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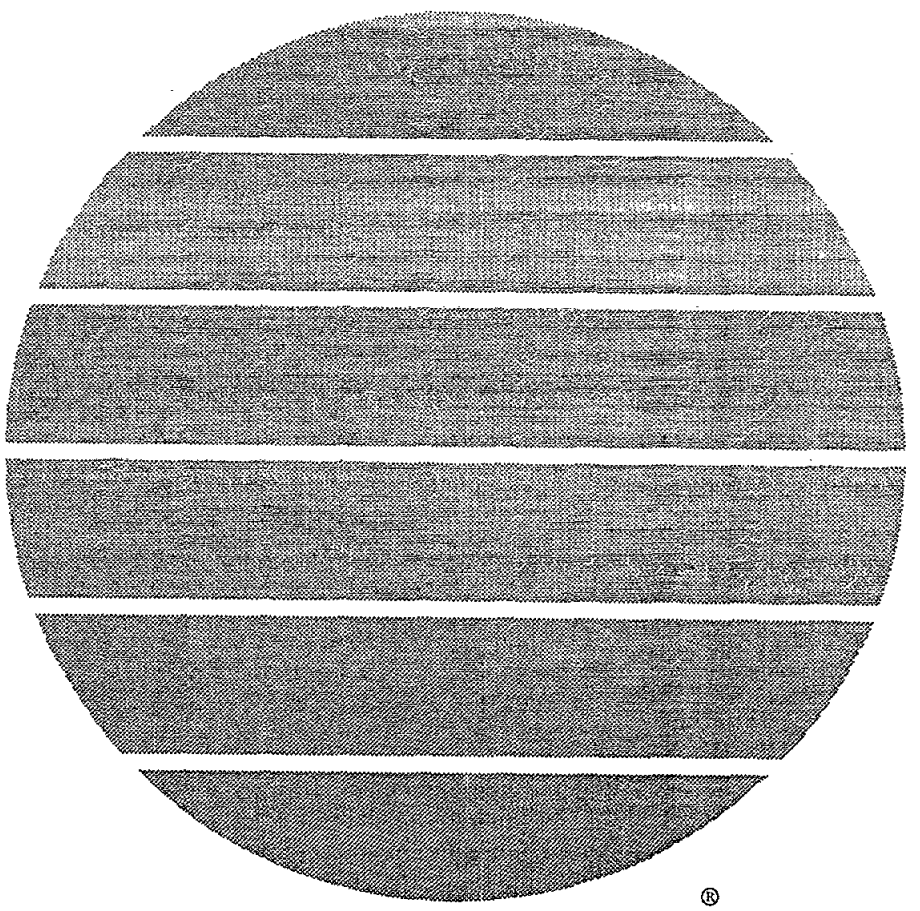
DUPONT®

Matrix™

herbicide



"..... A Growing Partnership With Nature"

DUPONT

Matrix™

herbicide

DRY FLOWABLE

FOR WEED CONTROL IN POTATOES

Active Ingredients	*By Weight*
Rimsulfuron N-((4,6-dimethoxypyrimidin-2-yl) aminocarbonyl)-3-(ethylsulfonyl)-2-pyridinesulfonamide	25.0%
Inert Ingredients	75.0%
TOTAL	100.0%

EPA REG. NO. 352-556
U.S. Patent No. 5,102,444

KEEP OUT OF REACH OF CHILDREN

CAUTION

STATEMENT OF PRACTICAL TREATMENT

In case of contact with eyes, immediately flush with plenty of water.

If on skin, wash with plenty of soap and water. Get medical attention if irritation persists.

For medical emergencies involving this product, call toll free 1-800-441-3637.

PRECAUTIONARY STATEMENTS

HAZARD TO HUMANS AND DOMESTIC ANIMALS

CAUTION! Causes eye irritation. Harmful if absorbed through skin. Avoid contact with skin, eyes, or clothing. Avoid breathing dust or spray mist.

PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear:

Long-sleeve shirt and long pants.
Waterproof gloves.
Shoes plus socks.

