



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

January 26, 2023

Amanda Foderaro
Regulatory Manager
Syngenta Crop Protection, LLC
P.O. Box 18300
Greensboro, NC 27419

Subject: Registration Review Label Amendments Incorporating Mitigation Measures from the Interim Decisions for S-Metolachlor and Mesotrione and the National Marine Fisheries Services' (NMFS) Biological Opinion on the Effects of S-Metolachlor on Pacific Salmonids
Product Name: A22089
EPA Registration Number: 100-1660
Application Dates: June 11, 2021, September 3, 2021, and March 29, 2022
Decision Numbers: 582932, 578279, and 576433

Dear Amanda Foderaro:

The Agency, in accordance with the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, has completed reviewing all the information submitted with your application to support the Registration Review of the above referenced product in connection with the S-Metolachlor and Mesotrione Interim Decisions. The Agency has concluded that your submission is acceptable. The label referred to above, submitted in connection with registration under FIFRA, as amended, is acceptable.

This letter also addresses the label mitigation resulting from the NMFS' Biological Opinion on the effects of S-Metolachlor on Pacific salmonids. The Agency has concluded that your submission is also acceptable. The label referred to above, submitted in connection with registration under FIFRA, as amended, is acceptable.

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 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) list 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.

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A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 12 months from the date of this letter. After 12 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

If you have any questions about this letter, please contact Lauren Weissenborn at weissenborn.lauren@epa.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Linda Arrington".

Linda Arrington, Branch Chief
Risk Management and Implementation Branch 4
Pesticide Re-Evaluation Division
Office of Pesticide Programs

Enclosure

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

S-METOLACHLOR	GROUP	15	HERBICIDE
MESOTRIONE	GROUP	27	HERBICIDE

A22089

HERBICIDE

A herbicide for control of annual grass and broadleaf weeds in mesotrione resistant soybeans.

Active Ingredients:

S-metolachlor¹:31.0%

Mesotrione²:3.1%

Other Ingredients:65.9%

Total: 100.0%

¹CAS No. 87392-12-9

²CAS No. 104206-82-8

A22089 is a ZC formulation containing 2.81 lb of S-metolachlor and 0.28 lb of mesotrione per gallon.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

See additional precautionary statements and directions for use [on label] [inside booklet].

EPA Reg. No. 100-1660

EPA Est.

Net Contents

[Batch Code: _____] (For nonrefillables only.)

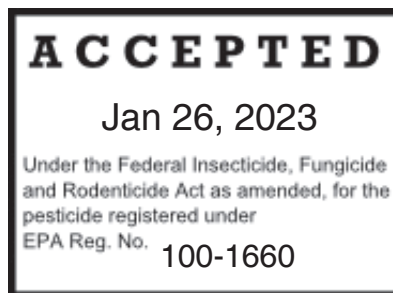


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1.0 FIRST AID

FIRST AID	
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
Have the product container or label with you when calling a poison control center or doctor or going for treatment.	
HOTLINE NUMBER For 24-Hour Medical Emergency Assistance (Human or Animal) Or Chemical Emergency Assistance (Spill, Leak, Fire or Accident) Call 1-800-888-8372	

PRECAUTIONARY STATEMENTS

2.0 PRECAUTIONARY STATEMENTS

2.1 Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals.

2.2 Personal Protective Equipment (PPE)

All applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks

2.3 User Safety Requirements

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.

2.4 Engineering Controls

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 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

2.5 User Safety Recommendations

User Safety Recommendations

Users should:

- Remove clothing/PPE 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.

2.6 Environmental Hazards

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters.

2.6.1 Groundwater Advisory

S-metolachlor and mesotrione the active ingredients in A22089, are known to leach through soil into groundwater under certain conditions as a result of label use. These chemicals may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

2.6.2 Surface Water Advisory

This product may impact surface water due to run off of rain water. This is especially true for poorly draining soils with shallow ground water. This product is classified as having high potential for reaching surface water via runoff for several months or more 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 loading of S-metolachlor from runoff water and sediment. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours. Sound erosion control practices will reduce this product's contribution to surface water contamination.

