



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

June 6, 2023

Rebecca A. Clemmer  
Senior Regional Regulatory Manager  
UPL NA, Inc.  
630 Freedom Business Center, Suite 402  
King of Prussia, PA 19406

Subject: Notification per PRN 98-10 – Add “Not for use in CA” for sod farm and sugarcane uses  
Product Name: Moccasin Herbicide  
EPA Registration Number: 70506-323  
Application Date: January 19, 2023  
Decision Number: 591057

Dear Ms. Clemmer:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for the above referenced product. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10. The label submitted with the application has been stamped “NOTIFICATION” and placed in our records.

Should you wish to add/retain a reference to the company’s website on your label, then please be aware that the website becomes labeling under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) lists examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product’s label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA’s Office of Enforcement and Compliance.

If you have any questions, please contact Margaret Hathaway at (202)566-2730 or by email at [hathaway.margaret@epa.gov](mailto:hathaway.margaret@epa.gov).

Sincerely,

A handwritten signature in black ink that reads "Mindy Ondish".

Mindy Ondish  
Product Manager 23  
Herbicide Branch  
Registration Division (7505T)  
Office of Pesticide Programs

S-METOLACHLOR	GROUP	<b>15</b>	HERBICIDE
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## MOCCASIN® Herbicide Master Label

**Sublabel 1: Agricultural uses including supplemental labels**

**Sublabel 2: Non-agricultural uses**

### NOTIFICATION

70506-323

The applicant has certified that no changes, other than those reported to the Agency have been made to the labeling. The Agency acknowledges this notification by letter dated:

06/06/2023

**Sublabel 1: Agricultural uses**

<b>S-METOLACHLOR</b>	<b>GROUP</b>	<b>15</b>	<b>HERBICIDE</b>
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## MOCCASIN® Herbicide

### SALE, USE AND DISTRIBUTION OF THIS PRODUCT IN NASSAU AND SUFFOLK COUNTIES IN THE STATE OF NEW YORK IS PROHIBITED

This product controls a broad spectrum of annual grasses and select broadleaf weeds when applied as a pre-emergence, post-emergence, pre-plant surface-applied or pre-plant incorporated treatment on labeled crops

	BY WT.
<b>Active Ingredient:</b> S-metolachlor (CAS No. 87392-12-9) .....	87.3%
<b>Other Ingredients:</b> .....	<u>12.7%</u>
<b>Total:</b> .....	100.0%

MOCCASIN Herbicide is an Emulsifiable Concentrate (EC) containing 8.0 lb of active ingredient per gallon

### KEEP OUT OF REACH OF CHILDREN CAUTION

<b>FIRST AID</b>	
<b>If on skin</b>	<ul style="list-style-type: none"> <li>Take off contaminated clothing.</li> <li>Rinse skin immediately with plenty of water for 15 - 20 minutes.</li> <li>Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If swallowed</b>	<ul style="list-style-type: none"> <li>Call a poison control center or doctor immediately for treatment advice.</li> <li>Have person sip a glass of water if able to swallow.</li> <li>Do not induce vomiting unless told to do so by the poison control center or doctor.</li> <li>Do not give anything to an unconscious person.</li> </ul>
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>Remove contact lenses if present, after the first 5 minutes, then continue rinsing eye</li> <li>Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If inhaled:</b>	<ul style="list-style-type: none"> <li>Move person to fresh air.</li> <li>If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth- to-mouth if possible.</li> <li>Call a poison control center or doctor for further treatment advice.</li> </ul>
Have the product container or label with you when calling a poison control center or doctor or going for treatment. For medical treatment, call the Rocky Mountain Poison and Drug Center at 1-866-673-6671.	

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

UPL NA Inc.  
630 Freedom Business Center, Suite 402  
King of Prussia, PA 19406  
1-800-247-1557

**EPA Reg. No. 70506-323**  
**EPA Est. No.**

**Net Contents : \_\_\_\_ gallons**

*[optional wording for use on commercial labeling; location on printed labels may vary:*

*“See inside for additional Precautionary Statements and complete Directions for Use”;*

*“See attached booklet for additional Precautionary Statements and complete Directions For Use”;*

*“See containers inside for additional Precautionary Statements and complete Directions For Use”.]*

## **PRECAUTIONARY STATEMENTS**

### **Hazards to Humans and Domestic Animals**

### **CAUTION**

Harmful if absorbed through skin. Harmful if swallowed. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before drinking, chewing gum, using tobacco, or using the toilet.

#### **Personal Protective Equipment (PPE)**

##### **Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Chemical-resistant gloves, such as barrier laminate or Viton®
- Shoes plus socks

Follow manufacturer’s instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

#### **Engineering Control Statements**

Mixers and loaders supporting aerial applications are required to use closed systems. The closed system must be used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.607(d)]. When using the closed system, the mixers’ and loaders’ PPE requirements may be reduced or modified as specified in the WPS.

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 170.607(d-f)], the handler PPE requirements may be reduced or modified as specified in the WPS.

#### **User Safety Recommendations**

##### **Users should:**

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

Do not apply directly to water, 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 wash water or rinsate.

Reporting Ecological Incidents: to report ecological incidents, including mortality, injury, or harm to plants and animals, call UPL NA Inc. at 1-800-247-1557.

### **Ground Water Advisory**

S-metolachlor is known to leach through soil into groundwater under certain conditions as a result of label use. This chemical may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

**NON-TARGET ORGANISM ADVISORY:** This product is toxic to plants and may adversely impact the forage and habitat of non-target organisms, including pollinators, in areas adjacent to the treated site. Protect the forage and habitat of non-target organisms by following label directions intended to minimize spray drift.

### **Surface Water Advisory**

This product may impact surface water quality due to runoff of rain water. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having high potential for reaching surface water via runoff for several weeks or months after application. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential loading of s-metolachlor from runoff water and sediment. Runoff of this product will be reduced by avoiding applications when rainfall or irrigation is expected to occur within 48 hours.

### **Mixing/Loading Instructions**

Care must be taken when using this product to prevent back-siphoning into wells, spills, or improper disposal of excess pesticide, spray mixtures, or rinsates.

Check-valves or antisiphoning devices must be used on all mixing and/or irrigation equipment.

This product must not be mixed or loaded within 50 ft of perennial or intermittent streams and rivers, natural or impounded lakes and reservoirs. This product must not be mixed/loaded or used within 50 ft. of all wells, including abandoned wells, drainage wells, and sink holes. Operations that involve mixing, loading, rinsing, or washing of this product into or from pesticide handling or application equipment or containers within 50 ft. 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 rain water 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.

## **DIRECTIONS FOR USE**

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

Endangered Species Protection Requirements:

It is a Federal offense to use any pesticide in a manner that results in an unauthorized "take" (e.g., kill or otherwise harm) of an endangered species and certain threatened species, under the Endangered Species Act section 9. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. You must obtain a Bulletin no earlier than six months before using this product. To obtain Bulletins, consult <http://www.epa.gov/espp/>, call 1-844-447-3813, or email [ESPP@epa.gov](mailto:ESPP@epa.gov). You must use the Bulletin valid for the month in which you will apply the product.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of UPL NA Inc. or Seller. To the extent consistent with applicable law, Buyer and User agree to hold UPL NA Inc. and Seller harmless for any claims relating to such factors

MOCCASIN Herbicide must be used only in accordance with directions on 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 State or Tribal 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 24 hours.** Exception: If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

For early entry into treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, wear:

- Coveralls
- Chemical-resistant gloves, such as barrier laminate or Viton
- Shoes plus socks

**Sale, use and distribution of this product in Nassau and Suffolk Counties in the State of New York is prohibited.**

### PRODUCT INFORMATION

MOCCASIN Herbicide can be used on the following crops to control annual grasses and select broadleaf weeds when applied using an application method as described in each crop section:

Beans

Corn

Cotton

Grasses grown for seed

Lentils

Peanuts

Peas

Potatoes

Safflower

Soybean (immature seed)

Soybean

Sod Farms (not for use in California)

Sorghum (grain, forage, or sweet)

Sugarcane (not for use in California)

Sugar Beet

Sunflower

Tomatoes

Horseradish

Pumpkin  
Rhubarb

*NOTE: Injury may occur following the use of MOCCASIN Herbicide under abnormally high soil moisture conditions during early development of the crop.*

## RESTRICTIONS

DO NOT apply under windy conditions.

DO NOT apply if conditions are conducive to wind erosion or runoff and may lead to soil containing this product reaching non-target areas.

DO NOT use in greenhouses or other enclosed structures.

**MOCCASIN Herbicide may be tank mixed with products that are registered for use in the state where this product is being applied. The most restrictive combination of instructions, limitations and other restrictions from all the products being applied must be followed.**

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

***When tank mixing with atrazine, rate restrictions for atrazine must be implemented within specific geographic areas and deviation from these State imposed restrictions are a violation. Prior to application, consult the agency responsible for pesticide regulation in your State to determine if any restrictions apply in your desired application area.***

## NON-TARGET DRIFT AND RUNOFF

In order to minimize the possibility of runoff or wind erosion causing movement of this product to non-target areas, do the following:

- When conditions for wind erosion exist, DO NOT apply this product to light sandy soils or soils that have a powder dry surface. If these conditions exist, mitigate by irrigation or rainfall prior to application.
- DO NOT apply this product to highly compacted or paved surfaces or any other surfaces that are impervious.
- Non-target crops must NOT be exposed to the furrow or first flood irrigation tailwater from fields treated with this product. This restriction does not apply if a minimum of ½" of rain occurs prior to the first irrigation after application.

## SPRAY DRIFT MANAGEMENT

### MANDATORY SPRAY DRIFT MANAGEMENT

#### Ground Boom Applications

- User must only apply with the release height recommended by the manufacturer, but no more than 4 feet above the ground or crop canopy.
- Applicators are required to select the nozzles and pressure that deliver medium or coarser droplets (ASABE S572).
- Do not apply when wind speeds exceed 15 mph at the application site.
- Do not apply during temperature inversions.

#### Aerial Applications:

- Do not release spray at a height greater than 10 ft. above the ground or vegetative canopy, unless a greater application height is necessary for pilot safety.

- Applicators are required to select the nozzle and pressure that deliver medium or coarser droplets (ASABE S641).
- If the wind speed is 10 miles per hour or less, applicators must use ½ swath displacement upwind at the downwind edge of the field. When the wind speed is between 11-15 miles per hour, applicators must use ¾ swath displacement upwind at the downwind edge of the field.
- Do not apply when wind speeds exceed 15 mph at the application site. If the wind speed is greater than 10 mph, the boom length must be 65% or less of the wingspan for fixed wing aircraft and 75% or less of the rotor diameter for helicopters. Otherwise, the boom length must be 75% or less of the wingspan for fixed-wing aircraft and 90% or less of the rotor diameter for helicopters.
- Do not apply during temperature inversions.

Boomless Ground Applications:

- Applicators are required to select the nozzle and pressure that deliver a medium or coarser droplet size (ASABE S572.3) for all applications.
- Do not apply when wind speeds exceed 15 mph at the application site.
- Do not apply during temperature inversions.

### **SPRAY DRIFT ADVISORIES**

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT. BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

Boomless Ground Applications:

- Setting nozzles at the lowest effective height will help to reduce the potential for spray drift.

### **IMPORTANCE OF DROPLET SIZE**

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

#### Controlling Droplet Size – Ground Boom

- Volume – Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure – Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle – Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

#### Controlling Droplet Size – Aircraft

- Adjust Nozzles – Follow nozzle manufacturers' recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

### **BOOM HEIGHT – Ground Boom**

For ground equipment, the boom should remain level with the crop and have minimal bounce.

### **RELEASE HEIGHT – Aircraft**

Higher release heights increase the potential for spray drift.



**SHIELDED SPRAYERS**

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

**TEMPERATURE AND HUMIDITY**

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

**TEMPERATURE INVERSIONS**

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or 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. Avoid applications during temperature inversions.

**WIND**

Drift potential generally increases with wind speed. **AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.**

Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

**SOIL TEXTURE CLASSIFICATION AND EFFECT ON APPLICATION RATES**

In the instructions that follow, application rates may depend on the texture of the soil to which this product is being applied. Use the following information to assign your soil texture to a classification:

**Coarse:** Sand, Loamy Sand, Sandy Loam

**Medium:** Loam, Silt Loam, Silt

**Fine:** Sandy Clay Loam, Silty Clay Loam, Clay Loam, Sandy Clay, Silty Clay, Clay

Soil texture impacts the application rate as follows: For soils that have low organic matter content or are coarser textured use the lower rates of the range listed, and for soils with high organic matter content or that are finer textured use the higher rates of the range listed in the application instructions.

**APPLICATION INSTRUCTIONS**

This product may be used for pre-emergence applications either by itself or tank mixed with products as specified in this label. This product may also be applied after pre-plant incorporated herbicides as long as doing so is not forbidden in the pre-plant herbicide label. Avoid spray overlap, as crop injury may result.

Thoroughly clean sprayer or other application devices before using. Dispose of cleaning solution in a manner that is responsible. Do not use a sprayer or application equipment contaminated with any other materials, or crop damage or clogging of the application device may result.

**MOCCASIN HERBICIDE APPLIED ALONE****WEEDS CONTROLLED**

This product is a **pre-emergent herbicide absorbed by weeds shortly after germination that inhibits weed root and shoot development.** Control weeds that have already germinated by using a herbicide for post-emergent use, or through other means such as mechanical removal.

When this product is incorporated, the application depth should be less than 2-3 inches. Any subsequent tilling after incorporating this product, and prior to planting, must be less than the application depth or 2-3 inches.

Dry conditions after application may lead to poor weed control. If this occurs, cultivate weeds that develop.

### Partial Weed Control

When describing weed control, this label may refer to “partial control” for certain weeds. Within the context of this label, “partial control” can mean either of the following:

- 1) control that is not consistent, and that may be good in some cases and poor in others; and/or,
- 2) control that is consistent but not considered sufficient for commercial weed control.

There may be several reasons for partial weed control including plant type and climatic conditions. To help improve control of weeds listed as partially controlled in the following table, you may try the following:

- Destroying weeds that are germinating or already emerged by thorough tilling and then planting the crop immediately into moist soil. If this product will be used pre-emergence, it must be applied either at, or immediately after, planting.

If possible, within two days of application of MOCCASIN Herbicide sprinkle irrigate using ½ - 1 inch of water using lower irrigation rates on soils that are coarse textured and the higher rates on soils that are fine textured. If it is not possible to irrigate and no precipitation occurs within two days of application, there may be decreased control of weeds in which case a shallow, perform uniform cultivation immediately upon weed germination.

Refer to the CENTER PIVOT IRRIGATION section for information on applying this product using center pivot irrigation.

This product will provide the level of control listed for the following weeds:

#### BROADLEAF – Control

**Amaranth, Palmer** (*Amaranthus palmeri*);  
**Amaranth, Powell** (*Amaranthus powellii*);  
**Carpetweed** (*Mollugo verticillata*);  
**Galinsoga, Hairy** (*Galinsoga quadriradiata*);  
**Galinsoga, Smallflower** (*Galinsoga parviflora*);  
**Nightshade, Eastern Black** (*Solanum ptychanthum*);  
**Pigweed, Prostrate** (*Amaranthus blitoides*);  
**Pigweed, Redroot** (*Amaranthus retroflexus*);  
**Pigweed, Smooth** (*Amaranthus hybridus*);  
**Pigweed, Tumble** (*Amaranthus albus*);  
**Pusley, Florida** (*Richardia scabra*);  
**Spiderwort, Tropical** (*Commelina benghalensis*);  
**Waterhemp, Common** (*Amaranthus rudis*);  
**Waterhemp, Tall** (*Amaranthus tuberculatus*)

#### BROADLEAF – Partial Control

**Beggarweed, Florida** (*Desmodium tortuosum*);  
**Eclipta** (*Eclipta prostrata*);  
**Nightshade, Hairy** (*Solanum physalifolium*)  
**Purslane, Common** (*Portulaca oleracea*);

#### GRASS – Control

**Barnyardgrass** (*Echinochloa crus-galli*);  
**Crabgrass, Large** (*Digitaria ischaemum*);  
**Crabgrass, Smooth** (*Digitaria sanguinalis*);  
**Crowfootgrass** (*Dactyloctenium aegyptium*);  
**Cupgrass, Prairie** (*Eriochloa contracta*);  
**Cupgrass, Southwestern** (*Eriochloa acuminata*);  
**Foxtail, Bristly** (*Setaria verticillata*);

**Foxtail, Giant** (*Setaria faberi*);  
**Foxtail, Green** (*Setaria viridis*);  
**Foxtail, Millet** (*Setaria italic*);  
**Foxtail, Yellow** (*Setaria pumila*);  
**Goosegrass** (*Eleusine indica*);  
**Panicum, Fall** (*Panicum dichotomiflorum*);  
**Rice, Red** (*Oryza punctate*);  
**Ryegrass, Italian** (*Lolium multiflorum*);  
**Signalgrass, Broadleaf** (*Urochloa platyphylla*);  
**Witchgrass** (*Panicum capillare*)

#### GRASS – Partial Control

**Cupgrass, Woolly**<sup>1</sup> (*Eriochloa villosa*);  
**Johnsongrass (seedling)** (*Sorghum halepense*);  
**Millet, Wild-proso**<sup>1</sup> (*Panicum miliaceum*);  
**Panicum, Texas** (*Panicum texanum*);  
**Sandbur, Field** (*Cenchrus spinifex*);  
**Sandbur, Southern** (*Cenchrus echinatus*);  
**Shattercane, ( Sorghum bicolor)**  
**Sorghum (Volunteer)** (*Sorghum bicolor*)

#### SEDGE – Control

**Nutsedge, Yellow** (*Cyperus esculentus*)

<sup>1</sup>Refer to the corn section of this label for additional use directions

### Herbicide Resistance Management

For resistance management, **MOCCASIN Herbicide** is a Group 15 herbicide. Any weed population may contain or develop plants naturally resistant to **MOCCASIN Herbicide** and other Group 15 herbicides. Weed species with acquired resistance to Group 15 may eventually dominate the weed population if Group 15 herbicides are used repeatedly in the same field. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance, take one or more of the following steps:

- Rotate the use of **MOCCASIN Herbicide** or other Group 15 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds in a field. Whenever possible incorporate multiple weed control practices including mechanical cultivation, biological management practices, and crop rotation.
- Use tank mixtures with herbicides from a different group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or certified crop advisor if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use and crop rotation, and that considers tillage (or other mechanical control methods), cultural (e.g. higher crop seeding rates; precision fertilizer application method and timing to favor the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Scout fields before application to identify the weed species present and their growth stage to determine if the intended application will be effective. Scout after herbicide application to monitor weed populations for early signs of resistance development. Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species. If resistance is suspected, prevent weed seed production in the affected area by an alternative herbicide from a different group or

by a mechanical method including hoeing or tillage. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.

- If a weed pest population continues to progress after treatment with this product, discontinue use of this product and switch to another management strategy or herbicide with a different mode of action (MOA), if available. Treat weed escapes with an herbicide with a different MOA or use non-chemical methods to remove escapes. To the extent possible do not allow weed escapes to produce seeds, roots, or tubers.
- Contact your local sales representative, crop advisor, or extension agent to find out if suspected resistant weeds to this MOA have been found in your region. If resistant biotypes of target weeds have been reported, use the application rates of this product specified for your local conditions. Tank mix products so that there are multiple effective mechanisms of action for each target weed. Contact UPL NA at 1-800-438-6071.

## RE-PLANT AND ROTATIONAL CROPS

### Replanted Crops

Any crop listed in this or a supplemental MOCCASIN Herbicide label may be immediately replanted as long as the originally applied rate is not more than the rate listed for the replacement crop. In cases where the initial application was a banded treatment and the replacement crop is planted in the center of the untreated area between the bands, a second banded application may be made at the rate recommended for the replacement crop as long as there is no overlap between the first and second application bands.

### Directions for Rotational Crops

Any food or feed crops not listed below or in the Additional Rotational Crop Options table must NOT be planted within 12 months of the last application of this product.

Crop(s)	Replant Interval
Tobacco, Buckwheat, Rice	The spring following the last treatment
Barley, Oats, Rye, Wheat	4.5 months
Alfalfa	4.0 months
Clover	9.0 months

In order to make a replant application of this product, the previous crop must have had applied 1.9 pounds active ingredient, or less, of *S-metolachlor* (1.9 pints or less) per acre, and the previous crop must not have had a lay-by or other post-emergence application of this product.

**Note:** If rotating to a crop listed in one of the crop groupings below within 60 days of last application, injury to the new crop may result. Also, if the amount of this product applied to the previous crop was more than listed below, the crop must not be planted until the following spring.

### Additional Rotational Crop Options

Note that not all crops within each group are specifically listed. The plant-back interval applies to all the crops in the specific EPA crop group or subgroup listed.

Amount of MOCCASIN Herbicide Applied Previously (Pints per Acre)	Crops that May be Planted 60-days After the Last Application of MOCCASIN Herbicide
≤ 1.3 pts/A	<p><b>Crop Subgroup 1B: Root Vegetables (except sugar beet, except carrot)</b>            Beet, garden; burdock, edible; celeriac; chervil, turnip-rooted; chicory; ginseng; horseradish; parsnip; radish; radish, oriental; rutabaga; salsify; skirret; turnip</p> <p><b>Crop Subgroup 3-07B: Onion, green</b>            Chive leek, onion, Beltsville bunching; onion, fresh; onion, green; onion, Welsh; Shallot</p>

Amount of MOCCASIN Herbicide Applied Previously (Pints per Acre)	Crops that May be Planted 60-days After the Last Application of MOCCASIN Herbicide
	<p><b>Crop Subgroup 4-16B: Brassica, leafy greens</b> Bok choy; broccoli, Chinese; cabbage, Chinese (napa); collards; kale; greens, mustard; greens, turnip</p> <p><b>Crop Group 9: Vegetable, cucurbit</b> Cantaloupe; citron melon; cucumber; gourd; muskmelon; pumpkin; squash, summer; squash, winter; watermelon</p> <p>Carrot; leaf lettuce; sesame; strawberry; Swiss chard</p>
≤ 1.6 pts/A	<p><b>Crop Group 8-10 Fruiting Vegetables (except Tabasco pepper)</b> Eggplant; Ground Cherry (<i>Physalis</i> spp.); Okra, Pepino; Peppers, Bell, Chili, Cooking, Pimento &amp; Sweet; Tomatillo &amp; Tomato</p>
≤ 1.9 pts/A	<p><b>Crop Subgroup 1C Tuberos and Corm Vegetables</b> Arracacha; arrowroot; artichoke (Jerusalem, Chinese); Cassava (bitter, sweet); chayote (root); chufa; dasheen (taro); ginger; potato; potato, sweet; taniel; turmeric; yam bean; yam, true</p> <p><b>Crop Group 3-07A: Onion, Bulb</b> Garlic, bulb, garlic, Great-headed; Onion, dry bulb; Shallot</p> <p><b>Crop Subgroup 22A: Stalk and Stem Vegetable (except Kohlrabi)</b> Agave; asparagus; celtuce; fennel, Florence; fern, edible; kale, sea</p> <p><b>Crop Subgroup 22B: Leaf Petiole Vegetable</b> Cardoon; celery, Chinese; celery; rhubarb</p> <p><b>Crop Subgroup 5-16: Brassica Head and Stem Vegetable</b> Broccoli; Brussel sprouts; cabbage; cabbage, Chinese; cauliflower</p>

**NOTE: A second application of S-metolachlor to the crops in the above table must NOT be made within 60 days of the original application.**

## APPLICATION PROCEDURES

### Application Timing

See **CROP USE DIRECTIONS** for crop specific application timing.

### Pre-plant Surface-Applied

For certain crops grown in minimum- or no-tillage systems, MOCCASIN Herbicide may be applied either alone or tank mixed with other herbicides up to 45 days prior to planting.

For applications made 30-45 days prior to planting, make only split applications using 2/3 the listed broadcast rate in the initial application and the remaining 1/3 when planting.

For treatments made less than 30 days prior to planting, MOCCASIN Herbicide may be applied as either a single or split application. Refer to the **CROP USE DIRECTIONS** to determine if these kinds of early pre-plant surface applications may be made for the specific crop.

Tank mixing this product with a contact herbicide such as *paraquat*, *glyphosate* or *glufosinate* is recommended if weeds are already present when making the application. The most restrictive

combination of instructions, precautions and restrictions must be followed from all of the tank mix partners when tank mixing multiple products.

For best results, when planting the treated soil must not be moved out of the rows and untreated soil must not be moved into the rows.

#### **Pre-plant Incorporated**

When furrow irrigation is being used or dry weather is expected after the treatment, apply MOCCASIN Herbicide within 14 days of planting and incorporate into the top 2 inches of soil using equipment that will provide uniform incorporation such as a harrow, rolling cultivator or finishing disk. If crops are planted in beds, apply after the beds have been formed, unless otherwise specified in the **CROP USE DIRECTIONS**.

#### **Pre-emergence**

Either apply this product at planting prior to weed emergence, or after planting prior to weed and crop emergence.

#### **Post-emergence**

This product does not control weeds that have already emerged. Weeds already present must be controlled by either using another herbicide or that use, or mechanical means.