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.

USER SAFETY RECOMMENDATIONS

USERS SHOULD: Wash hands before eating, drinking, chewing gum, using tobacco or using toilet.

ENVIRONMENTAL HAZARDS

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 by cleaning of equipment or disposal of wastes.

GENERAL INFORMATION

DuPont MATRIX™ Herbicide is a dry flowable formulation that selectively controls certain broadleaf weeds and grasses in potatoes. MATRIX is noncorrosive to equipment, nonflammable, and nonvolatile.

BIOLOGICAL ACTIVITY

MATRIX rapidly inhibits growth of susceptible weeds. The best results are obtained when MATRIX is applied to actively growing weeds. The degree of control and duration of effect depend upon the rate used, the sensitivity and size of the target weed, and the environmental conditions during and following application.

Symptoms of dying weeds (chlorosis or discoloration) are evident 7 to 21 days after application. A vigorously growing

crop with full vine canopy will aid weed control by shading and providing competition to weeds.

Naturally occurring weed biotypes that are resistant to other sulfonylurea herbicides (such as DuPont HARMONY EXTRA Herbicide or DuPont EXPRESS Herbicide) may also be resistant to MATRIX.

DIRECTIONS FOR USE

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

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 in your State 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 4 hours.

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.
Shoes plus socks.

APPLICATION INFORMATION

- Do not apply MATRIX within 60 days of potato harvest.
- Do not exceed 2.0 oz MATRIX per acre during the same growing season.
- Do not apply by air.

SPRAY PREPARATION

Mix MATRIX into the necessary volume of water in the spray tank with the agitator running. Add any other products to the spray tank followed by surfactant. Always add surfactant to the spray tank last. If tank mixing with another product, add the companion product after all the MATRIX is in suspension.

When adding MATRIX to a partially filled tank, add an appropriate amount of water to the tank before adding MATRIX.

Apply the MATRIX spray preparation within 48 hours after mixing or the product may degrade.

EQUIPMENT-SPRAY VOLUMES

To ensure optimum spray distribution and thorough coverage, apply MATRIX with a properly calibrated, low-pressure (20 to 40 psi) boom sprayer equipped with flat fan or flood jet nozzles. Nozzle screens should be no finer than 50 mesh.

When using flood nozzles, the spray pattern should overlap 100% for optimum product performance. With ground application equipment, use enough water to deliver 10 to 40 gal total spray per acre.

Agitate the spray tank continuously to keep the material in suspension.

Do not use equipment and/or spray volumes that will cause damage from spray by drift onto nontarget sites. Do not make applications when weather conditions are likely to cause spray to drift onto nontarget sites.

CHEMIGATION

Methods

MATRIX can be applied using center pivot, lateral move, solid set, or hand move irrigation systems. Do not apply MATRIX using any other type of irrigation system. MATRIX may be mixed in a supply tank with water, fertilizer, or other appropriate agricultural chemicals. If MATRIX is premixed with other pesticides, agitation may be necessary immediately before application.

For solid set and hand move irrigation systems, apply the herbicide at the beginning of the set.

If you have questions about calibrating chemigation equipment, contact State Extension Service specialists, equipment manufacturers, or other experts. If the chemigation equipment needs adjustment, only the custodian responsible for its operation, or someone under the supervision of that custodian, should make the necessary adjustments.

Irrigation System Requirements

The **irrigation system** must contain the following:

- a functional check valve
- vacuum relief valve
- a low pressure drain (to prevent water source contamination from backflow; should be located on the irrigation pipeline)
- functional interlocking controls (to automatically shut-off the pesticide injection pump when the water pump motor stops)
- a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock

The **pesticide injection pipeline** must contain the following:

- a functional, automatic, quick-closing check valve (to prevent the flow of fluid back toward the injection pump)
- a functional, solenoid-operated valve (normally closed) located on the intake side of the injection pump (should be connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is shut down either automatically or manually)

The **irrigation line or water pump** must include a functional pressure switch that will stop the water pump motor when pesticide distribution is adversely affected by a decrease in water pressure.

