

## OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

WASHINGTON, D.C. 20460

November 4th, 2025

Rachel Hardie Regulatory Product Manager Syngenta Crop Protection, LLC P.O. Box 18300 Greensboro, NC 27419

Subject: Label Amendment - Registration Review Mitigation for MCPA & Florasulam (Nine

Acetolactate Synthase (ALS) Inhibiting Herbicides)

Product Name: ORION HERBICIDE EPA Registration Number: 100-1307

Case Number: 477893

Application Dates: February 12, 2020 & October 19, 2023

#### Dear Rachel Hardie:

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 MCPA & Florasulam (Nine Acetolactate Synthase (ALS) Inhibiting Herbicides) Interim Decisions, and has concluded that your submission is 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 Assurance.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling and must be used at your next label printing. You must

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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 Caleb Carr by phone at 202-566-0636, or via email at <a href="mailto:carr.caleb@epa.gov">carr.caleb@epa.gov</a>.

Sincerely,

Maryam K. Muhammad-Perch, Team Lead Risk Management and Implementation Branch 4 Pesticide Re-Evaluation Division

Office of Pesticide Programs

**ENCLOSURE:** Stamped label

FLORASULAM	GROUP	2	HERBICIDE
MCPA	GROUP	4	HERBICIDE

#### Orion® Herbicide

For postemergent control of annual broadleaf weeds in wheat (including durum), barley, oats, rye and triticale.

Active Ingredient:	
Florasulam: N-(2,6-difluorophenyl)-8-fluoro-5-methoxy(1,2,4)	
triazolo(1,5-c)pyrimidine-2-sulfonamide	0.39%
MCPA: 2-methyl-4-chlorophenoxyacetic acid, 2-ethylhexyl ester	42.25%
Other Ingredients:	57.36%
Total:	100.00%

Orion is formulated as a suspo-emulsion containing 0.033 lb of florasulam and 2.34 lb of MCPA expressed as acid equivalent per gallon.

## **KEEP OUT OF REACH OF CHILDREN**

# **CAUTION**

See additional precautionary statements and directions for use on label.

EPA Reg. No. 100-1307

EPA Est. No.

A C C E P T E D

11/04/2025

Under the Federal Insecticide, Fungicide and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 100-1307

FIRST AID		
If swallowed	Call a poison control center or doctor immediately for treatment advice.	
	Have person sip a glass of water if able to swallow.	
	Do not induce vomiting unless told to do so by a poison control center or doctor.	
	Do not give anything by mouth to an unconscious person.	
If on skin or	Take off contaminated clothing.	
clothing	Rinse skin immediately with plenty of water for 15-20 minutes.	
	Call a poison control center or doctor for treatment advice.	
If in eyes	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

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

Harmful if swallowed. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

# **Personal Protective Equipment (PPE)**

# Mixers, loaders, applicators, flaggers and other handlers must wear:

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

# **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.

# **Engineering Controls**

Pilots must use an enclosed cockpit that meets the requirements listed in the WPS for agricultural pesticides (40 CFR 170.240(d)(6)).

Handlers must use closed mixing loading systems during mixing and loading liquids for aerial applications to barley, oats, rye, triticale, and wheat.

# **User Safety Recommendations**

#### Users should:

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

#### **Environmental Hazards**

This pesticide is toxic to fish, aquatic invertebrates and aquatic plants. 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 disposing of equipment washwater or rinsate. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours.

This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

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

GROUNDWATER ADVISORY: This chemical has properties and characteristics associated with chemicals detected in groundwater. MCPA is known to leach into groundwater under certain conditions as a result of label use. This chemical may leach

into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

SURFACE WATER ADVISORY: This product may impact surface water quality due to runoff of rain water. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having high potential for reaching surface water via runoff for several 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 potential loading of florasulam and MCPA from runoff water and sediment. Runoff of this product will be reduced by avoiding applications when rainfall or irrigation is expected to occur within 48 hours.

**Shake Well Before Use - Avoid Freezing.** 

## 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.

# **DIRECTIONS FOR USE**

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

Read all Directions for Use carefully before applying.

