TIAFENACIL | GROUP 14 | HERBICIDE

GAMMA

A nonselective burndown and desiccation/defoliation/harvest aid herbicide with the active ingredient TERGEO®

	%w/w
ACTIVE INGREDIENT: TIAFENACIL*	70.0 %
OTHER INGREDIENTS	30.0 %
TOTAL	100.0 %

*methyl *N*-[2-[[2-chloro-5-[3,6-dihydro-3-methyl-2,6-dioxo-4-(trifluoromethyl)-1(2*H*)-pyrimidinyl]-4-fluorophenyl]thio]-1-oxopropyl]-β-alaninate

Gamma is formulated as a water dispersible granule (WG) and contains 0.70 pounds of active ingredient per pound of formulated product.

EPA Reg. No. 71512-36-74530

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KEEP OUT OF REACH OF CHILDREN

CAUTION/PRECAUCIÓN

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

SEE LABEL BOOKLET FOR FIRST AID AND PRECAUTIONARY STATEMENTS.
READ ENTIRE LABEL CAREFULLY AND USE ONLY AS DIRECTED.

Manufactured For
HELM Agro US, Inc.
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PRECAUTIONARY STATEMENTS

Hazard to Humans and Domestic Animals

CAUTION: Harmful if swallowed or absorbed through skin. Avoid contact with skin or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

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 the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • 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.	
HOT LINE NUMBER For **24-Hour Medical Emergency Assistance** call **National Poison Control Center at 1-800-222-1222**. For **Chemical Emergency**, Spill, Leak, Fire or Accident, call **CHEMTREC 1-800-424-9300**.	

Personal Protective Equipment (PPE)

Mixers, loaders, applicators and other handlers must wear: waterproof gloves, long-sleeved shirt and long pants and shoes plus socks.

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 170.607(d-f)), the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Requirements

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. 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.

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.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to estuarine/marine invertebrates. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not apply directly to water, areas where surface water is present, or intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash waters or rinsate.

Ground Water Advisory

Tiafenacil has properties and characteristics associated with chemicals detected in ground water. This chemical may leach into ground water if used in areas where soils are permeable, particularly where the water table is shallow.

Surface Water Advisory

Tiafenacil may impact surface water due to runoff of rainwater. This is especially true for poorly draining soils and soils with shallow groundwater. This chemical is classified as having high potential for reaching surface water via runoff for several days after application. A level,

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well-maintained vegetative buffer strip between areas to which this chemical is applied and surface water features such as ponds, streams, and springs will reduce the potential loading of this chemical from runoff water and sediment. Runoff of this chemical will be reduced by avoiding application when rainfall is forecast to occur within 48 hours.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. This labeling must be in the possession of the user at the time of herbicide application.

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 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.

Do not enter or allow worker entry into treated areas during the Restricted Entry Interval (REI) of 12 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, waterproof gloves, and shoes plus socks.

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Do not enter or allow others to enter treated areas until sprays have dried

Gamma must be used only in accordance with directions on this label. To the extent consistent with applicable law, HELM Agro will not be responsible for losses or damage resulting from use of this product in any manner not specifically directed by HELM Agro.

PRODUCT INFORMATION

Rainfastness:

Gamma is rainfast 1 hour after application.

Weed Efficacy Information:

Postemergence Activity. Gamma is a nonselective contact/foliar (burndown) herbicide used to control or suppress a broad spectrum of emerged broadleaf and grass weeds. Gamma has excellent burndown activity on most young (generally less than 5 inches tall) annual weeds and suppresses the growth of perennial weeds by desiccating green foliage.

- Gamma must be applied with an adjuvant for optimum burndown activity (refer to Adjuvants section for details).
- It is essential to obtain complete coverage of target weeds for adequate weed control. Inadequate coverage of target weeds, improper application technique, and/or application to mature, large (taller than 5 inches), stressed, or mown weeds will usually result in unacceptable weed control.
- Burndown activity may be slowed or reduced under cloudy and/or foggy or cooler weather conditions, or when weeds are growing under drought or other stress conditions.

Residual Activity. Gamma rapidly degrades following application and as a result, Gamma has no commercially viable soil residual activity against weeds. If residual weed control is desired, tank mix with a soil residual herbicide.

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Mode of Action (MOA) Information:

Gamma is classified as a Group 14 herbicide and is rapidly absorbed by emerged, actively growing, and susceptible green plant tissue. Once Gamma is absorbed by green plant tissue, inhibition of protoporphyrinogen oxidase (PPO) results in rapid disintegration and drying of plant tissue. Chlorosis and necrotic symptoms usually develop within hours after application and death of susceptible weeds occurs within a few days.