### **APPLICATION PROCEDURES FOR SPECIFIC LOCATION, CROP AND/OR WEED SCENARIOS**

#### **CA Only (Corn, Safflower, Beans, Peas, and Lentils)**

**Pre-plant Incorporated:** Apply this product either by itself or tank mixed with other products listed in this label, being sure to incorporate the application thoroughly to a depth of 4-6 inches. Cross tilling may be done to ensure thorough incorporation. The desired crop may be planted on flat surface on beds, being sure that beds are formed only using treated soil. If treating preformed beds, incorporate this product to 2-4 inches deep being careful to keep the treated soil within the beds.

**Pre-emergence:** Apply this product after planting followed within 7-10 days with irrigation by sprinkler or flood.

#### **Fall Application for Spring Weed Control in IA, MN, ND, SD, WI, and areas in NE and IL**

For specific timing and application information, refer to the **Corn; Soybeans; or Beans, Peas, and Lentils** sections of this label

DO NOT apply this product to frozen ground.

Apply this product to fields that will be planted to corn or soybeans the following spring with fine and/or medium textured soils and more than 2.5% organic matter. Tilling may be performed before or after treatment; however, if tilled after treatment do not incorporate deeper than 2-3 inches. If multiple applications are made in a single crop cycle, do not exceed the maximum total rate for the specific crop, or illegal residues may result.

#### **Fall Application for Italian Ryegrass Control in Corn, Cotton, Sorghum (for Grain or Forage) and Soybean ONLY**

For specific timing and application information, refer to the **Corn; Cotton; Sorghum (for Grain or Forage) and Soybean** sections of this label.

DO NOT apply this product to frozen ground.

MOCCASIN Herbicide may be used to provide residual control of glyphosate-resistant Italian ryegrass (*Lolium multiflorum*) with a fall application of this product (between September 1 and December 1). Tillage may be performed prior to application. If planning to till after application, incorporate to a maximum depth of 2-3 inches. All crops listed in this label may be planted the spring following application. If multiple applications are made in a single crop cycle, do not exceed the maximum total rate for the specific crop, or illegal residues may result.

### **GROUND APPLICATIONS**

Unless otherwise specified in the crop specific instructions, apply this product alone or in a tank mixture using ground equipment in a **minimum of 10 gal of spray mixture per acre**. Be sure the sprayers will

provide uniform coverage to the target areas only. If this product will be tank mixed with dry flowable (DF) or wettable powder (WP) formulations, the spray equipment should use strainers / screens that are 50-mesh or coarser. Rinse the application equipment thoroughly with clean water as soon as the application is completed.

The amount of herbicide required for a band treatment may be determined as follows:

$$\text{Amount of Product per Acre} = \text{Broadcast Rate per Acre} \left( \frac{\text{Width of the Band in Inches}}{\text{Width of Row in Inches}} \right)$$

Refer to the **Spray Drift Management** section for information on managing spray drift.

Refer to the **Low Carrier Application** section for information on applying in lower volumes of carrier.

Refer to the **Aerial Application** section for information specific to applications by air or center pivot systems.

Refer to the **Dry Bulk Granular Fertilizers** section for information on impregnating dry fertilizer.

Refer to the **Variable-Rate Application** section for more information when applying with variable-rate equipment.

## SPRAY EQUIPMENT

In order to prevent possible crop damage or equipment malfunction, it is important that the equipment being used to apply this product be thoroughly cleaned prior to use. Any wastes resulting from cleaning must be disposed of responsibly in accordance with local regulations.

### LOW CARRIER APPLICATION - For Broadcast Ground Application Only

ONLY use water as a carrier and apply in a minimum of 5 gallons of spray mixture per acre and a maximum speed of 15 MPH when spraying. Clean the equipment immediately after use using clean water.

Use only spray equipment that provides uniform and accurate spray placement (such as Ag-Chem RoGator®, Hagie, John Deere Hi-Cycle™, Melroe Spra-Coupe, Tyler Patriot™, or Willmar Air Ride®) to apply this product.

Use in-line strainers and suction screens that are 50-mesh. In cases where the manufacturer of the spray equipment requires 100-mesh tip screens be used with certain nozzles, use a pump that can generate enough agitation to keep the mixture suspended and also maintain 35-40 PSI of pressure at the nozzles.

**Low Pressure Nozzles:** Use of these nozzles will increase the accuracy of the spray placement and reduce drift. The manufacturer's instructions for sprayer setup must be followed for optimum performance and nozzle screens should be used when instructed to do so by the manufacturer of the equipment. Low pressure nozzles should be aimed for 20 inch centers EXCEPT flooding types that should be placed on 40 inch centers. Use angles of 80 or 110 degrees for flat fan nozzles. The applicator must be sure to set devices that automatically control the rate of spray to provide the pressure and flow rates required by the low pressure nozzles.

## AERIAL APPLICATION

Refer to the **Spray Drift Management** section for information on managing spray drift.

This product may be applied by aircraft in a **minimum total water volume of 2.0 gallons per acre** either by itself or tank mixed with atrazine, benfenin, linuron, pendimethalin, pendimethalin + trifluralin or metribuzin. To avoid spray drift potentially damaging non-target sensitive plants that are off-site, do not apply this product tank mixed with linuron or metribuzin within 300 feet upwind of sensitive plants, and do not apply this product by itself or tank mixed with atrazine within 400 feet upwind of the sensitive plants.

### Sensitive Areas

Apply pesticides when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, nontarget crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

Avoid application to humans or animals. Flagmen and loaders must avoid inhalation of spray mist and prolonged contact with skin.

### **CENTER PIVOT IRRIGATION APPLICATION**

This product may be applied pre-emergence either by itself or tank mixed with other herbicides that are registered for use in center pivot applications, or post-emergence where allowed by this label to control weeds that have not yet emerged in crops that have already emerged. In order to avoid illegal residue levels, all restrictions in this label regarding rates, heights, timing, etc. must be followed.

Apply this product only through a center pivot irrigation system. Do not apply this product through any other type of irrigation system. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. If you have questions about calibration, contact State Extension specialists, equipment manufacturers, or other experts. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system, unless the pesticide label-prescribed safety devices for public water systems are in place. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments when needed.

### **Operating Instructions**

The system must contain a functional check-valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water-source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check-valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump or piston pump), effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Apply in 1/2-1 inch of irrigation water by mixing 1 part herbicide(s) to a minimum 1 part water and inject the mixture into the center pivot irrigation system being sure to maintain agitation and inject into the irrigation water for the entire duration of the application. Use higher water volumes on fine-textured soils and lower water volumes used on coarse-textured soils. Increased accuracy in the calibration of the metering equipment may be achieved if a more dilute (i.e., larger volume) injection solution is used. Weed control may be reduced if more than 1 inch of irrigation water is applied.

NOTE: Excessive sprinkler overlap may result in crop injury, and insufficient sprinkler overlap may result in poor weed control.

### **DRY BULK GRANULAR FERTILIZERS**

#### **IMPORTANT: To Avoid Potential Explosions**

- DO NOT impregnate this product or mixtures containing this product to ammonium nitrate, potassium nitrate, or sodium nitrate.
- DO NOT apply this product or mixtures containing this product to straight limestone because limestone will not absorb the solution. You may impregnate fertilizers that are a blend containing limestone.



This product and tank mixes containing this product may be coated onto or impregnated into dry bulk granular fertilizers that do not prohibit this use and are labeled for pre-plant incorporated or pre-plant surface applications. The most restrictive combination of directions, restrictions and precautions from each of the products used must be followed. It is the responsibility of the seller of the herbicide/fertilizer mixture to be certain they are in compliance with all state regulations governing the registration, blending, labeling and application of blended dry bulk granular fertilizers.

The blended dry bulk fertilizer mixture may be prepared using any commonly used closed dry bulk fertilizer blender including closed belt, drum and ribbon systems. The spray being applied to the fertilizer must be uniform in coverage and must not spray the walls of the blender.

To obtain a dry, free-flowing application mixture if the herbicide/fertilizer mixture is initially too wet, a granular clay or diatomaceous earth material such as Agsorb® or Celatom MP-79® may be added to the mixture only after the herbicide has been thoroughly blended. For best results, use a granule size of 6/30 or similar to the granule size of the bulk fertilizer being blended. Avoid using more than 5% absorptive material by weight, and less than 2% by weight is generally needed.

Use the following formulas to determine the amount of herbicide needed to blend per ton of fertilizer:

$$\begin{aligned} & \text{Pints of Liquid or Flowable Product per Ton of Fertilizer} \\ & = \frac{2000}{\text{Pounds of Fertilizer per Acre}} \times \text{Pints per Acre of Liquid or Flowable Product} \end{aligned}$$

$$\begin{aligned} & \text{Pounds of Dry Product per Ton of Fertilizer} \\ & = \frac{2000}{\text{Pounds of Fertilizer per Acre}} \times \text{Pounds per Acre of Dry Product} \end{aligned}$$

### **Pneumatic (Compressed Air) Application of MOCCASIN Herbicide Alone**

Reduction of fertilizer mixture build-up on application equipment in conditions that promote buildup (such as low fertilizer use rates or dusty fertilizer, high humidity and / or high urea concentrations) may be accomplished by premixing 1-4 pints of Exxon Aromatic 200 per gallon of this product. This blend may be applied using a direct injection system or a fertilizer blender. Avoid use of drying agents when mixing this product with Exxon Aromatic 200.

If a drier mixture than what results from mixing this product with Aromatic 200 is desired, this product may be impregnated with a drying agent in place of the Aromatic 200 in a blender prior to application. For best results when using a drying agent, use Agsorb FG or another drying agent that has a 6/30 particle size.

### **Use Precautions**

Because crop injury or poor weed control may occur if the MOCCASIN Herbicide / Exxon Aromatic 200 mixture is used in water or liquid fertilizer solutions, this combination must be applied to dry fertilizer ONLY.

Avoid use of drying agents when On-The-Go impregnation equipment will be used.

### **Application**

DO NOT use a herbicide/fertilizer mixture if crops are planted in beds or crop injury may occur.

The fertilizer / herbicide combination should be applied at a rate of 200-700 pounds per acre immediately after blending using calibrated equipment that will mix uniformly. A non-uniform application may result in crop injury and poor weed control.

Weed control may be improved in conventional tillage fields by performing a shallow incorporation of the mixture into the soil. In fields that will be tilled conventionally, weed control may be improved if the mixture is incorporated to a shallow depth. If soil incorporation is not planned for the field, in fields with medium- or fine-textured soils applications should be made approximately 30 days prior to planting (14 days in coarse-textured soils) in order to allow the mixture to move into the soil via moisture.

## **MIXING INSTRUCTIONS**

Do NOT allow this product to be back-siphoned into wells. All equipment used for mixing or irrigation MUST have anti-siphon or check-valves installed. Unused solutions and rinsate containing this product must be disposed of properly using the instructions in this label.

### MOCCASIN Herbicide Alone

Mix by filling the solution tank with  $\frac{1}{2}$  to  $\frac{3}{4}$  of the desired final fluid fertilizer or water volume and starting agitation in the tank. Add this product at the rate specified in the label and add the remaining amount of water or fluid fertilizer, being sure to maintain agitation during mixing and application so that the resulting solution is uniformly mixed.

### Tank Mixtures

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Any tank mixture containing fluid fertilizer should be tested for compatibility using the instructions in the **COMPATIBILITY TESTING** section below.

The products in Table 1 below (or products with the same active ingredient) may be tank mixed with MOCCASIN Herbicide.

To tank mix, fill the solution tank  $\frac{1}{4}$  full with water and commence agitation. If the product to be tank mixed is underlined in Table 1, add it first and allow to disperse. Next add this product, followed by any products NOT underlined in Table 1. Then add the remaining amount of water.

Fluid fertilizers may be used in place of, part or all of, the water in tank mixtures containing Atrazine (except post-emergence), Isoxaflutole (Balance), Dicamba (except post-emergence), Metribuzin + Chlorimuron (Canopy), Prometryn (Caparol), Fluometuron (Cotoran), EPTC, Linuron, Dicamba + Atrazine (Marksman), Simazine, Pendimethalin (Prowl, Satellite), Imazethapyr (Pursuit), Atrazine + Simazine, Ethalfuralin (Sonalan), Trifluralin (Treflan), or Metribuzin (TriCor). If tank mixing with atrazine, refer to the atrazine label for additional mixing instructions.

\* Refer to **Special Mixing Instructions** for tank mixtures containing atrazine, fluometuron, or simazine + pendimethalin or simazine under the appropriate tank mixture section.

### COMPATIBILITY TESTING

Tank mix incompatibility occurs most often in fertilizer / pesticide suspensions. To ensure the compatibility of this product with other pesticides and fertilizers, conduct a jar test prior to tank mixing. The procedure below assumes a spray volume of 25 gallons per acre and the amounts of the individual ingredients should be changed as appropriate for other spray volumes.

**Important Note: Compatibility with between liquid fertilizers and the pesticides to be tank mixed must always be tested prior to use** due to the variability of liquid fertilizers, even within the same analysis.

#### Compatibility Test Procedure

1. Using two 1 quart jars, add 1 pint of the desired fertilizer or water carrier to each. The same source and temperature of water that will be used for the final tank mix should be used to conduct the test.
2. To one jar add  $\frac{1}{4}$  tsp (1.2 milliliters) of a compatibility agent (such as Compex or Unite) approved for this use and gently shake or stir to mix.
3. To both jars add the relative proportions the recommended amounts of pesticide(s). If more than one pesticide is being tested for compatibility, add them in the following order: a) dry pesticides b) flowables and c) emulsifiable concentrates. Gently shake or stir after each addition.
4. Once all the desired tank-mix components are added, put the lids on the jars and invert each jar ten times to thoroughly combine. Set the jars aside for 15-30 minutes and then inspect for signs of incompatibility such as separation, precipitates, large flakes, gels or heavy oily films.

If the two jars look the same, the compatibility agent is not needed, but if the jar with the compatibility agent shows no signs of incompatibility but the other jar does, the compatibility agent will be necessary in the final tank mix.

If either mixture separates but can be easily remixed, the mixture may be used only if sufficient agitation is maintained to keep the solution mixed in the spray tank.

5. After testing, all pesticide wastes must be disposed of as instructed by the **Storage and Disposal** section of this label.

If the desired mixture is found to be incompatible, the following may be tried to improve compatibility:

Slurry the dry pesticide(s) in water before addition; or,

Add 1/2 of the compatibility agent to the fertilizer or water and the other 1/2 to the flowable pesticide or emulsifiable concentrate prior to mixing.

DO NOT use the mixture if incompatibility is still observed.

**Table 1: Example Tank Mix Partner Products** To tank mix, fill the solution tank 1/4 full with water and commence agitation. If the product to be tank mixed is underlined in Table 1, add it first and allow to disperse. Next add MOCCASIN Herbicide, followed by any products NOT underlined in Table 1. Then add the remaining amount of water.

<b>Active Ingredient</b>	<b>Brand Name(s)</b> <i>Alternative brands may be used</i>	<b>EPA Registration Number(s)</b> <i>Alternative brands may be used</i>
<u>2, 4-D</u>	<u>Amine 4</u>	42750-14-55467, 55467-14, 71368-1-55467
	<u>Lo-Vol 4</u>	228-139-55467
	<u>Lo-Vol 6</u>	42750-20-55467, 71368-11-55467
<u>2,4-DB</u>	<u>Butoxone</u>	2749-126 & 2749-516
	<u>Butyrac</u>	42750-39 & 42750-38
Acifluorfen	Storm	7050-59
	Ultra Blazer	70506-60
<u>Atrazine</u>	<u>Atrazine 4L</u>	55467-13, 100-497-55467, 19713-11-55467
	<u>Atrazine 90DF</u>	100-585-55467, 35915-3-55467
	<u>AAtrex</u>	100-497 & 100-585
<u>Benfluralin</u>	<u>Balan 2.5G</u>	8378-35
	<u>Balan Dry Flowable</u>	34704-746
<u>Bentazon</u>	<u>Basagran</u>	7969-45-(multiple),7969-112, 70506-434
	<u>Broadloom</u>	70506-306
Chlorimuron	Classic	5481-681
Clethodim	Select	59639-3
Clopyralid	Stinger	62719-73
Cloransulam	FirstRate	5481-676
Desmedipham	Betanex	254-620
<u>Dicamba</u>	<u>Detonate</u>	7969-137-55467,42750-209-55467
	<u>Banvel</u>	55467-38
<u>Dicamba + Atrazine</u>	<u>Marksman</u>	7969-136
<u>Ethalfuralin</u>	<u>Sonalan</u>	10163-355 & 10163-356
<u>EPTC</u>	<u>Eptam</u>	10163-281 & 10163-283
<u>Flometuron</u>	<u>Cotoran 4L</u>	66222-181
Fomesafen	Flexstar	100-1101
	Flexstar GT	100-1325
	Reflex	100-993
Fluazifop	Fusilade	100-1070
Fluazifop + Fenoxaprop	Fusion	100-1059

<b>Active Ingredient</b>	<b>Brand Name(s)</b> <i>Alternative brands may be used</i>	<b>EPA Registration Number(s)</b> <i>Alternative brands may be used</i>
Flumetsulam	Python	5481-677
<u>Glufosinate</u>	<u>Autonomy</u>	7969-448-55467
	<u>Interline</u>	70506-310
	<u>Liberty</u>	264-829 & 7969-448
Glyphosate	Roundup	524-549-(multiple)
	Buccaneer	55467-9, 55467-10, 55467-15
Glyphosate + 2,4-D	Landmaster BW	42750-62
<u>Imazethapyr</u>	<u>Pursuit</u>	241-310
Isoxaflutole	<u>Balance Pro</u>	264-600
<u>Linuron</u>	<u>Linuron DF</u>	19713-251
	<u>Linex</u>	61842-21
	<u>Lorox DF</u>	61842-23
<u>Metribuzin</u>	<u>Lexone</u>	352-382
	<u>Sencor</u>	432-1469 & 264-738
	<u>TriCor</u>	70506-68 & 70506-103
<u>Metribuzin + Chlorimuron</u>	<u>Canopy</u>	352-444
Metribuzin + Sulfentrazone	Authority MTZ	279-3340
s-Metolachlor + Fomesafen	Prefix	100-1268
<u>MSMA</u>	<u>MSMA 6 Plus</u>	19713-42
	<u>MSMA 6.6</u>	19713-41
	<u>Target 6 Plus</u>	42519-3
	<u>Target 6.6</u>	42519-1
Nicosulfuron	Accent XP	352-817
Paraquat	Gramoxone	100-1431 & 100-1652
<u>Pendimethalin</u>	<u>Acumen</u>	241-337-55467, 70506-318,
	<u>Prowl</u>	241-337 & 241-418
	<u>Satellite 3.3</u>	70506-318
	<u>Satellite HydroCap</u>	70506-230
Prometryn	Caparol	100-620
Quizalofop	Assure II	5481-646
Rimisulfuron-methyl	Beacon	100-705
Saflufenacil	Sharpen	7969-278

<b>Active Ingredient</b>	<b>Brand Name(s)</b> <i>Alternative brands may be used</i>	<b>EPA Registration Number(s)</b> <i>Alternative brands may be used</i>
Saflufenacil + Dimethenamide-P	Verdict	7969-279
Sethoxydim	Poast	7969-58- (multiple)
<u>Simazine</u>	<u>Princep</u>	100-526 & 100-603
Sulfentrazone+ Cloransulam	Sonic	62719-680
	Gauntlet	279-3246
Sulfentrazone + Chlorimuron	Authority Maxx	279-9560
Sulfosate	Touchdown	100-1117
Trifluralin	Treflan	34704-853-(multiple)
Trisulfuron	Upbeet	279-9584

## **CROP USE DIRECTIONS**

### **CORN (ALL TYPES) – MOCCASIN HERBICIDE ALONE**

**APPLICATION METHODS:** Pre-plant surface, pre-plant incorporated, pre-emergence, lay-by. Refer to the APPLICATION PROCEDURES section at the beginning of this label.

#### **RESTRICTIONS**

DO NOT graze or feed forage from treated areas within 30 days of application.

DO NOT apply this product to muck or peat soils.

DO NOT apply this product to frozen ground.

DO NOT make more than one fall application per crop.

DO NOT apply more than 1.3 pts/A (1.3 lbs ai) in a single fall pre-plant application.

DO NOT apply, as either a single or split treatment, more than the labeled application rate for a given soil texture per year.

If application is made in the spring, the total amount applied in the preceding fall plus the spring application must NOT exceed the maximum amount allowed for corn.

DO NOT apply this product to frozen ground.

DO NOT apply to sweet corn ears within 30 days of harvest.

The total MOCCASIN Herbicide rate applied on corn during any one crop year must not exceed 3.7 pts/A (3.7 lbs ai), depending on soil texture.

In corn grown on soils having an organic matter content between 6% - 20%, this product may be applied as either a pre-plant surface, pre-plant incorporated, or pre-emergence treatment at a rate up to 2.5 pts/A (2.5 lbs ai).

**MOCCASIN Herbicide Use Rates – Corn (All Types)**

Use	Use Rates (Pints per Acre)	Instructions
Fall Applications for Control of Spring Weeds	Minimum or no-till fields with > 2.5% organic matter:  Medium Soils: 1.6 - 1.9 pts/A Fine Soils: 1.9 pts/A	In <b>ND, SD, MN, WI and north of Route 30 in IA</b> : Apply after September 30 In <b>NE north of Route 91 and in IA south of Routh 30</b> : Apply after October 15 In <b>IL north of Route 136</b> : Apply after October 31. Apply after harvest to crop stubble when the sustained soil temperature is < 55°F, and falling, at a depth of 4 inches. The field may be tilled before application as well as in the fall or spring after application as long as the tillage depth is no more than 2-3 inches. For best results, minimize the development of furrows and ridges when tilling.
Fall Applications for Control of Italian Ryegrass ( <i>Lolium multiflorum</i> )	1.3 – 1.6 pts/A On coarse soils use the lower rates per acre  On fine soils use the higher rates per acre	For control of glyphosate-resistant Italian ryegrass, Apply MOCCASIN Herbicide in the fall (Sept. 1 – Dec. 1) after harvesting the previous crop and before Italian Ryegrass emerges. The field may be tilled before application. If tillage follows the application ensure tillage depth is no more than 2-3 inches. This product may be tank mixed with a paraquat herbicide to control emerged glyphosate-resistant Italian ryegrass. For control or enhanced control of other weeds that may have already emerged at time of application, this product may be tank mixed with other herbicides labeled for that use on corn.
Fall Pre-emergence Applications for Control or Suppression of Yellow Nutsedge the Following Spring (ONLY in ID, OR & WA)	1.3 pts/A	Apply in the fall after harvest but before the soil freezes either as either an incorporated or surface applied treatment.

<b>Use</b>	<b>Use Rates (Pints per Acre)</b>	<b>Instructions</b>
Early Pre-plant Applications	<p>Medium Soils: 1.6 pts/A Fine Soils: 1.9 pts/A Coarse Soils: 1.3 pts/A</p> <p>For extended residual or control of heavy weed infestations, up to 2.5 pts/A is allowed.</p>	<p>For use on medium and fine soils in minimum or no-tillage systems in CO, IA, IL, IN, KS, KY, MN, MO, MT, ND, NE, SD, TN, WI, WY.</p> <p>Apply as a split treatment with 2/3 of the listed rate of this product applied 30-45 days prior to planting and the remainder applied at planting.</p> <p>If application is made within 30 days of planting, the application may be either a single or split treatment.</p> <p>On coarse soils, apply not more than 2 weeks prior to planting.</p>
Early Pre-plant Applications	<p>Medium Soils: 1.6 pts/A Fine Soils: 1.9 pts/A Coarse Soils: 1.3 pts/A</p> <p>For extended residual or control of heavy weed infestations, up to 2.5 pts/A is allowed.</p>	<p>For use on medium and fine soils in minimum or no-tillage systems in CT, DE, MA, MD, ME, MI, NH, NY, OH, PA, RI, VA, VT, WV</p> <p>Apply as a split treatment with 2/3 of the listed rate of this product applied 30-45 days prior to planting and the remainder applied at planting.</p> <p>If application is made within 30 days of planting, the application may be either a single or split treatment.</p> <p>On coarse soils, apply not more than 2 weeks prior to planting.</p> <p>If precipitation causes the duration of weed control to be reduced unsatisfactorily, a post-emergence application of a herbicide labeled for use on corn may be made.</p> <p>NOTE: When using a post-emergent herbicide in conjunction with this product, the most restrictive combination of directions, restrictions and precautions must be followed.</p>



Use	Use Rates (Pints per Acre)	Instructions
Pre-plant Incorporated or Pre-Emergence Applications	<p>Fine Soils less than 3% Organic Matter: 1.3–1.6 pts/A</p> <p>Fine Soils greater than 3% Organic Matter: 1.6–1.9 pts/A</p> <p>Medium Soils: 1.3– 1.6 pts/A</p> <p>Coarse Soils less than 3% Organic Matter: 1.0-1.3 pts/A</p> <p>Coarse Soils greater than 3% Organic Matter: 1.3 pts/A</p> <p>For extended residual or control of heavy weed infestations, up to 2.5 pts/A is allowed.</p>	Follow the application instructions for MOCCASIN Herbicide used alone as described in APPLICATION PROCEDURES section of this label.
Post-Emergence or Lay-By Applications	1.9 pts/A	Weed control in corn may be extended by applying this product after corn has emerged but prior to the plant height reaching 40 inches. This application can follow any pre-plant surface applied, pre-plant incorporated or pre-emergence herbicide applications (including this product). Best results will be achieved if the soil is weed free at the time of application and the application is made to the base of corn plants at least 5 inches tall.

