ASPARAGUS - POSTEMERGENCE APPLICATIONS

General Information

PRODUCT INFORMATION

Willowood Mesotrione 4SC is a systemic pre-emergence and post-emergence herbicide for selective contact and residual control of broadleaf weeds in field corn, seed corn, yellow popcorn, sweet corn, sorghum (grain and sweet), sugarcane and other listed crops. If used pre-emergence, weeds take up the product through the soil during emergence. Dry weather conditions can reduce pre-emergent effectiveness of Willowood Mesotrione 4SC. If at least ¼-inch of rainfall does not occur within 7-10 days of application, rotary hoeing is recommended to activate the product. If used post-emergence, vulnerable weeds take up the product through treated foliage and stop growing soon after application. It may take up to two weeks for weeds to die. Willowood Mesotrione 4SC is absorbed by soil and/or through foliage of emerged weeds.

Willowood Mesotrione 4SC will not control most species of grass weeds. Willowood Mesotrione 4SC can be tank-mixed with other herbicides registered to control grass weeds (see tank-mix information in this label for additional information). Willowood Mesotrione 4SC can be used in combination with a burndown herbicide prior to planting to provide weed control in field corn, seed corn, yellow popcorn, and sweet corn.

RESISTANCE MANAGEMENT FOR WILLOWOOD MESOTRIONE 4SC (GROUP 27 HERBICIDE)

The efficacy of Willowood Mesotrione 4SC is not affected by the presence of biotype weed species that are resistant to Protoporphyrinogen Oxidase (PPO), 4-Hydroxyphenylpyruvate Dioxygenase (HPPD) or Acetolactate Synthase (ALS) inhibiting herbicides or to Triazine or Glyphosate herbicides.

To reduce the risk of weeds developing resistance to mesotrione in corn, always use full specified label rates. When applying Willowood Mesotrione 4SC post-emergence after a mesotrione-containing pre-emergence herbicide, always add atrazine as a tank mix partner. Do not apply more than 0.24 lb. of mesotrione active ingredient
per acre of corn per year (equivalent to 7.7 fl. oz. per acre per year of Willowood Mesotrione 4SC). If additional herbicide is needed, use an herbicide product other than a HPPD inhibitor (Group 27 Herbicide). Use full label rates of Willowood Mesotrione 4SC to prevent selection for, or population shifts toward, marginally tolerant weed species and/or species biotypes.

INTEGRATED WEED PEST MANAGEMENT

Integrate Willowood Mesotrione 4SC into an overall weed pest management strategy whenever the use of an 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.

USE PRECAUTIONS - WILLOWOOD MESOTRIONE 4SC

- Severe corn injury can result from post-emergent application of Willowood Mesotrione 4SC to corn treated with Counter or Lorsban.
- Severe corn injury and/or yield loss can occur if foliar post-emergent applications of Willowood Mesotrione 4SC are made to corn in a tank mix with any organophosphate or carbamate insecticide.
- Severe corn injury and/or yield loss can occur if an organophosphate or carbamate insecticide is applied foliar post-emergence within 7 days before or 7 days after Willowood Mesotrione 4SC application.
- 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 Willowood Mesotrione 4SC is made following label directions when weeds are actively growing.
- Willowood Mesotrione 4SC may be applied with pyrethroid type insecticides (e.g., Lambda cyhalothrin).

USE RESTRICTIONS - WILLOWOOD MESOTRIONE 4SC

- DO NOT apply this product to white popcorn or ornamental (Indian) corn.
- 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 under the specific crop section of the label.
- DO NOT apply this product with suspension fertilizers as the carrier.
- DO NOT apply this product post-emergence in a tank mix with emulsifiable concentrate grass herbicides, unless specifically directed under one of the tank mix sections of this label, or crop injury can occur.
- DO NOT make aerial applications of this product unless specified in the specific crop directions of this label.

SPRAY DRIFT RESTRICTIONS

- Avoid drift to adjacent crops and non-target areas.
- For aerial applications use only nozzles that produce coarse to very coarse droplets. DO NOT use nozzles that produce fine to medium size droplets.
- DO NOT apply when weather conditions can cause drift to non-target areas to avoid injury to adjacent crops and vegetation.
- DO NOT apply when wind speed is greater than 10 mph or during a temperature inversion.
- Use of larger droplet sizes will help avoid spray drift.

SPRAY DRIFT PRECAUTIONS FOR AERIAL APPLICATION TO CORN & SUGARCANE ONLY

The distance of the outer-most nozzles on the boom must not exceed \( \frac{3}{4} \) the length of the wingspan or rotor.

