SUGARCANE - PRE-EMERGENCE

General Information

RESISTANCE MANAGEMENT
Flumioxazin 51% WDG is a Group 14 herbicide. Any weed population may contain or develop plants naturally resistant to Flumioxazin 51% WDG and other Group 14 herbicides. Weed species with acquired resistance to Group 14 herbicides may eventually dominate the weed population if Group 14 herbicides are used repeatedly in the same field or in successive years as the primary method of control for targeted species. This may result in partial or total loss of control of those species by Flumioxazin 51% WDG or other Group 14 herbicides.

To delay herbicide resistance:

- Avoid using Flumioxazin 51% WDG or other target site of action Group 14 herbicides that might have a similar target site of action, on the same weed species.

- Use tank mixtures or premixes with herbicides from different target site of action Groups as long as the involved products are all registered for the same use, have different sites of action and are both effective at the tank mix or prepack rate on the weed(s) of concern.

- Base use on a comprehensive Integrated Pest Management (IPM) program.

- Monitor treated weed populations for loss of field efficacy.

- Contact your local extension specialist, certified crop advisors and/or manufacturer for herbicide resistance management and/or integrated weed management measures for specific crops and resistant weed biotypes.

TANK MIXES NOTICE
Tank mixing and/or use of this product with another product that is not specifically and expressly authorized by the label shall be at the exclusive risk of user, applicator, and/or application advisor to the extent allowed by applicable law. Read and follow the entire label of each product to be used in the tank mix with this product.
PRODUCT USE INFORMATION

Flumioxazin 51% WDG:

- Provides residual control of susceptible weeds in alfalfa, asparagus, bushberries, celery, cotton, dry bean, field corn, garlic, grape, hops, mint, nut trees (including pistachio), onion (dry bulb), non-bearing fruit trees, peanut, pome fruit, potato, soybean, stone fruit, strawberry, sugarcane, and sweet potato.

- Provides additional burndown activity when used as part of a burndown program in alfalfa, asparagus, celery, cotton, dry bean, field corn, grape, hops, nut trees (including pistachio), non-bearing fruit trees, peanut, soybean, and sugarcane.

- Can be applied as part of a fall burndown program to control susceptible winter annuals.

- Can be applied with a hooded or shielded sprayer, as well as part of a layby application, in cotton and sugarcane for post-emergence weed control as well as residual control of susceptible weeds.

- Can be used on farms, orchards and vineyards for non-selective vegetation control to maintain bare ground non-crop areas that must be kept weed free.

- Read tank mix product label for rates and weeds controlled. Read and follow all label directions for all tank mix products before using. Follow the most restrictive labeling of any tank mix product. Flumioxazin 51% WDG will control the weeds claimed in crop specific use directions when applied according to label use directions. This label makes no claims concerning control of other weed species.

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 is responsible for considering all of these factors when making decisions. Where states have more stringent regulations, they must be observed.

RESTRICTIONS AND LIMITATIONS

- Do not apply this product when weather conditions favor spray drift from treated
areas.

- Do not apply during low-level inversion conditions, including fog.

- When applying by air, observe drift management restrictions and precautions listed under

  “AERIAL APPLICATION”.

- Do not apply to frozen or snow covered soil.

- Mechanical incorporation into the soil will reduce residual weed control.

- Only apply post-directed and layby applications of Flumioxazin 51% WDG to healthy growing crops.

- Do not apply to farm alleys or roads where traffic may result in treated dust settling onto crops or other desirable vegetation.

- Do not apply within 300 yards of non-dormant pears.

- Do not apply to powdery soils or soils that are susceptible to wind displacement unless irrigation can be applied immediately after application.

- Do not apply other materials with spray equipment used to apply Flumioxazin 51% WDG to any crop foliage unless the proper cleanout procedures are followed. See “SPRAYER CLEANUP” for more information.

