

## **OKRA - PRE-EMERGENCE ROW-MIDDLE APPLICATION**

### General Information

#### PRODUCT INFORMATION

MESOTRYONE 4L is a systemic pre-emergence and post-emergence herbicide for the selective contact and residual control of broadleaf weeds in Field corn, Seed corn, Sweet corn, Yellow popcorn and other listed crops. When used pre-emergence, weeds take up the product through the soil during emergence. Dry conditions following application may reduce the pre-emergence activity of this product. If an activating rain (0.25 inches) is not received within 7 to 10 days after a pre-emergence application, where appropriate, rotary hoeing is suggested to activate the herbicide. When used post-emergence, susceptible weeds take up the herbicide through the treated foliage and cease growth soon after application. Complete death of the weeds may take up to 2 weeks. The product is absorbed through the soil and / or by the foliage of emerged weeds.

This product is not effective for the control of most grass weeds. Pre-emergence grass herbicides or post-emergence grass herbicides can be tank-mixed with this product to provide broad spectrum weed control in Corn (see appropriate section of label for this information). This product can be applied post-emergence following a pre-emergence grass herbicide application. This product can also be used in combination with a burndown herbicide prior to planting to provide added burndown and residual weed control in Field corn, Seed corn, Sweet corn and Yellow popcorn.

#### DIRECTIONS FOR USE

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

#### WEED RESISTANCE MANAGEMENT

This product is a Group 27 Herbicide.

Naturally occurring biotypes of certain broadleaf weed species with resistance to

Triazines, Glyphosate, PPO, HPPD and ALS inhibiting herbicides are known to exist. Performance of this product is not affected by the presence of biotypes resistant to Triazines, Glyphosate, PPO or ALS inhibiting herbicides.

To prevent the risk of weeds developing resistance to this product in Corn, always use full labeled rates. If applying this product post-emergence after a Mesotrione containing pre-emergence herbicide, always add Atrazine as a tank-mix partner. No more than 0.24 pound of Mesotrione active ingredient must be applied per acre of Corn per year (equivalent of 7.7 fl. ozs. of this product per acre per year). If additional herbicide must be applied, it is recommended that a different mode of action be used, i.e., other than an HPPD inhibitor (Group 27 Herbicide). This product must be applied at full label rates to help prevent selection for or population shifts toward marginally tolerant weed species and / or species biotypes.

#### INTEGRATED PEST (WEED) MANAGEMENT

This product should be integrated into an overall weed and pest management strategy whenever the use of a herbicide is required. Practices known to reduce weed development (tillage, crop competition) and herbicide use (weed scouting, proper application timing, banding) should be followed wherever possible. Consult local agricultural and weed authorities for additional IPM strategies established for your area.

#### RESTRICTIONS

- Do not apply this product to Ornamental (Indian) corn or White popcorn.
- Do not cultivate Corn within 7 days before or after application of this product as weed control may be reduced.
- Do not apply this product through any type of irrigation system unless specified otherwise under the specific crop section on the label.
- Do not apply this product with suspension fertilizers as the carrier.
- Do not use aerial application to apply this product unless specified otherwise under the specific crop section on the label.

#### USE PRECAUTIONS

- Post-emergence applications of this product in tank-mixes with emulsifiable concentrate grass herbicides may cause severe Corn injury or yield loss under adverse weather conditions.

- Severe Corn injury resulting in yield loss may occur if this product is applied post-emergence to Corn that was treated with Terbufos (e.g., Counter®) or Chlorpyrifos (e.g., Lorsban).
- Severe Corn injury resulting in yield loss may occur if this product is applied foliar post-emergence to Corn in a tank-mix with any organophosphate or carbamate insecticide.
- Severe Corn injury resulting in yield loss may occur if any organophosphate or carbamate insecticide is applied foliar post-emergence within 7 days before or 7 days after application of this product.
- When weeds are stressed due to drought, heat, lack of fertility, flooding or prolonged cool temperatures, control can be reduced or delayed since the weeds are not actively growing. Weed escapes or regrowth may occur when application is made under prolonged stress conditions. Optimum weed control will be obtained if an application of this product is made following label directions when weeds are actively growing.
- This product may be applied with pyrethroid type insecticides (e.g., Lambda-cyhalothrin).

#### SPRAY DRIFT MANAGEMENT

Avoid drift onto adjacent crops and other non-target areas.

**RESTRICTION:** For aerial application use only nozzles producing coarse-ultra coarse droplets. Do not use nozzles producing fine-medium size droplets.