2.6.3 Non-Target Organism Advisory

This product is toxic to plants and may adversely impact the forage 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.

2.6.4 Reporting Ecological Incidents

To report ecological incidents, including mortality, injury, or harm to plants and animals, call 1-800-888-8372.

2.6.5 Mixing/Loading Restrictions

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 anti-siphoning devices must be used on all mixing 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.

2.7 Physical or Chemical Hazards

Do not use or store near heat or open flame.

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. You must use the Bulletin valid for the month in which you will apply the product.

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.

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

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 (WPS).

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves made of barrier laminate, butyl rubber ≥ 14 mils, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils, polyvinyl chloride (PVC) ≥ 14 mils, or Viton ≥ 14 mils
- Shoes plus socks

3.0 PRODUCT INFORMATION

A22089 is only allowed for use in soybeans resistant to mesotrione. It may be applied preplant, preplant incorporated, or preemergence for control of many annual grass and broadleaf weeds. It will provide control of weeds resistant to ALS inhibitors (Group 2), PPO inhibitors (Group 14), and glyphosate (Group 9).

A22089 is a combination of the herbicides s-metolachlor and mesotrione. See **Section 8.1** for list of weeds controlled or partially controlled by A22089. This product should be used in combination with other herbicides as part of a weed management program for full season weed control and resistance management. A postemergence application of an herbicide with a different target site of action registered for use in soybeans will maximize weed control and delay development of herbicide resistance.

3.1 Weed Resistance Management

S-METOLACHLOR	GROUP	15	HERBICIDE
MESOTRIONE	GROUP	27	HERBICIDE

A22089 contains S-metolachlor which inhibits very long chain fatty acid (VLCFA) synthesis (Site of Action Group 15) and mesotrione which is used to inhibit 4-hydroxyphenylpyruvate dioxygenase (HPPD) (Site of Action Group 27).

3.1.1 Principles of Herbicide Resistant Weed Management

Scout and know your field

- Know weed species present in the field to be treated through scouting and field history. An understanding of weed biology is useful in designing a resistance management strategy. Ensure the weed management program will control all weeds present.
- Fields should be scouted prior to application to determine species present and growth stage. Always apply this herbicide at the full labeled rate and correct timing for the weeds present in the field.

Utilize non-herbicidal practices to add diversity

- Use diversified management tactics such as cover crops, mechanical weed control, harvest weed seed control, and crop rotation as appropriate.

Use good agronomic practices, start clean and stay clean

- Use good agronomic practices that enhance crop competitiveness.
- Plant into weed-free fields utilizing tillage or an effective burndown herbicide for control of emerged weeds.

- Sanitize farm equipment to avoid spreading seed or vegetative propagules prior to leaving fields.

Difficult to control weeds

- Fields with difficult to control weeds should be planted in rotation with crops that allow the use of herbicides with an alternative mode of action or different management practices.
- Difficult to control weeds may require sequential applications, such as a broad spectrum preemergence herbicide followed by one or more postemergence herbicide applications. Utilize herbicides containing different modes of action effective on the target weeds in sequential applications.

Do not overuse the technology

- Do not make more than one application of A22089 per season. Do not make more than one additional application of any other herbicide with the same modes of action as A22089 in a single growing season unless mixed with another herbicide with a different mode of action which provides overlapping spectrum for difficult to control weeds.

Scout and inspect fields following application

- Prevent an influx of weeds into the field by controlling weeds in field borders.
- Scout fields after application to verify that the treatment was effective.
- Suspected- herbicide resistant weeds may be identified by these indicators
 - Failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;
 - A spreading patch of non-controlled plants of a particular weed species; and
 - Surviving plants mixed with controlled individuals of the same species.
- Report non-performance of this product to your Syngenta retailer, Syngenta representative, or call 1-866-Syngent(a) (866-796-4368). If resistance is suspected ensure weed escapes are controlled using an herbicide with an effective mode of action and/or use non-chemical means to prevent further seed production.