### SPECIFIC INSTRUCTIONS FOR PROBLEM WEEDS

#### For Partial Control of Eclipta, Shattercane, Wild Proso Millet and Woolly Cupgrass:

Make a pre-plant incorporated application at a rate of 1.0-1.3 pts/A, and a second pre-emergent application at a rate of 1.0-1.3 pts/A. Make the pre-emergence application during planting, or after planting but prior to corn and weed emergence. If severe weed pressure is anticipated, use the higher rate listed. Weeds that emerge late may require a shallow cultivation to control.

#### Control Program for Wild Proso Millet and Woolly Cupgrass:

The following 3-step program may be used for control of Wild Proso Millet and Woolly Cupgrass:

- 1) Make an early pre-plant, pre-plant incorporated or pre-emergence application of this product at a rate of 1.6 pts/A on medium soils, or 1.9 pts/A on fine soils. If precipitation does not occur within 5-7 days of application, incorporate lightly using a rotary hoe.
- 2) Post-emergence when corn is at least 4 inches tall and weeds are 2-3 inches tall, apply a tank mix of labeled rates of primisulfuron and nicosulfuron, 1 quart of crop oil concentrate (COC) and 28% nitrogen fertilizer or an equivalent amount of sulfate.

- 3) 14-21 days after the post-emergence application cultivate the field.

If following a pre-plant surface, pre-plant incorporated, or pre-emergence treatment of this product there is an outbreak of weeds, a post-emergence application of an appropriately labeled broadleaf and/or grass weed herbicide may be necessary.

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## **CORN – MOCCASIN HERBICIDE COMBINATIONS**

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MOCCASIN Herbicide in any tank mixture for corn may be applied in water or fluid fertilizer before corn emerges. Use only water as a carrier when MOCCASIN Herbicide is applied after corn emergence.

### **Restrictions:**

DO NOT graze or feed forage from treated areas within 30 days of application.

DO NOT apply this product to muck or peat soils.

DO NOT apply this product to frozen soil.

DO NOT apply, as either a single or split treatment, more than the labeled application rate for a given soil texture per year.

DO NOT apply to sweet corn ears within 30 days of harvest.

### **SPECIFIC INSTRUCTIONS FOR TANK MIXES OF THIS PRODUCT WITH OTHER HERBICIDES LABELED FOR CORN**

If tank mixing this product with atrazine, the most restrictive combination of rates, restrictions and precautions from both labels must be followed. Broadleaf weed control may be affected if atrazine is applied at rates lower than those listed on this label. Consult the atrazine label for a list of weeds controlled at the reduced rates.

### **TANK MIX WITH ATRAZINE AND/OR SIMAZINE**

#### **(Pre-Plant Surface, Pre-Plant Incorporated, Pre-Emergence)**

**Additional Weeds Controlled:** Browntop Panicum, Cocklebur, Common Purslane, Hairy Nightshade, Lambsquarters, Morningglory, Ragweed, Smartweed, Velvetleaf

#### **Application Instructions / Comments:**

For control of most emerged annual weeds and suppression of perennial weeds, tankmix with a burndown herbicide.

DO NOT exceed the labeled rate of atrazine per acre per year. Rate restrictions for atrazine may be implemented within specific geographic areas and deviation from these State imposed restrictions are a violation. Prior to application, consult the agency responsible for pesticide regulation in your State to determine if any restrictions apply in your desired application area.

#### **Pre-plant Surface-Applied:**

Follow instructions for use of MOCCASIN Herbicide alone under APPLICATION PROCEDURES and under application instructions for MOCCASIN Herbicide alone on corn.

Refer to **MOCCASIN Use Rates – Corn (All Types)** for application rates of MOCCASIN Herbicide and add atrazine 4L or simazine 4L OR atrazine 4L + simazine 4L combined as indicated on the tank mix product label(s) based on soil type.

#### **Pre-plant Incorporated or Pre-emergence:**

Follow instructions for use of MOCCASIN Herbicide alone under APPLICATION PROCEDURES. Apply MOCCASIN Herbicide + atrazine or simazine, or MOCCASIN Herbicide + atrazine + simazine, using the appropriate rates.

### **Restrictions:**

DO NOT exceed a total of 1.9 pts/A (1.9 lbs ai/A) of MOCCASIN Herbicide in the pre-plant incorporated plus pre-emergence application on soils with less than 6% organic matter.  
DO NOT apply to peat or muck soils (> 20% Organic Matter).

#### **Shattercane and Wild Proso Millet – Partial Control**

For a more consistent partial control of shattercane and wild proso millet, tank mix 1.0-1.3 pts/A MOCCASIN Herbicide with atrazine or simazine preplant incorporated, followed by 1.0-1.3 pts/A MOCCASIN Herbicide pre-emergence. Make the pre-emergence application during or after planting, but prior to weed and corn emergence.

When following one of the application regimes above, after the pre-emergence or post-emergence application a shallow cultivation may be necessary to help control any late emerging shattercane or wild proso millet plants.

When heavy infestations of crabgrass or fall panicum are anticipated, simazine is preferred over atrazine. On soils having between 6% and 20% organic matter, MOCCASIN Herbicide may be used at rates up to 2.22 pts/A in tank mix combination with atrazine 90 or equivalent rates of atrazine 4L. Refer to the atrazine 90 label for weeds controlled at this reduced rate.

When heavy broadleaf weed infestations are anticipated and tank mixing MOCCASIN Herbicide with atrazine 90 AND simazine 90, use equal rates of each. When heavy infestations of crabgrass or fall panicum are expected, use a 1:2 ratio of atrazine 90 to simazine 90. (Example: Total atrazine 90 + simazine 90 = 1.2 lbs/A, use 0.4 lbs/A of atrazine 90 + 0.8 lbs/A of simazine 90, respectively).

For cocklebur, yellow nutsedge, and velvetleaf control on fine-textured soils above 3% organic matter, apply 1.3-1.6 pts/A of MOCCASIN herbicide with labeled tank mix rates of atrazine 90, or equivalent rates of atrazine 4L, or the same total amount of atrazine + simazine.

#### **TANK MIX WITH ATRAZINE (Post-Emergence)**

Tank mixtures of MOCCASIN Herbicide with atrazine may be applied following use of any registered pre-plant surface-applied, pre-plant incorporated, or pre-emergence corn herbicide, including MOCCASIN Herbicide + atrazine.

**Additional Weeds Controlled:** Barnyardgrass (watergrass), Crabgrass, Crowfootgrass, Fall Panicum, Foxtail (giant, green and yellow), Jimsonweed, Kochia, Lambsquarters, Mustard, Pigweed, Prickly Sida, Purslane, Ragweed, Smartweed, Velvetleaf

**Additional Weeds Partially Controlled:** Cocklebur, Morningglory, Yellow Nutsedge

#### **Restrictions:**

DO NOT exceed 3.7 pts/A (3.7 lbs ai), nor the maximum labeled atrazine rate during any one crop year. Refer to the atrazine label for geographic, soil-texture, and rotational restrictions.

#### **Application Instructions:**

Refer to MOCCASIN Use Rates – Corn (All Types) for application rates of MOCCASIN Herbicide and add atrazine 4L or simazine 4L OR atrazine 4L + simazine 4L combined as indicated on the tank mix product label(s) based on soil type.

Apply this tank mixture before grass and broadleaf weeds pass the 2-leaf stage and before corn exceeds 5 inches in height. Application to weeds larger than the 2-leaf stage will generally result in unsatisfactory control.

**Lay-by:** Apply to corn less than 12 inches tall with applications to corn in over 5 inches directed to the base of the corn plants and applications to corn plants less than 5 inches tall made over the top of the plants. Some corn leaf burn may result but is not likely to affect later growth or yield.

#### **Restriction:**

DO NOT apply this post-emergence tank mixture in fluid fertilizer or severe crop injury may occur

For better control of cocklebur, morningglory, velvetleaf, and yellow nutsedge on fine-textured soils above 3% organic matter, apply 1.3-1.6 pts/A of MOCCASIN Herbicide with the upper labeled tank mix rate specified for atrazine 90, or equivalent rate of atrazine 4L.

**TANK MIX WITH DICAMBA  
(Pre-emergence, Post-emergence)**

**Restrictions:**

DO NOT apply using aircraft.

DO NOT apply on coarse soils or on soils with less than 2.5% organic matter.

**Pre-emergence:**

In CO, IA, IL, IN, KS, MN, NE, OH, SD, and WI, this use may ONLY be applied to flat-planted (no furrow) field corn.

In addition to the weeds controlled by this product when used alone, pre-emergence applications of this product with dicamba + atrazine will also control lambsquarters, ragweed, smartweed, cocklebur\*, jimsonweed\*, morningglory\*, and velvetleaf\*.

\* Partial control

Medium soils: apply 1.3 pts/A of MOCCASIN Herbicide with labeled rate of dicamba herbicide

Fine soils: apply 1.3-1.6 pts/A of MOCCASIN Herbicide with labeled rate of dicamba herbicide

Broadcast apply tank mix to the soil surface at or after planting, but before the corn emerges. Plant corn at least 1.5 inches deep and apply behind planting equipment, avoiding incorporation by the planter wheel or other seed covering device. DO NOT incorporate prior to corn emergence. DO NOT disturb the soil more than 1/2 inch deep if it is necessary to rotary hoe to break the soil crust.

**Post-emergence for Control of Pigweed in Mid-Atlantic states (DE, MD, PA, VA and WV):**

When pigweed plants are less than 3 inches tall and before corn exceeds 5 inches in height, apply 1.0-1.4 pts/A of MOCCASIN Herbicide with the labeled tank mix rate of dicamba in a minimum of 20 gal of spray per acre using ground equipment. Use the lower rates on coarse-textured and low organic matter soils, and the higher rate on fine-textured and high organic matter soils.

During application, care must be taken to avoid drift to sensitive non target plants such as soybeans or injury may occur.

**TANK MIX WITH ATRAZINE OR SIMAZINE, OR ATRAZINE + SIMAZINE WITH PARAQUAT OR GLYPHOSATE  
(Minimum-Till, No-Till Systems)**

This product alone or tank mixed with atrazine and/or simazine provides pre-emergence control of the weeds listed on this label. In Minimum-Tillage and No-Tillage systems where corn is planted directly into a cover crop, stale seedbed, established sod, or previous crop residues, tankmix with a paraquat herbicide for control of most emerged annual weeds and suppression of perennial weeds; or with glyphosate for control of most emerged annual and perennial weeds.

**Application:** Apply a tank mix with paraquat or glyphosate as directed on the product label before, during, or after planting, but prior to corn emergence.

**Paraquat brands:** Apply as directed on the product label. This treatment will NOT control weeds taller than 6 inches. DO NOT apply combinations containing paraquat brands in suspension-type liquid fertilizers because the activity of the active ingredient (paraquat) is reduced.

**Glyphosate brands:** Refer to the glyphosate label for a list of controlled weeds, application rates for specific weeds, and other information related to the use of this product.

Apply with ground equipment using 20-60 gal of water or fluid fertilizer per acre.

Refer to **MOCCASIN Herbicide use Rates – Corn (All Types)** for application rates of Herbicide and add atrazine 4L, simazine 4L OR atrazine 4L + simazine 4L with paraquat combined as indicated on the tank mix product labels based on soil type.

When heavy infestations of crabgrass or fall panicum are anticipated, simazine is preferred over atrazine.

When heavy broadleaf weed infestations are anticipated and tank mixing this product with atrazine 90 AND simazine 90, use equal rates of each. When heavy infestations of crabgrass or fall panicum are expected, use a 1:2 ratio of atrazine to simazine instead of the 1:1 ratio. (Example: Total atrazine 90 + simazine 90 = 1.2 pounds per acre, use 0.4 pounds of atrazine + 0.8 pounds of simazine, respectively).

For cocklebur, yellow nutsedge, and velvetleaf control on fine-textured soils above 3% organic matter, apply 1.3-1.6 pts/A of MOCCASIN Herbicide with the labeled rate of atrazine 90 or equivalent rates of atrazine 4L, or the same total amount of atrazine + simazine.

**TANK MIX WITH ATRAZINE +2,4-D; OR ATRAZINE + 2,4-D + DICAMBA  
(Minimum-Till; No-Till Systems)**

Apply this product with atrazine before, during or after planting but prior to corn emergence according to the rates in this label. If heavy crop residues are present at the time of application, add the labeled tank mix rate of a 2,4-D amine product labeled for this use on corn that consists of 3.8 pounds of 2,4-D amine per gallon to the tank mix. MOCCASIN Herbicide should be added last, and the resulting solution applied in a minimum of 25 gallons of carrier per acre.

Because burndown of existing weeds is enhanced if nitrogen solutions and complete liquid fertilizers are applied prior to corn emergence, use nitrogen solutions or complete liquid fertilizers as carriers instead of water for best results. Add X-77 surfactant at 1.0-2.0 quarts per 100 gallons of diluted spray, or another appropriate surfactant at its labeled rate, or add crop oil concentrate (COC) plus 28% liquid nitrogen (or the equivalent). Apply before weeds reach 3 inches in height. If alfalfa is present, add the labeled tank mix rate of dicamba to the tank mix and apply prior to the alfalfa reaching 6 inches in height.

When existing weeds are more than 3 inches tall or when very dry conditions exist in fields with existing sod grasses (e.g., brome grass, orchardgrass, rye, or timothy), in place of or in addition to 2,4-D as indicated above, add paraquat brands at the rate recommended on the product label. DO NOT apply paraquat brands in suspension-type liquid fertilizer. The most restrictive combination of instructions, limitations and other restrictions from all the products being applied must be followed.

**TANK MIX WITH DICAMBA + ATRAZINE (e.g. MARKSMAN) IN FIELD AND SILAGE CORN  
(Conservation Tillage)**

MOCCASIN Herbicide mixed with dicamba + atrazine herbicide will kill most emerged small annual weeds in conservation tillage systems where corn is planted directly into a cover crop or previous crop residue. Apply on medium and fine soils with greater than 2.5% organic matter before, during, or after planting, but prior to corn emergence. Add paraquat brands at its standard rate in fields that have existing vegetation taller than 3 inches in height or when very dry conditions exist. MOCCASIN Herbicide mixed with dicamba + atrazine may be applied post-emergence to corn less than 3 inches tall but prior to weedy grasses passing the 2-leaf stage.

Because burndown of existing weeds is enhanced if nitrogen solutions and complete liquid fertilizers are applied prior to corn emergence, use nitrogen solutions or complete liquid fertilizers as carriers instead of water for best results. DO NOT apply paraquat brands in suspension-type liquid fertilizer or to emerged corn. The most restrictive combination of instructions, limitations and other restrictions from all the products being applied must be followed.

**TANK MIX WITH ISOXAFLUTOLE (e.g. BALANCE PRO) (Field Corn Only)**

Because this product is complementary with Balance PRO herbicide from a weed control and crop response standpoint, several tank mix rates may be considered. By adding Balance PRO, control of several problem weeds including Texas Panicum, Wild Proso Millet and Woolly Cupgrass will be improved, while this product will improve the duration as well as the variety of annual grasses and small seeded broadleaf weeds that are controlled.

NOTE: To minimize risk to crops, refer to the Balance PRO label for specific restrictions regarding soil textures, pH, percent organic matter and other important considerations.

The rates listed below are inversely proportional combinations of MOCCASIN Herbicide and Balance PRO, that is higher rates of MOCCASIN Herbicide are used with lower rates of Balance PRO, and vice versa. The appropriate rate is selected based on your specific conditions, the weeds being targeted and your level of acceptance for potential crop damage.

For example, if Texas panicum, woolly cupgrass, or wild proso millet are a primary target weed, a tank mix combination with a higher Balance PRO rate for the given soil type could be used. Another example could be if your acceptance of potential crop damage is low and/or a more general weed spectrum is targeted (especially yellow foxtail, witchgrass or yellow nutsedge), a mix with a higher MOCCASIN Herbicide rate for the given soil type might be appropriate. Finally, if a target weed is listed as controlled on both product labels, a tank mix consisting of intermediate rates of both products could be used. NOTE: If a target weed is listed as controlled by only one of these two products, DO NOT apply less than the application rate for that weed as recommended in the individual product label or unacceptable control may result. The most restrictive combination of instructions, limitations and other restrictions from all the products being applied must be followed.

The following rate recommendations are for pre-plant applications (incorporated or surface applied) up to 7 days before planting or pre-emergence in field corn:

Refer to **MOCCASIN Herbicide Use Rates – Corn (All Types)** for application rates of MOCCASIN Herbicide and add Balance Pro as indicated on the product label based on soil type.

### **POST-EMERGENCE SALVAGE WEED CONTROL (Field Corn Only)**

The tank mix combinations listed below may be used for post-emergence weed control in specific types of field corn.

#### **Use Restrictions:**

The most restrictive combination of instructions, limitations and other restrictions from all the products being applied must be followed.

Injury to the corn may occur if fluid fertilizers are used with these mixtures.

Apply ONLY to the specific field corn type specified on the tank mix product label.

If applied to corn over 4 inches tall, in-row weed control may be diminished.

#### **MOCCASIN Herbicide + glufosinate (Post-emergence Use in Glufosinate Tolerant Corn)**

Glufosinate will provide post-emergence control of a broad spectrum of grass and broadleaf weeds, and MOCCASIN Herbicide provides residual control of grasses and certain broadleaf weeds. These tank mixtures can be applied to control weeds post-emergence in corn designated as glufosinate or glufosinate-tolerant.

For season-long residual control from this tank mix combination with glufosinate, refer to the **CORN (ALL TYPES) – MOCCASIN HERBICIDE ALONE** section and use the minimum rate per soil texture and organic matter classification. Refer to the glufosinate labels for post-emergence application rates according to weed species and their maximum height at the time of application. If multiple weed species are present, use the highest rates listed in the glufosinate label to control the species and growth stages present. If difficult species and/or severe weed populations are anticipated, use the maximum rates when rate ranges are listed.

Be sure to follow all applicable use directions, limitations, precautions, and restrictions regarding application to corn on the MOCCASIN Herbicide and glufosinate.

#### **MOCCASIN Herbicide + Glyphosate for Post-emergence Application to Glyphosate-Tolerant Corn**

This product may be tank mixed with glyphosates and applied post-emergence to weeds in glyphosate-tolerant corn to provide post-emergence control of weed species on the glyphosate label and residual control of weed species on the MOCCASIN Herbicide label. Post-emergence applications may be made to glyphosate-tolerant corn from emergence until the corn is 30 inches tall, or the V8 stage (8 leaves with collars), whichever comes first.

Based on the soil texture and organic matter present in the field being treated, use the minimum MOCCASIN Herbicide rates listed in the **CORN (ALL TYPES) – MOCCASIN HERBICIDE ALONE** section of this label. If difficult species and/or severe weed populations are anticipated, use the maximum rates when rate ranges are listed. Refer to the glyphosate brand label for guidance on appropriate use directions, application procedures, precautions, and restrictions as well as specific instructions for control of problem species.

Be sure to follow all applicable use directions, limitations, precautions, and restrictions regarding application to corn on the MOCCASIN Herbicide and glyphosate labels, as well as the Supplemental Labeling of glyphosate for post-emergence application to corn with the glyphosate tolerant Gene.

### **MOCCASIN Herbicide + Glyphosate + Atrazine for Post-emergence Application to Glyphosate-Tolerant Corn**

This product may be tank mixed with atrazine and glyphosate brands and applied post-emergence to weeds and to glyphosate-tolerant corn to provide post-emergence control of weed species on the glyphosate label and residual control of weed species on the MOCCASIN Herbicide and atrazine labels. Post-emergence applications may be made to glyphosate-tolerant corn from emergence until the corn is 12 inches tall. If difficult species and/or severe weed populations are anticipated, use the maximum rates when rate ranges are listed. Based on the soil texture and organic matter present in the field being treated, use the minimum MOCCASIN Herbicide rates listed in the **With Atrazine and / or Simazine (Pre-Plant Surface, Pre-Plant Incorporated, Pre-Emergence)** and **With Atrazine (Post-Emergence)** sections of this label.

Be sure to follow all applicable use directions, limitations, precautions, and restrictions regarding application to corn on the MOCCASIN Herbicide, atrazine and glyphosate labels.

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## **COTTON – MOCCASIN HERBICIDE ALONE**

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**Application Methods:** Fall Application, Pre-plant Incorporated, Pre-emergence, Post-emergence

### **Restrictions:**

DO NOT graze or feed forage or fodder to livestock from cotton.

DO NOT use this product in Gaines County, TX.

DO NOT apply more than 1.9 pts/A (1.9 lbs ai) on coarse soils per year.

DO NOT apply more than 2.5 pts/A (2.5 lbs ai) on medium or fine soils per year.

DO NOT apply this product to sandy or loamy sand soils.

DO NOT apply this product to Taloka silt loam.

DO NOT apply this product where water may pond over the application site.

In furrow planted cotton, DO NOT apply post-emergent until after first “knifing” or cultivation to level soil surface

DO NOT apply this product over-the-top with fluid fertilizer or any other adjuvant, oil, surfactant or pesticide not listed in the Cotton section of this label.

DO NOT apply this product to frozen ground.

### **Pre-plant Incorporated, Pre-emergence Use Rates**

<b>Application Site</b>	<b>Use Rates</b>		
	<b>Sandy Loams</b>	<b>Medium Soils</b>	<b>Fine Soils</b>
<b>AR, KS, LA, MS, TN and Bootheel of MO</b>	0.5 – 1.0 pts/A	0.6 – 1.3 pts/A	1.0 – 1.3 pts/A
<b>NM, OK, TX</b>	1.0 pt/A	1.0 – 1.3 pts/A	1.3 pts/A

### **Fall Application for Italian Ryegrass Control:**

For residual control of glyphosate-resistant Italian ryegrass (*Lolium multiflorum*) apply MOCCASIN Herbicide in the fall (between September 1 and December 1) at a rate of 1.3 – 1.6 pts/A. Use the higher rates on fine textured soils and the lower rates on coarse textured soils.

Tillage may be performed prior to application. If planning to till after application, incorporate to a maximum depth of 2-3 inches. If an application is planned for the following spring in addition to the fall application, the total amount of AI applied in both applications must not exceed the maximum total amount listed in the instruction for the specific crop (depending on soil texture, up to 2.5 pts/A).

A tankmix of MOCCASIN Herbicide with paraquat can be used for fall treatments made after emergence of glyphosate-resistant Italian ryegrass. Refer to the paraquat brand label for specific rates, application

instructions and restrictions. Other registered herbicides may be tank mixed with MOCCASIN Herbicide for control or improved control of other weeds present at the time of application.

**Pre-plant Incorporated (NM, OK, and TX ONLY):**

Immediately before planting, at planting, or after planting, but prior to crop or weeds emergence, apply MOCCASIN Herbicide and incorporate into the top inch of soil using a rolling cultivator or similar equipment being sure to have uniform incorporation. If furrow irrigation is used or dry weather is predicted after application, make a pre-plant incorporated application. For best results when furrow irrigation is used, moisten the top of the bed prior to application.

If the crop will be planted on beds, make an application / incorporation after the beds have been formed. Be sure to plant the cotton below the zone of incorporation; that is, at least at least 1 inch deep on *fine soils* and 1.5 inches deep on *coarse* and *medium soils*.

When incorporating prior to planting, use a planter that will disturb the soil the least amount possible.

For best results on yellow nutsedge and suppression of seedling johnsongrass, whether applied alone or mixed with prometryn make a pre-plant incorporated application of this product at the maximum rate for the soil texture.

**Pre-emergence:**

Either apply this product prior to weed emergence at planting, or prior to weed and crop emergence after planting.

**Post-emergence:**

Apply this product at the following rates as either a broadcast over-the-top or soil surface directed application:

**VA, NC, SC, GA, FL and AL:** 1.0-1.3 pts/A.

**TN, AR, KS, MS, MO and LA:** 0.5-1.3 pts/A.

**TX, OK, NM, AZ, CA and Clay Soils in AR:** 1.0-1.3 pts/A *before August 1.*

*Post-emergence over-the-top applications may NOT be made within 100 days of harvest, and soil directed post-emergence applications may NOT be made within 80 days of harvest.*

This product may be applied post-emergence over any previous registered herbicide treatment. Because this product does not control emerged weeds, application must be made prior to weed emergence or after clean cultivation to remove existing weeds.

To better incorporate this product in fields that are sprinkler-irrigated, after application apply 1/2-1 inch of water (1/2 inch on coarse-textured soils to 1 inch on fine-textured soils). In fields that are furrow-irrigated, incorporate the application with a rolling cultivator or similar equipment that provides uniform shallow incorporation to a depth of 2 inches or less and then irrigate. In non-irrigated fields, if a minimum of 1/2 inch of precipitation does not occur within 10 days after application, incorporate the application using a rolling cultivator or similar equipment that provides uniform shallow incorporation.