PRODUCT STEWARDSHIP INFORMATION

Resistance Management

Gamma is a Group 14 herbicide that inhibits the protoporphyrinogen oxidase (PPO) enzyme in plants. Any weed population may contain or develop plants naturally resistant to Gamma and to several herbicide modes of action (triazine (Group 5), ALS (Group 2), PPO (Group 14), glyphosate (Group 9), auxin (Group 4), HPPD (Group 27) and etc.). The repeated use of herbicides with the same modes of action allows resistant weeds to be selected and spread.

To help delay the development and spread of resistance to PPO inhibitors (Group 14) and other mode of actions take one or more of the following steps:

- Rotate the use of Gamma or other Group 14 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different MOA group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or certified crop advisor if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use and crop rotation, and that considers tillage (or other mechanical control methods), cultural (e.g., higher crop seeding rates; precision fertilizer application method and timing to favor the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Fields should be scouted prior to application to identify the weed species present and their growth stage to determine if the intended application will be effective.
- Scout after herbicide application to monitor weed populations for early signs of resistance development. Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species.
- If resistance is suspected, treat weed escapes with a herbicide having a different mechanism of action and/or use non-chemical means to remove escapes, as practical, with the goal of preventing further seed production.
- If a weed population continues to progress after treatment with this product, discontinue use of this product, and switch to another management strategy or herbicide with a different mode of action, if available.
- Contact your local extension specialist or certified crop advisors for additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- For further information or to report suspected resistance, contact HELM Agro at 1-813-621-8846.

Always apply the full labeled rate and at the specified application timing listed on the label. Contact your local sales representative, crop advisor, or extension agent to determine if there is suspected PPO resistant weeds in your region. If PPO resistant biotypes of target weeds have been reported, use the specified application rates of this product for your conditions and add tank mix products so that there are multiple effective mechanisms of actions for each target weed.

To manage a known herbicide resistant weed population, it is important to use herbicides with varying effective modes of action as tank mix partners, in sequential applications within a growing season, and/or in a multi-year weed management plan.

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Integrated Pest Management (IPM)

Gamma should be used as part of an integrated pest management strategy. Consult with local university extension and agricultural professionals for IPM strategies specific for your area.

Crop Tolerance Information:

Crops listed on this label are tolerant to Gamma when applied according to the labeled directions and under normal environmental conditions.

- Crop injury may occur under stressful growing conditions.
- Crop injury will occur if Gamma is applied postemergence (over the top) to the crop.
- In fields where poor row closure (during planting) and/or soil cracking is common, applicators should be watchful for cases where the crop emergence within the open planting row or within soil cracks. If Gamma is applied when the crop has emerged within open planting rows or within soil cracks (between the soil walls), Gamma will likely contact and injure the crop.
- In directed-postemergence (perennial crop) uses, Gamma will cause crop injury if the spray solution drifts into the crop canopy.

Rotational Crop Information:

Table 1 indicates the interval between application of Gamma and planting of rotational crops or replanting after crop failures. In case of tank mix, use the most restrictive interval of all products applied.

Table 1. Rotational crop and replanting intervals by Gamma single application rate

Crop	**Gamma Rate (oz/A)**		
	0.5	1	1.5
	Rotational Crop Interval		
	(Days after application)		
Barley	0	0	0
Canola	21	90	90
Field corn, popcorn, and sweet corn (crop subgroup 15-22D)	0	0	0
Cotton	0*	7*	7*
Leafy Vegetables	30	30	30
Dry shelled beans	14	30	30
Dry shelled peas	0	7	14
Flax	21	90	90
Peanut	0	7	14
Sorghum	0	7	14
Root Crops	30	30	30
Soybean	0 - 7*	7*	7*

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Crop	Gamma Rate (oz/A)		
	0.5	1	1.5
	Rotational Crop Interval		
	(Days after application)		
Sugarbeet (root and top)	30	30	30
Wheat	0	0	0
All other crops	90	90	90
* The replanting intervals are further defined in the crop-specific use instructions section.			