Do not apply when weather conditions may cause drift to non-target areas. Drift may result in injury to adjacent crops and vegetation. To avoid spray drift, do not apply when wind speed is greater than 10 mph or during periods of temperature inversions.

Use of larger droplet sizes will also reduce spray drift.

**AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.**

The interaction of equipment and weather related factors determine the potential for spray drift. The applicator is responsible for considering all these factors when making a decision.

## ADDITIONAL SPRAY DRIFT DIRECTIONS FOR AERIAL APPLICATIONS

- The distance of the outermost nozzles on the boom must not exceed three-fourths the length of the wingspan or rotor.
- Nozzles must always point backward parallel with the airstream and never be pointed downwards more than 45 degrees. Where States have more stringent regulations, they must be observed.
- Spray must be released at the lowest height consistent with effective weed control and flight safety.
- For best results, ensure that each specific aerial application vehicle used is quantifiably pattern tested for aerial application of this product initially and every year thereafter.

**RESTRICTION:** For aerial application, use only nozzles producing coarse-ultra coarse droplets. Do not use nozzles producing fine-medium size droplets.

For some use patterns, reducing the effective boom length to less than three-fourths of the wingspan or rotor length may further reduce drift without reducing swath width.

Do not make applications at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Increase swath adjustment distance with increasing drift potential (higher wind, smaller drops, etc.).

Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Avoid application below 2 mph due to variable wind direction and high inversion potential. Note: Local terrain can influence wind patterns. Ensure that every applicator is familiar with local wind patterns and how they affect drift.

When making applications in low relative humidity, set up equipment to produce

larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

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

## APPLICATION INFORMATION

### PRE-EMERGENCE GROUND APPLICATION

Apply this product pre-emergence with a carrier volume of 10 to 60 gallons per acre.

Spray nozzles must be uniformly spaced, the same size and type and must provide accurate and uniform application. Use spray nozzles that provide medium to coarse droplet size to provide good coverage and avoid drift. Apply in a spray volume of 10 to 60 gallons per acre using water or liquid fertilizer (excluding suspension fertilizers) as the carrier.

Use a pump that can maintain a pressure of at least 35 to 40 psi at the nozzles and provide proper agitation within the tank to keep the product dispersed. Lower pressures may be used with extended range or drift reduction nozzles.

Always ensure that agitation is maintained until spraying is completed, even if stopped for brief periods of time. If the agitation is stopped for more than 5 minutes, resuspend the spray solution by running on full agitation prior to spraying.

### POST-EMERGENCE GROUND APPLICATION

Spray nozzles must be uniformly spaced, the same size and type, and must provide accurate and uniform application. Use spray nozzles that provide medium to coarse

droplet size to provide good coverage and avoid drift. Good weed coverage is essential for optimum weed control. Boom height for broadcast over-the-top applications must be based on the height of the crop, that is, at least 15 inches above the crop canopy.

Apply in a spray volume of 10 to 30 gallons per acre using water as a carrier. Use a pump that can maintain a pressure of at least 35 to 40 psi at the nozzles and provide proper agitation within the tank to keep the product dispersed. Lower pressures may be used with extended range or drift reduction nozzles. When weed foliage is dense, use a minimum of 20 gallons.

Flat fan nozzles of 80° or 110° are recommended for optimum post-emergence coverage. Do not use floodjet nozzles or controlled droplet application equipment for post-emergence applications.

Nozzles may be angled forward 45° to enhance penetration of the crop and provide better coverage. Ensure that all in-line strainer and nozzle screens in the sprayer are 50 mesh or coarser.

Always ensure that agitation is maintained until spraying is completed, even if stopped for brief periods of time. If the agitation is stopped for more than 5 minutes, resuspend the spray solution by running on full agitation prior to spraying.

#### AERIAL APPLICATION

**RESTRICTIONS:** This product can be applied aerially only to Corn and Sugarcane.

For aerial application, use nozzles producing coarse-ultra coarse droplets only. Do not use nozzles producing fine-medium size droplets.

Applications must be made in a minimum of 2 gallons of water per acre.

This product may be applied aurally for pre-emergence or post-emergence weed control in Corn only in the following States: Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin and Wyoming.

This product may be applied aurally for pre-emergence or post-emergence weed control in Sugarcane only in the following States: Florida, Louisiana and Texas.

#### SPRAY ADDITIVES

#### POST-EMERGENCE ADJUVANTS

The following directions for adjuvant are intended primarily for use of this product in Corn. Refer to the use directions section of each crop section for specific adjuvant directions.