**Multiple Applications in COTTON:**

**Application Methods:** Pre-plant Incorporated, Pre-emergence followed by a Post-emergent treatment  
Used as part of a weed control program, multiple applications of MOCCASIN Herbicide can be effective when weed pressure is heavy, difficult to control species are expected, and/or reinfestation may occur. Apply prior to weed emergence or after cultivation to remove existing weeds.

**Post-emergent Use Rates**

Geography	Use Rates
AR, KS, LA, MO, MS, TN	0.5 – 1.3 pts/A pre-emergent only followed by 0.5-1.3 pts/A post-emergent
NM, OK, TX	1.0 -1.3 pts/A pre-plant incorporated or pre-emergent followed by 1.0 – 1.3 pts/A post-emergent before August 1



NC, VA	1.0 -1.3 pts/A pre-plant incorporated or pre-emergent followed by 1.0-1.3 pts/A post-emergent
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To better incorporate this product in fields that are sprinkler-irrigated, after application apply 1/2-1 inch of water (1/2 inch on coarse-textured soils to 1 inch on fine-textured soils). In fields that are furrow-irrigated, incorporate the application with a rolling cultivator or similar equipment that provides uniform shallow incorporation to a depth of 2 inches or less and then irrigate. In non-irrigated fields, if a minimum of 1/2 inch of precipitation does not occur within 10 days after application, incorporate the application using a rolling cultivator or similar equipment that provides uniform shallow incorporation.

**Precautions:** Do not make broadcast applications of this product to cotton planted in furrows more than 2 inches deep to avoid possible crop damage due to concentration of this product in the seed furrow. For the same reason, the width of a band application to furrows more than 2 inches deep must not exceed the width of the bottom of the furrow.

Whether alone or in combination with other products, for best results on yellow nutsedge and suppression of seedling johnsongrass, make a pre-plant incorporated, pre-emergence or post-emergence application of this product at the maximum rate for the soil texture.

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## COTTON – MOCCASIN HERBICIDE COMBINATIONS

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### TANK MIXTURE WITH PROMETRYN 4L (e.g. Caparol)

**Application Methods:** Pre-plant Incorporated, Pre-emergent, Post-emergence Directed

In addition to the weeds controlled by MOCCASIN Herbicide alone, this tank mix combination applied pre-plant incorporated or pre-emergence will also control the following weeds:

Cocklebur*	Lambsquarters	Purslane
Coffeeweed*	Malva	Ragweed
Groundcherry	Morningglory (annual)	Wild Oats
Hairy Nightshade	Mustard	
Junglerice	Prickly Sida (Teaweed)	

\* Shallow-germinating seedlings only

In a post-emergence directed application, prometryn provides control and residual control of weeds on its label, while MOCCASIN Herbicide provides residual control of the weeds listed in this label.

### Restrictions:

- DO NOT graze or feed forage or fodder to livestock from cotton.
- DO NOT use this mix in Gaines County, TX.
- DO NOT apply this mix to sandy or loamy sand soils.
- DO NOT apply this mix to Taloka silt loam.
- DO NOT apply this mix where water may pond over the application site.
- DO NOT apply this mix to areas with excess salt or to cut areas of newly leveled fields.
- DO NOT apply to glandless cotton varieties

### Pre-plant Incorporated or Pre-emergence:

Apply this product mixed with prometryn as either a pre-plant incorporated or pre-emergence treatment in a water or fluid fertilizer carrier, using the rates appropriate for your location and soil type. If using fluid fertilizer as the carrier, mix only the amount needed for the single application and do not allow these mixtures to sit without agitation.

Plant the cotton planted beneath the zone of incorporation, at least 1 inch deep on fine soils and 1.5 inches deep on medium or coarse. If incorporated prior to planting, use a planter that will cause minimal soil disturbance.

**Post-emergence Directed (AR, AZ, CA, LA, MO, MS, NM, OK, TN and TX):**

To control emerged weeds and provide residual pre-emergence control of weeds in cotton, this product may be tank mixed with prometryn (Caparol) in water ONLY and applied as a post-emergence directed treatment in a minimum of 20 gallons of spray volume per acre. These treatments may be applied over previous registered treatments, including MOCCASIN Herbicide, provided the maximum label rate of any product is not exceeded. DO NOT make these treatments over-the-top of cotton or injury to the crop may result.

Follow the directions, restrictions, and precautions on the prometryn label when prometryn is applied as a post-emergence-directed application. Refer to the directions, restrictions, and precautions for use of MOCCASIN Herbicide under the **Cotton / MOCCASIN Herbicide Alone / Post-emergence** section earlier in this label.

To avoid concentration in the furrow and potential crop injury, do not make a post-emergence application of this product until after knifing or cultivation to level soil surface. Do not make broadcast applications of this product to cotton planted in furrows more than 2 inches deep to avoid possible crop damage due to concentration of this product in the seed furrow. For the same reason, the width of a band application to furrows more than 2 inches deep must not exceed the width of the bottom of the furrow.

**TANK MIXTURE WITH FLUOMETURON (e.g. Cotoran)**

**Application Methods:** Pre-emergence, Post-emergent

In addition to the weeds controlled by MOCCASIN Herbicide and fluometuron alone, this tank mix combination applied pre-emergence will also control the following weeds: Spurge (spotted, hyssop, nodding, prostrate),

Refer to the fluometuron label and be sure to follow the most restrictive combination of instructions, precautions, and restrictions found in both labels.

**Restrictions:**

DO NOT graze or feed forage or fodder to livestock from cotton.

DO NOT use this mix in Gaines County, TX.

DO NOT apply this mix to sandy or loamy sand soils.

DO NOT apply this mix to Taloka silt loam.

DO NOT apply this mix where water may pond over the application site.

DO NOT make broadcast applications of this tankmix to cotton planted in furrows deeper than 2 inches.

DO NOT make band applications that exceed the width of the bottom of the furrow.

Using fluometuron after using a systemic insecticide at planting may cause crop injury.

**Application Instructions**

Apply this product mixed with fluometuron as a directed, semi-directed or over-the-top treatment either post-emergence to cotton but pre-emergence to weeds for control of the weeds listed in both labels, or post-emergence to weeds for control of the weeds in the fluometuron label, using the labeled rates as appropriate for you location and soil type.

**Special Mixing Instructions:**

- 1) Fill the spray tank 1/4 full with water or fluid fertilizer and begin agitating.
- 2) Add the fluometuron and agitate until fully dispersed.
- 3) Add X-77® at a rate of 4 pints per 100 gallons of mixture.
- 4) Add MOCCASIN Herbicide.
- 5) Add the rest of the water and maintain agitation through spraying.

**Post-emergence:**

Apply this product mixed with fluometuron as a directed, semi-directed or over-the-top treatment either post-emergence to cotton but pre-emergence to weeds for control of the weeds listed in both labels, and post-emergence to weeds for control of the weeds in the fluometuron label. This product will not

control emerged weeds, but will provide pre-emergence control of the species in this label. Where rate ranges are given for fluometuron, use the higher rate when applying post-emergence to weeds that are 2 inches or less. These treatments may be applied over previous registered treatments as long as the maximum label rate of any product is not exceeded.

Do not make broadcast applications of this product to cotton planted in furrows more than 2 inches deep to avoid possible crop damage due to concentration of this product in the seed furrow. For the same reason, the width of a band application to furrows more than 2 inches deep must not exceed the width of the bottom of the furrow.

### **TANK MIXTURE WITH FLUOMETURON (e.g. Cotoran), PARAQUAT AND/OR GLYPHOSATE**

#### **(Minimum-Till; No-Till Systems)**

In minimum-tillage or no-tillage systems where cotton is planted directly into a cover crop, stale seedbed, or previous crop residues, tankmix MOCCASIN Herbicide with fluometuron and a contact burndown such as paraquat or glyphosate to control most emerged weeds and suppress many perennial weeds.

#### **Restrictions:**

DO NOT use this mix in Gaines County, TX.

DO NOT apply this mix to sandy or loamy sand soils.

DO NOT apply this mix where water may pond over the application site.

Crop injury may result if heavy rain occurs shortly after application, especially in poorly drained areas where water stands for several days or where the seeding slit has not been properly closed.

Refer to the fluometuron label for additional use restrictions and precautions.

#### **Instructions**

Refer to **Mixing Instructions** under **Tank Mixture with Fluometuron (e.g. Cotoran)** section as well as the respective tank mix labels and be sure to follow the most restrictive combination of instructions, precautions and restrictions from all tank mix partners.

**Paraquat Brands:** Apply as directed on the product label. NOTE: This treatment will NOT control weeds taller than 6 inches. DO NOT apply combinations containing paraquat brands in suspension-type liquid fertilizers because the activity of the active ingredient (paraquat) is reduced.

**Glyphosate brands:** Due to compatibility problems, DO NOT apply MOCCASIN Herbicide + fluometuron + glyphosate in tank mixture.

#### **Application:**

Apply a tank mix with paraquat or glyphosate as directed on the product label before, during, or after planting, but prior to cotton emergence. Apply MOCCASIN Herbicide at a rate of at 0.8-1.0 pts/A on sandy loams, medium, and fine-textured soils. Refer to the TANK MIXTURE WITH FLUOMETURON section above for application rates for this product with fluometuron.

Apply with ground equipment using 20-60 gal of water or fluid fertilizer per acre.

*If heavy rain occurs soon after application, crop injury may result, especially in poorly drained areas where water stands for several days, or where the seeding slit has not been properly closed.*

### **TANK MIXTURE WITH MSMA, MSMA + PROMETRYN (e.g. Caparol), OR MSMA + FLUOMETURON (e.g. Cotoran)**

*DO NOT use this product in tank mixes with premixes of MSMA plus herbicides other than those registered for use in tank mixture with MOCCASIN Herbicide on cotton.*

This product may be combined with MSMA and applied as a post-emergence directed treatment to control weeds listed in the MSMA product label as well as residual control of pre-emergent weeds listed in this label. Adding prometryn or fluometuron will also control the weeds listed in the respective labels.

**Post-emergence-Directed (AL, AR, AZ, CA, FL, GA, LA, MS, NC, NM, OK, SC, TN, TX, VA, and Bootheel of MO):**

Apply this product tank mixed with MSMA as a post-emergence directed treatment to cotton that is at least 3 inches tall. Do NOT apply after first cotton bloom. Treatments may be made over previous treatments provided the maximum label rate of any product is not exceeded. If mixed with prometryn or fluometuron, follow the mixing instructions for MOCCASIN Herbicide + prometryn or fluometuron in this label and then add the MSMA.

#### **TANK MIXTURE WITH TRIFLURALIN (e.g. Treflan) FOR POST-DIRECTED FOLLOWED BY SOIL INCORPORATION APPLICATIONS**

For improved late-season weed control, this product may be applied tank mixed with trifluralin as an incorporated lay-by treatment. Prior to making this application, the cotton must be at least 3 inches tall and have reached the 4 true-leaf stage. Aim the directed application to the soil surface and away from the crop foliage followed by a shallow (2 inches or less), uniform incorporation using a sweep or rolling type cultivator. Be sure to follow the most restrictive combination of instructions, restrictions and precautions found in each of the tank mix product labels.

#### **TANK MIXTURE WITH GLYPHOSATE FOR USE ON GLYPHOSATE-TOLERANT COTTON ONLY**

##### **Restrictions:**

DO NOT use this mix in Sand or Loamy Sand soils in Gaines County, TX.

DO NOT apply this tank mixture post-emergence to any variety of cotton unless it is designated glyphosate tolerant and unless the glyphosate formulation being used is registered for post-emergence use in glyphosate tolerant cotton.

DO NOT apply glyphosate post-emergence over-the-top to cotton past the growth stage limit specified on their respective labels.

If this tank mix will be applied post-emergence over-the-top, DO NOT add additional spray adjuvants, surfactants, fertilizer additives, or pesticides to this tank mixture or unacceptable injury may result.

##### **Instructions**

This product may be tank mixed in water with glyphosate and applied as a post-emergence over-the-top or post-emergence directed treatment to control emerged weeds listed on the glyphosate labels while providing residual pre-emergence control of weeds listed in this label. Refer to the **Cotton / MOCCASIN Herbicide Alone / Post-emergence** section of this label for rates and timings of this product and refer to the glyphosate label for their respective rates, application method, and application timing restrictions. Be sure to follow the most restrictive combination of instructions, restrictions and precautions found in each of the tank mix product labels.

NOTE: Post-emergence over-the-top applications of this tank mixture may cause necrotic spotting on cotton leaves that are exposed to the treatment. This will not affect normal plant development.

#### **TANK MIXTURE WITH GLUFOSINATE FOR USE ON GLUFOSINATE-TOLERANT COTTON ONLY**

##### **Restrictions:**

DO NOT use this mix in Sand or Loamy Sand soils in Gaines County, TX.

DO NOT apply this tank mixture post-emergence to any variety of cotton unless it is designated glufosinate tolerant and unless the glufosinate formulation being used is registered for post-emergence use in glufosinate-tolerant cotton.

DO NOT apply glufosinate post-emergence over-the-top to cotton past the growth stage limit specified on their respective labels.

If this tank mix will be applied post-emergence over-the-top, DO NOT add additional spray adjuvants, surfactants, fertilizer additives, or pesticides to this tank mixture or unacceptable injury may result.

##### **Instructions**

This product may be tank mixed in water with glufosinate and applied as a post-emergence over-the-top or post-emergence directed treatment to control emerged weeds listed on the glufosinate label while providing residual pre-emergence control of weeds listed in this label. Refer to the **Cotton / MOCCASIN Herbicide Alone / Post-emergence** section of this label for rates and timings of this product and refer to the glufosinate label for their respective rates, application method, and application timing restrictions.

Be sure to follow the most restrictive combination of instructions, restrictions and precautions found in each of the tank mix product labels.

NOTE: Post-emergence over-the-top applications of this tank mixture may cause necrotic spotting on cotton leaves that are exposed to the treatment. This will not affect normal plant development.

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## SOYBEAN, IMMATURE SEED

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**Application Methods:** Pre-plant surface applied; Pre-plant incorporated; Pre-emergent

This product may be used to control or suppress grass and small-seeded broadleaf weeds in immature-seed soybean or other food-grade soybeans. This product will not control emerged weeds.

**Restrictions:**

DO NOT apply more than 2 pts/A (2 lbs ai) of MOCCASIN Herbicide in a single crop per year.

DO NOT use for forage within 60 days of application.

DO NOT cut for hay within 120 days of application.

**Application Rates:**

Coarse Soils less than 3% Organic Matter: 1.0-1.3 pts/A

Coarse Soils greater than, equal to 3% Organic Matter: 1.3 pts/A

Medium Soils less than 3% Organic Matter: 1.3-1.6 pts/A

Medium Soils greater than, equal to 3% Organic Matter: 1.3-1.6 pts/A

Fine Soils less than 3% Organic Matter: 1.3-1.6 pts/A

Fine Soils greater than, equal to 3% Organic Matter: 1.6-1.9 pts/A

**Pre-plant Surface-Applied:**

For soybean grown in minimum- or no-tillage systems, this product may be applied alone up to 45 days prior to planting. For applications made 30-45 days prior to planting, make only split applications using 2/3 the listed broadcast rate in the initial application and the remaining 1/3 when planting. Treatments made less than 30 days prior to planting may be applied as either a single or split application.

Tank mixing this product with a contact herbicide such as Interline herbicide, paraquat or glyphosate is recommended if weeds are already present when making the application. The most restrictive combination of instructions, precautions and restrictions must be followed from all of the tank mix partners when tank mixing multiple products.

For best results, when planting the soil that has been treated must not be moved out of the rows and untreated soil must not be moved into the rows.

**Pre-plant Incorporated:**

When furrow irrigation is being used or dry weather is expected after the treatment, within 14 days of planting apply this product and incorporate into the top 2 inches of soil using equipment that will provide uniform incorporation such as a harrow, rolling cultivator or finishing disk. If crops are planted in beds, apply after the beds have been formed.

**Pre-emergence:**

Either apply this product prior to weed emergence at planting, or prior to weed and crop emergence after planting.

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## GRASSES GROWN FOR SEED (ID, OR, WA)

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**Application Methods:** Pre-emergence

MOCCASIN Herbicide provides pre-emergence control and/or suppression of volunteer seedlings of perennial ryegrass, fine fescue spp., tall fescue, orchardgrass, bentgrass and Kentucky bluegrass in addition to the weed species listed in the **MOCCASIN Herbicide Alone** section at the beginning of this label, and will suppress or control rattail fescue, annual bluegrass, Italian ryegrass, California brome, downy brome, and roughstalk bluegrass. Hay may be harvested anytime between seed harvest and the next application of MOCCASIN Herbicide or another product containing S-metolachlor.

**Restrictions:**

DO NOT apply this product more than once per year.

DO NOT apply more than 1.0 pts/A (1.0 lbs ai) to Fine Fescue and Perennial Ryegrass per year.

DO NOT apply more than 1.3 pts/A (1.3 lbs ai) to Bentgrass, Kentucky Bluegrass, Orchardgrass, or Tall Fescue per year.

West of the Cascades, within 60 days after application DO NOT graze forage regrowth.

East of the Cascades, within 150 days after application DO NOT graze forage regrowth.

**Application Instructions**

This product may be applied prior to target weed/grass emergence to established tall fescue, orchardgrass, perennial ryegrass, fine fescue, bentgrass, and Kentucky bluegrass grown for seed that has been established at least one year, or that has had at least one seed harvest. Apply just before or during a late summer or early fall irrigation or just before, during, or immediately following the first fall rains.

Prior to application, spread the post-harvest residue evenly, remove it from the field or burn it. For best results, irrigation or precipitation after application but prior to weed emergence is recommended. Control may be diminished if excessive straw from the previous harvest is present at application and/or insufficient rainfall/irrigation occurs.

Apply this product at the rates listed below in a minimum of 10 gallons of water per acre using ground equipment:

Fine Fescue spp. and Perennial Ryegrass: 1.0 pts/A (1.0 lbs ai)

Bentgrass, Kentucky Bluegrass, Orchardgrass and Tall Fescue: 1.0-1.3 pts/A (1.0 – 1.3 lbs ai)

**NOTES:**

Application after the 15th of November may result in poor control.

Adding an adjuvant or tank mixing with other pesticides may increase the likelihood of crop injury.

Applications made to perennial ryegrass and fine fescue stands experiencing stress may cause crop injury.

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**HORSERADISH**

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Harvest horseradish at normal timing. This product does not control emerged weeds, and they must be controlled using mechanical means or using a foliar herbicide registered for use on horseradish.

**Restrictions:**

DO NOT apply this product more than once per year.

DO NOT apply more than 1.3 pts/A (1.3 lbs ai) per year.

**Application Instructions**

After planting but before weeds or crop emerge, make a single 1.0-1.3 pts/A application of this product to the soil surface. Use higher rates on fine-textured soils and lower rates on soils relatively coarse-textured.

If a band application is used, proportionally less spray mixture must be applied to the treated area.

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**PEANUTS – MOCCASIN HERBICIDE ALONE**

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**Application Methods:** Pre-plant Incorporated, Post-plant Incorporated, Pre-emergence, Lay-By

When used according to their label use rates, directions, and restrictions, this product may be applied as directed after any of the following pre-plant incorporated herbicides: benefin; trifluralin; pendimethalin, ethafluralin; imazethapyr; or pendimethalin.

**Restrictions:**

DO NOT apply more than 2.7 pts/A (2.7 lbs ai) in a single year.  
 DO NOT use MOCCASIN Herbicide after peanuts have emerged.  
 DO NOT feed or graze peanut forage or fodder to livestock within 30 days of application.  
 DO NOT apply within 90 days of harvest.

**Pre-plant Incorporated or Pre-emergence:**

Follow instructions for use of **MOCCASIN Herbicide Alone** under **APPLICATION PROCEDURES**.

**Post-plant Incorporated:**

Apply and shallowly incorporate this product into the soil after planting, but prior to peanut germination.  
*Seed will be damaged if the incorporation depth and incorporating equipment reaches the seed level.*

**Lay-by:**

Apply MOCCASIN Herbicide to the soil immediately after the last normal cultivation.

**Application Rates:**

NM, OK, and TX: 0.8-1.3 pts/A

Southeast\*: 1.0-1.3 pts/A

(\*Use 1.3-1.9 pts/A for partial control of Florida Beggarweed)

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## PEANUTS – MOCCASIN HERBICIDE COMBINATIONS

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**TANK MIXTURE WITH BENEFIN (e.g. Balan)**

**Application Methods:** Pre-plant incorporated, Pre-emergence before ground cracking, Lay-by

Apply 1.0-1.3 pts/A MOCCASIN Herbicide and the labeled use rate of benefin in a minimum of 10 gallons of spray volume per acre for ground application or a minimum of 5.0 gallons of spray volume per acre for aerial application. Be sure to follow the most restrictive combination of instructions, precautions and restrictions from each label. Apply and incorporate this tankmix up to 14 days prior to planting.

**Southeast Only (AL, FL, GA, NC, SC, VA)****Pre-plant Incorporated**

Make a pre-plant incorporated application of this product as directed under **Peanuts / MOCCASIN Herbicide Alone** or make a pre-plant incorporated application of this product + benefin as directed previously in this section. Refer to the respective sections for a list of weeds controlled.

OR

**Pre-emergence Before “Ground Cracking”**

For extended weed control when weeds have not yet emerged, apply 1.0-1.9 pts/A anytime from pre-emergence until “ground cracking”. Refer to the **MOCCASIN Herbicide Applied Alone** section of this label for a list of weeds controlled.

**Follow the Pre-plant Incorporated or Pre-emergence application by:****Lay-by**

Only when late germinating weeds are anticipated, apply this product at lay-by as directed in the **Peanuts – MOCCASIN Herbicide Alone** section. Refer to the **MOCCASIN Herbicide Applied Alone** section for a list of weeds controlled.

**Southwest Only (NM, OK, TX)****First Application**

Make a pre-plant incorporated or pre-emergence before “ground cracking” application of this product as instructed previously in this section. Refer to the respective section for a list of weeds controlled.

**Second Application**

Only when late germinating weeds are anticipated, apply this product at lay-by as directed in the **Peanuts – MOCCASIN Herbicide Alone** section. Refer to the **MOCCASIN Herbicide Applied Alone** section for a list of weeds controlled.

#### **TANK MIXTURE OR SEQUENTIALLY WITH IMAZETHAPYR (e.g. Pursuit)**

Tank mixing with, or following an application of, imazethapyr with this product will control all weeds listed as controlled in the labels for both products. Refer to the **MOCCASIN Herbicide Applied Alone** section for weeds controlled by MOCCASIN Herbicide and to the imazethapyr label for weeds controlled by imazethapyr.

Refer to the respective labels for application methods, timing and rates, being sure to use the most restrictive combination of restrictions and precautions from each label. DO NOT use more than the maximum label rate of either product.

#### **TANK MIXTURE WITH ETHAFLURALIN (e.g. Sonalan)**

Tank mixing ethafluralin with this product will control all weeds listed as controlled in the labels for both products. Refer to the **MOCCASIN Herbicide Applied Alone** section for weeds controlled by MOCCASIN Herbicide and to the ethafluralin label for weeds controlled by ethafluralin.

Make a pre-plant incorporated application of MOCCASIN Herbicide tank mixed with ethafluralin using the appropriate use rates. Be sure to follow the instructions for soil preparation listed in the ethafluralin label.

Refer to the respective labels for application methods, timing and rates, being sure to use the most restrictive combination of restrictions and precautions from each label. DO NOT use more than the maximum label rate of either product.

#### **TANK MIXTURE WITH PENDIMETHALIN (e.g. Satellite)**

A tank mix of this product with pendimethalin will control all weeds listed in this label as well as Texas Panicum, field sandbur, johnsongrass (from seed), lambsquarters, kochia, annual spurge and other weeds listed in the pendimethalin label.

Apply by ground or air within 14 days of planting as a pre-plant incorporated treatment using appropriate rates. Within 7 days of application incorporate the top 1-2 inches of soil with equipment that provides uniform incorporation like a finishing disk. If the peanuts are to be planted in beds, apply and incorporate after the beds are formed. Refer to the **Incorporation** instructions in each label for additional information.

For heavy weed infestations, especially of Texas panicum, the higher labeled rate of pendimethalin herbicide can be used in Alabama, Florida and Georgia.

Refer to the respective labels for application methods, timing and rates, being sure to use the most restrictive combination of restrictions and precautions from each label. DO NOT use more than the maximum label rate of either product.

#### **TANK MIXTURE OR SEQUENTIALLY WITH PARAQUAT BRANDS OR PARAQUAT BRANDS + PRODUCTS CONTAINING BENTAZON (e.g. Broadloom, Basagran)**

Small (1-6 inch) emerged annual grass and broadleaf weeds are controlled or suppressed and residually controlled by this product mixed with paraquat or paraquat and bentazon applied at ground cracking or sequentially. Refer to the **MOCCASIN Herbicide Applied Alone** section of this label for a complete list of weeds controlled or suppressed.

Using the rates in paraquat and bentazon labels and the **Peanuts / MOCCASIN Herbicide Alone** section of this label, apply using ground equipment in a minimum of 20 gallons of spray volume per acre. A second application of this mix may be made 28 days after ground cracking, being sure to follow all restrictions in the **Peanuts / MOCCASIN Herbicide Combinations / Multiple Applications** section of this label.