Prevent weed escapes before, during, and after harvest

- Do not allow weed escapes to produce seed or vegetative structures such as tubers or stolons which contribute to spread and survival. Consider harvest weed seed management and control weeds post-harvest to prevent seed production.

Resistant Weeds

- Contact your local Syngenta representative, retailer, crop advisor or extension agent to determine if weeds resistant to modes of action contained in this product are present in your area. Do not assume that each listed weed is being controlled by multiple modes of action. Premixes are intended to broaden the spectrum of weeds that are controlled. Some weeds may be controlled by only one of the active ingredients in this product. If resistant biotypes have been reported, use the full labeled rate of this product, apply at the labeled timing, and tank-mix with an additional different mode of action product so there are multiple effective modes of application for each suspected resistant weed.

4.0 APPLICATION DIRECTIONS

4.1 Methods of Application

Applications of A22089 alone or in tank mixtures are permitted with ground equipment only. Application timings are allowed as specified in **Section 9.0**.

4.2 Application Equipment

- Configure spray equipment to provide accurate and uniform coverage of the target area and minimize potential for spray drift.
- To ensure accuracy, calibrate sprayer before each use. For information on spray equipment and calibration, consult spray equipment manufacturers and/or state recommendations.

- Spray nozzles should be uniformly spaced, the same size and type, and should provide accurate and uniform application. Use spray nozzles designed to produce coarse or larger size droplets in order to minimize drift (**Section 7.4**) and provide uniform coverage.
- Do not use screens and strainers finer than 50-mesh.
- To avoid subsequent injury to crops other than mesotrione resistant soybeans, all equipment must be washed to remove product residues after use (**Section 4.5**).

4.3 Application Volume and Spray Coverage

- Apply alone or in tank mixtures in a minimum of 10 gal/A of spray mixture unless otherwise specified.
- Good coverage of emerged weeds is essential for optimum control.
- When weed vegetation is dense, increase spray volume and pressures to ensure coverage of the target weeds.
- Spray boom and nozzle heights must be adjusted to provide coverage of target weeds.

4.4 Mixing Directions

1. Thoroughly clean spray equipment before using this product. Dispose of the cleaning solution in a responsible manner.
2. Prepare no more spray mixture than is needed for the immediate operation.
3. Either water or liquid fertilizers excluding suspension fertilizers may be used as carriers for preemergence applications.
4. Avoid using screens and strainers finer than 50 mesh.
5. Keep product container tightly closed when not in use.
6. Do not let the spray mixture stand overnight in the spray tank.
7. Flush the spray equipment thoroughly following each use and apply the rinsate to a previously treated area.
8. 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.

4.4.1 A22089 Alone

1. Fill the spray tank $\frac{1}{2}$ full with carrier
2. Begin tank agitation and continue throughout mixing and spraying.
3. Add AMS (if used).
4. Add A22089 slowly to the tank.
5. Add an adjuvant last, if needed.
6. Fill the remainder of spray tank.

4.4.2 Tank-Mix Precautions

- 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.

- Tank mixes with other pesticides, fertilizers including liquid fertilizers, or any other additives not specifically labeled for use with A22089 may result in tank-mix incompatibility or unsatisfactory performance. In such cases, always check tank-mix compatibility by conducting a jar test according to guidance in **Section 4.4.3** before actual tank mixing.

4.4.3 Tank-Mix Compatibility

- Conduct a jar test using a 1 pt to 1 qt container with lid by adding water or other intended carrier such a liquid fertilizer to the jar.
- Next, add the appropriate amount of pesticides(s) or tank-mix partner(s) in their relative proportions based on recommended label rates. Add tank-mix components separately in the order described in the tank-mixing section, **Section 4.4.4**. After each addition, shake or stir gently to thoroughly mix.
- After all ingredients have been added, put the lid on the jar, tighten and invert the jar 10 times to mix.
- After mixing, let the mixture stand 15–30 minutes and then examine for signs of incompatibility such as obvious separation, large flakes, precipitates, gels or heavy oily film on the jar.
- If the mixture remains mixed or can be remixed readily, it is physically compatible and can be used.
- If the mixture is incompatible, repeat the test using a compatibility agent at the recommended rate. Or, if applicable, slurry dry formulations in water before adding to the jar. If incompatibility is still observed after following these procedures, do not use the mixture.
- After compatibility testing is complete, dispose of any pesticide wastes in accordance with the storage and disposal section, **Section 10.0**, of this label.