PRODUCT USES & APPLICATION INSTRUCTIONS:

Gamma is registered for use on the use sites and use patterns listed in Table 2

Table 2. Use sites and use patterns for Gamma

Postemergence (Directed)
Citrus fruit Grape Pome Fruit Stone Fruit Tree Nut Ornamental Plants & Nursery

Burndown
Fallow Non-crop

Restrictions

- DO NOT apply this product to residential areas.
- DO NOT apply this product through any type of irrigation system.
- A 50-foot buffer for ground applications and a 150-foot buffer for aerial applications must be maintained between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (including grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas, shrub lands, crop lands), semi-aquatic, and estuarine/marine habitats.
- To prevent potential for run-off, maintain a 25-foot vegetative filter strip between the treated field and any sensitive aquatic habitat such as but not limited to; lakes, reservoirs, rivers, permanent streams, marshes, natural ponds, estuaries and commercial fish ponds.
- In the State of New York:
  - Aerial applications are prohibited.
  - Maintain a 100-foot buffer for ground applications between the point of direct application and the closest edge of sensitive aquatic habitats such as but not limited to; lakes reservoirs, rivers, permanent streams, marshes, natural ponds, estuaries and commercial fish ponds.

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Spray Carrier:

Spray carrier selection is very important to maximize effectiveness of Gamma. Always use clean water (no mud or clay), clear liquid nitrogen, or complete clear liquid fertilizers with Gamma. Fertilizers or water containing clay can reduce the efficacy of Gamma. It is important, therefore, to never use muddy water or suspension type fertilizers containing clay as the spray carrier. Liquid fertilizer carriers cannot substitute for the appropriate adjuvant. When mixing Gamma in liquid fertilizer carrier, always perform a jar test with all desired products to be in the tank at the appropriate ratios.

Spray Volume - Ground Application:

The minimum spray volume for applications of Gamma is 10 gallons of final spray solution per acre. Adequate spray coverage is essential for optimal weed control. When targeting dense weed populations and/or larger weeds, and/or no-till fields where crop stubble/stover is present, use higher spray volumes (e.g. 15 to 20 gallons of final spray solution per acre).

Spray Volume - Aerial Application:

The minimum spray volume for aerial applications of Gamma is 3 or more gallons of final spray solution per acre. Adequate spray coverage is essential for optimal weed control. When applying for desiccation or targeting dense weed populations and/or larger weeds, use a minimum of 5 gallons of final spray solution per acre.

Nozzle Selection

The use of nozzles that produce medium-to-coarse droplets such as flat-fan nozzles will result in the most effective application of Gamma. Review and follow restrictions from the spray drift management section.

Application Timing and Rates:

For Gamma application timing and rates, see instructions listed for each use. Target actively growing weeds less than 5 inches. Avoid application under stress conditions such as drought, etc to maximize effectiveness. To optimize product performance, use a high quality MSO at 1% v/v and a spray volume of at least 10 gallons per acre

Table 3. Broadleaf and grass weeds controlled (C) or suppressed (S) by applications of Gamma applied to actively growing weeds at 1.0 to 1.5 oz per acre or at 0.5 to 1.5 oz per acre in tank mix with glyphosate.

	Common Name	Scientific Name	Gamma	Gamma + glyphosate[1]
Broadleaf Weeds	Amaranth, Palmer	*Amaranthus palmeri*	S-C [2]	S-C [3]
	Buttercup spp	*Ranunculus spp*	S	C
	Canola, volunteer	*Brassica rapa*	C	C
	Chickweed, common	*Stellaria media*	S	C
	Chickweed, mouse-ear	*Cerastium fontanum*	S	C
	Clover, white	*Trifolium repens*	S-C	C
	Dandelion, common	*Taraxacum officinale*	S-C	C
	Deadnettle, purple	*Lamium purpureum*	C	C
	Dock, curly	*Rumex crispus*	S	S-C
	Eveningprimrose, cutleaf	*Oenothera laciniata*	S-C	C
	Geranium, Carolina	*Geranium carolinianum*	S	C