Refer to the respective labels for application methods, timing and rates, being sure to use the most restrictive combination of restrictions and precautions from each label. DO NOT use more than the maximum label rate of either product.



**TANK MIXTURE OR SEQUENTIALLY WITH PRODUCTS CONTAINING BENTAZON (e.g. Broadloom, Basagran)**

The weeds listed in the bentazon will be controlled and the weeds listed in this label residually controlled by this product when applied with bentazon as a tank mix or sequentially. Refer to the bentazon label and the **MOCCASIN Herbicide Applied Alone** section of this label for a complete list of weeds controlled or suppressed.

Using the rates in the bentazon label and the **Peanuts / MOCCASIN Herbicide Alone** section of this label, apply using ground equipment in a minimum of 20 gallons of spray volume per acre. A second application of this mix may be made prior to peanut pegging, being sure to follow all restrictions in the **Peanuts / MOCCASIN Herbicide Combinations / Multiple Applications** section of this label. If necessary, a second Bentazon-only application may be made in any peanut growing area.

Refer to the respective labels for application methods, timing and rates, being sure to use the most restrictive combination of restrictions and precautions from each label. DO NOT use more than the maximum label rate of either product.

**TANK MIXTURE OR SEQUENTIALLY WITH PARAQUAT + 2,4-DB (e.g. Butyrac 200, Butoxone 200)**

Small (1-6 inch) emerged annual grass and broadleaf weeds are controlled or suppressed and residually controlled by this product mixed with paraquat and 2,4-DB applied at ground cracking or sequentially. Refer to the **MOCCASIN Herbicide Applied Alone** section of this label for a complete list of weeds controlled or suppressed.

Using the rates in the paraquat brands and 2,4-DB labels and the **Peanuts / MOCCASIN Herbicide Alone** section of this label, apply using ground equipment in a minimum of 20 gallons of spray volume per acre. A second application of this mix may be made 28 days after ground cracking, being sure to follow all restrictions in the **Peanuts / MOCCASIN Herbicide Combinations / Multiple Applications** section of this label.

Refer to the respective labels for application methods, timing and rates, being sure to use the most restrictive combination of restrictions and precautions from each label. DO NOT use more than the maximum label rate of any of the products.

**TANK MIXTURE OR SEQUENTIALLY WITH PRODUCTS CONTAINING BENTAZON (e.g. Broadloom, Basagran) + 2,4-DB (e.g. Butyrac 200, Butoxone 200)**

Weeds listed in the bentazon and 2,4-DB labels (especially morningglory) are controlled or suppressed and the weeds listed in this label residually controlled by this product mixed with bentazon and 2,4-DB applied at ground cracking or sequentially. Refer to the **MOCCASIN Herbicide Applied Alone** section of this label for a complete list of weeds controlled or suppressed.

Using the rates in the bentazon and 2,4-DB labels and the **Peanuts / MOCCASIN Herbicide Alone** section of this label, apply using ground equipment in a minimum of 20 gallons of spray volume per acre. A second application of this mix may be made prior to peanut pegging, being sure to follow all restrictions in the **Peanuts / MOCCASIN Herbicide Combinations / Multiple Applications** section of this label. If necessary, a second bentazon and 2,4-DB application may be made in any peanut growing area.

Refer to the respective labels for application methods, timing and rates, being sure to use the most restrictive combination of restrictions and precautions from each label. DO NOT use more than the maximum label rate of any of the products.

**TANK MIXTURE OR SEQUENTIALLY WITH ACIFLUORFEN + BENTAZON (e.g. Storm)**

Weeds listed in the acifluorfen + bentazon label are controlled or suppressed and the weeds listed in this label residually controlled by this product mixed with Storm applied at ground cracking through 2 expanded tetrafoliate leaves, or sequentially with an at-cracking through post emergence treatment of acifluorfen + bentazon. Refer to the **MOCCASIN Herbicide Applied Alone** section of this label for a complete list of weeds controlled or suppressed. Apply using the rates and instructions in the acifluorfen + bentazon label and the **Peanuts / MOCCASIN Herbicide Alone** section of this label.

Refer to the respective labels for application methods, timing and rates, being sure to use the most restrictive combination of restrictions and precautions from each label. DO NOT use more than the maximum label rate of any of the products.

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## BEANS, PEAS, AND LENTILS – MOCCASIN HERBICIDE ALONE

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**Application Methods:** Fall applied, Pre-plant incorporated, Pre-emergence

Moccasin Herbicide may be applied pre-plant incorporated or pre-emergence to beans, peas, and lentils including garbanzo, great northern beans, kidney beans, lima beans, mung beans, navy beans, peas (English; southern peas, such as blackeye, pinkeye, crowder, etc.), pinto beans, snap beans (green, wax, string), lentils, and lupines (sweet, white, white sweet, and grain).

NOTE: Make ONLY pre-emergence applications to English peas.

Use of this product when soils are cold and wet during pea germination and emergence may delay maturity and/or reduce yields.

### Restrictions:

DO NOT apply this product to frozen ground.

DO NOT cut for hay within 120 days after application.

DO NOT use for forage within 60 days after application.

DO NOT apply more than 1.9 pts/A (1.9 lbs ai) per year.

### Fall Application:

MN, ND, SD, WI and north of Route 30 in IA: Apply after September 30.

South of Route 30 in IA and North of Route 91 in NE: Apply after October 15.

North of Route 136 in IL: Apply after October 31.

Apply to crop stubble after harvest when the sustained soil temperature at a 4-inch depth is less than 55°F and falling. In minimum- or no-tillage systems with soils having greater than 2.5% organic matter, apply 1.6-1.9 pts/A on medium-textured soils, and 1.9 pts/A on fine-textured soils. Tilling may be performed before or after treatment; however, if tilled after treatment do not incorporate deeper than 2-3 inches. If an application is planned for the following spring in addition to the fall application, the total amount applied in both applications must not exceed the maximum total amount listed in the instructions for the specific crop.

### Spring Application

Apply this product as either a pre-plant incorporated or pre-emergence treatment using the appropriate rates listed below and using the instructions in the **MOCCASIN Herbicide Alone** section under **Application Procedures** at the beginning of this label.

Coarse Soils less than 3% Organic Matter: 1.01-1.3 pts/A

Coarse Soils greater than, equal to 3% Organic Matter: 1.3 pts/A

Medium Soils less than 3% Organic Matter: 1.3-1.6 pts/A

Medium Soils greater than, equal to 3% Organic Matter: 1.3-1.6 pts/A

Fine Soils less than 3% Organic Matter: 1.3-1.6 pts/A

Fine Soils greater than, equal to 3% Organic Matter: 1.6-1.9 pts/A

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## BEANS, PEAS, AND LENTILS – MOCCASIN HERBICIDE COMBINATIONS

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### Restrictions:

DO NOT cut for hay within 120 days after application.

### TANK MIXTURE AND SEQUENTIAL APPLICATIONS WITH EPTC – BEANS (GREEN OR DRY)

#### Pre-plant Incorporated:

Follow instructions for use of MOCCASIN Herbicide alone in the **Application Procedures** section of this label. Refer to EPTC herbicide label for use rates and instructions.

**Sequential**

Make a pre-plant incorporated application of EPTC alone following the rates and instructions in the EPTC label, followed by a pre-emergence application of this product using the rates specified below either during planting (behind the planter) or after planting, but prior to weed emergence.

Coarse Soils less than 3% Organic Matter: 0.8 pts/A

Coarse Soils greater than, equal to 3% Organic Matter: 1.0 pts/A

Medium Soils less than 3% Organic Matter: 1.0 pts/A

Medium Soils greater than, equal to 3% Organic Matter: 1.3 pts/A

Fine Soils less than 3% Organic Matter: 1.3 pts/A

Fine Soils greater than, equal to 3% Organic Matter: 1.3-1.6 pts/A

Be sure to follow the most restrictive combination of instructions, precautions and restrictions from both the EPTC label and for this product as listed in the **Beans, Peas, and Lentils / MOCCASIN Herbicide Alone** section of this label. Refer to the EPTC label for rate limitations depending on geographical area, and for restrictions specific to species and varieties.

**TANK MIXTURE WITH TRIFLURALIN (e.g. Treflan) – BEANS (DRY – KIDNEY, NAVY, PINTO, ETC.; LIMA; AND SNAP)**

Tank mix MOCCASIN Herbicide using the rates specified in the **MOCCASIN Herbicide Alone** section of this label, and the **Dry Beans** or the **Lima and Snap Beans** sections of the trifluralin label by ground or air within 14 days of planting and incorporate uniformly to a depth of no more than 2 inches. Select the application rate based on the soil texture and organic matter present in the field and the weed species being treated.

Be sure to follow the most restrictive combination of instructions, restrictions and precautions in each respective label.

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**POTATOES – MOCCASIN HERBICIDE ALONE**

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**These instructions do NOT apply to sweet potatoes or yams.**

*Application of this product followed by cool, wet soil conditions may delay maturity and/or reduce yield of Superior and other early maturing potato varieties.*

This product will control weeds listed in the WEEDS CONTROLLED section of this label when applied after hilling / lay-by as either a pre-emergence incorporated, or post-emergence treatment to potatoes. Use the lower rates specified below on soils that are coarse-textured and / or low in organic matter and the higher rates on soils that are fine-textured and / or high in organic matter. NOTE: If agricultural activity following the treatment exposes untreated soil, the effectiveness of this application will be diminished.

Refer to the **Center Pivot Irrigation Application** section of this label for instructions when applying this product using center pivot irrigation.

**Restrictions:**

DO NOT harvest within 40 days of a lay-by application.

DO NOT harvest within 60 days of an at-planting to drag-off application.

DO NOT use on muck or peat soils.

DO NOT apply as both a pre-emergence and incorporated treatment.

**Incorporated:**

Apply to the soil at a rate of 0.95-1.9 pts/A and incorporate into the top 3 inches of soil using equipment that will provide uniform incorporation such as a finishing disk, harrow or rolling cultivator.

Post-plant incorporated applications may be made any time after planting to drag-off but prior to potato emergence. Incorporate using equipment that will uniformly distribute the application in the top 2 inches of the soil being careful not to damage potato seed pieces or sprouts.

**Pre-emergence:**

Apply at a rate of 0.95-1.9 pts/A after planting but before weeds emerge as either a pre-emergence or delayed pre-emergence treatment or an after drag-off or hilling treatment. When soil organic matter content is between 6-20%, up to 2.5 pts/A may be applied.

**Post-emergence after Hilling / Lay-by:**

To control weed species sensitive to this product for the remainder of the growing season, apply at a rate of 1.6 pts/A as a post-emergence treatment to potatoes after hilling / at lay-by. This application may be applied over a previous MOCCASIN Herbicide application, but do NOT apply more than 3.4 pts/A (3.4 lbs ai) per year.

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**POTATOES – MOCCASIN HERBICIDE COMBINATIONS**


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**These instructions do NOT apply to sweet potatoes or yams.**

**TANK MIXTURE WITH METRIBUZIN (e.g. TriCor, Sencor)**

Tankmix with metribuzin to control the weeds listed in this label as well as the following broadleaf weeds: cocklebur\*, hairy nightshade\*, hemp sesbania, jimsonweed\*, lambsquarters, prickly sida, ragweed, smartweed, velvetleaf, Venice mallow, and wild mustard.

\* Indicates partial control.

**Restrictions:**

DO NOT apply this tank mixture to muck or peat soils.

**Instructions**

Apply 1.0-1.9 pts/A of MOCCASIN herbicide with the labeled rate of metribuzin and apply as a pre-emergence or post-emergence treatment through after last hilling. Use the 1.0-1.3 pts/A rate range on coarse soils and 1.3-1.9 pts/A rate range on other soil textures, with the lower rates of the range used on fields with low organic matter and the higher rates of the range used on fields with higher organic matter content. The effectiveness of the treatment may be diminished if subsequent operations disturb and expose untreated soil.

Refer to the metribuzin label for precautionary statements, restrictions, application information, center pivot irrigation application, weeds controlled, and varietal limitations.

Precaution: To avoid chlorosis, minor necrosis, or leaf distortion when making post-emergence applications to potatoes, with the exception of center pivot application the application must be made as a directed or semi-directed spray.

The most restrictive combination of instructions, precautions and restrictions from both product labels must be followed.

**MOCCASIN HERBICIDE + LINURON (e.g. Lorox) TANK MIXTURE (EAST OF ROCKY MOUNTAINS)****Restrictions:**

DO NOT use on sand or loamy sand soils.

DO NOT incorporate or spray over the top of emerged potatoes.

**Application**

This product may be tank mixed with any linuron formulation registered for use on potatoes and applied using labeled rates as a pre-emergence broadcast application to the soil surface after planting but prior to emergence of the crop, or after final drag-off.

The most restrictive combination of instructions, precautions and restrictions from both product labels must be followed.

**TANK MIXTURE WITH PENDIMETHALIN (e.g. Satellite)**

When tank mixed with pendimethalin, the following weeds will be controlled in addition to the weeds listed in this label: kochia, lambsquarters, purslane, annual spurge, stinging nettle, and others specified on the pendimethalin label. Apply using labeled rates for a pre-emergence, pre-emergence incorporated or early post-emergence application following the instructions on the pendimethalin label.

The most restrictive combination of instructions, precautions and restrictions from both product labels must be followed.

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### **PUMPKIN – MOCCASIN HERBICIDE ALONE**

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*Applying this product to pumpkin as a broadcast spray over the planted row or hill or as an application directly to crop foliage increases the risk of injury and may cause delayed maturity, stand loss, and loss of yield.*

#### **Restrictions:**

- DO NOT make more than one application per year.
- DO NOT apply more than 1.3 pts/A (1.3 lbs ai) per year.
- DO NOT apply this product within 30 days of harvest.

#### **Pre-emergence**

Apply this product pre-emergence at a rate of 1.0-1.3 pts/A as an inter-row or inter-hill treatment. Inter-row or inter-hill means not applying directly to the planted seed or young pumpkin plants. When applying, there should be 1 foot of untreated area over the top of the row where the plants are, or six inches to each side of the planted hill and any emerged pumpkin foliage.

Use the lower rates listed on soils that are coarse and/or low (less than 3%) in organic matter.

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### **RHUBARB**

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#### **Restrictions:**

- DO NOT make more than one application per crop.
- DO NOT apply more than 1.3 pts/A (1.3 lbs ai) per year
- DO NOT harvest within 62 days of application.

#### **Application**

In early spring prior to crop emergence, make a broadcast application of this product at a rate of 0.6-1.3 pts/A using lower rates on coarse textured soils and higher rates on fine textured soils.

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### **SAFFLOWER – MOCCASIN HERBICIDE ALONE**

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#### **Pre-plant Incorporated or Pre-emergence:**

Using the rates below, follow the instructions for use of MOCCASIN Herbicide Alone under Application Procedures at the beginning of this label:

% Organic Matter / Soil Texture		Use Rates MOCCASIN Herbicide
< 3% Organic Matter	Coarse	1.0-1.3 pts/A
	Medium	1.3-1.6 pts/A
	Fine	1.3-1.6 pts/A
≥ 3% Organic Matter	Coarse	1.3 pts/A
	Medium	1.3-1.6 pts/A
	Fine	1.6-1.9 pts/A

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### **GRAIN OR FORAGE SORGHUM (SEED TREATED WITH SAFENER) – MOCCASIN HERBICIDE ALONE**

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This product may be applied alone as a pre-plant surface, pre-plant incorporated, pre-emergence or post-emergence treatment using the appropriate rate specified below ONLY when the sorghum seed has been properly treated with a seed treatment appropriate for s-metolachlor. *Plant death will occur*

*if pre-plant or pre-emergence applications of this product are made to sorghum that has not been treated with an appropriate seed treatment, and plants grown from seed not properly treated will also experience severe injury.* Plant injury may also occur following pre-plant and pre-emergence applications of this product if high soil moisture conditions are experienced prior to sorghum emergence; however, the crop typically outgrows the damage.

**Restrictions:**

DO NOT use this product to sorghum grown under dry mulch tillage.

DO NOT apply more than 1.6 pts/A (1.6 lbs ai) per year.

DO NOT apply this product more than once in a year *except* for the split pre-plant surface treatment.

DO NOT apply this product post-emergence within 75 days of harvest.

DO NOT apply this product to frozen ground.

**Fall Application for Italian Ryegrass Control**

If an application of this product is made in the spring, DO NOT apply this or any other product containing S-metolachlor to grain or forage sorghum the following spring.

This product may be used to provide residual control of glyphosate-resistant Italian ryegrass (*Lolium multiflorum*) with a fall application of 1.3-1.6 pts/A (between September 1 and December 1). Use the higher rates on fine textured soils and the lower rates on coarse textured soils.

Tillage may be performed prior to application. If planning to till after application, incorporate to a maximum depth of 2-3 inches. If an application is planned for the following spring in addition to the fall application, the total amount of AI applied in both applications must not exceed the maximum total amount listed in the instruction for the specific crop (depending on soil texture, up to 2.5 pts/A).

Fall treatments made after emergence of glyphosate-resistant Italian ryegrass can use paraquat brands tank mixed with this product for control of the emerged ryegrass. Refer to the paraquat brand label for specific rates, application instructions and restrictions. Other registered herbicides may be tank mixed with MOCCASIN Herbicide for control or improved control of other weeds present at the time of application.

**Pre-plant Surface-Applied**

Make pre-plant surface-applied treatments of this product following the instructions in the **Application Procedures** section of this label.

For sorghum grown in minimum- or no-tillage systems in CO, IA, IL, KS, MO, NE and SD: This product may be applied alone up to 45 days prior to planting using the following rates:

Medium Soils: 1.4 pts/A

Fine Soils: 1.6 pts/A

For applications made 30-45 days prior to planting, make only split applications using 2/3 the listed broadcast rate in the initial application and the remaining 1/3 when planting. Treatments made less than 30 days prior to planting may be applied as either a single or split application. For coarse soils apply 1.3 pts/A within two weeks prior to planting.

For best results, when no precipitation is expected after application irrigate to move this product into the soil.

**Pre-plant Incorporated or Pre-emergence:**

Make a broadcast application of this product using the application rates below and following the instructions in the **Application Procedures** section of this label.

Coarse Soils: 1.0-1.3 pts/A

Medium Soils: 1.3-1.4 pts/A

Fine Soils: 1.3-1.6 pts/A

**Post-emergence:**

This product is safe to use on emerged sorghum when applied alone. The risk of injury to the crop increases when adjuvants such as non-ionic crop oil, nitrogen sources such as AMS or UAN, or fertilizers are applied in conjunction with this product.

Make a broadcast post-emergence application of this product using the application rates below and following the instructions in the **Application Procedures** section of this label.

Coarse Soils: 1.0-1.3 pts/A

Medium Soils: 1.3-1.4 pts/A

Fine Soils: 1.3-1.6 pts/A

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## **GRAIN OR FORAGE SORGHUM (SEED TREATED WITH SAFENER) – MOCCASIN HERBICIDE TANK MIXTURES**

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This product may be tank mixed with atrazine and applied as a pre-plant or pre-emergence treatment using the appropriate rate specified below ONLY when the sorghum seed has been properly treated with a seed treatment appropriate for s-metolachlor. *Plant death will occur if pre-plant or pre-emergence applications of this product are made to sorghum that has not been treated with an appropriate seed treatment, and plants grown from seed not properly treated will also experience severe injury.* Plant injury may also occur following pre-plant and pre-emergence applications of this product if high soil moisture conditions are experienced prior to sorghum emergence; however, the crop typically outgrows the damage.

*Sorghum injury may occur if this product tank mixed with atrazine is applied to highly alkaline soils or on eroded areas where calcareous sub-soils are exposed.*

**If tank mixing this product with atrazine, the most restrictive combination of rates, restrictions and precautions from both labels must be followed. Broadleaf weed control may be affected if atrazine is applied at rates lower than those listed on this label. Consult the atrazine label for a list of weeds controlled at the reduced rates.**

**Restrictions:**

DO NOT use this product to sorghum grown under dry mulch tillage.

DO NOT apply this product more than once in a year *except* for the split pre-plant surface treatment.

**TANK MIXTURE WITH ATRAZINE**

Tank mixing this product with atrazine and applying as a pre-plant surface, pre-plant incorporated or pre-emergence treatment will control the weeds listed in this label as well as the following broadleaf weeds: cocklebur, common purslane, hairy nightshade, lambsquarters, morningglory, ragweed, smartweed, and velvetleaf.

**Pre-plant Surface-Applied**

Make pre-plant surface-applied treatments of this product using the appropriate rates below and following the instructions in the **Application Procedures** section of this label.

For sorghum grown in minimum- or no-tillage systems in IA, IL, eastern KS, MO, NE and SD: This product may be applied alone up to 45 days prior to planting using the following rates per acre:

Medium soils  $\geq$  1.5% organic matter: 1.4 pts/A MOCCASIN Herbicide + labeled rate of atrazine

Fine soils < 1.5% organic matter: 1.4 pts/A MOCCASIN Herbicide + labeled rate of atrazine

Fine soils  $\geq$  1.5% organic matter: 1.6 pts/A MOCCASIN Herbicide + labeled rate of atrazine

For applications made 30-45 days prior to planting, make only split applications using 2/3 the listed broadcast rate in the initial application and the remaining 1/3 when planting. Treatments made less than 30 days prior to planting may be applied as either a single or split application.

For best results, when no precipitation is expected after application irrigate to move this product into the soil.

**Pre-plant Incorporated or Pre-emergence**

DO NOT use on coarse soils, or medium soils with < 1.5% organic matter.

DO NOT make pre-plant incorporated applications in AZ or the Imperial Valley of CA.

DO NOT apply in NM, OK or TX except in northeast OK and the Gulf Coast and Blacklands of TX.

Make pre-plant incorporated or pre-emergence treatments of this product using the appropriate rates below and following the instructions in the **Application Procedures** section of this label.

Application rates per acre:

Medium soils  $\geq$  1.5% organic matter: 1.0 pts/A MOCCASIN Herbicide + labeled rate of atrazine

Fine soils < 1.5% organic matter: 1.0 pts/A MOCCASIN Herbicide + labeled rate of atrazine

Fine soils  $\geq$  1.5% organic matter: 1.1-1.3 pts/A MOCCASIN Herbicide + labeled rate of atrazine

**TANK MIXTURE OF MOCCASIN HERBICIDE OR MOCCASIN HERBICIDE + ATRAZINE + BURNDOWN HERBICIDE FOR MINIMUM-TILLAGE OR NO-TILLAGE SYSTEMS**

In Minimum and No-Tillage systems where sorghum (with seed treated with an appropriate safener) is planted directly into a cover crop, stale seedbed, established sod, or previous crop residues in a minimum- or no-tillage system, mix with a paraquat brand herbicide for control of most emerged annual weeds and suppression of perennial weeds; or with glyphosates for control of most emerged annual and perennial weeds.

**Application**

Apply a tank mix with paraquat, glyphosate as directed on the product label before, during, or after planting, but prior to sorghum emergence.

**Paraquat:** Apply as directed on the product label. NOTE: This treatment will NOT control weeds taller than 6 inches.

**Glyphosate:** Refer to the glyphosate label for a list of controlled weeds, application rates for specific weeds, and other information related to the use of this product.

**SWEET SORGHUM (SEED TREATED WITH SAFENER)**

Apply this product as a pre-plant surface, pre-plant incorporated, pre-emergence or post-emergence treatment at the appropriate rate specified below ONLY when the sorghum seed has been properly treated with a seed treatment appropriate for s-metolachlor. *Plant death will occur if pre-plant or pre-emergence applications of this product are made to sorghum that has not been treated with an appropriate seed treatment, and plants grown from seed not properly treated will also experience severe injury.*

**Restrictions:**

DO NOT make more than one application per year.

DO NOT apply more than 1.6 pts/A (1.6 lbs ai) per year.

DO NOT apply within 90 days of harvest.

DO NOT use this product to sorghum grown under dry mulch tillage.

**Soil-Applied**

Make soil-applied treatments using this product at the rates specified below up to 45 days prior to planting. For applications made 30-45 days prior to planting, make only split applications using 2/3 the listed broadcast rate in the initial application and the remaining 1/3 when planting. Treatments made less than 30 days prior to planting may be applied as either a single or split application.

For best results, when no precipitation is expected after application irrigate to move this product into the soil.

**Soil-Applied Application Rates in Pints per Acre**

Application Timing	Soil Type – Use Rates		
	Fine	Medium	Coarse



At Planting <sup>1</sup>	1.3-1.6 pts/A	1.3-1.4 pts/A	1.0-1.3 pts/A
< 30 days before planting	1.6 pts/A	1.4 pts/A	1.3 pts/A
30-45 days before planting <sup>2</sup>	1.6 pts/A	1.4 pts/A	-

<sup>1</sup> Pre-plant Incorporated or pre-emergence

<sup>2</sup> Use only as a split application with 2/3 of the broadcast rate applied initially and the remaining 1/3 applied at planting.