4.4.4 A22089 in Tank Mixtures

1. Fill the spray tank $\frac{1}{2}$ full with carrier.
2. Begin tank agitation and continue throughout mixing and spraying.
3. Add AMS (if used).
4. Add wettable powder or dry formulations to tank.
 - a. Mixing and compatibility may be improved by diluting with water before adding it to the tank.
5. Add flowable formulations slowly to tank.
6. Add A22089.
7. Add emulsifiable concentrates.
8. Add an adjuvant, if needed.
9. Fill remainder of spray tank.

NOTE: If an induction tank (or similar equipment) is used, add each product separately and allow each to disperse into the spray tank before adding the next product. For best tank-mix compatibility, rinse the induction tank with water before adding each component.

4.4.5 Spray Additives

Spray additives should be used to improve burndown of emerged weeds in preplant or preemergence applications. Choose one of the following:

- Non-ionic surfactant (NIS) – NIS containing at least 80% active ingredient at 1 qt/100 gal of the finished spray (0.25% v/v)
- Crop Oil Concentrate (COC) containing 15-20% approved emulsifier at 2-4 qt/100 gal of the finished spray (0.5-1.0% v/v)
- Methylated Seed Oil (MSO) containing 15-20% approved emulsifier at 2-4 qt/100 gal of the finished spray (0.5-1.0% v/v)

Ammonium sulfate at 8.5-17 lb per 100 gallons of spray mixture may be added to any of the above adjuvants to improve burndown.

4.5 Sprayer Cleanout

To avoid subsequent injury to other crops, thoroughly clean mixing and application equipment before and immediately after spraying. The following instructions are provided:

1. Flush tank, hoses, boom, and nozzles with clean water.
2. Prepare a cleaning solution of 1 gallon of household ammonia per 25 gallons of water. Many commercial spray tank cleaners may be used.
3. Use a pressure washer to clean the inside of the spray tank with this solution. Take care to wash all parts of the tank, including the inside top surface. If a pressure washer is not available, completely fill the sprayer with the cleaning solution to ensure contact of the cleaning solution with all internal surfaces of the tank and plumbing. Start agitation in the sprayer and thoroughly recirculate the cleaning solution for at least 15 minutes. All visible deposits must be removed from the spraying system.
4. Flush hoses, spray lines, and nozzles for at least 1 minute with the cleaning solution.
5. Remove boom end caps and flush dead space areas, with water, then replace caps.
6. Dispose of rinsate from steps 1-5 in an appropriate manner, according to all local State and federal regulations.
7. Repeat steps 2-6.
8. Remove nozzles, screens, and strainers and clean separately in the ammonia solution after completing the above procedures.
9. Rinse the complete spraying system with clean water.

5.0 REPLANT AND ROTATIONAL CROP

5.1 Replant and Rotational Crop Restrictions

- If a crop treated with A22089 is lost, any crop on this label, or on a supplemental A22089 label, may be replanted or rotated to at any interval provided that the rate of A22089 applied to the previous crop was not greater than the labeled rate for the crop to be replanted.
- A22089 may be applied again following crop replanting provided the total annual maximum rate for that crop is not exceeded

The following crops may be planted or replanted at the specified interval following application of A22089.

Crop	Plant-Back Interval
Mesotrione resistant soybeans	Anytime
Barley Corn (all types) Oats Popcorn Rye Sorghum, forage, grain and sweet (Concept treated only) Sugarcane Sweet corn Wheat	4½ months
Alfalfa Cotton Peanuts Soybeans	10 months
All other rotational crops	18 months
<ul style="list-style-type: none"> • If applied after June 1, rotating to crops other than corn (all types), sorghum (all types), sugarcane, and mesotrione resistant soybeans may result in crop injury. 	