ENVIRONMENTAL CONDITIONS AND BIOLOGICAL PERFORMANCE

Pre-Emergence Application (Conventional Tillage)

Important: Crop injury can occur if application is made to poorly drained soils and/or applied under cool, wet conditions. Minimize risk of crop injury by using on well drained soils, planting at least 1.5 inches deep, using high quality seed, and completely covering seeds with soil prior to pre-emergence applications. Treated soil that is splashed onto newly emerged crops may result in temporary crop injury.

Adequate moisture is required to activate Flumioxazin 51% WDG in soil for residual weed control. Dry weather following applications of Flumioxazin 51% WDG can reduce effectiveness. However, when adequate moisture is received after dry conditions, Flumioxazin 51% WDG will control susceptible germinating weeds.
Flumioxazin 51% WDG may not control weeds that germinate after application but before an activating rainfall/irrigation or weeds that germinate through cracks resulting from dry soil.

If adequate moisture is not received after Flumioxazin 51% WDG application, weed control can be improved by irrigation with at least 1/4 inch of water. If emerged weeds are controlled by cultivation, residual weed control will be reduced.

Burndown Application
Apply Flumioxazin 51% WDG as part of a burndown program to actively growing weeds. Applications in conditions that do not promote active weed growth will reduce herbicide effectiveness. Do not apply Flumioxazin 51% WDG when weeds are stressed due to drought, excessive water, extremes in temperature, disease, or low humidity. Stressed weeds are less susceptible to herbicidal action. Flumioxazin 51% WDG is most effective when applied under warm sunny conditions. Reduced residual weed control can occur if burndown applications are made to fields where heavy crop and/or weed residue exist.

Post-Emergence Application
Apply Flumioxazin 51% WDG to healthy crops labeled for post-emergence use. Do not apply Flumioxazin 51% WDG to crops that are weakened by disease, drought, flooding, excessive fertilization, soil salts, previously applied pesticides, nematodes, insects, or winter injury.

Rainfastness
Flumioxazin 51% WDG is rainfast one hour after application. Applications made when rain is expected within one hour of application will reduce post-emergence efficacy.

Soil Characteristics
Application of Flumioxazin 51% WDG to soils with high organic matter and/or high clay content require higher dosages than soils with low organic matter and/or low clay content. Application to cloddy seedbeds can result in reduced weed control.

HERBICIDE RATE
Residual Weed Control (Including Pre-Emergence Applications or Applications as Part of a Fall or Spring Burndown and Fallow Seedbed Program)
Based upon soil characteristics (organic matter content and texture), the most difficult to control weed species being targeted, and the crop being grown, select
the proper dosage from the rate range tables contained in this label.

CARRIER VOLUME AND SPRAY PRESSURE (Ground Equipment only. See Information for Aerial Equipment under “AERIAL APPLICATION”.)

Pre-Emergence Application (Conventional Tillage)
To ensure uniform coverage, use 10 - 30 gals. of spray solution per acre for conventional tillage applications. Nozzle selection must meet manufacturer’s gallonage and pressure specifications for pre-emergence herbicide application.

Burndown Application (Prior to Crop Emergence)
To ensure thorough coverage in burndown applications, use 15 - 60 gals. spray solution per acre. Use 20 - 60 gals. per acre if dense vegetation or heavy crop residue is present. Nozzle selection must meet manufacturer’s gallonage and pressure specifications for post-emergence herbicide application. Do not use flood jet nozzles.

Post-Emergence Application (Emerged Crop)
Check use directions for specific crops in which Flumioxazin 51% WDG can be applied post-emergence. To ensure thorough coverage in burndown applications, use a minimum of 15 gals. spray solution per acre. Use a minimum of 20 gals. per acre if dense vegetation or heavy crop residue is present. Nozzle selection must meet manufacturer’s gallonage and pressure specifications for post-emergence herbicide application.