Chemigation Precautions

Distributing treated water in an uneven manner can result in crop injury, lack of effectiveness, or over-tolerance pesticide residues in the crop. Therefore, to ensure that the mixture is applied evenly at the recommended rate, use sufficient water, and apply the mixture for the proper length of time.

- Do not permit run-off during chemigation.
- Do not apply when wind speed favors drift beyond the area intended for treatment.
- Do not connect an irrigation system (including greenhouse systems) used for MATRIX application to a public water system.

PREEMERGENCE APPLICATIONS

Apply MATRIX at 1 to 1-1/2 oz product per acre. Apply after hilling or drag-off, but before potatoes and weeds emerge.

For activation, supply moisture by rainfall or sprinkler irrigation (1/4 to 3/4") as soon as possible after application but no later than 1 week after application.

If weeds are present at application, add a nonionic surfactant containing at least 80% active ingredient to the spray mix at a 0.125 to 0.25% v/v (1 to 2 pt/100 gal of water).

TANK MIXTURES - PREEMERGENCE APPLICATIONS

MATRIX may be tank mixed with other suitable registered herbicides such as Eptam[1], Prowl[2], Dual[3], and DuPont LEXONE® DF Herbicide. MATRIX may also be used in three-way tank mix combinations with the above herbicides. Read and follow all manufacturer's label recommendations for the companion herbicide. If these recommendations conflict with this MATRIX label, do not use as a tank mix with MATRIX. The tankmix spray solution should not have a pH less than 4.0 or MATRIX degradation may occur. If the selected companion herbicide has a ground or surface water advisory, consider this advisory when using the companion herbicide.

MATRIX plus "Eptam"

Apply a tank mix of MATRIX at 1 to 1-1/2 oz per acre and "Eptam" at label rates to control hairy nightshade and crabgrass. Apply before potatoes and weeds emerge. Since the rates of "Eptam" vary by region, follow the recommendations for your region.

MATRIX plus "Prowl"

Apply a tank mix combination of MATRIX at 1 to 1-1/2 oz per acre and "Prowl" at label rates for better control of such weeds as kochia, crabgrass, and common lambsquarters. Apply after planting but before potatoes and weeds emerge or after drag-off where this operation is used. Read and follow the "Prowl" label for your area.

MATRIX plus "Dual"

Apply a tank mix combination of MATRIX at 1 to 1-1/2 oz per acre and "Dual" at 1-1/2 to 3 pt per acre to improve control of such weeds as yellow nutsedge and black nightshade. Apply after planting as a delayed preemergence (after drag-off or hilling treatment, but before weeds and crops emerge). Read and follow the "Dual" label for your area.

MATRIX plus LEXONE DF

Apply a tank mix combination of MATRIX at 1 to 1-1/2 oz per acre and LEXONE DF at 1/3 to 3/4 lb per acre for better control of such weeds as kochia, Russian thistle and common lambsquarters. Apply after planting or after drag-off but before crop and weeds emerge. Read and follow the LEXONE DF label for your area.

POSTEMERGENCE APPLICATIONS

For postemergence applications, apply MATRIX at 1 to 1-1/2 oz per acre to young, actively growing weeds after crop emergence but before the crop exceeds 14". Typically, small weeds (less than 1" in height or diameter) are most easily controlled; however, certain grasses (i.e., quackgrass) may be controlled better when they are larger (4-6") and actively growing at application.

Use a nonionic surfactant containing at least 80% active ingredient with ground applications. Use a surfactant at 0.125 to 0.25% v/v (1 to 2 pt/100 gal of water).

Under growing conditions that promote crop stress, temporary chlorosis (lime green color) may occur after application of MATRIX. Symptoms usually disappear within 5 to 15 days. To minimize the potential for temporary chlorosis, apply MATRIX only if there have been at least 3 successive days of sunny weather before application. Drought, frost, cold temperatures, high temperatures, or extreme temperature variations can also cause crop stress before, during, or after application.