### Post-Applied

For residual control of small broadleaf weeds and grasses, apply this product using the appropriate rate specified below as a post-emergence treatment to sorghum no more than 5 inches tall. This product is safe for use on sweet sorghum that has emerged when applied alone. **Do NOT use adjuvants when making post-emergence applications of this product to sweet sorghum.**

Coarse Soils: 1.0-1.3 pts/A

Medium Soils: 1.3 pts/A

Fine Soils: 1.3 pts/A

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## SOYBEANS – MOCCASIN HERBICIDE ALONE

### [optional wording NOT FOR USE IN CALIFORNIA]

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**Application Methods:** Fall applied, Pre-plant surface, Pre-plant incorporated, Pre-emergence, Post-emergence

Refer to the application instructions under **MOCCASIN Herbicide Alone** in the **Application Procedures** section at the beginning of this label.

#### Restrictions:

DO NOT apply this product to frozen ground.

The maximum annual rate is 3.7 pts/A (3.7 lbs ai).

DO NOT apply more than 2.5 pts/A (2.5 lbs ai) in a single preemergence application.

DO NOT apply more than 1.9 pts/A (1.9 lbs ai) in a single postemergence application.

The combined total amount of this product applied in the fall plus the spring must not exceed 3.7 pints/A (3.7 lbs ai) per year.

The combined total amount of the active ingredient (S-metolachlor) from all applications to soybeans must not exceed 3.7 pounds of AI per year.

DO NOT apply within 75 days of harvest.

DO NOT graze or feed treated soybean forage, hay, or straw to livestock within 30 days after a pre-plant surface, pre-plant incorporated or pre-emergence application of this product.

DO NOT graze or feed treated forage or hay from soybeans to livestock after a post-emergence application of this product.

#### Fall Application for Spring Weed Control

ND, SD, MN, WI, and north of Route 30 in IA: Apply after September 30

North of Route 91 in NE and south of Route 30 in IA: Apply after October 15

North of Route 136 in IL: Apply after October 31

Apply to crop stubble after harvest when the sustained soil temperature at a 4-inch depth is less than 55°F and falling. In minimum- or no-tillage systems with soils having greater than 2.5% organic matter, apply 1.6-1.9 pts/A on medium-textured soils, and 1.9 pts/A on fine-textured soils. Tilling may be performed before or after treatment; however, if tilled after treatment do not incorporate deeper than 2-3 inches and minimize the formation of furrows and ridges.

#### Fall Application for Italian Ryegrass Control

This product may be used to provide residual control of *glyphosate*-resistant Italian ryegrass (*Lolium multiflorum*) with a fall application of 1.3-1.6 pts/A (between September 1 and December 1). Use the

higher rates on fine textured soils and the lower rates on coarse textured soils. Tillage may be performed prior to application. If planning to till after application, incorporate to a maximum depth of 2-3 inches.

Fall treatments made after emergence of *glyphosate*-resistant Italian ryegrass can be tankmixed with paraquat for control of the emerged ryegrass. Refer to the paraquat brand label for specific rates, application instructions and restrictions. Other registered herbicides may be tank mixed with MOCCASIN Herbicide for control or improved control of other weeds present at the time of application.

### Pre-plant Surface Application

Spring pre-plant surface application may be made on medium and fine soils only under minimum- or no-tillage practices in the following states: CO, CT, DE, IA, IL, IN, KS, KY, MA, MD, ME, MI, MN, MO, MT, ND, NE, NH, NY, OH, PA, RI, SD, TN, VA, VT, WI, WV, and WY.

For applications made 30-45 days prior to planting, make only split applications using 2/3 the listed broadcast rate in the initial application and the remaining 1/3 when planting (see Use Rates below). Treatments made less than 30 days prior to planting may be applied as either a single or split application. For coarse soils apply 1.3 pts/A within two weeks prior to planting.

On soils with 6-20% organic matter or for extended residual or control of heavy infestations, this product may be applied at rates up to 2.5 pts/A.

### Pre-plant Incorporated or Pre-emergence

Using the rates below, follow the instructions for use of **MOCCASIN Herbicide Alone** under Application Procedures at the beginning of this label:

% Organic Matter / Soil Texture		Use Rates MOCCASIN Herbicide
< 3% Organic Matter	Coarse	1.0-1.3 pts/A
	Medium	1.3-1.6 pts/A
	Fine	1.3-1.6 pts/A
≥ 3% Organic Matter	Coarse	1.3 pts/A
	Medium	1.3-1.6 pts/A
	Fine	1.6-1.9 pts/A

On soils with 6-20% organic matter or for extended residual or control of heavy weed infestations, this product may be applied at rates up to 2.5 pts/A.

### Post-emergence

Apply 0.95-1.9 pts/A as a post-emergence treatment for residual control of the weeds listed in the beginning of this label. This product does not control emerged weeds and must be applied to a weed-free soil surface or in a tank mixture with products that provide post-emergence control of weeds that may be present at the time of application.

If this product was applied as a pre-plant surface, pre-plant incorporated, or a pre-emergence treatment, a second application of this product may be made post-emergence so long as the total amount of all applications does not exceed 3.7 pts/A (3.7 lbs ai).

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## SOYBEANS – MOCCASIN HERBICIDE COMBINATIONS

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For enhanced residual control of the weeds listed at the beginning of this label, tank mix MOCCASIN Herbicide at the rates listed in **Soybeans – MOCCASIN Herbicide Alone** section with the herbicides listed below. The most restrictive combination of precautionary statements, restrictions, rates and approved uses of all tank mix partners must be followed.

### Restrictions:

DO NOT apply this product to frozen ground.

The combined total amount of this product applied in the fall plus the spring must not exceed 3.7 pts/A (3.7 lbs ai) per year.

The combined total amount of the active ingredient (S-metolachlor) from all applications to soybeans must not exceed 3.7 pounds of AI per year.

DO NOT apply more than 1.9 pts/A (1.9 lbs ai) post-emergence to soybeans.

DO NOT apply within 75 days of harvest.

DO NOT graze or feed treated soybean forage, hay, or straw to livestock within 30 days after a pre-plant surface, pre-plant incorporated or pre-emergence application of this product.

DO NOT graze or feed treated forage or hay from soybeans to livestock after a post-emergence application of this product.

#### **Pre-plant, Pre-emergence:**

##### **Contact herbicides such as paraquat, glyphosate, glufosinate**

For burndown and residual control in reduced- or no-till systems, apply MOCCASIN Herbicide pre-plant surface or pre-emergence with paraquat, glyphosate or glufosinate.

##### **Metribuzin + sulfentrazone (e.g. Authority MTZ), metribuzin (e.g. TriCor, Sencor)**

For additional residual control, make pre-plant surface or pre-emergence applications of this tank mix.

DO NOT apply this tank mix to soils with < 0.5% organic matter.

DO NOT apply this tank mix to soils with a pH > 7.4 (alkaline soils).

Crop injury may occur if heavy precipitation occurs soon after application.

Crop injury may occur if this mix is applied to soybean varieties that are sensitive to metribuzin.

##### **Metribuzin + chlorimuron-ethyl (Canopy), sulfentrazone + cloransulam-methyl (Sonic, Gauntlet), sulfentrazone + chlorimuron ethyl (Authority Maxx), chlorimuron (Classic), cloransulam-methyl, salufenacil (Sharpen), dimethenamid-p + saflufenacil (Verdict)**

For additional residual control, make pre-plant surface or pre-emergence applications of this tank mix.

#### **Post-emergent:**

##### **Chlorimuron ethyl (Classic, FirstRate), cloransulam-methyl, glyphosate + fomesafen, fluazifop-p-butyl (Fusilade), fluazifop-p-butyl + fenoxaprop-p-ethyl (Fusion), fomesafen (Flexstar, Reflex), flumetsulam (Python), acifluorfen + bentazon (Storm), acifluorfen (Ultra Blazer)**

To control emerged weeds and provide residual control of grasses and small seeded broadleaf weeds, apply this tank mix post-emergence being sure to follow any instructions or restrictions in the tank mix partner labels. Using a COC or UAN with this product may cause temporary injury to the crop.

##### **Glyphosate + fomesafen, glyphosate brands**

Use this tank mixture for residual control of weeds *in glyphosate tolerant soybeans only*.

##### **Glufosinate brands**

Use this tank mixture for residual control of weeds *in glufosinate tolerant soybeans only*. To avoid potential crop damage, be sure to follow the instructions for adjuvant use in the Interline or glufosinate product label.

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## **SUGAR BEETS – MOCCASIN HERBICIDE ALONE**

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**Application Methods:** Post-emergence after the sugar beets have reached the first true leaf stage.

*Crop injury may occur if this product is applied to sugar beets grown in coarse soils prior to emergence.*

#### **Restrictions:**

DO NOT apply more than 2.5 pts/A (2.5 lbs ai) per year post-emergence.

DO NOT harvest within 60 days after application.

#### **Use Rates:**

Coarse Soils: 1.0 pts/A

Medium Soils: 1.3 pts/A

Fine Soils: 1.6 pts/A

More than one application may be made, but the total amount applied must not exceed 2.5 pints/A per year.

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## **SUGAR BEETS – MOCCASIN HERBICIDE TANK MIX COMBINATIONS**

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Tank mixing with quizalofop p-ethyl (Assure II), sethoxydim (Poast), pendimethalin (Satellite), clethodim (Select), clopyralid (Stinger), or triflurosulfuron-methyl (Upbeet) will increase the likelihood of crop injury due to the adjuvant properties of this product, and adding a spray adjuvant such as COCs or MSOs may increase the likelihood even further. This risk can be reduced by using the lowest listed rates of the tank mix partners and/or adjuvants and by not applying when environmental conditions are poor for the crops or soil and air humidity are high. Be sure to use the most restrictive combination of instructions, use restrictions and precautions from all of the tank mix partner labels.

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## **SUGARCANE – MOCCASIN HERBICIDE ALONE**

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Apply MOCCASIN Herbicide as a pre-plant, pre-emergence, or post-emergence treatment for weed control in sugarcane. It may also be used in a treatment program that includes a pre-plant/pre-emergence application followed by a post-emergence/post-directed application.

### **Restrictions:**

DO NOT apply more than 1.63 qt/A (3.26 lbs ai) of MOCCASIN Herbicide per year.

DO NOT apply more than 1.17 qt/A (2.34 lbs ai) of MOCCASIN Herbicide as a preplant or preemergence application per year.

DO NOT apply more than 0.94 qt/A (1.88 lbs ai) of MOCCASIN Herbicide as a postemergence application per year.

DO NOT apply more than 0.47 qt/A (0.94 lbs ai) of MOCCASIN Herbicide as a postemergence application if a preplant or preemergence application was made.

DO NOT make more than two applications per year.

DO NOT make applications less than 14 days apart.

DO NOT apply to sugarcane that is taller than 60 inches.

DO NOT make a postemergence application within 100 days of harvest.

DO NOT exceed the total combined maximum annual sugarcane rates for s-metolachlor container products (3.34 lb s-metolachlor ai/A).

[Not for this use in California.](#)

### **Preplant and Preemergence Applications**

Apply MOCCASIN Herbicide at a rate of 0.85 – 1.17 qt/A before planting, pre-emergence after new plantings, or after harvest, but before re-emergence of ratoon-cane. Use the higher rate on heavier soils and soils with higher organic matter content.

### **Postemergence Applications**

MOCCASIN will not control emerged weeds so apply only to a weed-free soil surface or in tank mixture with products that provide postemergence control of weeds present at the time of application. Apply MOCCASIN Herbicide at 0.47 – 0.94 qt/A post-emergence before the sugarcane reaches 60 inches in height. Post-emergence applications may be made as broadcast post-over-the-top or as post-directed spray to soil between the rows and the base of the sugarcane.

If a pre-emergence application was made earlier in the season (not to exceed 1.17 qt/A), only 0.47 qt/A may be applied post-emergence. The total amount of MOCCASIN Herbicide applied (pre-emergence + post-emergence) may not exceed 1.63 qt/A/year.

## SUGARCANE - MOCCASIN HERBICIDE TANK MIX COMBINATIONS

It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

This product may be tank mixed with other registered sugarcane herbicides, insecticides, and fungicides. The tank mix partners are to be applied by the same methods and the same timings as MOCCASIN Herbicide unless otherwise specified in the tank mix product label. Perform a compatibility test before spraying the tank mix application.

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## SUNFLOWERS – MOCCASIN HERBICIDE ALONE

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**Application Methods: Pre-plant incorporated, Pre-emergence**

**Restrictions:**

DO NOT graze or feed livestock on treated areas.

DO NOT apply more than 1.9 pts/A (1.9 lbs ai) per year.

DO NOT exceed the maximum labeled rates listed below for the soil type.

Using the rates below, follow the instructions for use of **MOCCASIN Herbicide Alone** under Application Procedures at the beginning of this label:

% Organic Matter / Soil Texture		Use Rates MOCCASIN Herbicide
< 3% Organic Matter	Coarse	1.0-1.3 pts/A
	Medium	1.3-1.6 pts/A
	Fine	1.3-1.6 pts/A
≥ 3% Organic Matter	Coarse	1.3 pts/A
	Medium	1.3-1.6 pts/A
	Fine	1.6-1.9 pts/A

Use the higher ranges of the rates listed if heavy weed pressure is anticipated.

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## TOMATOES – MOCCASIN HERBICIDE ALONE

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To prevent damage, plant only healthy transplants and avoid planting when wet, cool, or unfavorable growing conditions exist.

In transplanted tomatoes, if MOCCASIN Herbicide is applied pre-plant incorporated, incorporate to a depth less than the depth of transplanting, and use the lower end of the rate range for the given soil type, or damage may occur.

For row middle applications where tomatoes are grown on sandy soils and where high soil moisture conditions can exist (e.g., low binding and high evaporation conditions), as may be found in the States of Florida, Georgia, Maryland, and Virginia, there is potential for crop injury in the form of leaf epinasty. The risk of this type of injury can be reduced by: a) incorporating the MOCCASIN Herbicide immediately following application, b) applying the MOCCASIN Herbicide seven or more days before transplanting (but only after the beds have been formed), c) minimizing the application of MOCCASIN Herbicide onto the plastic of the bed, or d) any combination of the above.

**Restrictions:**

DO NOT exceed the maximum label rate for the soil texture per year.

Apply ONLY by ground.

DO NOT apply more than 1.9 pts/A (1.9 lbs ai) per year.

DO NOT harvest within 90 days of application if the single application rate of this product is MORE than 1.3 pts/A per year

DO NOT harvest within 30 days of application if the single application rate of this product is LESS than 1.3 pts/A per year.

The additional following restrictions apply when treating at a rate of 1.3 pts/A per year with a 30 day PHI:

DO NOT make more than 2 applications per year.

DO NOT use adjuvants.

Concentrated spray volume applications MAY be made using ground equipment.

Applications may be made as a foliar broadcast spray to the soil within a week of transplanting and again at blooming / fruiting to the row middles as a banded/directed application 38-77 days after the first treatment.

### Transplanted

Apply this product pre-plant incorporated or pre-plant prior to transplanting. Take care to minimize soil disturbance when transplanting. A post-directed application may also be made to transplants once the first irrigation or settling rain takes place. Minimize spray contact with the tomato plants, and use a minimum of 20 gallons of water per acre when making post-directed applications.

For bedded transplanted tomatoes, this product should be applied to the top of the bed as a pre-plant, non-incorporated treatment just before laying plastic.

Row middles between beds may also be treated. Do not exceed the maximum amount allowed in this label.

### Seeded

MOCCASIN Herbicide may be applied post-directed to direct seeded tomatoes. Tomato plants must be at least 4 inches tall at the time of application and the product must be applied in a minimum of 20 gallons of water per acre. Minimize spray contact with tomato plants. MOCCASIN Herbicide will not control emerged weeds.

### Use Rates:

Using the rates below, follow the instructions for use of MOCCASIN Herbicide Alone under Application Procedures at the beginning of this label as well and any specific instructions listed above depending on whether applying to transplants or seeded tomatoes:

% Organic Matter / Soil Texture		Use Rates MOCCASIN Herbicide
< 3% Organic Matter	Coarse	1.0-1.3 pts/A
	Medium	1.3-1.6 pts/A
	Fine	1.3-1.6 pts/A
≥ 3% Organic Matter	Coarse	1.3 pts/A
	Medium	1.3-1.6 pts/A
	Fine	1.6-1.9 pts/A

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## SOD FARMS

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**DO NOT USE IN GREENHOUSES OR OTHER ENCLOSED STRUCTURES.**

### APPLICATION PROCEDURES

**Ground Application:** Apply MOCCASIN Herbicide alone or in tank mixtures by ground equipment in a minimum of 10 gallons of spray mixture per acre, unless otherwise specified.

Use sprayers that provide accurate and uniform application. For MOCCASIN Herbicide tank mixtures with wettable powder or dry flowable formulations, screens and strainers should be no finer than 50-mesh. Rinse sprayer thoroughly with clean water immediately after use.

Calculate the amount of herbicide needed for band treatment by the following formula:

$$\frac{\text{band width in inches}}{\text{row width in inches}} \times \text{broadcast rate per acre} = \text{amount needed per acre of field}$$

**Aerial Application (Sod Farms Only):** Apply MOCCASIN Herbicide in water alone or in tank mixtures with atrazine, simazine, or other herbicides registered for use on sod farms in a minimum total volume of 2 gal/A by aircraft. See **Turfgrass** section for a listing of applicable warm-season grasses. Avoid application under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur. In order to assure that spray will be controllable within the target area when used according to label directions, apply at a maximum height of 10 ft, using low- drift nozzles at a maximum pressure of 40 psi, and restrict application to periods when wind speed is 10 mph or less. To assure that spray will not adversely affect adjacent sensitive nontarget plants, apply MOCCASIN Herbicide or MOCCASIN Herbicide mixtures at a minimum upwind distance of 400 ft from sensitive plants.

Avoid application to humans or animals. Flagmen and loaders must avoid inhalation of spray mist and prolonged contact with skin.

### Turfgrass

#### **Warm Season Grasses (Bermudagrass, Centipedegrass, St. Augustinegrass, Bahiagrass, and Zoysiagrass) including Commercial St. Augustinegrass Sod Production**

Apply MOCCASIN Herbicide **before weeds emerge**. Since soil moisture is necessary for activation, irrigate with ½ inch of water if rainfall does not occur within 7 days after treatment (See following Precautions).

#### **Weeds Controlled**

Common Name	Scientific Name	Rate of MOCCASIN Herbicide*
Annual sedge	<i>Cyperus compressus</i>	2.48 pt/A
Yellow nutsedge	<i>Cyperus esculentus</i>	
Smooth crabgrass	<i>Digitaria ischaemum</i>	
Large crabgrass	<i>Digitaria sanguinalis</i>	
Bearded sprangletop	<i>Leptochloa fascicularis</i>	1.24-2.48 pt/A
Mexican sprangletop	<i>Leptochloa uninervia</i>	
Doveweed	<i>Murdannia nudiflora</i>	
Annual bluegrass	<i>Poa annua</i>	

\*1.0 pt/A = 0.3 ml/1,000 sq ft 1.3 pt/A = 0.4 ml/1,000 sq ft 2.6 pt/A = 0.9 ml/1,000 sq ft

#### **Restrictions:**

- **DO NOT** use MOCCASIN Herbicide on turfgrasses in New York State.
- **Not for use on sod farms in California.**
- **DO NOT** use on golf greens, tees, or aprons
- Split rate of applications can be made at rates not less than 0.96 pt/A (0.96 lbs ai).
- **DO NOT** apply more than 2.48 pts/A (2.48 lbs ai) in a single application.
- **DO NOT** apply more than once every 6 weeks.
- For commercial sod production, **DO NOT** apply more than 3.92 pts/A (3.92 lbs ai) per year to the same area used for sod production.
- For commercial sod production, **DO NOT** make more than 4 applications per acre per year (not to exceed 3.92 pt/A (3.92 lbs ai) per year).
- **DO NOT** graze or feed turf clippings to animals.

**Precautions for all uses on sod farms:**

Delayed spring green-up, temporary slowing of growth and yellowing may occur following application. To avoid turf injury,

- Application of a nitrogen-containing fertilizer at or soon after applying MOCCASIN Herbicide will minimize delay in spring green-up and any temporary yellowing;
- Use only on turfgrass not under stress from infestations of insects, nematodes, or diseases;
- do not seed or overseed with desirable turfgrass 4 months before or after treatment, and
- do not apply this product to newly seeded grasses until they have overwintered and have a well-developed rhizome system.
- Before using MOCCASIN Herbicide in the tank mix with fluid fertilizer or other registered pesticides, determine the tolerance of the turf species by applying the combination to a limited area during a period of active growth.
- In turfgrass areas which have heavy thatch, the weed control of MOCCASIN Herbicide may be reduced.

**STORAGE AND DISPOSAL**

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

**Pesticide Storage**

Do not store at temperatures lower than -30°F.

**Pesticide Disposal**

Open dumping is prohibited. Wastes resulting from the use of this product are toxic. Improper disposal of unused pesticide, spray mixture, or rinsate is a violation of federal law. Pesticide, spray mixture, or rinsate that cannot be used according to label instructions must be disposed of according to federal, state, or local procedures. For guidance in proper disposal methods, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office.

**Container Handling [less than or equal to 5 gallons]**

**Non-refillable container.** Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

**Container Handling [greater than 5 gallons]**

**Refillable container.** Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the person refilling. To clean container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

**Container Handling [greater than 5 gallons]**

**Non-refillable container.** Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand



the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call CHEMTREC at 1-800-424-9300, day or night.

**IMPORTANT INFORMATION  
READ BEFORE USING PRODUCT**

**CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY**

**NOTICE:** Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product reflect the opinion of experts based on field use and tests, and must be followed carefully. It is impossible to eliminate all risks 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 UPL NA Inc. or Seller. Handling, storage, and use of the product by Buyer or User are beyond the control of UPL NA Inc. and Seller. To the extent consistent with applicable law, all such risks shall be assumed by Buyer and User, and Buyer and User agree to hold UPL NA Inc. and Seller harmless for any claims relating to such factors.

**TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, UPL NA Inc. AND SELLER MAKE NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ON THIS LABEL.**

To the extent consistent with applicable law, UPL NA Inc. or Seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product and **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF UPL NA INC. 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 UPL NA INC. OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

UPL NA Inc. 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 the duly authorized representative of UPL NA Inc.

UPL, the UPL logo, and MOCCASIN are trademarks of a UPL Corporation Limited Group Company.

®/™ All other products are trademarks of their respective companies.

**Sublabel 2: Non-agricultural uses**

<b>S-METOLACHLOR</b>	<b>GROUP</b>	<b>15</b>	<b>HERBICIDE</b>
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# MOCCASIN Herbicide

**SALE, USE AND DISTRIBUTION OF THIS PRODUCT IN NASSAU AND SUFFOLK COUNTIES IN THE STATE OF NEW YORK IS PROHIBITED.**

**For weed control in nurseries, turf, and landscape plantings**

**Not for homeowner use**

<b>Active Ingredient:</b>	<b>BY WT.</b>
S-metolachlor (CAS No. 87392-12-9): .....	87.3%
<b>Other Ingredients:</b> .....	<u>12.7%</u>
<b>Total:</b> .....	<b>100.0%</b>

MOCCASIN Herbicide is an Emulsifiable Concentrate (EC) containing 8.0 lb of active ingredient per gallon

**KEEP OUT OF REACH OF CHILDREN**

## CAUTION

FIRST AID	
<b>If on skin</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If swallowed</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by the poison control center or doctor.</li> <li>• Do not give anything to an unconscious person.</li> </ul>
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If inhaled</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<p>Have the product container or label with you when calling a poison control center or doctor or going for treatment. For medical treatment, call the Rocky Mountain Poison and Drug Safety at 1-866-673-6671.</p>	

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

UPL NA Inc.  
 630 Freedom Business Center, Suite 402  
 King of Prussia, PA 19406  
 1-800-247-1557

**EPA Reg. No. 70506-323**  
**EPA Est. No.**

**Net Contents : \_\_\_\_ gallons**

*[optional wording for use on commercial labeling; location on printed labels may vary:  
"See inside for additional Precautionary Statements and complete Directions for Use";  
"See attached booklet for additional Precautionary Statements and complete Directions For Use";  
"See containers inside for additional Precautionary Statements and complete Directions For Use".]*

## **PRECAUTIONARY STATEMENTS**

### **Hazards to Humans and Domestic Animals**

### **CAUTION**

Harmful if absorbed through skin. Harmful if swallowed. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before drinking, chewing gum, using tobacco, or using the toilet.

### **Personal Protective Equipment**

#### **Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Chemical-resistant gloves, such as barrier laminate or Viton®
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

### **Engineering Control Statements**

Mixers and loaders supporting aerial applications are required to use closed systems. The closed system must be used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.607(d)]. When using the closed system, the mixers' and loaders' PPE requirements may be reduced or modified as specified in the WPS.

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 170.607(d-f)], the handler PPE requirements may be reduced or modified as specified in the WPS.

### **User Safety Recommendations**

#### **Users should:**

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

Do not apply directly to water, 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 wash water or rinsate.

Reporting Ecological Incidents: to report ecological incidents, including mortality, injury, or harm to plants and animals, call UPL NA Inc. at 1-800-247-1557.