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	Common Name	Scientific Name	Gamma	Gamma + glyphosate[1]
Broadleaf Weeds	Groundsel, cressleaf	*Packera glabella*	C	C
	Henbit, common	*Lamium amplexicaule*	C	C
	Horseweed (marestail) [4]	*Erigeron canadensis*	S	S-C
	Kochia	*Bassia scoparia*	S	S-C [5]
	Lambsquarters, common	*Chenopodium album*	C	C
	Morningglory spp	*Ipomoea spp*	C	C
	Pennycress, field	*Thlaspi arvense*	C	C
	Pigweed, redroot	*Amaranthus retroflexus*	S-C	C
	Prickly sida (teaweed)	*Sida spinosa*	C	C
	Purslane, common	*Portulaca oleracea*	S-C	C
	Radish, wild	*Raphanus raphanistrum*	S	S-C
	Ragweed, common	*Ambrosia artemisiifolia*	C [2]	C [3]
	Sesbania, hemp	*Sesbania herbacea*	C	C
	Shepherd's-purse	*Capsella bursa-pastoris*	C	C
	Swinecress	*Lepidium spp*	S-C	C
	Thistle, Russian	*Salsola kali*	S-C	S-C
	Velvetleaf	*Abutilon theophrasti*	C	C
	Vetch	*Vicia spp.*	S-C	C
	Waterhemp	*Amaranthus tuberculatus*	S-C [2]	S-C [3]
Grass Weeds	Barley, little	*Hordeum pusillum*	S	C
	Barnyardgrass	*Echinochloa crus-galli*	S	C
	Bluegrass, annual	*Poa annua*	S-C	C
	Corn, volunteer [6]	*Zea mays*	C	C
	Crabgrass spp.	*Digitaria spp.*	S	C
	Foxtail, giant	*Setaria faberi*	S	C
	Foxtail, green	*Setaria viridis*	S	C
	Foxtail, yellow	*Setaria pumila*	S	C
	Goosegrass	*Eleusine indica*	S	C
	Johnsongrass, seedling	*Sorghum halepense*	S	C

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	Common Name	Scientific Name	Gamma	Gamma + glyphosate[1]
Grass Weeds	Oats, wild	*Avena fatua*	C	C
	Rye, volunteer	*Secale cereale*	S	S-C
	Shattercane	*Sorghum bicolor*	S	C
	Wheat, volunteer	*Triticum aestivum*	S	C

[1] Refer to tank mix section for details. Rating based on glyphosate- susceptible populations.

[2] Except on PPO resistant populations.

[3] Except on glyphosate and PPO resistant populations.

[4] For enhanced performance on horseweed (including glyphosate resistant populations), Gamma can be mixed with 2,4-D or dicamba based products (refer to specific labels for directions/restrictions). Tank mixtures including metribuzin have also shown to be beneficial (refer to specific labels for directions/restrictions).

[5] For best results, target applications before Kochia has begun developing branches.

[6] Target application between VE-V6 stages. Add low rates of clethodim (refer to clethodim label for directions/restrictions) for more complete control. When growing point is below the ground, the addition of low rates of clethodim is required to keep regrowth from occurring.

Cover Crop Termination:

Gamma + Glyphosate: The addition of Gamma at 0.5 to 1.0 oz/A to glyphosate can be used to enhance the speed of burndown and termination of cover crops such as clover, rye and vetch. Refer to glyphosate label for specific use instructions on glyphosate rates and timing. Always include a high quality MSO @ 1% v/v with the use of Gamma.

*Note: Use higher labeled rates of glyphosate for termination of large/dense cover crops Control may be reduced where cover crops have produced seed heads

Adjuvants:

For best results, use a methylated seed oil (MSO) when applying Gamma or reduced performance will occur. When using an MSO, always use a product that contains modified vegetable oil with at least 15% surfactant emulsifier. MSO should be applied at a concentration equal to 1% v/v (1 gallon per 100 gallon spray volume) of the final spray volume.

When using Gamma plus a surfactant loaded glyphosate, a High Surfactant Oil Concentrate (HSOC) is permitted. Similar activity to an MSO can be achieved when used in this manner.

If using a crop oil concentrate (COC), always use a product that contains at least 80% high quality petroleum (mineral).

A nonionic surfactant may be used for desiccation/defoliation uses only. If using an NIS, always use NIS containing at least 60% NIS, at a concentration equal to 0.25% v/v (2 pints per 100 gallons spray volume) of the final spray volume. The use of NIS for weed control can result in reduced performance.

The addition of an ammonium nitrogen fertilizer, either a 28% or 32% N urea ammonium nitrate (UAN) or a spray grade ammonium sulfate (AMS), to the final spray solution is allowed. If UAN or AMS is added to the spray mixture, add UAN at a concentration of 2.5% v/v (2.5 gallons per 100 gallons or spray volume) and add AMS at a concentration of 8.5 lbs product per 100 gallons of the final spray volume.

Adjuvant Mixtures – Combinations of adjuvant products may be used at doses that are relative to the adjuvant recommendations above. It is the user is responsibility to understand whether or not the adjuvant mixture quality is equal to or better than the addition of MSO/COC, and/or fertilizer at the recommended rates above.