6.0 COVER CROPS

A cover crop can be an important tool for the overall farm cropping system. Cover crops are planted for conservation purposes, soil erosion control, soil health improvement, water quality improvement and weed management. A cover crop can be a single crop or a combination of crops, including grasses and/or broadleaf crops.

After harvest of an A22089 treated crop, planting of a cover crop is allowed provided the cover crop is not grazed or fed to livestock nor harvested for food. Terminate the cover crop through natural causes such as frost or intentional termination by herbicide application, crimping, rolling, tillage or cutting.

6.1 Field Bioassay for Cover Crops

A field bioassay is a method of determining if herbicide residues are present in the soil at concentrations high enough to adversely affect crop growth.

Conduct the field bioassay by planting several strips of the desired cover crop across the field which has been previously treated with A22089. Plant the cover crop strips perpendicular to the direction of the product application. Locate the strips so that all the different field conditions are encountered, including differences in field terrain, soil texture, organic matter, pH, and drainage.

If the cover crop does not show adverse effects such as crop injury and/or stand reduction, the field can be planted to this cover crop. If injury and/or stand reduction are visible, wait two to four weeks for further herbicide degradation to occur and repeat the bioassay.

Alternatively, select a different cover crop and repeat the bioassay. Only plant cover crops that show acceptable tolerance in the field bioassay.

7.0 RESTRICTIONS AND PRECAUTIONS

7.1 Use Restrictions

- **DO NOT** sell, use or distribute this product in Nassau and Suffolk Counties in the State of New York.
- **DO NOT** use on soybeans that are not mesotrione resistant.
- **DO NOT** apply this product through any type of irrigation system.
- **DO NOT** use flood irrigation to apply or incorporate this product.
- **DO NOT** use aerial application to apply A22089.
- **DO NOT** contaminate irrigation water used for non-labeled crops or water used for domestic purposes.

7.2 Use Precautions

- Application to soybeans that are not mesotrione resistant will result in significant crop injury including yield loss or soybean death.
- Application to mesotrione resistant soybeans that have emerged may result in significant crop injury
- Applied according to use directions and under normal growing conditions, A22089 will not harm the treated crop.
- During germination and early stages of growth, environmental conditions or other factors that favor poor or slow growth can weaken crop seedlings. A22089 used under these conditions can result in crop injury.
- Avoid spraying if conditions of thermal inversion exist, or if wind direction and speed may cause spray to drift onto adjacent non-target areas.
- Avoid application under conditions which favor runoff or wind erosion of soil containing this product to non-target areas.
- To prevent off-site movement due to runoff or wind erosion:
 - Avoid treating powdery dry or light sand soils when conditions are favorable for wind erosion. Under these conditions, ensure that the soil surface is first settled by rainfall or irrigation.
 - Avoid application to impervious substrates, such as paved or highly compacted surfaces.

7.3 Mandatory Spray Drift Management

7.3.1 Ground Boom Applications

MANDATORY SPRAY DRIFT MANAGEMENT

Ground Boom Applications

- Do not release spray at a height greater than 3 feet above the ground or crop canopy.

- Applicators are required to select the nozzles and pressure that deliver medium or coarser droplets in accordance with American Society of Agricultural & Biological Engineers Standard 572 (ASABE S572).
- Do not apply when wind speeds exceed 15 miles per hour at the application site.
- Do not apply during temperature inversions.

7.4 SPRAY DRIFT ADVISORIES

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT.

BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

7.4.1 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.

7.4.2 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. Ensure nozzles are producing the intended spray pattern, lowering pressure and addition of drift reduction agents may alter spray pattern.
- **Spray Nozzle** - Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

7.4.3 BOOM HEIGHT – GROUND BOOM

- Use the lowest boom height that is compatible with the spray nozzles that will provide uniform coverage.
- For ground equipment, the boom should remain level with the crop and have minimal bounce.

7.4.4 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.

7.4.5 TEMPERATURE AND HUMIDITY

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

7.4.6 TEMPERATURE INVERSIONS

- Drift potential is high during a temperature inversion.
- Temperature inversions are characterized by increasing temperatures 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 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.