ADDITIVES
Burndown Application (Prior to Crop Emergence)
Post-emergence control of weeds from Flumioxazin 51% WDG tank mixes requires the addition of an agronomically approved adjuvant to the spray mixture. When an adjuvant is to be used, RedEagle International LLC suggests the use of a Chemical Producers and Distributors Association certified adjuvant. Either a crop oil concentrate or methylated seed oil which contains at least 15% emulsifiers and 80% oil or a non-ionic surfactant at 0.25% v/v, may be used when applying Flumioxazin 51% WDG as part of a burndown program. Some tank mix partners, such as Roundup Power Max, are formulated with sufficient adjuvants and do not require the addition of a crop oil concentrate, methylated seed oil, or non-ionic surfactant when tank mixed with Flumioxazin 51% WDG. The addition of a crop oil concentrate or methylated seed oil may increase the burndown activity on certain
weeds such as cutleaf evening primrose and Carolina geranium. Verify mixing compatibility qualities with a jar test.

Add a spray grade nitrogen source (either ammonium sulfate at 2 - 2.5 lbs./A or a 28% to 32% nitrogen solution at 1 - 2 qts./A) to the spray mixture along with either a crop oil concentrate, methylated seed oil or non-ionic surfactant to enhance weed control. The addition of a nitrogen source does not replace the need for a crop oil concentrate, a methylated seed oil or a non-ionic surfactant.

JAR TEST TO DETERMINE COMPATIBILITY OF ADJUVANTS AND FLUMIOXAZIN 51% WDG

When using Flumioxazin 51% WDG and an adjuvant, such as in stale seed bed, layby, hooded/shielded, or reduced tillage situations, perform a jar test before mixing commercial quantities of, when using Flumioxazin 51% WDG for the first time, when using new adjuvants or when a new water source is being used.

1. Add 1 pt. of the water to a quart jar. Use water from the same source and temperature that will be used in the spray tank mixing operation.

2. Add 1g of Flumioxazin 51% WDG to the quart jar for every 3 oz. of Flumioxazin 51% WDG per acre being applied (4g if 12 oz./A is the desired Flumioxazin 51% WDG rate), gently mix until product goes into suspension.

3. Add 60 mL (4 Tbsps. or 2 fl. oz.) of the crop oil or methylated seed oil to the quart jar or 1 mL of non-ionic surfactant if it is being used in place of oil, gently mix.

4. If nitrogen is being used, add 16 mL (1 Tbsp. or 0.5 oz.) of the 28% to 32% nitrogen source to the quart jar. If ammonium sulfate is being used, add 19g AMS to the quart jar in place of the 28% to 32% nitrogen.

5. Place cap on jar, invert 10 times, let stand for 15 minutes, evaluate.

6. An ideal tank mix combination will be uniform and free of suspended particles. The appearance of any of the following conditions are unacceptable and the choice of adjuvant must be modified:

   a) Layer of oil or globules on the mixture’s surface.

   b) Flocculation: fine particles in suspension or as a layer on the bottom of the jar.
c) Clabbering: Thickening texture (coagulated) like gelatin.

APPLICATION EQUIPMENT
Application equipment must be clean and in good repair. Nozzles must be uniformly spaced on boom and frequently checked for accuracy.

BROADCAST APPLICATION
Apply Flumioxazin 51% WDG, and Flumioxazin 51% WDG tank mixes, with ground equipment using standard commercial sprayers equipped with flat fan or flood nozzles (pre-emergence applications only) designed to deliver the desired spray pressure and spray volume.

BAND APPLICATION
When banding, use proportionately less water and Flumioxazin 51% WDG per acre. The rate of Flumioxazin 51% WDG required per acre, when applied as a banded application, can be calculated with the formula given in the label.

AERIAL APPLICATION
Spray drift away from the site of application may cause damage to non-target vegetation. To minimize drift, apply the largest droplet size consistent with uniform coverage and satisfactory weed control.

To obtain satisfactory application and avoid drift:
- Do not apply during low-level inversion conditions (including fog), when winds are gusty, or under other conditions that favor drift.
- Do not spray when wind velocity is less than 2 mph or more than 10 mph.
- Do not apply this product by air within 40 ft. of non-target plants including non-target crops.
- Do not apply this product by air within 100 ft. of emerged cotton crops.
- Do not apply this product by air within 40 ft. of streams, wetlands, marshes, ponds, lakes, and reservoirs.