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.

## 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 the label about personal protective equipment, restricted-entry interval, and notification to workers (as applicable). The requirements in this box apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

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

- Coveralls
- Waterproof gloves
- Shoes plus socks

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

### PRODUCT INFORMATION

Use Orion Herbicide as a postemergence herbicide for the control of annual broadleaf weeds such as chickweed, wild buckwheat, mustards and cleavers (catchweed

bedstraw) in wheat (including spring, winter and durum), barley, oats, rye and triticale not underseeded with legumes.

Orion Herbicide rapidly stops growth of susceptible weeds. However, typical symptoms (discoloration) of dying weeds may not be noticeable for 1 to 2 weeks after application, depending upon growing conditions and weed susceptibility. Degree of control and duration of effect are dependent upon weed sensitivity, weed size, crop competition, growing conditions at and following treatment, and spray coverage.

#### **Use Precautions**

When applying this product in tank-mix combination, follow all applicable use directions, precautions, and limitations on each manufacturer's label.

**Chemigation:** Do not apply this product through any type of irrigation system.

Do not apply Orion Herbicide directly to, or otherwise permit it to come into direct contact with, susceptible crops or desirable plants including alfalfa, edible beans, canola, flowers and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tomatoes, or tobacco. Do not permit spray mists containing Orion Herbicide to drift onto such plants.

This product has potential to leach. Do not apply excessive irrigation.

Do not apply to crops underseeded with legumes.

# **Weed Resistant Management**

FLORASULAM	GROUP	2	HERBICIDE
MCPA	GROUP	4	HERBICIDE

Orion Herbicide contains the active ingredients florasulam which inhibits acetolactate synthase (ALS, Site of Action Group 2) and MCPA which causes abnormal cell growth (synthetic auxin, Site of Action Group 4). Some naturally-occurring weed populations have been identified as resistant to Group 2 and 4 herbicides. Selection of resistant biotypes, through repeated use of these herbicides or lower than labeled use rates in the same field, may result in weed control failures. A resistant biotype may be present where poor performance cannot be attributed to adverse environmental conditions or improper application methods. If resistance is suspected, contact your local Syngenta representative and/or agricultural advisor for assistance.

# 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 use more than two applications of this or any other herbicide with the same mode of action in a single growing season unless mixed with an herbicide with a different mode of action which provides overlapping spectrum for the 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.

## **Crop Rotation Intervals**

The following rotational crops may be planted at the indicated interval following application of Orion Herbicide.

Сгор	Rotation Interval (Months)
Barley, grasses, oats, rye, triticale, wheat	1
Field corn, popcorn, seed corn, sweet corn, sorghum	3
Alfalfa, canola, chickpea, soybean, dry bean, pea (dry and succulent), flax, lentil, potato, safflower, sugar beet, sunflower	9
Other crops not listed	12

# **Avoiding Injurious Spray Drift**

This product can affect broadleaf plants directly through foliage and indirectly by root uptake from treated soil. Do not apply Orion Herbicide directly to, or allow spray drift to come into contact with, broadleaf crops including, but not limited to, alfalfa, canola, beans, cotton, flowers, grapes, lettuce, lentils, mustard, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tobacco, tomatoes, vegetables, or other desirable broadleaf crops or ornamental plants or soil where sensitive crops will be planted the same season. (See Crop Rotation Intervals section.)

Make applications only when there is little or no hazard from spray drift. Very small quantities of spray, which may not be visible, may seriously injure crops, whether dormant or actively growing. When applying Orion Herbicide, use low pressure equipment capable of producing sprays of uniform droplet size with a minimum of a medium-quality spray. Under adverse weather conditions, fine spray droplets that do

not settle rapidly onto target vegetation may be carried a considerable distance from the treatment area. A drift control or spray thickening agent may be used with this product to improve spray deposition and minimize the potential for spray drift. If used, follow all use recommendations and precautions on the product label.