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Tank Mixture Information:

Read and follow all label directions for each tank mixture herbicide. It is the pesticide user is responsibility to ensure that all tank mixture products are registered for the intended use. Read and follow the applicable restrictions, limitations, and directions for use on all product labels involved in the tank mixture. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

For tank mixtures, add individual components to the spray tank in the following sequence: water, dry formulated products, liquid formulated products (except in the case of glyphosate or glufosinate which should be added after liquid fertilizer or ammonium sulfate is dispersed), fertilizer (dry and/or liquid), and then adjuvants.

Gamma is generally compatible with fertilizers and micronutrient products, provided sufficient free water is available for dispersion of all the tank mixture products. Use tank mixture combinations only when applicator experience indicates that the tank mixture will not result in objectionable crop injury. However, the physical compatibility of Gamma with tank mix partners should be evaluated before use with a jar test (see compatibility test instructions).

Gamma plus Glyphosate

Gamma can be applied at 0.5 to 1.5 oz per acre (0.023 to 0.067 lb ai per acre) in combination with glyphosate to improve overall weed control and broaden weed control spectrum. Follow glyphosate label rate and use directions (or follow local extension recommendations).

Compatibility Test

Additives and tank mixtures should be tested for compatibility by mixing in a small container (jar test) prior to mixing in spray tank.

In a glass jar (~1 quart size), add all mix partners, in their relative proportions. Invert, shake or mix the jar thoroughly. If mixture forms precipitates (flakes or sludge), gels, balls up or forms oily films or layers, this indicates incompatibility. Though signs of incompatibility will typically be seen within 5 minutes of mixing, mixture should be observed for approximately 30 minutes.

Compatibility agents can be used to facilitate mixing. Add 1/4 teaspoon of the compatibility agent to the mix (assuming a mixing rate of 2 pints compatibility agent per 100 gallons spray mix). If compatibility agents do not facilitate mixing, the mixture is incompatible and should not be used.

Sprayer Mixing:

Mixing and Loading Instructions. Prepare no more spray mixture than is needed for the immediate application and avoid overnight storage of Gamma in spray mixtures.

1. Ensure the spray system is free of residues from previous applications.
2. Fill the tank 1/2 full of clean water.
3. Turn on the tank agitation system.
4. Add the required amount of Gamma and continue agitation until the Gamma is completely dispersed.
5. As the tank is filling, add the required spray adjuvants.

Agitation should be maintained during mixing and application.

Sprayer Calibration

Equipment should be calibrated regularly according to the manufacturer's specifications. Review and follow restrictions from the spray drift management section.

Spray Tank Cleaning

Clean application equipment thoroughly by using a strong detergent or commercial spray cleaner according to the Manufacturer's direction, followed by triple rinsing the equipment before and after applying this product.

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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 select the nozzle and pressure that delivers medium or coarser droplets (ASABE S641).
- Applicators must use ½ swath displacement upwind at the downwind edge of the field.
- Do not apply when wind speeds exceed 10 mph at the application site. 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:

- 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 (ASABE S572).
- Do not apply when wind speeds exceed 10 miles per hour at the application site.
- Do not apply during temperature inversions.

Ground Boom-less Applications:

- Applicators are required to select the nozzle and pressure that delivers medium or coarser droplet size (ASABE S572) for all applications.
- Do not apply when wind speeds exceed 10 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

For ground equipment, the boom should remain level with the crop and have minimal bounce.

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RELEASE HEIGHT - Aircraft

Higher release heights increase the potential for spray drift.

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 the 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.

WIND

Drift potential generally increases with wind speed.

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

Ground Boom-less Applications:

Setting nozzles at the lowest effective height will help to reduce the potential for spray drift.

Handheld Technology Applications:

Take precautions to minimize spray drift.

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CROP – SPECIFIC USE INSTRUCTIONS

Perennials Crops (Orchard & Vines)

Citrus Fruits

Grapefruit; lemon; lime; orange (sour); orange (sweet); tangelo; tangerine (mandarin)

Application Timing	Rate Range (oz/A)	Additional Information & Restrictions
Postemergence (Directed)	0.5 to 1.0	• Apply as a directed spray using conventional low-pressure ground spray equipment. • Do not apply by aerial application. • Follow manufacturer's recommendations for spraying pressure. • Review crop tolerance information section. • Review and follow restrictions from the spray drift management section. • Do not allow spray solution to contact green stem tissue, leaves, fruit or blooms of trees. • Note: Trunk shields should be used until adequate bark has formed to protect young trees from potential herbicide injury. (typically by 2 to 3 years after establishment) • The use of shielded sprayers is highly recommended in conditions with low hanging tree branches and fruit. • Do not apply to trees established less than 1 year • Do not reapply within 21 days. • PHI= 0 days • Use higher rate for dense and/or mature weed infestations. • Always apply product with an effective tank mixture partner, if electing to use the low rate. • Do not exceed 1.0 oz of product (0.044 lb ai) per acre per application. • Do not exceed 4.5 oz of product (0.2 lb ai) per acre per year.