Maximum product performance can be gained by applying MATRIX postemergence to moist soil. Rainfall or sprinkler irrigation of 1/4 to 3/4", no sooner than 4 hours but not more than 1 week after application, will activate MATRIX in the soil.

MATRIX is rainfast in 4 hours.

TANK MIXTURES - POSTEMERGENCE APPLICATIONS

MATRIX plus LEXONE DF

Apply a tank mix combination of MATRIX at 1 to 1-1/2 oz per acre and "Lexone DF" at 1/3 to 2/3 lb per acre to potatoes for broader spectrum weed control on such weeds as Russian thistle, common lambsquarters and jimsonweed. Use a nonionic surfactant at 0.125 %v/v (1 pt/100 gal of water). Read and follow both product labels for your area.

MATRIX plus "Eptam"

Apply a tank mix combination of MATRIX at 1 to 1-1/2 oz per acre and "Eptam" to potatoes postemergence but before they exceed 4-6" height. Use a nonionic surfactant at 0.125% v/v (1 pt/100 gal of water). Read and follow both product labels for your area.

SEQUENTIAL APPLICATIONS

Depending upon rainfall and other environmental conditions, annual weeds may produce seedlings more than once, and treated perennials may reemerge from underground roots or stems. To maximize control of such weeds, it may be necessary to apply MATRIX a second time, 14 to 28 days after the first application. The combined rate of the applications cannot exceed 2 oz MATRIX per acre.

CULTIVATION

Cultivation may miss weeds and partially cover them with soil. Delay the application of MATRIX until the weeds are actively growing or make the cultivation 10 to 14 days after the MATRIX application.

WEEDS CONTROLLED

PREEMERGENCE CONTROL

Grasses	
Barnyardgrass	(Echinochloa crus-galli)
Foxtail, Giant	(Setaria faberi)
Foxtail, Green	(Setaria viridis)
Foxtail, Yellow	(Setaria glauca)
Wheat, Volunteer	(Triticum aestivum)
Broadleaves	
Filarce, Redstem	(Erodium cicutarium)
Henbit	(Lamium amplexicaule)
Kochia	(Kochia scoparia)
Mustard, Black	(Brassica nigra)
Pigweed, Prostrate	(Amaranthus blitoides)
Pigweed, Redroot	(Amaranthus retroflexus)
Pigweed, Smooth	(Amaranthus hybridus)
Purslane, Common	(Portulaca oleracea)

Preemergence (Partial Control)

Grasses	
Crabgrass	(Digitaria spp.)
Wild Oat	(Avena fatua)
Broadleaves	
Cocklebur	(Xanthium spp.)
Lambsquarters Common	(Chenopodium album)
Nightshade, Hairy	(Solanum sarrachoides)
Ragweed, Common	(Ambrosia artemisiifolia)
Velvetleaf	(Abutilon theothrasti)

POSTEMERGENCE CONTROL

Grasses	
Barley, Volunteer	(Hordeum vulgare)
Barnyardgrass	(Echinochloa crus-galli)
Bluegrass, Annual	(Poa annua)
Crabgrass	(Digitaria spp.)
Foxtail, Bristly	(Setaria verticillata)
Foxtail, Giant	(Setaria faberi)
Foxtail, Green	(Setaria viridis)
Foxtail, Yellow	(Setaria glauca)
Panicum, Fall	(Panicum dichotomislorum)
Wheat, Volunteer	(Triticum aestivum)
Broadleaves	
Chickweed, Common	(Stellaria media)
Henbit	(Lamium amplexicaule)
Kochia	(Kochia scoparia)
Mustard, Black	(Brassica nigra)
Mustard, Wild	(Sinapis arvensis)
Pigweed, Prostrate	(Amaranthus bliotoides)
Pigweed, Redroot	(Amaranthus retroflexus)
Pigweed, Smooth	(Amaranthus hybridus)
Shepherd's purse	(Capsella bursa-pastoris)
Wild Radish	(Raphanus raphanistrum)

Postemergence (Partial Control)