#### POST-EMERGENCE APPLICATIONS TO FIELD CORN AND SEED CORN

For post-emergence applications made after the crop has emerged, add Crop Oil Concentrate (COC) to the spray solution at the rate of 1 gallon per 100 gallons of water (1.0% v/v). The use of a Non-Ionic Surfactant (NIS) at 1 quart per 100 gallons of water (0.25% v/v) instead of COC is allowed, but the weed control achieved with COC is consistently better than NIS.

The use of Methylated Seed Oil (MSO) adjuvants or MSO blend adjuvants for post-emergence applications of this product may cause severe crop injury to occur. Do not use MSO adjuvants for post-emergence use unless directed for a specific tank-mix under the "THIS PRODUCT IN TANK-MIXTURES FOR CORN" section of this label or unless permitted by a supplemental label for this product. In addition to COC, always add spray grade Urea Ammonium Nitrate (UAN) (e.g., 28-0-0) to the spray solution at a rate of 2.5% (v/v) or Ammonium Sulfate (AMS) at 8.5 pounds per 100 gallons of spray solution, except if precluded elsewhere on this label or by a supplemental label for this product.

## POST-EMERGENCE APPLICATIONS TO SWEET CORN AND YELLOW POPCORN

For post-emergence applications to Sweet corn and Yellow popcorn, the use of a Non-Ionic Surfactant (NIS) instead of a Crop Oil Concentrate (COC) is recommended, so as to minimize the risk of crop injury. A COC may be used and will increase the level of weed control achieved, especially under dry growing conditions, but the risk of crop injury is increased significantly under lush growing conditions. For optimum control, the addition of Atrazine is recommended wherever rotational or local Atrazine restrictions allow.

Restriction: Do not add UAN or AMS when making post-emergence applications of this product to Sweet corn and Yellow popcorn or severe crop injury may occur.

## PRE-EMERGENCE ADJUVANTS

For pre-plant or pre-emergence applications of this product and where weeds are present, the use of any adjuvant for agricultural use is permitted. In these situations, MSO type adjuvants are typically better than COC type adjuvants, which are typically better than NIS type adjuvants for enhancing weed control. UAN or AMS can be added and typically provides better weed control than not adding one of these. If this product is being tank-mixed with another registered herbicide in this situation, refer to the tank-mix partner label for adjuvant precautions and restrictions.

## WEEDS CONTROLLED

Where reference is made to weeds partially controlled, partial control can either mean erratic control (good to poor) or consistent control at a level below that generally considered acceptable for commercial weed control.

For best post-emergence results, apply this product to actively growing weeds. Dry weather following pre-emergence application of this product may reduce residual weed control effectiveness. If irrigation is available, apply 0.5 to 1 inch of water after pre-emergence application. If irrigation is not available, a uniform shallow cultivation is recommended as soon as weeds emerge.



This product applied alone or in mixture with Atrazine will not provide consistent or effective control of weeds identified as resistant to post-emergence HPPD inhibiting herbicides.

## ROTATIONAL CROPS

When this product is applied as directed on this label, follow the crop rotation intervals listed in table 3 in the label. If this product is tank-mixed with other products, follow the most restrictive product's crop rotation interval.

## Limitations, Restrictions, and Exceptions

### OKRA

#### Pre-emergence Row-Middle Application

Apply this product at a rate of 6.0 fluid ounces per acre as a banded application to the row-middles prior to weed emergence. For this banded application, leave one foot of untreated area over the Okra row or 6 inches to each side of the planted row. For banded applications, the application must be made to account for band width, i.e., to deliver 6.0 fluid ounces per treated acre. Do not apply this product directly over the planted Okra row or severe crop injury may occur. Injury risk is greatest on Coarse textured soils (Sand, Sandy loam or Loamy sand).

#### Restrictions

1. Do not harvest Okra within 28 days following the application of this product.
2. Do not make more than one application of this product per Okra crop.
3. Do not apply this product as a row-middle application at more than 6.0 fluid ounces per treated acre per year.
4. Do not apply this product as a broadcast pre-emergence or broadcast post-emergence application to Okra or severe injury will occur.
5. If the Okra crop treated with this product is lost or destroyed, Okra can be replanted only in the soil band that was not treated with this product.

#### Method

##### [Band application](#)

##### Pre-Harvest Interval

28 days

Restricted Entry Interval

12 hours

Timings

[Preemergence \(Weed\)](#)