**Ground Applications:** To minimize spray drift, apply Orion Herbicide in a total spray volume of 8 gallons or more per acre. Refer to the spray equipment manufacturer's recommendations for detailed information on nozzle types, arrangement, spacing and operating height and pressure. Spot treatments should be applied only with a calibrated boom to prevent over application. Operate equipment at spray pressures no greater than is necessary to produce a uniform spray pattern. Operate the spray boom no higher than is necessary to produce a uniformly overlapping pattern between spray nozzles. Do not apply with hollow cone-type nozzles or other nozzles that produce a fine-quality spray.

**Aerial Application:** To minimize spray drift, apply Orion Herbicide in a total spray volume of 3 gallons or more per acre. 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. Spray drift from aerial application can be minimized by applying a coarse spray at spray boom pressure no greater than 30 psi, and by using straight-stream nozzles directed straight back. Spray pattern and droplet size distribution can be evaluated by applying sprays containing a water-soluble dye marker or appropriate drift control agents over a paper tape (adding machine tape).

Mechanical flagging devices may be used.

## SPRAY DRIFT MANAGEMENT

#### MANDATORY SPRAY DRIFT MANAGEMENT

# **Aerial Applications:**

- Do not release spray at a height greater than 10 ft above the ground or vegetative canopy, unless a greater application height is necessary for pilot safety.
- Applicators are required to use a medium or coarser droplet size according to the most current version of the American Society of Agricultural & Biological Engineers Standard 641 (ASABE S641).
- If the windspeed is 10 miles per hour or less, applicators must use  $\frac{1}{2}$  swath displacement upwind at the downwind edge of the field. When the windspeed is between 11 15 miles per hour, applicators must use  $\frac{3}{4}$  swath displacement upwind at the downwind edge of the field.
- Do not apply when wind speeds exceed 15 mph at the application site. If the windspeed is greater than 10 mph, the boom length must be 65% or less of the wingspan for fixed wing aircraft and 75% or less of the rotor diameter for helicopters. Otherwise, the boom length must be 75% or less of the wingspan for fixed-wing aircraft and 90% or less of the rotor diameter for helicopters.
- Do not apply during temperature inversions.

# **Ground Boom Applications:**

- User must only apply with the release height recommended by the manufacturer, but no more than 3 feet above the ground or crop canopy.
- Applicators are required to use a medium or coarser droplet size according to the most current version of the American Society of Agricultural & Biological Engineers Standard 572 (ASAE S572).
- Do not apply when wind speeds exceed 15 miles per hour at the application site.
- Do not apply during temperature inversions.

#### SPRAY DRIFT ADVISORIES

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

#### IMPORTANCE OF DROPLET SIZE

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

## **Controlling Droplet Size - Ground Boom**

 Volume - Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.

- **Pressure** Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- **Spray Nozzle** Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

# **Controlling Droplet Size – Aircraft**

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

#### **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.

#### **RELEASE HEIGHT – Aircraft**

Higher release heights increase the potential for spray drift. When applying aerially to crops, do not release spray at a height greater than 10 ft above the crop canopy, unless a greater application height is necessary for pilot safety.

#### SHIELDED SPRAYERS

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

#### **TEMPERATURE AND HUMIDITY**

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

## **TEMPERATURE INVERSIONS**

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature

inversions.

#### WIND

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

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

## **SENSITIVE AREAS**

The pesticide should only be applied 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).

#### **MIXING**

# **Mixing Orion Herbicide Alone**

- 1. Fill the tank with  $\frac{1}{2}$  of the total amount of water.
- 2. Start agitation.
- 3. Add the required amount of Orion Herbicide.
- 4. Continue agitation while filling the spray tank to the required volume.
- 5. To ensure a uniform spray mixture, continuous agitation is required during application. If product is allowed to settle, thoroughly agitate to resuspend the mixture before spraying. Apply mixture immediately after it is prepared.

