other preemergence or postemergence herbicides may be necessary to control weeds not controlled by IMPERIUM.

WEEDS CONTROLLED AND USE RATES

Table 2.

TANK MIXES WITH ATRAZINE

IMPERIUM plus Atrazine tank mixes will control the additional weeds listed below and under unfavorable conditions, improve the control of broadleaf weeds listed in "TABLE 1" Please refer to Atrazine label for rates and weeds controlled.

Additional Weeds Controlled with Tank mix Combinations	Scientific Name	C=Control PC=Partial Control
Cocklebur, Common	<i>Xanthium pensylvanicum</i>	PC
Jimsonweed	<i>Datura stramonium</i>	C
Kochia	<i>Kochia scoparia</i>	C
Mustard	<i>Brassica spp.</i>	C
Ragweed	<i>Ambrosia spp.</i>	C
Smartweed	<i>Polygonum spp.</i>	C
Thistle, Russian	<i>Salsola ibericus</i>	C
Velvetleaf	<i>Abutilon theophrasti</i>	C
Witchgrass	<i>Panicum capillare</i>	C

APPENDIX I

Procedure for Testing the Compatibility of IMPERIUM with Fluid Fertilizers and Tank Mix Combinations

The following procedure is suggested for determining whether or not IMPERIUM may be combined with a specific fluid fertilizer or tank mix herbicide for spray tank application.

MATERIALS REQUIRED:

1. IMPERIUM Selective Herbicide.
2. Fluid fertilizer and tank mix herbicides.
3. Adjuvant for spray tank mix combinations: Use any adjuvant cleared for use on growing crops under 40CFR 180.1001 to improve the compatibility of IMPERIUM. The adjuvant which provides the best emulsification depends on the specific herbicide under consideration.
4. Two 1-quart, wide-mouth glass jars with lid or stopper.
5. Measuring spoons. A 25 ml pipette or graduated cylinder provides more accurate measurement.
6. Measuring cup, 8 ounces (237 ml.)

PROCEDURE:

Pour a pint or about 473 ml of the fluid fertilizer or water into each of the quart jars.

Add adjuvant to one of the jars and mix. Two ml or 2/5 of teaspoon of adjuvant added to 1 pint of fluid fertilizer or water will equal 3 pints of adjuvant per 100 gallons of fluid fertilizer or water.

If a tank mix is being tested, premix the wettable powders in 1/8 cup of water prior to addition to the pint of fluid fertilizer or water.

Add IMPERIUM to both jars. See "TABLE 3" for rate to use.

Close both jars with lid or stopper and mix the contents by turning the jars upside down 10 times.

Inspect the surface and body of the mixtures:

- Immediately after completing the jar inversions.
- After allowing the jars to stand quietly for 30 minutes.
- Add then again after turning the jars upside down 10 times after the 30-minute wait.

EVALUATION:

- If a uniform mixture cannot be made, the mixture should not be used.
- If either mixture remains uniform for 30 minutes, the combination may be used.
- Should either mixture separate after 30 minutes, but readily remixes 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.
- If adjuvant is needed, add it first at a rate of 3 pints per 100 gallons of fluid fertilizer or water.
- Foaming can be minimized by using moderate agitation.
- If nondispersible oil, sludge, or clumps of solids form in the mixture, the combination should not be used.

Table 3.
IMPERIUM COMPATIBILITY TESTS

Gallons of Fluid Fertilizer to be Applied per Acre	Amount of Adjuvant to Add to the 1 Pint of Liquid		ml or Teaspoon to be Added to 1 Pint of Liquid for the IMPERIUM Rate Listed Below							
			4 Pints		5 Pints		6 Pints		7 Pints	
	ml	Tsp.	ml	Tsp.	ml	Tsp.	ml	Tsp.	ml	Tsp.
10	2	2/5	22.0	4 2/5	28.0	5 3/5	35.0	7	42.0	8 2/5
15	2	2/5	16.0	3 1/5	20.0	4	25.0	5	30.0	6
20	2	2/5	13.0	2 3/5	16.0	3 1/5	20.0	4	24.0	4 4/5
25	2	2/5	9.0	1 4/5	12.0	2 2/5	15.0	3	18.0	3 3/5
30	2	2/5	6.0	1 1/5	8.0	1 3/5	10.0	2	12.0	2 2/5
40	2	2/5	6.0	1 1/5	8.0	1 3/5	10.0	2	12.0	2 2/5

APPENDIX II**Impregnation on Dry Bulk Fertilizers**

Consult your local dealer for more details.

IMPERIUM alone and tank mix combinations with Atrazine may be impregnated on dry bulk fertilizer.

Caution: IMPERIUM alone and in combination tank mixes must not be impregnated on ammonium nitrate, potassium nitrate, or sodium nitrate fertilizers. Such mixtures may cause explosion and fire.

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 herbicide and fertilizer mixtures.

Table 4.
APPROVED DRY BULK FERTILIZER INGREDIENTS FOR USE WITH IMPERIUM ALONE

Fertilizer Ingredient	N	P	K
Ammonium Sulfate	21	0	0
Diammonium Phosphate	18	46	0
Potassium Chloride	0	0	60
Potassium Sulfate	0	0	52
Super-phosphate (single)	0	20	0
Super-phosphate (triple)	0	46	0
Urea*	45	0	0
Ammonium Phosphate-sulfate	16	20	0
K-Mag/Sul-Po-Mag	0	0	21
Monoammonium Phosphate	11	48	0

*Some areas may be phytotoxic when high rates are applied to corn.
Use only urea rates known to be safe for corn application.