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Application Timing	Rate Range (oz/A)	Additional Information & Restrictions
Directed spray for sucker control	0.5 to 1.5	Gamma is effective as an aid in the management of undesirable sucker growth from the base of trunks or root sprouts. Suckers must be treated when the tissue is young and not mature and/or hardened off. Care must be taken to prevent spray mist coming into contact with desirable fruit or foliage or green stem tissue (see precautions). • Do not reapply within 21 days. • Do not exceed 1.5 oz of product (0.067 lb ai) per acre per application. • Do not exceed 4.5 oz of product (0.2 lb ai) per acre per year. • Apply Gamma in combination with glufosinate for improved sucker control.

Grape

Application Timing	Rate Range (oz/A)	Additional Information & Restrictions
Postemergence (Directed)	0.5 to 1.5	• Apply as a directed spray using conventional low-pressure ground spray equipment. • Do not apply by aerial application. • Follow manufacturer's recommendations for spraying pressure. • Review crop tolerance information section. • Review and follow restrictions from the spray drift management section. • Do not allow spray solution to contact green stems (except suckers) or foliage. • Do not apply to grapes established less than 2 years. • Do not reapply within 14 days. • Do not apply within 7 days of harvest. • Use higher rate for dense and/or mature weed infestations. • Always apply product with an effective tank mixture partner, if electing to use the low rate. • Do not exceed 1.5 oz of product (0.067 lb ai) per acre per application. • Do not exceed 4.5 oz of product (0.2 lb ai) per acre per year.

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Application Timing	Rate Range (oz/A)	Additional Information & Restrictions
Directed spray for sucker control	0.5 to 1.5	Gamma is effective as an aid in the management of undesirable sucker growth from the base of vine trunks or root sprouts. Suckers must be treated when the tissue is young and not mature and/or hardened off. Care must be taken not to allow spray mist to contact desirable fruit or foliage or green stem tissue. • Do not reapply within 14 days. • Do not apply within 7 days of harvest. • Do not exceed 1.5 oz of product (0.067 lb ai) per acre per application. • Do not exceed 4.5 oz of product (0.2 lb ai) per acre per year. • Apply Gamma in combination with glufosinate for improved sucker control.

Pome Fruits

Apple; pear; pear (Asian)

Application Timing	Rate Range (oz/A)	Additional Information & Restrictions
Postemergence (Directed)	0.5 to 1.0	• Apply as a directed spray using conventional low-pressure ground spray equipment. • Do not apply by aerial application. • Follow manufacturer's recommendations for spraying pressure. • Review crop tolerance information section. • Review and follow restrictions from the spray drift management section. • Do not allow spray solution to contact green stem tissue, leaves, fruit or blooms of trees. • Note: Trunk shields should be used until adequate bark has formed to protect young trees from potential herbicide injury (typically by 2 to 3 years after establishment) • The use of shielded sprayers is highly recommended in conditions with low hanging tree branches and fruit. • Do not apply to trees established less than 1 year. • Do not reapply within 21 days. • PHI = 0 • Use higher rate for dense and/or mature weed infestations. • Always apply product with an effective tank mixture partner, if electing to use the low rate. • Do not exceed 1.0 oz of product (0.044 lb ai) per acre per application. • Do not exceed 4.5 oz of product (0.2 lb ai) per acre per year.

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Application Timing	Rate Range (oz/A)	Additional Information & Restrictions
Directed spray for sucker control	0.5 to 1.5	Gamma is effective as an aid in the management of undesirable sucker growth from the base of trunks or root sprouts. Suckers must be treated when the tissue is young and not mature and/or hardened off. Care must be taken not to allow spray mist to contact desirable fruit or foliage or green stem tissue. • Do not reapply within 21 days. • Do not exceed 1.5 oz of product (0.067 lb ai) per acre per application. • Do not exceed 4.5 oz of product (0.2 lb ai) per acre per year. • Apply Gamma in combination with glufosinate for improved sucker control.