### **Ground Water Advisory**

S-metolachlor is known to leach through soil into groundwater under certain conditions as a result of label use. This chemical may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

**NON-TARGET ORGANISM ADVISORY:** This product is toxic to plants and may adversely impact the forage and habitat of non-target organisms, including pollinators, in areas adjacent to the treated site. Protect the forage and habitat of non-target organisms by following label directions intended to minimize spray drift.

### **Surface Water Advisory**

This product may impact surface water quality due to runoff of rain water. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having high potential for reaching surface water via runoff for several weeks or months after application.

### **Mixing/Loading Instructions**

Care must be taken when using this product to prevent back-siphoning into wells, spills, or improper disposal of excess pesticide, spray mixtures, or rinsates.

Check-valves or antisiphoning devices must be used on all mixing and/or irrigation equipment.

This product must not be mixed or loaded within 50 ft. of perennial or intermittent streams and rivers, natural or impounded lakes and reservoirs. This product must not be mixed/loaded or used within 50 ft. of all wells, including abandoned wells, drainage wells, and sink holes. Operations that involve mixing, loading, rinsing, or washing of this product into or from pesticide handling or application equipment or containers within 50 ft. 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 rain water 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.

### **DIRECTIONS FOR USE**

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

Endangered Species Protection Requirements:

It is a Federal offense to use any pesticide in a manner that results in an unauthorized "take" (e.g., kill or otherwise harm) of an endangered species and certain threatened species, under the Endangered Species Act section 9. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. You must obtain a Bulletin no earlier than six months before using this product. To obtain Bulletins, consult <http://www.epa.gov/espp/>, call 1-844-447-3813, or email [ESPP@epa.gov](mailto:ESPP@epa.gov). You must use the Bulletin valid for the month in which you will apply the product.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of UPL NA INC or Seller. To the extent consistent with applicable law, Buyer and User agree to hold UPL NA INC and Seller harmless for any claims relating to such factors

MOCCASIN Herbicide must be used only in accordance with directions on 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 State or Tribal 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 24 hours.**

For early entry into treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, wear:

- Coveralls
- Chemical-resistant gloves, such as barrier laminate or Viton
- Shoes plus socks

### **NON-AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

**Do not enter or allow others to enter the treated area until sprays have dried.**

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

**Note: Sale, use and distribution of this product in Nassau and Suffolk Counties in the State of New York is prohibited.**

### **PRODUCT INFORMATION**

MOCCASIN Herbicide controls many annual grasses, certain annual broadleaf weeds, and yellow nutsedge.

MOCCASIN Herbicide may be used on commercial and residential warm-season turfgrasses and other noncrop land, including, but not limited to the following: airports, roadsides, golf courses, sports fields, public recreational areas, ornamental gardens, cemeteries, other landscaped areas, etc. MOCCASIN Herbicide may also be used in and around container and field-grown ornamentals, nonbearing nursery stock, and on sod farms.

### **RESTRICTIONS**

DO NOT apply under windy conditions.

DO NOT apply under conditions which favor runoff or wind erosion of soil containing this product to nontarget areas.

DO NOT USE IN GREENHOUSES OR OTHER ENCLOSED STRUCTURES.

To prevent off-site movement due to runoff or wind erosion:

- When conditions for wind erosion exist, DO NOT apply this product to light sandy soils or soils that have a powder dry surface. If these conditions exist, mitigate by irrigation or rainfall prior to application.
- Do not apply to highly compacted or paved surfaces or any other surfaces that are impervious.

- Non-target crops must NOT be exposed to the furrow or first flood irrigation tailwater from fields treated with this product. This restriction does not apply if a minimum of ½" of rain occurs prior to the first irrigation after application.

### **SPRAY DRIFT MANAGEMENT**

#### **MANDATORY SPRAY DRIFT MANAGEMENT**

##### Ground Boom Applications

- User must only apply with the release height recommended by the manufacturer, but no more than 4 feet above the ground or crop canopy.
- Applicators are required to select the nozzles and pressure that deliver medium or coarser droplets (ASABE S572).
- Do not apply when wind speeds exceed 15 mph at the application site.
- Do not apply during temperature inversions.

##### Aerial Applications:

- Do not release spray at a height greater than 10 ft. above the ground or vegetative canopy, unless a greater application height is necessary for pilot safety.
- Applicators are required to select the nozzle and pressure that deliver medium or coarser droplets (ASABE S641).
- If the wind speed is 10 miles per hour or less, applicators must use ½ swath displacement upwind at the downwind edge of the field. When the wind speed is between 11-15 miles per hour, applicators must use ¾ swath displacement upwind at the downwind edge of the field.
- Do not apply when wind speeds exceed 15 mph at the application site. If the wind speed is greater than 10 mph, the boom length must be 65% or less of the wingspan for fixed wing aircraft and 75% or less of the rotor diameter for helicopters. Otherwise, the boom length must be 75% or less of the wingspan for fixed-wing aircraft and 90% or less of the rotor diameter for helicopters.
- Do not apply during temperature inversions.

##### Boomless Ground Applications:

- Applicators are required to select the nozzle and pressure that deliver a medium or coarser droplet size (ASABE S572.3) for all applications.
- Do not apply when wind speeds exceed 15 mph at the application site.
- Do not apply during temperature inversions.

### **SPRAY DRIFT ADVISORIES**

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT. BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

##### Boomless Ground Applications:

- Setting nozzles at the lowest effective height will help to reduce the potential for spray drift.

### **IMPORTANCE OF DROPLET SIZE**

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

#### Controlling Droplet Size – Ground Boom

- Volume – Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure – Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle – Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

#### Controlling Droplet Size – Aircraft

- Adjust Nozzles – Follow nozzle manufacturers' recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

#### **BOOM HEIGHT – Ground Boom**

For ground equipment, the boom should remain level with the crop and have minimal bounce.

#### **RELEASE HEIGHT – Aircraft**

Higher release heights increase the potential for spray drift.

#### **SHIELDED SPRAYERS**

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

#### **TEMPERATURE AND HUMIDITY**

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

#### **TEMPERATURE INVERSIONS**

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or 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. Avoid applications during temperature inversions.

#### **WIND**

Drift potential generally increases with wind speed. AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.

Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

<p><b>NOTICE TO USER:</b> Plant tolerances to MOCCASIN Herbicide have been found to be acceptable in the specific genera and species listed on this label. Because of the large number of species and varieties of plants, it is impossible to test each for tolerance to MOCCASIN Herbicide. Neither the manufacturer nor the seller has determined whether or not this product can be used safely on plants not specified on this label. Therefore, the professional user must determine if MOCCASIN Herbicide can be used safely by testing the labeled rates on a particular group of similar unlabeled ornamental plants in a small area before widespread use or by checking with the local weed specialist for guidance. Likewise, if the professional user plans to apply MOCCASIN Herbicide for control of weed species not listed on this label, This product should be tested on a small-scale basis before widespread use or the local weed specialist contacted for guidance.</p>
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## Weed Resistance Management

For resistance management, MOCCASIN Herbicide is a Group 15 herbicide. Any weed population may contain or develop plants naturally resistant to MOCCASIN Herbicide and other Group 15 herbicides. Weed species with acquired resistance to Group 15 may eventually dominate the weed population if Group 15 herbicides are used repeatedly in the same area. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance take one or more of the following steps:

- Rotate the use of MOCCASIN Herbicide or other Group 15 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds. Whenever possible incorporate multiple weed control practices such as mechanical cultivation, biological management practices, and crop rotation.
- Use tank mixtures with herbicides from a different group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or pest control advisor if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use, and that considers mechanical control methods, cultural (e.g. timing to favor the desirable plants and not the weeds), biological (weed-competitive varieties) and other management practices.
- Fields should be scouted before application to identify the weed species present and their growth stage to determine if the intended application will be effective. Scout after herbicide application to monitor weed populations for early signs of resistance development. Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species. If resistance is suspected, prevent weed seed production in the affected area by an alternative herbicide from a different group or by a mechanical method. Prevent movement of resistant weed seeds to other areas by cleaning equipment.
- If a weed pest population continues to progress after treatment with this product, discontinue use of this product and switch to another management strategy or herbicide with a different mode of action (MOA), if available. Treat weed escapes with an herbicide with a different MOA or use non-chemical methods to remove escapes. To the extent possible do not allow weed escapes to produce seeds, roots, or tubers.
- Contact your local sales representative, crop advisor, or extension agent to find out if suspected resistant weeds to this MOA have been found in your region. If resistant biotypes of target weeds have been reported, use the application rates of this product specified for your local conditions. Tank mix products so that there are multiple effective mechanisms of action for each target weed. Contact UPL NA at 1-800-438-6071.

## APPLICATION PROCEDURES

**Ground Application:** Apply MOCCASIN Herbicide alone or in tank mixtures by ground equipment in a minimum of 10 gals. of spray mixture per acre, unless otherwise specified.

Use sprayers that provide accurate and uniform application. For tank mixtures with wettable powder or dry flowable formulations, screens and strainers should be no finer than 50-mesh. Rinse sprayer thoroughly with clean water immediately after use.

Calculate the amount of herbicide needed for band treatment by the following formula:

$$\frac{\text{band width in inches}}{\text{row width in inches}} \times \text{broadcast rate per acre} = \text{amount needed per acre of field}$$

**Aerial Application (Sod Farms Only):** Apply MOCCASIN Herbicide in water alone or in tank mixtures with atrazine, simazine, or other herbicides registered for use on sod farms in a minimum total volume



of 2 gals./A by aircraft. See **Turfgrass** section for listing of applicable warm-season grasses. Do not apply in conditions where uniform coverage is not possible, or where spray drift may occur. To ensure that spray will be controllable within the treatment area, apply at a maximum height of 10 ft., and use low-drift nozzles at a maximum pressure of 40 psi. Restrict application to periods when wind speed does not exceed 10 mph. For further protection of sensitive nontarget plants, apply MOCCASIN Herbicide or mixtures at a minimum upwind distance of 400 ft. from such plants.

Avoid application to humans or animals. Flagmen and loaders should avoid inhalation of spray mist and prolonged contact with skin.

## SPRAY EQUIPMENT

### Aerial Drift Management

Refer to the **Spray Drift Management** section for information on managing spray drift.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment- and weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

1. The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses, or to applications using dry formulations.
2. The distance of the outermost nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.

Nozzles must always point backward parallel with the air stream and never be pointed downward more than 45 degrees.

Where states have more stringent regulations, they must be observed.

The applicator must be familiar with and take into account the information covered in the **Spray Drift Management** section.

### Sensitive Areas

Apply the pesticide only when the potential for drift to adjacent sensitive areas (e.g., residential bodies of water, known habitat for threatened or endangered species, nontarget crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

**Overhead or Microjet Irrigation Application:** MOCCASIN Herbicide alone or in tank mixture with other herbicides which are registered for overhead or microjet application may be applied in irrigation water at rates recommended on this label. Apply this product only through an overhead or microjet irrigation system. Do not apply this product through any other type of irrigation system. Crop injury or lack of effectiveness can result from nonuniform distribution of treated water. If you have questions about calibration, contact State Extension specialists, equipment manufacturers, or other experts. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system, unless the pesticide label-prescribed safety devices for public water systems are in place. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

### Operation Instructions

1. The system must contain a functional check-valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water-source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check-valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to

prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use 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 fit- ted with a system interlock.
7. Do not apply when wind speed favors drift beyond the area intended for treatment.
8. Prepare a mixture with a minimum of 1 part water to 1 part herbicide(s) and inject this mixture into the over- head or microjet system. Injecting a larger volume of a more dilute mixture per hour will usually provide more accurate calibration of metering equipment. Maintain sufficient agitation to keep the herbicide in suspension.
9. Meter into irrigation water during entire period of water application.
10. Apply in 1/2 -1 inch of water. Use the lower water volume (1/2 inch) on coarse-textured soils and the higher volume (1 inch) on fine-textured soils. More than 1 inch of water at application may reduce weed control by moving the herbicide below the effective zone in the soil.

*Precaution for overhead or microjet applications: Where sprinkler distribution patterns do not overlap sufficiently, unacceptable weed control may result. Where sprinkler distribution patterns overlap excessively, injury to desirable plants may result.*

### **Dry Bulk Granular Fertilizers**

Many dry bulk granular fertilizers may be impregnated or coated with MOCCASIN Herbicide alone or with selected tank mixtures. All respective fertilizers or tank mix partners must be registered and not prohibited from use together. Always follow all directions for use, precautions and limitations on the respective product labels.

All individual state regulations relating to dry bulk granular fertilizer blending, registration, labeling, and application are the responsibility of the individual and/or company selling the herbicide/fertilizer mixture.

Prepare the granular herbicide/fertilizer mixtures by using any closed drum, belt, ribbon, or other commonly used dry bulk fertilizer blender. Place the nozzles used to spray MOCCASIN Herbicide or tank mixtures onto the fertilizer to provide uniform spray coverage.

An absorptive material such as Agsorb® granules, Microcel E (Johns-Manville Products Corporation), diatomaceous earth, or finely powdered clay may be added to the mixture if it is too wet, to obtain a dry free-flowing mixture. Generally, less than 2% by weight of absorptive material is needed to form a free-flowing mixture..

Calculate amounts of MOCCASIN Herbicide and other herbicides by the following formula:

$$\frac{2,000 \text{ lbs of fertilizer per acre}}{\text{lbs of fertilizer per acre}} \times \text{pts/A of liquid or flowable product} = \frac{\text{pts of liquid or flowable product}}{\text{per ton of fertilizer}}$$

$$\frac{2,000 \text{ lbs of fertilizer per acre}}{\text{lbs of fertilizer per acre}} \times \text{lbs/A of dry product} = \frac{\text{lbs of dry product}}{\text{per ton of fertilizer}}$$

**Precautions:**

- Do not use MOCCASIN Herbicide or mixtures on straight limestone, since absorption will not be achieved. Fertilizer blends containing limestone can be impregnated.
- To avoid potential injury of ornamental plants, do not use the herbicide/fertilizer mixture on container-grown plants and where planting beds are being formed.

To avoid potential for explosion,

- Do not impregnate MOCCASIN Herbicide or mixtures on ammonium nitrate, potassium nitrate, or sodium nitrate, either alone or in blends with other fertilizers.

**Do not combine mixtures of MOCCASIN Herbicide with any other herbicide with single superphosphate (0-20-0) or triple superphosphate (0-46-0).**

**Application**

Uniformly apply 100-800 lbs of the herbicide/fertilizer mixture per acre to the soil immediately after blending. Always use properly calibrated equipment. Uniform application will prevent possible crop injury nonuniform application may result in unsatisfactory weed control. In areas where conventional tillage is practiced, a shallow incorporation of the mixture into the soil may improve weed control.

On fine- or medium-textured soils in areas where soil incorporation is not planned (reduced tillage situations or in some conventional tillage situations), apply approximately 30 days before planting to allow moisture to move the herbicide/fertilizer mixture into the soil. On coarse-textured soils, apply approximately 14 days prior to planting.

## MIXING PROCEDURES

**MOCCASIN Herbicide Alone:** Mix MOCCASIN Herbicide with water or fluid fertilizer and apply as a spray. Agitate continuously during mixing and application to maintain a uniform spray mixture.

- Fill the spray tank 1/2-3/4 full with water or fluid fertilizer
- start agitation
- add the proper amount of MOCCASIN Herbicide
- add the rest of the water or fluid fertilizer.

**Tank Mixtures:** When tank mixing MOCCASIN Herbicide solutions, allow each product to fully disperse before adding other products.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

- Fill the spray tank 1/4 full with water or fluid fertilizer and start agitation.
- Add all products packaged in water-soluble bags first and at the same time. These products **must be mixed in clean water only** (preslurry in water when fertilizer is the main carrier).
- Continue agitation. Then add water-dispersible granules (WG formulations) And allow the granules to disperse.
- Add any wettable powder (WP) formulations to the tank with continuous agitation.
- Add spray adjuvants and spray markers, if needed. Confirm prior to use that additives are approved for application to turf and ornamentals.
- Add flowable liquids (L) or suspension concentrates (SC).
- Add MOCCASIN Herbicide to the spray tank last.
- Continue to fill the sprayer with the rest of the water or fluid fertilizer. Maintain agitation in the spray tank until all of the solution has been applied.

Check compatibility of the mixture using the test described below before mixing in the spray tank.

**Restrictions:** Before using MOCCASIN Herbicide in a tank mix with fluid fertilizer or other registered pesticides, determine the tolerance of the plant species by applying the combination to a limited area during a period of active growth. **Do not use fluid fertilizers as a carrier for applications to container-grown ornamentals.**

## COMPATIBILITY TESTING

Tank mix incompatibility occurs most often in fertilizer / pesticide suspensions. To ensure the compatibility of this product with other pesticides and fertilizers, a jar test should be conducted prior to tank mixing. The procedure below assumes a spray volume of 25 gallons per acre and the amounts of the individual ingredients should be changed as appropriate for other spray volumes.

**Important Note: Compatibility with between liquid fertilizers and the pesticides to be tank mixed must always be tested prior to use** due to the variability of liquid fertilizers, even within the same analysis.

### Compatibility Test Procedure

- Using two 1 quart jars, add 1 pint of the desired fertilizer or water carrier to each. The same source and temperature of water that will be used for the final tank mix should be used to conduct the test.
- To one jar add 1/4 tsp (1.2 milliliters) of a compatibility agent (such as Compex or Unite) approved for this use and gently shake or stir to mix.
- To both jars add the relative proportions the labeled amounts of pesticide(s). If more than one pesticide is being tested for compatibility, add them in the following order: a) dry pesticides b) flowables and c) emulsifiable concentrates. Gently shake or stir after each addition.
- Once all the desired tank-mix components are added, put the lids on the jars and invert each jar ten times to thoroughly combine. Set the jars aside for 15-30 minutes and then inspect for signs of incompatibility such as separation, precipitates, large flakes, gels or heavy oily films.
- If the two jars look the same, the compatibility agent is not needed, but if the jar with the compatibility agent shows no signs of incompatibility but the other jar does, the compatibility agent will be necessary in the final tank mix.
- If either mixture separates but can be easily remixed, the mixture may be used only if sufficient agitation is maintained to keep the solution mixed in the spray tank.
- After testing, all pesticide wastes must be disposed of as instructed by the **Storage and Disposal** section of this label.

## USE DIRECTIONS

### Nurseries and Landscape Plantings

Apply MOCCASIN Herbicide at rates indicated below to control many annual grasses, certain broadleaf weeds, and yellow nutsedge (see following list). Calibrate applicator equipment before use according to the manufacturer's directions.

#### Weeds Controlled

annual bluegrass	groundsel*
barnyardgrass (watergrass)	hairy nightshade*
black nightshade	pigweed
carpetweed	prairie cupgrass
common purslane*	red rice
crabgrass	sandbur*
crowfootgrass	seedling johnsongrass*
doveweed	shattercane*

fall panicum	signalgrass ( <i>Brachiaria</i> )
Florida pusley	southwestern cupgrass
foxtail millet	witchgrass
galinsoga	yellow foxtail
giant foxtail	yellow nutsedge
goosegrass	volunteer sorghum*
green foxtail	

\*Control of these weeds can be erratic due partially to variable weather conditions.

### Application

Apply MOCCASIN Herbicide before grass, broadleaf weeds, or yellow nutsedge emerge (or after existing weeds or nutsedge plants have been removed) in sufficient carrier to obtain thorough coverage. For liquid carriers, use a minimum of 10 gals./A. A second application, which must not exceed a total of 4.2 pts/A (1.5 fl oz or 46 mL/1,000 sq. ft.) per year or crop cycle, whichever is less, may be needed to provide longer weed control.

### Rates of MOCCASIN Herbicide

Soil Texture	Pts/A	Fl oz/1000 sq. ft. (ml/1,000 sq. ft.)	Notes
COARSE	1.3-2.0	0.5-0.7 (14-21)	Use higher rates on high organic matter soils and where yellow nutsedge and/or a heavy infestation of weeds is expected.
MEDIUM	1.3-2.0	0.5-0.7 (14-21)	Use the lower rates on soils with low organic matter content and where light infestations of weeds are expected.
FINE	2.0-2.6	(0.70-.9) (21-28)	In peat and muck soils and soils highly enriched with organic matter (i.e., sawdust) and/or synthetic mixes, the activity of MOCCASIN Herbicide may be reduced.

If banded applications are used, refer to the **Product Information** section of this label to calculate the amount of MOCCASIN Herbicide needed.

### Precautions:

- To avoid plant injury, do not apply this product to seedbeds, cutting beds, or unrooted cuttings before transplanting or to plants until the soil has firmly settled around roots.
- When MOCCASIN Herbicide is applied broadcast over-the-top of plant foliage, reduce the chance of injury by following with sufficient overhead irrigation to wash the product from the foliage.

MOCCASIN Herbicide has been found to be safe on the following plants:

### Container grown plants:

Abelia, Glossy	<i>Abelia grandiflora</i>
Ajuga	<i>Ajuga reptans</i>
Arborvitae, Globe	<i>Thuja occidentalis</i>

Aucuba, Variegated	<i>Aucuba japonica variegata</i>
Azalea, Catawba	<i>Rhododendron catawbiense</i>
Azalea, Formosa/Indica	<i>Rhododendron indica</i>
Azalea, Kurume	<i>Rhododendron obtusum</i>
Beard-Tongue	<i>Penstemon x Mexicali</i>
Boxwood	<i>Buxus</i> spp.
Candytuft	<i>Iberis sempervirens</i>
Carex	<i>Carex</i> spp.
Cotoneaster	<i>Cotoneaster</i> spp.
Dogwood	<i>Cornus</i> spp.
Eastern Red Cedar	<i>Juniperus virginiana</i>
English Ivy	<i>Hedera helix</i>
English Lavender	<i>Lavandula augustifolia</i>
Euonymus	<i>Euonymus fortune</i>
Euonymus, Manhattan	<i>Euonymus kiautschovicus</i>
Flax	<i>Phormium colinsoi</i>
Forsythia	<i>Forsythia</i> spp.
Gardenia	<i>Gardenia jasminoides</i>
Golden Rockets	<i>Ligularia stenocephala</i>
Goldenrod	<i>Solidago sempervirns</i>
Hemlock	<i>Tsuga Canadensis</i>
Hens and Chicks	<i>Sempervivum tectorum</i>
Holly, Dwarf Burford	<i>Ilex cornuta</i>
Holly, Japanese	<i>Ilex crenata</i>
Holly, Savannah	<i>Ilex attenuate</i>
Hosta, Variegated	<i>Hosta lancifolia</i>
Ironweed	<i>Vernonia noveboracensis</i>
Japanese Black Pine	<i>Pinus thunbergii</i>
Juniper	<i>Juniperus horizontalis</i>
Juniper, Chinese	<i>Juniperus chinensis</i>
Juniper/Foemina, Hick's	<i>Juniperus sabina</i>
Leucothoe	<i>Leucothoe fontanesiana</i>
Ligustrum or Privet	<i>Ligustrum japonicum</i>
Liriope	<i>Liriope mascara</i>
Liriope, Green	<i>Liriope spicata</i>
Mondo Grass	<i>Ophiopogon japonicas</i>
Mountain Laurel	<i>Kalmia</i> spp.
Pachysandra, Japanese	<i>Pachysandra terminalis</i>
Pittosporum	<i>Pittosporum tobira</i>
Poker Plant	<i>Kniphofia uvaria</i>
Prickly Pear Cactus	<i>Opuntia humifusa</i>
Red Maple	<i>Acer rubrum</i>
River Birch	<i>Betula nigra</i>
Shrub verbena	<i>Lantana</i> spp.
Switchgrass	<i>Panicum virgatum</i>
Viburnum	<i>Viburnum</i> spp.
Wax Myrtle	<i>Myrica cerifera</i>
White Pine	<i>Pinus strobes</i>
Willow Oak	<i>Quercus phellos</i>
Yew	<i>Taxus cuspidate</i>
Yucca	<i>Yucca</i> spp.