Nozzles must always point backward parallel with the air stream 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 with aerial application of this product, each type of airplane and helicopter used should be quantifiably pattern tested initially and every year thereafter.
RESTRICTION: FOR AERIAL APPLICATION USE ONLY NOZZLES PRODUCING COARSE TO VERY COARSE DROPLETS. DO NOT USE NOZZLES PRODUCING FINE OR MEDIUM SIZE DROPLETS.

For some use patterns, reducing the effective boom length to less than \( \frac{3}{4} \) 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. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller drops, etc.).

Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential.

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

When making application 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 make applications 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.

Apply Willowood Mesotrione 4SC when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat, for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

**AERIAL APPLICATION INSTRUCTIONS FOR CORN AND SUGARCANE**

Aerial application of Willowood Mesotrione 4SC is permitted only on corn and sugarcane. Make aerial application with nozzles that produce coarse to very coarse droplets. **DO NOT** use nozzles producing fine to medium size droplets.


**SUGARCANE:** Willowood Mesotrione 4SC is approved for aerial application for pre-emergence and postemergence control in sugarcane in the states of: Florida, Louisiana, and Texas.

Make aerial applications in a minimum of 2 gallons water per acre.

**PRE-EMERGENCE GROUND APPLICATION INSTRUCTIONS**

Apply Willowood Mesotrione 4SC pre-emergence with a carrier volume of 10-60 gals./A.

Space spray nozzles of the same size and type uniformly to provide accurate and uniform coverage. Use medium to coarse droplet size nozzles to ensure coverage and avoid drift. Apply in a spray volume of 10-60 gals./A with water or liquid
fertilizer (NOT suspension fertilizer) as the carrier. Use a pump that will maintain pump pressure of 35-40 psi at the nozzles and provide proper agitation within the tank to keep the product dispersed. Lower pressures can be used with extended range or drift reduction nozzles.

Maintain constant agitation until spraying is complete, even if stopping for brief periods of time. If agitation is stopped for longer than 5 minutes, re-suspend the spray solution by running on full agitation prior to spraying.

POST-EMERGENCE GROUND APPLICATION INSTRUCTIONS

Space spray nozzles of the same size and type uniformly to provide accurate and uniform coverage. Use medium to coarse droplet size nozzles to ensure coverage and avoid drift. Complete 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, at least 15 inches above the crop canopy.

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

Apply with flat fan nozzles 80°-100° for optimum post-emergent coverage. Do not use flood jet nozzles or controlled droplet application equipment for post-emergence applications.

Angle nozzles forward 45° to enhance product penetration and provide better coverage. In-line strainers and nozzle screens must be a minimum of 50-mesh or coarser.

Maintain constant agitation until spraying is complete, even if stopping for brief periods of time. If agitation is stopped for longer than 5 minutes, re-suspend the spray solution by running on full agitation prior to spraying.

USE DIRECTIONS WITH SPRAY ADDITIVES

Post-Emergence Adjuvants

It is recommended that any adjuvant used with Willowood Mesotrione 4SC meet the
certification program requirements of the Chemical Producers and Distributors Association (CPDA). The following recommendations are mainly for use in corn. For other crops refer to the specific crop use directions.

Adjuvant Use in Post-Emergence applications to Field and Seed Corn

After corn has emerged, add 1.0 gal./100 gals. of water (1.0% v/v) Crop Oil Concentrate (COC) to the spray solution. 1 qt./100 gals. of water (0.25% v/v) of a non-ionic surfactant (NIS) can be used, but better weed control is achieved with the use of a COC compared to NIS.

DO NOT use methylated seed oil (MSO) or MSO adjuvant blends for post-emergence applications of Willowood Mesotrione 4SC or severe crop injury can occur. DO NOT use MSO adjuvants unless it is specifically permitted in the Tank Mixtures for Corn section of this label, or if permitted by a state-specific supplemental label.

In addition to COC, add 2.5% (v/v) a spray grade UAN (e.g., 28-0-0) to the spray solution, or 8.5 lbs./100 gallons of ammonium sulfate (AMS), except if precluded elsewhere on this label or a state-specific supplemental label.

Adjuvant Use Post-Emergence to Sweet and Yellow Pop Corn

DO NOT use UAN or AMS on sweet and yellow popcorn as severe crop injury can occur.