## Orion Herbicide Applied in Tank-Mix Combination

If a broader spectrum of weed control is needed, Orion Herbicide may be tank mixed with labeled rates of other herbicides provided (1) the tank-mix product is labeled for the timing and method of application for the use site to be treated; and (2) tank mixing is not prohibited by the label of the tank-mix product. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

# **Tank Mixing Precautions**

- Read carefully and follow all applicable use directions, precautions, and limitations on the respective product labels.
- Do not exceed recommended application rates for respective products or maximum allowable application rates for any active ingredient in the tank mix.
- Always perform a (jar) test to ensure the compatibility of products to be used in tank mixture.

**Tank-Mix Compatibility Testing:** A jar test is recommended prior to tank mixing to ensure compatibility of Orion Herbicide and other pesticides. Use a clear glass quart jar with lid and mix the tank mix ingredients in their relative proportions. Invert the jar containing the mixture several times and observe the mixture for approximately ½ hour. If the mixture balls-up, forms flakes, sludges, gels, oily films or layers, or other precipitates, it is not compatible and the tank-mix combination should not be used.

Vigorous, continuous agitation during mixing, filling and throughout application is required for all tank mixes. Sparger pipe agitators generally provide the most effective agitation in spray tanks. To prevent foaming in the spray tank, avoid stirring or splashing air into the spray mixture.

# **Mixing Order for Tank Mixes**

- 1. Fill the spray tank to  $\frac{3}{4}$  of the total spray volume required with water.
- 2. Start agitation.
- 3. Add Orion Herbicide and agitate for 2 to 3 minutes.
- 4. After adding Orion Herbicide, add different formulation types in the following order: (1) dry flowables; (2) wettable powders; (3) aqueous suspensions, flowables and liquids. Maintain agitation and add: (4) emulsifiable concentrates; (5) solutions; and (6) adjuvants. Allow time for complete mixing and dispersion after each addition.
- 5. Finish filling the spray tank. Maintain continuous agitation during mixing and throughout application. If product is allowed to settle, thoroughly agitate to resuspend the mixture before spraying. Apply mixture immediately after it is prepared.

If application or agitation must be stopped before the spray tank is empty, the materials may settle to the bottom. Settled materials must be resuspended before spraying is resumed. A sparger agitator is particularly useful for this purpose. Settled material may be more difficult to resuspend than when originally mixed.

# **Cleanout Procedures for Spray Equipment**

- 1. Drain any remaining spray mixture from the application equipment.
- 2. Hose down the interior surfaces of the tank while filling the tank  $\frac{1}{2}$  full of water.
- 3. Add household ammonia at a rate of 1 gallon per 100 gallons of water. Recirculate for 5 minutes and spray out part of this mixture for 5 minutes through the boom. Drain tank.
- 4. Remove all spray nozzles and screens and clean separately.
- 5. If spray equipment will be used for pesticide application to crops sensitive to Orion Herbicide, steps 1-3 should be repeated. Exterior surfaces of spray equipment should also be thoroughly cleaned.

**Note:** Rinsate may be disposed of on site according to label use directions or at an approved waste disposal facility.

# Weeds Controlled or Suppressed by **Orion Herbicide**

Weeds Controlled	
buckwheat, wild	mustard, black
canola, volunteer¹	mustard, blue (purple)
chamomile, corn	mustard, tansy
chamomile, false (scentless)	mustard, treacle (bushy wallflower)
chamomile, mayweed (dogfennel)	mustard, tumble (Jim Hill)
chamomile, wild	mustard, wild
chickweed, common	pennycress, field
cleavers (catchweed bedstraw)	pigweed, redroot <sup>3</sup>
fiddleneck, coast	pineappleweed
flixweed <sup>2</sup>	prickly lettuce <sup>2</sup>
hempnettle <sup>3</sup>	ragweed, common
knotweed	shepherdspurse
lambsquarters	smartweed (green, ladysthumb, Pennsylvania)
London rocket	sunflower, annual <sup>2</sup>
Weeds Suppressed <sup>4</sup>	
burdock <sup>2</sup>	plantain (top growth)
dandelion (seedlings and overwintered	sowthistle, annual
rosettes <6 inches in diameter) <sup>3</sup>	sowthistle, perennial
filaree, redstem <sup>3</sup>	thistle, Canada <sup>3</sup>

<sup>&</sup>lt;sup>1</sup>Including all herbicide-tolerant canola varieties.