7.4.7 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.

7.4.8 WINDBLOWN SOIL PARTICLES

- A22089 has the potential to move off-site due to wind erosion.
- Soils that are subject to wind erosion usually have a high silt and/or fine to very fine sand fractions and low organic matter content.
- Other factors which can affect the movement of windblown soil include the intensity and direction of prevailing winds, vegetative cover, site slope, rainfall, and drainage patterns.
- Avoid applying A22089 if prevailing local conditions may be expected to result in off-site movement.

8.0 WEEDS CONTROLLED OR PARTIALLY CONTROLLED

PARTIAL WEED CONTROL

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

8.1 Weeds Controlled or Partially Controlled Preemergence by A22089

Common Name	Scientific Name	C = Control PC = Partial Control
Amaranth, Palmer	<i>Amaranthus palmeri</i>	C
Amaranth, Powell	<i>Amaranthus powellii</i>	C
Barnyardgrass	<i>Echinochloa crus-galli</i>	C
Buffalobur	<i>Solanum rostratum</i>	C

Common Name	Scientific Name	C = Control PC = Partial Control
Carpetweed	<i>Mollugo verticillata</i>	C
Chickweed, common	<i>Stellaria media</i>	C
Chickweed, mouseear	<i>Cerastium vulgatum</i>	C
Cocklebur, common	<i>Xanthium strumarium</i>	PC
Crabgrass, large	<i>Digitaria sanguinalis</i>	C
Crowfootgrass	<i>Dactyloctenium aegyptium</i>	C
Cupgrass, prairie	<i>Eriochloa contracta</i>	C
Cupgrass, Southwestern	<i>Eriochloa acuminata</i>	C
Cupgrass, woolly	<i>Eriochloa villosa</i>	PC
Dandelion, common (seedling)	<i>Taraxacum officinale</i>	C
Deadnettle, purple	<i>Lamium purpureum</i>	C
Foxtail, giant	<i>Setaria faberi</i>	C
Foxtail, green	<i>Setaria viridis</i>	C
Foxtail, robust (purple, white)	<i>Setaria viridis</i>	C
Foxtail, yellow	<i>Setaria pumila</i>	C
Galinsoga	<i>Galinsoga parviflora</i>	C
Geranium, Carolina	<i>Geranium carolinianum</i>	C
Goosegrass	<i>Eleusine indica</i>	C
Henbit	<i>Lamium amplexicaule</i>	C
Horseweed	<i>Conyza canadensis</i>	C
Jimsonweed	<i>Datura stramonium</i>	C
Johnsongrass, seedling	<i>Sorghum halepense</i>	PC
Kochia	<i>Kochia scoparia</i>	PC
Lambsquarters, common	<i>Chenopodium album</i>	C
Lettuce, prickly	<i>Lactuca serriola</i>	C
Mallow, common	<i>Malva neglecta</i>	C
Mayweed, chamomile	<i>Anthemis cotula</i>	C
Millet, foxtail	<i>Setaria italica</i>	C
Millet, wild proso	<i>Panicum miliaceum</i>	PC
Morningglory, ivyleaf	<i>Ipomoea hederacea</i>	PC
Morningglory, entireleaf	<i>Ipomoea hederacea</i>	PC
Morningglory, pitted	<i>Ipomoea lacunose</i>	C
Mustard, wild	<i>Brassica kaber</i>	C
Nightshade, black	<i>Solanum nigrum</i>	C
Nightshade, Eastern black	<i>Solanum ptycanthum</i>	C
Nightshade, hairy	<i>Solanum sarachoides</i>	C
Nutsedge, yellow	<i>Cyperus esculentus</i>	C
Panicum, browntop	<i>Panicum fasciculatum</i>	C
Panicum, fall	<i>Panicum dichotomiflorum</i>	C
Panicum, Texas	<i>Panicum texanum</i>	PC
Pigweed, redroot	<i>Amaranthus retroflexus</i>	C
Pigweed, smooth	<i>Amaranthus hybridus</i>	C
Pigweed, tumble	<i>Amaranthus albus</i>	C
Pineappleweed	<i>Matricaria matricariodes</i>	C
Purslane, common	<i>Portulaca oleracea</i>	C