Use a NIS instead of a COC to reduce the likelihood of crop injury. COCs will maximize weed control under dry growing conditions, but will significantly injure crops under lush growing conditions. To optimize weed control, add atrazine wherever rotational or local atrazine restrictions allow.

Pre-Emergence Adjuvant Use

Any adjuvant approved for use on agriculture is permitted when making Willowood Mesotrione 4SC preplant or pre-emergence applications. MSO adjuvants perform better than COC and NIS adjuvants under preplant/ pre-emergence conditions. UAN and AMS adjuvants will provide better weed control than not using any adjuvant. If Willowood Mesotrione 4SC is being tank-mixed with another registered herbicide, refer to the tank mix partner label for adjuvant precautions and restrictions.
WILLOWOOD MESOTRIONE 4SC WEED CONTROL TABLES

Willowood Mesotrione 4SC applied as directed in this label will control or partially control the weeds listed in Tables 1 and 2 in the label.

Partial control means either erratic control (good to poor control) or control that is below what is generally regarded as acceptable control for commercial weed control.

For best post-emergence results, apply Willowood Mesotrione 4SC to actively growing weeds.

Dry weather following pre-emergence applications may reduce efficacy of residual weed control. If irrigation is available, apply ½-1-inch water after pre-emergence application. If irrigation is not available, make a uniform shallow cultivation as soon as weeds emerge.

Willowood Mesotrione 4SC applied alone or in a tank-mix with atrazine will not provide consistent or adequate control of weeds that are resistant to post-emergence HPPD inhibiting herbicides.

ROTATIONAL CROP INTERVALS

If Willowood Mesotrione 4SC is applied alone, follow the crop rotation intervals listed in Table 3 in the label. If Willowood Mesotrione 4SC is tank-mixed with other products, then follow the most restrictive product’s crop rotation interval.

- A minimum of 20 inches of rainfall plus irrigation has occurred between application and planting of the rotational crop.
- Soil pH is greater than 6.0.
- 3 fl. oz./A or less of this product has been applied no later than June 30th the year preceding rotational crop planting.
- No other HPPD herbicides (e.g., Callisto, Halex GT, Lexar EZ, Lumax EZ, Zemax, Armezon, Balance Flexx, Capreno, Corvus, Impact, or Laudis) were applied the year prior to planting peas and snap beans.
- Do not plant peas or snap beans on sand, sandy loam, or loamy sand soils in Minnesota or Wisconsin.

Refer to label for Tank Mixture Information.

Limitations, Restrictions, and Exceptions
CROP USE DIRECTIONS – ASPARAGUS

Willowood Mesotrione 4SC can be applied broadcast or banded at a rate of 3.0-7.7 fl. oz./A to asparagus as a spring application prior to spear emergence, as a post-harvest application (after final harvest), or both.

Use the 3.0 fl. oz./A rate for post-emergence control or partial control of the emerged weeds listed in Table 1. For banded applications, the application must be made to account for band width, i.e., to deliver 3.0-7.7 fl. oz. per treated acre. For the best pre-emergence weed control with spring applications, Willowood Mesotrione 4SC must be applied after fern mowing, disking or other tillage operation but prior to asparagus spear emergence.

When making post-harvest applications, the rate applied pre-emergence in the spring must be taken into account so as not to exceed the 7.7 fl. oz./A per year rate limit. Post-harvest applications must be made in a way that minimizes contact with any standing asparagus spears or ferns and maximizes contact with the weeds and/or soil, e.g., by using a directed or semi-directed type application, or crop injury may occur. With post-harvest applications, the use of an adjuvant will increase the risk of crop injury.

If weeds are emerged at the time of the Willowood Mesotrione 4SC application, the addition of a crop oil concentrate (COC) type adjuvant at the rate of 1% v/v or a non-ionic surfactant (NIS) at the rate of 0.25% v/v is recommended. In addition to COC or NIS, a spray grade UAN (e.g., 28-0-0) at the rate of 2.5% v/v or ammonium sulfate (AMS) at the rate of 8.5 lbs./100 gallons of spray solution may be added for improved burndown of emerged weeds. If weeds have not yet emerged, no adjuvant is recommended.

Asparagus Restrictions:
- Do not apply more than 7.7 fl. oz./A of Willowood Mesotrione 4SC per year.
- Do not make more than two Willowood Mesotrione 4SC applications per year.

Method
Broadcast/Foliar Ground
Band application
Broadcast/Foliar Ground
Band application
Rates
field_rates 0

Restricted Entry Interval
12 hours

Timings
Postemergence (Weed)
Postemergence (Weed)