## **APPLICATION DIRECTIONS**

## **Application Timing**

Apply Orion Herbicide early postemergence to actively growing weeds. Extreme growing conditions such as drought or near freezing temperatures prior to, at, or following time of application may reduce weed control and increase the risk of crop injury at all stages of growth. **Only weeds that have emerged at the time of application will be controlled.** If foliage is wet at the time of application, control may be decreased. Applications of Orion Herbicide are rainfast within 4 hours after application.

# **Spray Coverage**

Use sufficient spray volume to provide thorough coverage and a uniform spray pattern. Do not broadcast apply in less than 3 gallons of total spray volume per acre. For best results and to minimize spray drift, apply in a spray volume of 10 gallons or more per

<sup>&</sup>lt;sup>2</sup>Up to the 4-leaf stage.

<sup>&</sup>lt;sup>3</sup>Improved control can be achieved with the addition of 1 oz ae per acre of MCPA ester (2.2 fl oz per acre of a 3.7 lb ae per gallon of a MCPA ester product).

<sup>&</sup>lt;sup>4</sup>Weeds Suppressed means significant activity but not always at a level considered acceptable for commercial weed control.

acre. As vegetative canopy and weed density increase, spray volume should be increased to obtain equivalent weed control. Use only nozzle types and spray equipment designed for herbicide application. To reduce spray drift, follow precautions under Avoiding Injurious Spray Drift.

# **Adjuvants**

Generally this product does not require the use of an adjuvant to achieve satisfactory weed control. An adjuvant may be added to optimize herbicidal activity when applications are made at lower carrier volumes; under conditions of cool temperature, low relative humidity or drought; or when a tank-mix partner recommends the use of an adjuvant.

When an adjuvant is to be used with this product, the use of an adjuvant that meets the standards of the Chemical Producers and Distributors Association (CPDA) adjuvant certification program is recommended.

# Wheat (Including Durum), Barley, Oats, Rye, Triticale

Apply 17 fl oz of Orion Herbicide per acre to actively growing wheat (including spring, winter and durum), barley, oats, rye and triticale from the 3-leaf crop growth stage up to the joint stage (Zadoks scale 31). Apply when weeds are actively growing. Only weeds emerged at the time of treatment will be controlled. Best results are obtained from application made to seedling weeds. A later application when the crop is between the jointing and boot stage of growth may be used to control later emerging weeds; however, do not apply unless the risk of injury is acceptable. Do not apply after the boot stage.

Warm, moist growing conditions promote active weed growth and enhance the activity of Orion Herbicide by allowing maximum foliar uptake and contact activity. Weeds hardened off by cold weather or drought stress may not be adequately controlled or suppressed and regrowth may occur. For best results, ensure thorough spray coverage of target weeds.

Tank Mixtures for Wheat (Including Durum): Orion Herbicide may be applied in tank-mix combination with labeled rates of other products registered for postemergence application in wheat. See Tank Mixing Precautions under Mixing. When tank mixing, do not exceed recommended application rates and use only in accordance with the most restrictive precautions and limitations on the respective product labels. It is the pesticide user's responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

#### Restrictions

- Do not make more than one application per year.
- Do not apply more than 17 fl oz of Orion Herbicide per acre per year.

- Livestock may be grazed on treated crops 7 days following application.
- Preharvest Interval: Do not apply within 60 days of crop harvest.
- Do not exceed 0.75 lb ae of MCPA or 0.0044 lb ai of florasulam per acre per year from all combined uses.

#### STORAGE AND DISPOSAL

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

# **Pesticide Storage**

Store in original container only. Storage below 14°F will cause the product to freeze. If product freezes, bring to room temperature and agitate before use.

# **Pesticide Disposal**

Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

# **Container Handling**

# 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 ¼ 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 ¼ 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.

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

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