Grasses	
Johnsongrass	(Sorghum halepense)
Millet, Prosso	(Panicum miliaceum)
Quackgrass	(Agropyron repens)
Stinkgrass	(Eragrostis cilianensis)
Wild Oat	(Avena fatua)
Yellow Nutsedge	(Cyperus esculentus)
Broadleaves	
Canada thistle	(Cirsium arvense)
Cocklebur	(Xanthium spp.)
Lambsquarters, Common	(Chenopodium album)
Morningglory, Ivyleaf	(Ipomoea hederacea)
Nightshade, Hairy	(Solanum sarrachoides)
Purslane, Common	(Portulaca oleracea)
Ragweed, Common	(Ambrosia artemisiifolia)
Smartweed, Pennsylvania	(Polygonum pensylvanicum)
Velvetleaf	(Abutilon theophrasti)

MATRIX ROTATIONAL CROP GUIDELINES

The following rotational intervals should be observed when using MATRIX:

Rotation Crop	Interval (months)
Barley, Spring	9
Beans, Dry	10
Beans, Succulent	10
Corn, Field	Anytime
Corn, Popcorn	10
Corn, Sweet	10
Cover Crops (erosion control)	4
Oats, Spring	9
Potatoes	Anytime
Sugar Beets	10
Sunflowers	10
Soybeans	10
Tomatoes	1
Wheat, Spring	9
Wheat, Winter	4
Crops Not Listed	12

SPRAYER TANK CLEANOUT

To avoid subsequent injury to desirable crops, clean all mixing and spray equipment immediately following applications of MATRIX as follows:

1. Drain tank; thoroughly rinse spray tank, boom, and hoses with clean water. Loosen and physically remove any visible deposits.
2. Fill the tank with clean water and 1 gal of household ammonia* (contains 3% ammonia) for every 100 gal of water. Flush the hoses, boom, and nozzles with the cleaning solution. Then add more water to completely fill the tank. Circulate the cleaning solution through the tank and hoses for at least 15 min. Again flush the hoses, boom and nozzles with the cleaning solution and then drain the tank.
3. Remove the nozzles and screens and clean separately in a bucket containing cleaning agent and water.
4. Repeat step 2.
5. Rinse the tank, boom, and hoses with clean water.
6. The rinsate may be disposed of on-site or at an approved disposal facility.

* Equivalent amount of an alternate strength ammonia solution or a DuPont-approved cleaner (see bulletin "A GUIDE TO APPLICATION EQUIPMENT CLEANOUT") can be used in the cleanout procedure. Carefully read and follow the individual cleaner instructions.

NOTES:

1. This procedure should be used for all injection nurse tanks used in chemigation with MATRIX.
2. In addition to this cleanout procedure, all pre-cleanout guidelines on subsequently applied products should be followed as per the individual labels.
3. Where routine spraying practices include shared equipment frequently being switched between applications of MATRIX and applications to other crops during the same spray season, it is recommended a sprayer or nurse tank be dedicated to MATRIX to further reduce the chance of crop injury.

SPRAY DRIFT MANAGEMENT

The interaction of many equipment and weather-related factors determines the potential for spray drift. The applicator is responsible for considering all these factors when making application decisions.

AVOIDING SPRAY DRIFT IS THE RESPONSIBILITY OF THE APPLICATOR.

IMPORTANCE OF DROPLET SIZE

The most effective way to reduce drift potential is to apply large droplets (>150 - 200 microns). The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. The presence of sensitive species nearby, the environmental conditions, and pest pressure may affect how an applicator balances drift control and coverage. APPLYING LARGER DROPLETS REDUCES DRIFT POTENTIAL, BUT WILL NOT PREVENT DRIFT IF APPLICATIONS ARE MADE IMPROPERLY OR UNDER UNFAVORABLE ENVIRONMENTAL CONDITIONS! See Wind, Temperature and Humidity, and Temperature Inversions sections of this label.