Stone Fruits

Apricot; cherry (black); cherry (Nanking); cherry (sweet); cherry (tart); nectarine; peach; plum; plum (American); plum (beach); plum (Canadian); plum (cherry); plum (Chickasaw); plum (Damson); plum (Japanese); plum (Klamath)

Application Timing	Rate Range (oz/A)	Additional Information & Restrictions
Postemergence (Directed)	0.5 to 1.0	• Apply as a directed spray using conventional low-pressure ground spray equipment. • Do not apply by aerial application. • Follow manufacturer's recommendations for spraying pressure. • Review crop tolerance information section. • Review and follow restrictions from the spray drift management section. • Do not allow spray solution to contact green stem tissue, leaves, fruit or blooms of trees. • Note: Trunk shields should be used until adequate bark has formed to protect young trees from potential herbicide injury (typically by 2 to 3 years after establishment) • The use of shielded sprayers is highly recommended in conditions with low hanging tree branches and fruit. • Do not apply to trees established less than 1 year. • Do not reapply within 21 days. • PHI = 0 days • Use higher rate for dense and/or mature weed infestations. • Always apply product with an effective tank mixture partner, if electing to use the low rate. • Do not exceed 1.0 oz of product (0.044 lb ai) per acre per application. • Do not exceed 4.5 oz of product (0.2 lb ai) per acre per year.

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Application Timing	Rate Range (oz/A)	Additional Information & Restrictions
Directed spray for sucker control	0.5 to 1.5	Gamma is effective as an aid in the management of undesirable sucker growth from the base of trunks or root sprouts. Suckers must be treated when the tissue is young and not mature and/or hardened off. Care must be taken not to allow spray mist to contact desirable fruit or foliage or green stem tissue. • Do not reapply within 21 days. • Do not exceed 1.5 oz of product (0.067 lb ai) per acre per application. • Do not exceed 4.5 oz of product (0.2 lb ai) per acre per year. • Apply Gamma in combination with glufosinate for improved sucker control.

Tree Nuts

Almond; cashew; hazelnut (filbert); hickory nut; pecan; pistachio; walnut (black and English)

Application Timing	Rate Range (oz/A)	Additional Information & Restrictions
Postemergence (Directed)	0.5 to 1.0	• Apply as a directed spray using conventional low-pressure ground spray equipment. • Do not apply by aerial application. • Follow manufacturer's recommendations for spraying pressure. • Review crop tolerance information section. • Review and follow restrictions from the spray drift management section. • Do not allow spray solution to contact green stem tissue, leaves, fruit or blooms of trees. • Note: Trunk shields should be used until adequate bark has formed to protect young trees from potential herbicide injury. (typically by 2 to 3 years after establishment) • The use of shielded sprayers is highly recommended in conditions with low hanging tree branches. • Do not apply to trees established less than 1 year. • Do not reapply within 21 days. • PHI = 7 days • Use higher rate for dense and/or mature weed infestations. • Always apply product with an effective tank mixture partner, if electing to use the low rate. • Do not allow desiccation-treated almond hulls to be grazed or fed to livestock. • Do not exceed 1.0 oz of product (0.044 lb ai) per acre per application. • Do not exceed 4.5 oz of product (0.2 lb ai) per acre per year.

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Application Timing	Rate Range (oz/A)	Additional Information & Restrictions
Directed spray for sucker control	0.5 to 1.5	Gamma is effective as an aid in the management of undesirable sucker growth from the base of trunks or root sprouts. Suckers must be treated when the tissue is young and not mature and/or hardened off. Care must be taken not to allow spray mist to contact desirable fruit or foliage or green stem tissue. • Do not reapply within 21 days. • Do not exceed 1.5 oz of product (0.067 lb ai) per acre per application. • Do not exceed 4.5 oz of product (0.2 lb ai) per acre per year. • Apply Gamma in combination with glufosinate for improved sucker control.

Nonfood Agricultural Uses

Fallow

Application Timing	Rate Range (oz/A)	Additional Information & Restrictions
Fallow period between crop harvest and next crop planting	0.5 to 1.5	• Apply as a broadcast spray using conventional low-pressure ground spray equipment or by aerial application. • Follow manufacturer's recommendations for spraying pressure. • Review and follow restrictions from the spray drift management section. • Do not reapply within 14 days • Use higher rate for dense and/or mature weed infestations. • Do not exceed 1.5 oz of product (0.067 lb ai) per acre per application. • Do not exceed 4.5 oz of product (0.2 lb ai) per acre per year.