Common Name	Scientific Name	C = Control PC = Partial Control
Pusley, Florida	<i>Richardia scabra</i>	C
Ragweed, common	<i>Ambrosia artemisiifolia</i>	PC
Ragweed, giant	<i>Ambrosia trifida</i>	PC
Rice, red	<i>Oryza sativa</i>	C
Rocket, London	<i>Sisymbrium irio</i>	C
Sandbur, field	<i>Cenchrus incertus</i>	PC
Shattercane	<i>Sorghum bicolor</i>	PC
Shepherd's-purse	<i>Capsella bursa-pastoris</i>	C
Sida, prickly	<i>Sida spinosa</i>	PC
Signalgrass, broadleaf	<i>Brachiaria platyphylla</i>	PC
Smartweed, ladysthumb	<i>Polygonum persicaria</i>	C
Smartweed, Pennsylvania	<i>Polygonum pensylvanicum</i>	C
Sprangletop, red	<i>Leptochloa filiformis</i>	C
Velvetleaf	<i>Abutilon theophrasti</i>	C
Waterhemp, common	<i>Amaranthus rudis</i>	C
Waterhemp, tall	<i>Amaranthus tuberculatus</i>	C
Witchgrass	<i>Panicum capillare</i>	C

9.0 CROP USE DIRECTIONS

9.1 Soybeans, Mesotrione Resistant

9.1.1 Preplant, Preplant Incorporated, or Preemergence Application

Crops (including cultivars, varieties, and/or hybrids)		
Mesotrione resistant soybeans		
Application Timing	Rate (qt/A)	Use Directions
Preplant Preplant Incorporated Preemergence	<p style="text-align: center;">Targeted Rates by Soil Texture</p> <p style="text-align: center;">Coarse Soil (loamy sand, sand, sandy loam) 1.8 qt/A</p> <p style="text-align: center;">Medium Soil (loam, silt, silt loam) 2.25 qt/A</p> <p style="text-align: center;">Fine Soil (clay, clay loam, sandy clay, sandy clay loam, silty clay, silty clay loam) 2.7 qt/A</p>	<p>May be applied up to 14 days prior to planting but before mesotrione resistant soybeans emerge.</p> <p>If applied preplant incorporated, the incorporation tool should be set to thoroughly mix the herbicide into the top 2 inches of soil.</p> <p>For preplant or preemergence burndown of emerged weeds: If weeds are emerged at the time of A22089 application, tank-mix with a burndown herbicide (See Section 4.4.5 for adjuvant recommendations and 9.1.2 for tank mix options).</p> <p>Application to any soil type with >10% organic matter may result in unacceptable weed control.</p>
Tank Mix Options: <ul style="list-style-type: none"> Refer to Section 9.1.2 for tank-mix options. 		
Resistance Management: <ul style="list-style-type: none"> Refer to Section 3.1. 		
Precautions: <ul style="list-style-type: none"> During germination and early stages of growth, factors that favor poor or slow growth can weaken crop seedlings. A22089 used under these conditions can result in temporary crop injury. Use of rates higher than listed for the soil type can result in crop injury. This product needs a minimum of ½ inch of either rainfall or irrigation following application to activate residual weed control. If rainfall or irrigation is not received within 10 days after application, residual weed control may be reduced. Under these conditions, cultivate or use other weed control measures if weeds develop. Application to emerged mesotrione resistant soybeans may result in unacceptable crop injury. Application to soybeans that are not mesotrione resistant will result in significant crop injury including yield loss or soybean death. 		
USE RESTRICTIONS		
<ol style="list-style-type: none"> Refer to Section 7.1 for additional product use restrictions. Maximum Single Application Rate: 2.7 qt/A (equivalent to 1.9 lb S-metolachlor/A and to 0.19 lb mesotrione/A) Maximum Annual Rate: 2.7 qt/A/year <ol style="list-style-type: none"> DO NOT exceed 3.71 lb ai/A/year of S-metolachlor-containing products. DO NOT exceed 0.19 lb ai/A/year of mesotrione-containing products. DO NOT make more than 1 preplant or pre-emergent application of A22089 per year. DO NOT apply A22089 to frozen ground. DO NOT apply A22089 after soybean emergence. DO NOT graze or feed mesotrione tolerant soybean forage or hay to livestock. 		