Carrier Volume and Spray Pressure: When used as part of a burndown weed control program, apply Flumioxazin 51% WDG in 7 - 10 gals. of water per acre. Application at less than 7 gals. per acre may provide inadequate control. When used for pre-
emergence weed control, apply Flumioxazin 51% WDG in 5 - 10 gals. of water per acre. The higher gallonage applications generally afford more consistent weed control. Do not exceed the nozzle manufacturer’s specified pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.

Nozzle Selection and Orientation: Formation of very small drops may be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible and by avoiding excessive spray pressure. Use nozzles that produce flat or hollow cone spray patterns. Use non-drip type nozzles, such as diaphragm type nozzles, to avoid unwanted discharge of spray solution. The nozzles must be directed toward the rear of the aircraft, at an angle between 0° and 15° downward.

Do not place nozzles on the outer 25% of the wings or rotors.

Adjuvants and Drift Control Additives: Refer to tank mix partner’s label for adjuvant use directions.

Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

CHEMIGATION
Follow all label directions for crops regarding rates, timing of application, special instructions and precautions.

Apply this product only through center pivot systems. End guns must be turned off due to uneven application.

Do not apply this product through any other type of irrigation system.

Crop injury, lack of efficacy, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.

The system must be properly calibrated (with water only) to ensure that the amount of Flumioxazin 51% WDG applied corresponds to the listed rate.

Apply Flumioxazin 51% WDG in 1/2 - 3/4 inches of water during the first sprinkler set. Allow time for all lines to flush the herbicide through all nozzles before turning
off irrigation water. To ensure the lines are flushed and free of remaining herbicide, a dye indicator may be injected into the lines to mark the end of the application period. Once chemigation has begun, the run must be completed to ensure no product is left in the system.

If you have any questions about calibration, you should contact your State Extension Service Specialist, equipment manufacturers or other experts.

Special Instructions for Chemigation

1. 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.

2. A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person must be present to shut the system down and make necessary adjustments.

3. The system must be free of leaks and clogged nozzles.

4. The pesticide must be supplied continuously for the duration of the aqueous application. An uneven application may cause injury to the crop or poor weed control.

5. Agitation must be maintained in the nurse tank.

6. The sprinkler chemigation 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.

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

8. The pesticide injection pipeline must 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.

9. The system must contain functional interlocking controls to automatically shut off
the pesticide injection pump when the water pump motor stops, or in the case
where there is no water pump, when the water pressure decreases to the point
where pesticide distribution is adversely affected.

10. 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.

11. 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 the pesticides and capable of being fitted with a system
interlock.

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

Chemigation Systems Connected to Public Water Systems

1. Public water system means a system for the provision to the public of piped
water for human consumption, if such a system has at least 15 service connections
or regularly serves an average of at least 25 individuals daily at least 60 days out of
the year.

2. Chemigation systems connected to the public water system must contain a
functional, reduced pressure zone (RPZ), backflow preventer or the functional
equivalent in the water supply line upstream from the point of pesticide
introduction. As an option to the RPZ, the water from the public water system
should be discharged into a reservoir tank prior to pesticide introduction. There
shall be a complete physical break (air gap) between the outlet end of the fill pipe
and the top overflow rim of the reservoir tank of at least twice the inside diameter
of the fill pipe.

3. All chemigation systems connected to the public water system must also follow
restrictions listed in the preceding section titled “Special Instructions for
Chemigation”.

APPLICATION WITH DRY BULK FERTILIZERS
Dry bulk fertilizer can be impregnated or coated with Flumioxazin 51% WDG.
Application of dry bulk fertilizer with Flumioxazin 51% WDG provides weed control
equal to, or slightly below, the same rate of Flumioxazin 51% WDG applied in liquid carriers, due to better coverage with application via spray equipment. Follow label directions for Flumioxazin 51% WDG regarding rates, special instructions, cautions and special precautions. Apply 400-700 lbs. of the fertilizer/herbicide mixture per acre to obtain adequate soil coverage. Apply the mixture to the soil with properly calibrated equipment immediately after blending. Uniform application of the herbicide/fertilizer mixture is essential to prevent possible crop injury and to obtain uniform weed control.