Controlling Droplet Size - General Techniques

- Volume - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- Pressure - Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. WHEN HIGHER FLOW RATES ARE NEEDED, USE A HIGHER-CAPACITY NOZZLE INSTEAD OF INCREASING PRESSURE.
- Nozzle Type - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles.

BOOM HEIGHT

Setting the boom at the lowest labeled height (if specified) that provides uniform coverage reduces the exposure of droplets to evaporation and wind. For ground equipment, the boom should remain level with the crop and have minimal bounce.

WIND

Drift potential increases at wind speeds of less than 3 mph (due to inversion potential) or more than 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given wind speed. AVOID GUSTY OR WINDLESS CONDITIONS.

Note: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

TEMPERATURE AND HUMIDITY

When making applications in hot and dry conditions, set up equipment to produce larger droplets to reduce effects of evaporation.

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TEMPERATURE INVERSIONS

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

SHIELDED SPRAYERS

Shielding the boom or individual nozzles can reduce the effects of wind. However, it is the responsibility of the applicator to verify that the shields are preventing drift and not interfering with uniform deposition of the product.

AIR-ASSISTED (AIR BLAST) FIELD CROP SPRAYERS

Air-assisted field crop sprayers carry droplets to the target via a downward-directed airstream. Some may reduce the potential for drift, but if a sprayer is unsuitable for the application and/or set up improperly, high drift potential can result. It is the responsibility of the applicator to determine that a sprayer is suitable for the intended application and is configured properly, and that drift is not occurring.

Note: Air-assisted field sprayers can affect product performance by affecting spray coverage and canopy penetration. Consult the application equipment section of this label to determine if use of an air assisted sprayer is recommended.

RESISTANCE

When herbicides with the same mode of action are used repeatedly over several years to control the same weed species in the same field, naturally-occurring resistant weed biotypes may survive a correctly applied herbicide treatment, propagate, and become dominant in that field. These resistant weed biotypes may not be adequately controlled. Cultural practices such as tillage, preventing weed escapes from going to seed, and using herbicides with different modes of action within and between crop seasons can aid in delaying the proliferation and possible dominance of herbicide resistant weed biotypes.

PRECAUTIONS

- Potato varieties may differ in their response to various herbicides. When using MATRIX for the first time on a particular variety, limit the initial use to a small area. If no symptoms of crop injury occur 7 days after treatment, the balance of the acreage can be treated.
- Preemergence use on soils containing more than 6% organic matter may result in reduced weed control.
- Postemergence use on rill irrigated potatoes (furrow or gravity) may not provide adequate weed control in the absence of rainfall.
- Do not apply to sweet potatoes or yams.
- Avoid spray drift to any adjacent crops as injury may occur.
- Crop injury may occur following an application of MATRIX if there is a prolonged period of cold weather and/or cold weather in conjunction with wet soils caused by poor drainage or excessive use of sprinkler irrigation for frost protection.
- Do not use MATRIX on potatoes grown for seed.
- Do not apply MATRIX by air.

Injury to or loss of desirable trees or vegetation may result from failure to observe the following:

- Do not apply, drain, or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots.
- Do not use on lawns, walks, driveways, tennis courts, or similar areas. Prevent drift of spray to desirable plants.
- Do not contaminate any body of water, including irrigation water that may be used on other crops.
- Carefully observe sprayer cleanup instructions, as spray tank residue may damage crops other than potatoes.

STORAGE AND DISPOSAL

STORAGE: Store product in original container only. Do not contaminate water, other pesticides, fertilizer, food, or feed in storage.

PESTICIDE DISPOSAL: Do not contaminate water, food or feed by disposal. Waste resulting from the use of this product may be disposed of on-site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Triple rinse (or equivalent) the container. 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.

NOTICE TO BUYER: Purchase of this material does not confer any rights under patents of countries outside of the United States.

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NOTICE OF WARRANTY

Du Pont warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for purposes stated on such label only when used in accordance with directions under normal use conditions. 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 weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Du Pont. In no case shall Du Pont be liable for consequential, special or indirect damages resulting from the use or handling of this product. All such risks shall be assumed by the buyer. DU PONT MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

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