Table 5.
APPROVED DRY BULK FERTILIZER INGREDIENTS FOR USE WITH IMPERIUM IN TANK MIX COMBINATIONS WITH ATRAZINE

Fertilizer Ingredient	N	P	K
Ammonium Sulfate	21	0	0
Diammonium Phosphate	18	46	0
Potassium Chloride	0	0	60
Potassium Sulfate	0	0	52
Super-phosphate (single)	0	20	0
Super-phosphate (triple)	0	46	0
Urea*	45	0	0
Ammonium Phosphate-sulfate	16	20	0
K-Mag/Sul-Po-Mag	0	0	21
Monoammonium Phosphate	11	48	0

*Some areas may be phytotoxic when high rates are applied to corn.
Use only urea rates known to be safe for corn application.

Do not combine IMPERIUM plus Atrazine 4L or 80W with 0-20-0 or 0-46-0.

Uniform impregnation of the herbicides on dry bulk fertilizer particles and uniform application in the field are necessary to ensure good results.

A minimum of 200 and a maximum of 1200 pounds of approved impregnated ingredients from "TABLE 5" and "TABLE 6" must be applied per acre.

Use a closed rotary drum mixer or similar type of closed blender equipped with suitable spray equipment.

The spray nozzle should be positioned inside of the mixer to provide uniform spray coverage of the tumbling fertilizer and provide a uniform fine spray pattern.

Tank mix combinations may be added separately or mixed in the proposed use ratio in a uniform slurry for joint spray impregnation.

Physical properties of fertilizers vary in liquid absorptive capacity. When absorptivity is sufficient, simple spray impregnation of the fertilizer with the herbicides provides a satisfactory, dry mixture.

When the absorptive capacity is not adequate, use of a drying agent is required to provide dry, free-flowing mixtures.

Drying agent for spinning-disc applicators are:

Micro-Cel™ E calcium silicate powder

Drying agents for pneumatic applicators:

Drying agents should be added separately and uniformly to the previously impregnated herbicide-fertilizer mixture to insure that the mixture is free flowing. Generally the following amounts are sufficient.

Micro-Cel™ E calcium silicate powder
Agsorb™ 16/30 RVM-MS granular clay
Celatom™ MP-79

less than 2% by weight
less than 5% by weight
less than 5% by weight

The amount of IMPERIUM, and Atrazine, actually required in the manufacture of individual fertilizer mixtures should be determined carefully for each production operation (see "TABLE 6"). This is necessary to ensure that the amount of herbicide actually contained in the mixture applied to the soil represents the correct use rate.

PHYSICAL DATA

Specific Gravity: 0.99 at 68° F (20° C)
Pounds/Gallon: 8.27 at 58° F (20° C)
Flashpoint: >200°F
Viscosity: Sprayable down to minus 20°F/-29°C

Table 6.

Impregnation of Dry Bulk Fertilizer – IMPERIUM and Atrazine Amounts Needed Per Ton of Fertilizer

Fertilizer Rate per Acre	IMPERIUM			Atrazine 4L		Atrazine 80W	
	4 pints/A	5 pints/A	6 pints/A	2 pints/A	3 pints/A	1 ¼ lbs./A	2 lbs./A
200	20 qts.	25 qts.	30 qts.	10 qts.	15 qts.	12 ½ lbs.	20 lbs.
300	13 1/3 qts.	16 2/3 qts.	20 qts.	6 2/3 qts.	10 qts.	8 1/3 lbs.	13 1/3 lbs.
400	10 qts.	12 ½ qts.	15 qts.	5 qts.	7 ½ qts.	6 ¼ lbs.	10 lbs.
500	8 qts.	10 qts.	12 qts.	4 qts.	6 qts.	5 lbs.	8 lbs.
600	6 2/3 qts.	8 ¼ qts.	10 qts.	3 1/3 qts.	5 qts.	4 1/5 lbs.	6 2/3 lbs.
700	5 ¾ qts.	7 ¼ qts.	8 ½ qts.	2 7/8 qts.	4 ¼ qts.	3 2/3 lbs.	5 3/5 lbs.

STORAGE AND DISPOSAL

Prohibitions

Do not contaminate water, food, or feed by storage or disposal. Open dumping is prohibited. Do not reuse empty containers.

Storage

Keep container tightly closed when not in use. Do not store near seed, fertilizers, or foodstuffs. Can be stored at temperatures as low as minus 25°F.

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/Mini-Bulk Containers

Container Disposal

Reseal container and offer for reconditioning, or triple rinse (or equivalent) and offer for recycling or reconditioning, or clean in accordance with manufacturer's instructions.

Container Precautions

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

STORAGE AND DISPOSAL (Continued)

FOR MINI-BULK CONTAINERS:

REFILL ONLY WITH IMPERIUM. The contents of this container cannot be completely removed by cleaning. Refilling with materials other than IMPERIUM 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!

FOR 24-HOUR EMERGENCY ASSISTANCE (SPILL, LEAK, OR FIRE), CALL CHEMTREC (800) 424-9300.

For other product information, contact Gowan Company or see Material Safety Data Sheet

NOTICE ON CONDITIONS OF SALE

Important: Read the entire Directions for Use and Notice of Conditions of Sale and Warranty and Liability Limitations before using this product. If terms are not acceptable, return the unopened container for a full refund.

Our recommendations for use of this product are based on tests believed to be reliable. However, it is impossible to eliminate all risk associated with the use of this product. Crop injury, inadequate performance, or other unintended consequences may result due to soil or weather conditions, off target movement, presence of other materials, method of use or application, and other factors, all of which are beyond the control of Gowan Company. All such risks shall be assumed by the Buyer and User.

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01-R0705EPA