Do not use ammonium nitrate and/or limestone as the sole source of fertilizer, as Flumioxazin 51% WDG may not adhere to these materials.

Compliance with all Federal and State regulations relating to blending pesticide mixtures with dry bulk fertilizer, registrations, labeling, and application are the responsibility of the individual and/or company offering the fertilizer and Flumioxazin 51% WDG mixture for sale.

Premix Flumioxazin 51% WDG with water to form a slurry prior to impregnation on dry bulk fertilizer. Use a minimum of 1 pt. of water for each 2 oz. of Flumioxazin 51% WDG, and use a minimum of 6 pts. of Flumioxazin 51% WDG slurry to impregnate 2,000 lbs. of the fertilizer for uniform coverage of the fertilizer. Closed drum, belt, ribbon, or other commonly used dry bulk blenders may be used.

Thoroughly clean dry fertilizer blending equipment after placing Flumioxazin 51% WDG in the system to avoid injury to sensitive crops that may be treated with fertilizers blended after the equipment has been used for Flumioxazin 51% WDG. Rinse the sides of the blender and the herbicide tank with water. Then impregnate the rinsate onto a load of dry fertilizer intended for an approved crop. Use a maximum rate of 1 gal. of rinsate per ton of fertilizer. Follow with 1 - 2 loads of unimpregnated fertilizer in the blender before switching herbicides.

ROTATIONAL RESTRICTIONS
The following rotational crops can be planted after applying Flumioxazin 51% WDG at the specified rate. Planting earlier than the specified rotational interval may result in crop injury. Do not plant any crop, except corn (field), cotton, peanut, soybean, sugarcane, and sweet potato earlier than 30 days after applying Flumioxazin 51% WDG.

Limitations, Restrictions, and Exceptions
DIRECTIONS FOR USE IN SUGARCANE

RESTRICTIONS AND LIMITATIONS

- Do not apply more than 8 oz. of Flumioxazin 51% WDG per acre per application.

- Do not make a sequential application within 14 days of the first application.

- Do not apply more than 12 oz. of Flumioxazin 51% WDG per acre during a single growing season.

- Do not apply within 90 days of harvest.

TIMING TO SUGARCANE

Flumioxazin 51% WDG may be applied from 2 weeks prior to planting to before the sugarcane emerges, post-directed or at layby. Select the proper Flumioxazin 51% WDG rate from Table 10 according to anticipated weed spectrum and soil organic matter content for pre-emergence applications. Select Flumioxazin 51% WDG rate from Table 11 according to emerged weed spectrum and weed heights for post-directed and layby applications.

TIMING TO WEEDS

Burndown - Pre-Emergence to Sugarcane, Post-Emergence to Weeds
Flumioxazin 51% WDG may be used for pre-emergence control, and to assist in post-emergence burndown, of many annual broadleaf weeds in sugarcane. For control of emerged weeds, choose the most appropriate tank mix partner from Table 12. Apply Flumioxazin 51% WDG before the crop emerges. To ensure thorough coverage, use a minimum of 15 gals. of spray solution per acre. All Flumioxazin 51% WDG tank mixes applied to assist in the control of emerged weeds must be applied with crop oil concentrate or methylated seed oil at 1 qt./A or a non-ionic surfactant at 0.25% v/v. Some tank mix products, such as ROUNDUP Original Max (glyphosate), may be formulated with a suitable adjuvant and do not require additional adjuvant.
Flumioxazin 51% WDG may be used for pre-emergence control of many annual broadleaf and grassy weeds in sugarcane. Select rate based on anticipated weed spectrum and soil organic matter content from Table 10. Apply Flumioxazin 51% WDG before the crop emerges.

Method
- Broadcast/Foliar Air
- Broadcast/Foliar Ground
- Broadcast/Foliar Air
- Broadcast/Foliar Ground
- Broadcast/Foliar Air
- Broadcast/Foliar Ground

Pre-Harvest Interval
90 days

Restricted Entry Interval
12 hours

Timings
- Preemergence (Crop)
- Preemergence (Weed)
- Preemergence (Weed)