8) **Preharvest Interval (PHI):** 90 days

9.1.2 Tank Mix Combinations

Application	Tank-Mix Brands	Use Directions
Preplant Preplant incorporated Preemergence	FirstRate® Metribuzin brands Reflex® (preplant or preemergence only) Pursuit® Spartan® 4F	Apply 0.6 oz/A for improved control of large seeded broadleaf weeds. Apply a maximum of 0.25 lb ai/A on coarse soils, 0.31 lb ai/A on medium soils, and 0.38 lb ai/A on fine soils for improved grass and broadleaf control. Consult metribuzin label for soil pH and soil type restrictions. Ensure soybean variety is tolerant to metribuzin before use. Apply 16 fl oz/A for improved control of broadleaf weeds. Consult Reflex label for geographic restrictions. Apply 4 fl oz/A for improved control of broadleaf weeds. Apply a maximum of 4.5 fl oz/A for improved control of morningglory species and other broadleaf weeds. Ensure soybean variety is tolerant to sulfentrazone before use.
Burndown of emerged weeds - preplant or preemergence	Glyphosate brands Gramoxone® brands Liberty®	Apply if weeds are emerged at the time of A22089 application. Consult tank-mix partner label to select the proper rate and adjuvants.
TANK-MIX USE RESTRICTIONS		
<ol style="list-style-type: none"> 1) All use restrictions cited in Section 9.1.1 for A22089 also apply to tank mixes with A22089. 2) 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. 		

10.0 STORAGE AND DISPOSAL

STORAGE AND DISPOSAL

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

Pesticide Storage

Keep container closed to prevent spills and contamination.

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 $\frac{1}{4}$ 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]

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 $\frac{1}{4}$ 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.

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.

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 1-800-888-8372, day or night.

CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER.

11.0 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 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 SYNGENTA CROP PROTECTION, LLC or Seller. To the extent permitted by applicable law, Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. To the extent permitted by applicable law: (1) this warranty does not extend to the use of the product contrary to label instructions, or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and (2) Buyer and User assume the risk of any such use. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS WARRANTED BY THIS LABEL.**

To the extent permitted by applicable law, in no event shall SYNGENTA be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA 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 SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

12.0 APPENDIX

12.1 A22089 Tank Mix Table

Product Name	EPA Registration Number	Active Ingredient(s)
FirstRate®	5481-676	Cloransulam-methyl
Reflex®	100-993	Sodium salt of fomesafen
Pursuit®	241-310	Imazethapyr, ammonium salt
Spartan® 4F	279-3220	Sulfentrazone
Liberty®	7969-447	Glufosinate-ammonium
Glyphosate brands		Glyphosate
Gramoxone® brands		Paraquat dichloride

12.2 A22089 Use Summary Table [Optional Text]

[Start of Optional Text]

The table below is a summary of the Crop Use Directions for A22089. However, it is important for the user to read and follow the complete instructions contained within this label.

Crop or Crop Group or Subgroup with Examples	Maximum Rate per Application (lb ai/A)	Maximum Annual Application Rate (lb ai/A/year)	Minimum Application Interval Days
Mesotrione resistant soybeans	1.9 lb S-metolachlor/A 0.19 lb mesotrione/A	3.71 lb ai/A/year of S-metolachlor-containing products 0.19 lb ai/A/year of mesotrione-containing products	90

[End of Optional Text]

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Viton® is a trademark of E. I. du Pont de Nemours and Company.

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For non-emergency (e.g., current product information), call
Syngenta Crop Protection at 1-800-334-9481.

Manufactured for:
Syngenta Crop Protection, LLC
P.O. Box 18300
Greensboro, North Carolina, 27419-8300

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