**Field- and Liner-Grown Plants and Plants in Landscape Plantings:** plants transplanted normally in rows in a nursery or similar area for further growth before transplanting to final growing

**location (place of establishment)**

African Lily	<i>Agapanthus africanus</i>
Ajuga	<i>Ajuga reptans</i>
Allium	<i>Allium</i> spp.
Allyssum	<i>Allyssum</i> spp.
Annual Statice	<i>Statice sinnata</i>
Arborvitae	<i>Thuja</i> spp.
Ash	<i>Fraxinus</i> spp.
Aster	<i>Aster</i> spp.
Aucuba	<i>Aucuba</i> spp.
Bald Cypress	<i>Taxodium distichum</i>
Bamboo	<i>Nandina domestica</i>
Barberry	<i>Berberis</i> spp.
Beard-Tongue	<i>Penstemon x mexicali</i>
Bellflower	<i>Campanula carpatica</i>
Birch	<i>Betula</i> spp.
Blue Ageratum	<i>Ageratum</i> spp.
Bougainvillea	<i>Bougainvillea</i> spp.
Boxwood	<i>Buxus</i> spp.
Camellia	<i>Camellia</i> spp.
Candytuft	<i>Iberis sempervirens</i>
Canna Lily	<i>Canna indica</i>
Carex	<i>Carex</i> spp.
Carolina Jessamine	<i>Gelsemium sempervirens</i>
Cherry*	<i>Prunus</i> spp.*
Chrysanthemum, Daisy	<i>Chrysanthemum</i> spp.
Citrus*	<i>Citrus</i> spp.*
Cleyera	<i>Ternstroemia gymanathera</i>
Columbine	<i>Aquilegia</i> spp.
Coreopsis	<i>Coreopsis</i> spp.
Cotoneaster	<i>Cotoneaster</i> spp.
Crabapple, Apple*	<i>Malus</i> spp.*
Crepe Myrtle	<i>Lagerstroemia</i> spp.
Crocus	<i>Crocus</i> spp.
Daylily	<i>Hemerocallis</i> spp.
Delphinium	<i>Delphinium</i> spp.
Dogwood	<i>Cornus</i> spp.
Douglas Fir	<i>Pseudotsuga menziesii</i>
Dusty Miller	<i>Artemesia stoleriana</i>
Eleagnus	<i>Eleagnus</i> spp.
Endymion	<i>Endymion</i> spp.
English Ivy	<i>Hedera</i> spp.
English Lavender	<i>Lavandula augustifolia</i>
Escallonia	<i>Escallonia fradesii</i>
Euonymus	<i>Euonymus</i> spp.
Fig	<i>Ficus</i> spp.
Fir	<i>Abies</i> spp.
Firethorn	<i>Pyracantha</i> spp.
Flax	<i>Phormium colinsoi</i>
Forsythia	<i>Forsythia</i> spp.
Fortnight Lily	<i>Morea</i> spp.
Gaillardia	<i>Gaillardia</i> spp.
Gardenia	<i>Gardenia jasminoides</i>
Gazania Gold Rush	<i>Gazania splendoens</i>
Geranium	<i>Geranium</i> spp.

Geranium	<i>Pelargonium x hortorum</i>
Geum	<i>Geum</i> spp.
Ginkgo	<i>Ginkgo biloba</i>
Gladiolus	<i>Gladiolus x hortulanus</i>
Glossy Abelia	<i>Abelia</i> spp.
Golden Rockets	<i>Ligularia stenocephala</i>
Goldenrod	<i>Solidago sempervirens</i>
Hemlock	<i>Tsuga</i> spp.
Hens and Chicks	<i>Sempervivum tectorum</i>
Hibiscus	<i>Hibiscus</i> spp.
Holly	<i>Ilex</i> spp.
Honey Locust	<i>Gleditsia triacanthos</i>
Honeysuckle	<i>Lonicera</i> spp.
Hosta	<i>Hosta lancifolia</i>
Hyacinth	<i>Hyacinthus</i> spp.
Hydrangea	<i>Hydrangea</i> spp.
Ice Plant	<i>Cryophytum crystallium</i>
Ice Plant	<i>Mesembryanthemum crystallinum</i>
Impatiens	<i>Impatiens</i> spp.
Indian Hawthorne	<i>Raphiolepis</i> spp.
Iris	<i>Iris</i> spp.
Ironweed	<i>Vernonia noveboracensis</i>
Japanese Andromeda	<i>Pieris japonica</i>
Jasmine	<i>Jasmine</i> spp.
Juniper	<i>Juniperus</i> spp.
Kalmia	<i>Kalmia</i> spp.
Leatherleaf Fern	<i>Rumohra adiantiformis</i>
Leopard's-bane	<i>Senecio doronicum</i>
Leucothoe	<i>Leucothoe</i> spp.
Lilac	<i>Syringa</i> spp.
Lily	<i>Lilium</i> spp.
Liriope	<i>Liriope</i> spp.
Locust	<i>Robinia</i> spp.
Loosestrife	<i>Lythrum</i> spp.
Lupines	<i>Lupinus</i> spp.
Magnolia	<i>Magnolia</i> spp.
Maple	<i>Acer</i> spp.
Marigold	<i>Tagetes</i> spp.
Mexican Fan Palm	<i>Washingtonia robusta</i>
Mexican petunia	<i>Ruellia carolinensis</i>
Milkweed	<i>Asclepias</i> spp.
Mondo Grass	<i>Ophiopogon japonicas</i>
Muscari	<i>Muscari armeniacum</i>
Narcissus	<i>Narcissus</i> spp.
Ninebark	<i>Physocarpus</i> spp.
Oak	<i>Quercus</i> spp.
Oleander	<i>Nerium oleander</i>
Osmanthus	<i>Osmanthus</i> spp.
Pachysandra	<i>Pachysandra</i> spp.
Pampas Grass	<i>Cortaderia selloana</i>
Pansy	<i>Viola x Wittrockiana</i>
Pear*	<i>Pyrus</i> spp.*
Periwinkle	<i>Vinca</i> spp.
Petunia	<i>Petunia</i> spp.



Phlox	<i>Phlox</i> spp.
Photinia	<i>Photinia</i> spp.
Physostegia	<i>Physostegia</i> spp.
Pine	<i>Pinus</i> spp.
Pittosporum	<i>Pittosporum</i> spp.
Podocarpus	<i>Podocarpus</i> spp.
Poker Plant	<i>Kniphofia uvaria</i>
Poplar	<i>Populus</i> spp.
Potentilla (Cinquefoil)	<i>Potentilla</i> spp.
Prickly Pear Cactus	<i>Opuntia humifusa</i>
Primrose	<i>Oenothera</i> spp.
Privet	<i>Ligustrum</i> spp.
Queen Anne's Lace	<i>Daucus carota</i>
Rhododendron/Azalea	<i>Rhododendron</i> spp.
Rose	<i>Rosa</i> spp.
Scilla	<i>Scilla</i> spp.
Shrub Verbena	<i>Lantana</i> spp.
Snapdragon	<i>Antirrhinum majus</i>
Snowberry	<i>Symphoricarpos</i> spp.
Spicebush	<i>Illicium</i> spp.
Spiraea	<i>Spiraea</i> spp.
Spruce	<i>Picea</i> spp.
St. John's Wort	<i>Hypericum</i> spp.
Stachys	<i>Stachys</i> spp.
Star of Bethlehem	<i>Ornithogalum umbellatum</i>
Stone Crop	<i>Sedum</i> spp.
Sweet Broom	<i>Cytisus racemosus</i>
Sweet William	<i>Dianthus barbatus</i>
Sweetgum	<i>Liquidambar</i> spp.
Switchgrass	<i>Panicum virgatum</i>
Tulip	<i>Tulipa</i> spp.
Tulip Tree	<i>Liriodendron tulipifera</i>
Veronica	<i>Veronica</i> spp.
Viburnum	<i>Viburnum</i> spp.
Wax Myrtle	<i>Myrica</i> spp.
Weigela	<i>Weigela</i> spp.
Willow	<i>Salix</i> spp.
Wisteria	<i>Wisteria senensis</i>
Yarrow	<i>Achillea</i> spp.
Yew	<i>Taxus</i> spp.
Yucca	<i>Yucca</i> spp.
Zinnia	<i>Zinnia</i> spp.

\*Do not apply to trees or plants that will bear harvestable fruit within 12 months, or illegal residues may result.

MOCCASIN Herbicide may be applied in tank mixtures with prodiamine, oxyfluorfen, simazine, oxadiazon, or other compatible herbicides registered for use on ornamentals. Refer to the respective product labels for weeds controlled and for plants on which they are registered for use. When applying MOCCASIN Herbicide in tank mixtures, observe the more restrictive directions for use, precautions, and limitations on this label or the respective tank mix product label.

## Turfgrass

**Warm Season Grasses (Bermudagrass, Centipedegrass, St. Augustinegrass, Bahiagrass, and Zoysiagrass) including Commercial St. Augustinegrass Sod Production**

Do not use MOCCASIN Herbicide on turfgrasses in New York State.

Apply MOCCASIN Herbicide **before weeds emerge**. Since soil moisture is necessary for activation, irrigate with 1/2 inch of water if there is no rainfall within 7 days after treatment (See Precautions below).

### Weeds Controlled

Rate of MOCCASIN Herbicide*	Weed Name
2.6 pts/A  (see Restrictions)	Annual sedge ( <i>Cyperus compressus</i> )
	Yellow nutsedge ( <i>Cyperus esculentus</i> )
	Smooth crabgrass ( <i>Digitaria ischaemum</i> )
	Large crabgrass ( <i>Digitaria sanguinalis</i> )
1.3-2.6 pts/A  (see Restrictions)	Bearded sprangletop ( <i>Leptochloa fascicularis</i> )
	Mexican sprangletop ( <i>Leptochloa uninervia</i> )
	Doveweed ( <i>Murdannia nudiflora</i> )
	Annual bluegrass ( <i>Poa annua</i> )

\*1.0 pt./A = 0.4 fl oz (or 11 ml)/1,000 sq. ft.

1.3 pts/A = 0.5 fl oz (or 14 ml)/1,000 sq. ft.

2.6 pts/A = 0.9 fl oz (or 28 ml)/1,000 sq. ft.

### Restrictions:

- To avoid possible illegal residues, do not graze or feed turf clippings to animals.
- Split rate of applications are permitted at rates greater than 1 pt./A.
- Do not apply more than once every 6 weeks.
- Do not use on golf greens, tees, or aprons.
- Do not seed or overseed with desirable turfgrass 4 months before or after treatment.
- For commercial sod production, do not apply more than 4.2 pts/A (4.2 lbs ai) per year to the same area used for sod production.
- For other turf uses, do not apply more than 2.6 pts/A (2.6 lbs ai) per year.

**Precautions:** Delayed spring green-up, temporary slowing of growth and yellowing may occur following application. To avoid turf injury,

- apply a nitrogen-containing fertilizer at or soon after applying MOCCASIN Herbicide to minimize delay in spring green-up and any temporary yellowing;
- use only on turfgrass not under stress from infestations of insects, nematodes, or diseases; and
- avoid application to newly seeded grasses until they have overwintered and have a well-developed rhizome system.
- Evaluate the tolerance of turf species to mixtures with this product before use. Apply the combination to a limited area during a period of active growth.
- Weed control may be reduced in turfgrass areas which have heavy thatch.

## STORAGE AND DISPOSAL

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

### **Pesticide Storage**

Do not store at temperatures lower than -30°F.

### **Pesticide Disposal**

Open dumping is prohibited. Wastes resulting from the use of this product are toxic. Improper disposal of unused pesticide, spray mixture, or rinsate is a violation of federal law. Pesticide, spray mixture, or rinsate that cannot be used according to label instructions must be disposed of according to federal, state, or local procedures. For guidance in proper disposal methods, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office.

### **Container Handling [less than or equal to 5 gallons]**

**Non-refillable container.** Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

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

**Refillable container.** Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the person refilling. To clean container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

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

**Non-refillable container.** Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call CHEMTREC at 1-800-424-9300, day or night.

**IMPORTANT INFORMATION  
READ BEFORE USING PRODUCT  
CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY**

**NOTICE:** Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product reflect the opinion of experts based on field use and tests, and must be followed carefully. It is impossible to eliminate all risks 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 UPL NA Inc. or Seller. Handling, storage, and use of the product by Buyer or User are beyond the control of UPL NA Inc. and Seller. To the extent consistent with applicable law, all such risks shall be assumed by Buyer and User, and Buyer and User agree to hold UPL NA Inc. and Seller harmless for any claims relating to such factors.

**TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, UPL NA INC. AND SELLER MAKE NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ON THIS LABEL.**

To the extent consistent with applicable law, UPL NA Inc. or Seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product and **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF UPL NA INC. 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 UPL NA Inc. OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

UPL NA Inc. 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 the duly authorized representative of UPL NA Inc.

UPL, the UPL logo, and MOCCASIN are trademarks of a UPL Corporation Limited Group Company.

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**SUPPLEMENTAL LABEL**  
**MOCCASIN® Herbicide**  
(EPA Reg. No. 70506-323)  
**FOR USE ON SOYBEANS**  
**CAUTION**

**[optional wording: Not for Use in California]**

**DIRECTIONS FOR USE**

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

This supplemental label expires July 27, 2024 and must not be used or distributed after this date.

Read the label affixed to the container for MOCCASIN before applying. Use of MOCCASIN according to this labeling is subject to the use precautions and limitations imposed by the label affixed to the container for MOCCASIN. This supplemental label and the EPA approved label must be in the possession of the user at the time of pesticide application.

**Application Methods:** Fall applied, Pre-plant surface, Pre-plant incorporated, Pre-emergence, Post-emergence

Refer to the application instructions under **MOCCASIN Herbicide Alone** in the **Application Procedures** section on the container label.

**Restrictions:**

DO NOT apply this product to frozen ground.

The maximum annual rate is 3.7 pts/A (3.7 lbs ai).

DO NOT apply more than 2.5 pts/A (2.5 lbs ai) in a single preemergence application.

DO NOT apply more than 1.9 pts/A (1.9 lbs ai) in a single postemergence application.

The combined total amount of this product applied in the fall plus the spring must not exceed 3.7 pints/A (3.7 lbs ai) per year.

The combined total amount of the active ingredient (S-metolachlor) from all applications to soybeans must not exceed 3.7 pounds of AI per year.

DO NOT apply within 75 days of harvest.

DO NOT graze or feed treated soybean forage, hay, or straw to livestock within 30 days after a pre-plant surface, pre-plant incorporated or pre-emergence application of this product.

DO NOT graze or feed treated forage or hay from soybeans to livestock after a post-emergence application of this product.

**Fall Application for Spring Weed Control**

ND, SD, MN, WI, and north of Route 30 in IA: Apply after September 30

North of Route 91 in NE and south of Route 30 in IA: Apply after October 15

North of Route 136 in IL: Apply after October 31

Apply to crop stubble after harvest when the sustained soil temperature at a 4-inch depth is less than 55°F and falling. In minimum- or no-tillage systems with soils having greater than 2.5% organic matter, apply 1.6-1.9 pts/A on medium-textured soils, and 1.9 pts/A on fine-textured soils. Tilling may be performed before or after treatment; however, if tilled after treatment do not incorporate deeper than 2-3 inches and minimize the formation of furrows and ridges.

**Fall Application for Italian Ryegrass Control**

This product may be used to provide residual control of *glyphosate*-resistant Italian ryegrass (*Lolium multiflorum*) with a fall application of 1.3-1.6 pts/A (between September 1 and December 1). Use the

higher rates on fine textured soils and the lower rates on coarse textured soils. Tillage may be performed prior to application. If planning to till after application, incorporate to a maximum depth of 2-3 inches.

Fall treatments made after emergence of *glyphosate*-resistant Italian ryegrass can be tankmixed with paraquat for control of the emerged ryegrass. Refer to the paraquat brand label for specific rates, application instructions and restrictions. Other registered herbicides may be tank mixed with MOCCASIN Herbicide for control or improved control of other weeds present at the time of application.

### Pre-plant Surface Application

Spring pre-plant surface application may be made on medium and fine soils only under minimum- or no-tillage practices in the following states: CO, CT, DE, IA, IL, IN, KS, KY, MA, MD, ME, MI, MN, MO, MT, ND, NE, NH, NY, OH, PA, RI, SD, TN, VA, VT, WI, WV, and WY.

For applications made 30-45 days prior to planting, make only split applications using 2/3 the listed broadcast rate in the initial application and the remaining 1/3 when planting (see Use Rates below). Treatments made less than 30 days prior to planting may be applied as either a single or split application. For coarse soils apply 1.3 pts/A within two weeks prior to planting.

On soils with 6-20% organic matter or for extended residual or control of heavy infestations, this product may be applied at rates up to 2.5 pts/A.

### Pre-plant Incorporated or Pre-emergence

Using the rates below, follow the instructions for use of **MOCCASIN Herbicide Alone** under Application Procedures at the beginning of this label:

% Organic Matter / Soil Texture		Use Rates MOCCASIN Herbicide
< 3% Organic Matter	Coarse	1.0-1.3 pts/A
	Medium	1.3-1.6 pts/A
	Fine	1.3-1.6 pts/A
≥ 3% Organic Matter	Coarse	1.3 pts/A
	Medium	1.3-1.6 pts/A
	Fine	1.6-1.9 pts/A

On soils with 6-20% organic matter or for extended residual or control of heavy weed infestations, this product may be applied at rates up to 2.5 pts/A.

### Post-emergence

Apply 0.95-1.9 pts/A as a post-emergence treatment for residual control of the weeds listed in the beginning of this label. This product does not control emerged weeds and must be applied to a weed-free soil surface or in a tank mixture with products that provide post-emergence control of weeds that may be present at the time of application.

If this product was applied as a pre-plant surface, pre-plant incorporated, or a pre-emergence treatment, a second application of this product may be made post-emergence so long as the total amount of all applications does not exceed 3.7 pts/A (3.7 lbs ai).

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## SOYBEANS – MOCCASIN HERBICIDE COMBINATIONS

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For enhanced residual control of the weeds listed at the beginning of this label, tank mix MOCCASIN Herbicide at the rates listed in **Soybeans – MOCCASIN Herbicide Alone** section with the herbicides listed below. The most restrictive combination of precautionary statements, restrictions, rates and approved uses of all tank mix partners must be followed.

### Restrictions:

DO NOT apply this product to frozen ground.

The combined total amount of this product applied in the fall plus the spring must not exceed 3.7 pts/A per year (3.7 lbs ai).

The combined total amount of the active ingredient (S-metolachlor) from all applications to soybeans must not exceed 3.5 pounds of AI per year.

DO NOT apply more than 1.9 pts/A (1.9 lbs ai) post-emergence to soybeans.

DO NOT apply within 75 days of harvest.

DO NOT graze or feed treated soybean forage, hay, or straw to livestock within 30 days after a pre-plant surface, pre-plant incorporated or pre-emergence application of this product.

DO NOT graze or feed treated forage or hay from soybeans to livestock after a post-emergence application of this product.

#### **Pre-plant, Pre-emergence:**

##### **Contact herbicides such as paraquat, glyphosate, glufosinate**

For burndown and residual control in reduced- or no-till systems, apply MOCCASIN Herbicide pre-plant surface or pre-emergence with paraquat, glyphosate or glufosinate.

##### **Metribuzin + sulfentrazone (e.g. Authority MTZ), metribuzin (e.g. TriCor, Sencor)**

For additional residual control, make pre-plant surface or pre-emergence applications of this tank mix.

DO NOT apply this tank mix to soils with < 0.5% organic matter.

DO NOT apply this tank mix to soils with a pH > 7.4 (alkaline soils).

Crop injury may occur if heavy precipitation occurs soon after application.

Crop injury may occur if this mix is applied to soybean varieties that are sensitive to metribuzin.

##### **Metribuzin + chlorimuron-ethyl (Canopy), sulfentrazone + cloransulam-methyl (Sonic, Gauntlet), sulfentrazone + chlorimuron ethyl (Authority Maxx), chlorimuron (Classic), cloransulam-methyl, salufenacil (Sharpen), dimethenamid-p + saflufenacil (Verdict)**

For additional residual control, make pre-plant surface or pre-emergence applications of this tank mix.

#### **Post-emergent:**

##### **Chlorimuron ethyl (Classic, FirstRate), cloransulam-methyl, glyphosate + fomesafen, fluazifop-p-butyl (Fusilade), fluazifop-p-butyl + fenoxaprop-p-ethyl (Fusion), fomesafen (Flexstar, Reflex), flumetsulam (Python), acifluorfen + bentazon (Storm), acifluorfen (Ultra Blazer)**

To control emerged weeds and provide residual control of grasses and small seeded broadleaf weeds, apply this tank mix post-emergence being sure to follow any instructions or restrictions in the tank mix partner labels. Using a COC or UAN with this product may cause temporary injury to the crop.

##### **Glyphosate + fomesafen, glyphosate brands**

Use this tank mixture for residual control of weeds *in glyphosate tolerant soybeans only*.

##### **Glufosinate brands**

Use this tank mixture for residual control of weeds *in glufosinate tolerant soybeans only*. To avoid potential crop damage, be sure to follow the instructions for adjuvant use in the Interline or glufosinate product label.

**SUPPLEMENTAL LABEL**  
**MOCCASIN® Herbicide**  
(EPA Reg. No. 70506-323)  
**FOR USE ON SUGARCANE**  
**CAUTION**  
**DIRECTIONS FOR USE**

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

This supplemental label expires July 27, 2024 and must not be used or distributed after this date.

Read the label affixed to the container for MOCCASIN before applying. Use of MOCCASIN according to this labeling is subject to the use precautions and limitations imposed by the label affixed to the container for MOCCASIN. This supplemental label and the EPA approved label must be in the possession of the user at the time of pesticide application.

Apply MOCCASIN Herbicide as a pre-plant, pre-emergence, or post-emergence treatment for weed control in sugarcane. It may also be used in a treatment program that includes a pre-plant/pre-emergence application followed by a post-emergence/post-directed application.

**Restrictions:**

DO NOT apply more than 1.63 qt/A (3.26 lbs ai) of MOCCASIN Herbicide per year.

DO NOT apply more than 1.17 qt/A (2.34 lbs ai) of MOCCASIN Herbicide as a preplant or preemergence application per year.

DO NOT apply more than 0.94 qt/A (1.88 lbs ai) of MOCCASIN Herbicide as a postemergence application per year.

DO NOT apply more than 0.47 qt/A (0.94 lbs ai) of MOCCASIN Herbicide as a postemergence application if a preplant or preemergence application was made.

DO NOT make more than two applications per year.

DO NOT make applications less than 14 days apart.

DO NOT apply to sugarcane that is taller than 60 inches.

DO NOT make a postemergence application within 100 days of harvest.

DO NOT exceed the total combined maximum annual sugarcane rates for s-metolachlor container products (3.34 lb s-metolachlor ai/A).

[Not for this use in California.](#)

Apply MOCCASIN Herbicide at a rate of 0.85 – 1.17 qt/A before planting, pre-emergence after new plantings, or after harvest, but before re-emergence of ratoon-cane. Use the higher rate on heavier soils and soils with higher organic matter content.

**Postemergence Applications**

MOCCASIN will not control emerged weeds so apply only to a weed-free soil surface or in tank mixture with products that provide postemergence control of weeds present at the time of application. Apply MOCCASIN Herbicide at 0.47 – 0.94 qt/A post-emergence before the sugarcane reaches 60 inches in height. Post-emergence applications may be made as broadcast post-over-the-top or as post-directed spray to soil between the rows and the base of the sugarcane.

If a pre-emergence application was made earlier in the season (not to exceed 1.17 qt/A), only 0.47 qt/A may be applied post-emergence. The total amount of MOCCASIN Herbicide applied (pre-emergence + post-emergence) may not exceed 1.63 qt/A/year.



### **SUGARCANE - MOCCASIN HERBICIDE TANK MIX COMBINATIONS**

It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

This product may be tank mixed with other registered sugarcane herbicides, insecticides, and fungicides. The tank mix partners are to be applied by the same methods and the same timings as MOCCASIN Herbicide unless otherwise specified in the tank mix product label. Perform a compatibility test before spraying the tank mix application.



**Weeds Controlled**

Common Name	Scientific Name	Rate of MOCCASIN Herbicide*
Annual sedge	<i>Cyperus compressus</i>	2.48 pt/A
Yellow nutsedge	<i>Cyperus esculentus</i>	
Smooth crabgrass	<i>Digitaria ischaemum</i>	
Large crabgrass	<i>Digitaria sanguinalis</i>	
Bearded sprangletop	<i>Leptochloa fascicularis</i>	1.24-2.48 pt/A
Mexican sprangletop	<i>Leptochloa uninervia</i>	
Doveweed	<i>Murdannia nudiflora</i>	
Annual bluegrass	<i>Poa annua</i>	

\*1.0 pt/A = 0.3 ml/1,000 sq ft 1.3 pt/A = 0.4 ml/1,000 sq ft 2.6 pt/A = 0.9 ml/1,000 sq ft

**Restrictions:**

- **DO NOT** use MOCCASIN Herbicide on turfgrasses in New York State.
- Not for use on sod farms in California.
- **DO NOT** use on golf greens, tees, or aprons
- Split rate of applications can be made at rates not less than 0.96 pt/A (0.96 lb ai).
- **DO NOT** apply more than 2.48 pt/A (2.48 lbs ai) in a single application.
- **DO NOT** apply more than once every 6 weeks.
- For commercial sod production, **DO NOT** apply more than 3.92 pt/A (3.92 lbs ai) per year to the same area used for sod production.
- For commercial sod production, **DO NOT** make more than 4 applications per acre per year (not to exceed 3.92 pt/A (3.92.0 lbs ai) per year).
- **DO NOT** graze or feed turf clippings to animals.

**Precautions for all uses on sod farms:**

Delayed spring green-up, temporary slowing of growth and yellowing may occur following application. To avoid turf injury,

- Application of a nitrogen-containing fertilizer at or soon after applying MOCCASIN Herbicide will minimize delay in spring green-up and any temporary yellowing;
- Use only on turfgrass not under stress from infestations of insects, nematodes, or diseases;
- do not seed or overseed with desirable turfgrass 4 months before or after treatment, and
- do not apply this product to newly seeded grasses until they have overwintered and have a well-developed rhizome system.
- Before using MOCCASIN Herbicide in the tank mix with fluid fertilizer or other registered pesticides, determine the tolerance of the turf species by applying the combination to a limited area during a period of active growth.
- In turfgrass areas which have heavy thatch, the weed control of MOCCASIN Herbicide may be reduced.