SPECIMEN

Industrial Vegetative Management/Non-Agricultural Uses

Not for use in New York State

For use in the non-selective burndown of vegetation on private, public and military lands to the following uncultivated non-agricultural areas: airports, non-irrigation ditch banks, dry canals, fence rows, highway, railroad and utility rights-of-way, industrial sites, manufacturing sites, storage areas and warehouse areas.

Application Timing	Rate Range (oz/A)	Additional Information & Restrictions
For best efficacy apply after weeds have emerged but before weeds have reached maturity.	1.0 to 1.5	• Apply as a broadcast spray using conventional low-pressure ground spray equipment mounted to a tractor or all-terrain vehicle (ATV) or handheld equipment typically used for these applications. • Do not apply by aerial application. • Follow manufacturer's recommendations for spraying pressure. • Review and follow restrictions from the spray drift management section. • Do not reapply within 14 days. • Use higher rate for dense and/or mature weed infestations. • To broaden the weed spectrum, tank mixes with other non-selective herbicides such glyphosate or glufosinate (refer to specific label for use instructions) are highly recommended. • Do not use in residential areas. • Do not exceed 1.5 oz of product (0.067 lb ai) per acre per application. • Do not exceed 4.5 oz of product (0.2 lb ai) per acre per year.

Non-Agricultural Uses Around Farmsteads

For use in the non-selective burndown of vegetation on farms including: implement storage yards, fence rows, on-farm roadsides or laneways, barnyards, and windbreaks.

Application Timing	Rate Range (oz/A)	Additional Information & Restrictions
For best efficacy apply after weeds have emerged but before weeds have reached maturity.	0.5 to 1.5	• Apply as a broadcast spray using conventional low-pressure ground spray equipment mounted to a tractor or all-terrain vehicle (ATV). • Do not apply by aerial application. • Follow manufacturer's recommendations for spraying pressure. • Review and follow restrictions from the spray drift management section. • Do not reapply within 14 days. • Use higher rate for dense and/or mature weed infestations. • Do not use in residential areas. • Do not exceed 1.5 oz of product (0.067 lb ai) per acre per application. • Do not exceed 4.5 oz of product (0.2 lb ai) per acre per year..

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Ornamental Plants & Nurseries

Not for use in New York State

Apply Gamma as a postemergence-directed broadcast, banded or spot spray (refer to spot spray section for instructions) for the control of emerged weeds (< 5 inches) that occur in/around field-grown woody ornamental plants and trees; between and/or around field containers; in/around ornamental plantings.

Gamma may also be used for the non-selective burndown of vegetation as nursery maintenance on: gravel pathways, stone pathways, around the outside of greenhouses, shade houses or lath houses, roads and non-irrigation ditches within the nursery, and nursery pads not in production.

For use in the non-selective burndown of vegetation around non-bearing fruit and nut trees, bushberries, vines and brambles.

Application Timing	Rate Range (oz/A)	Additional Information & Restrictions
Postemergence (Directed)	0.5 to 1.5 oz	• Apply using a backpack sprayer or as a broadcast spray using conventional low-pressure ground spray equipment mounted to a tractor or all-terrain vehicle (ATV). • Follow manufacturer's recommendations for spraying pressure. • Do not apply by aerial application. • Do not use in residential areas. For commercial nursery production use only. • For outdoor use only. Do not use indoors including greenhouses. • Do not allow direct or spray drift contact on desirable vegetation and young trees with un-calloused bark as severe injury will occur. • Do not exceed 1.5 oz of product (0.067 lb ai) per acre per application. • Do not exceed 4.5 oz of product (0.2 lb ai) per acre per year.

Spot Spray Application Directions

Not for use in New York State

Gallons Spray Mix	Spray Mix Treatment Area (sq ft)	Gamma (oz)	Gamma (grams)	Methylated Seed Oil (MSO) (oz)
5	2,178	0.05	1.4	6.4 oz
10	4,356	0.10	2.8	12.8 oz
25	10,890	0.25	7.1	32.0 oz

Additional Information & Restrictions

- Thoroughly spray the weeds to ensure good coverage but not to the point of run off. To ensure best product performance add a high quality MSO @ 1% v/v of spray mix.
- Each spray mix is equivalent to applying Gamma at a use rate of 1.0 oz (0.044 lb ai/A) in a spray volume of 100 gallons per acre.
- Apply spot treatments with an ATV-mounted or tractor-mounted sprayer equipped for low-pressure hand wand applications.
- Do not make a spot spray mix application to an area less than what is shown above or exceed the equivalent broadcast rate of 1.0 oz/A. Do not apply spot treatments using high-pressure hand wands.

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STORAGE AND DISPOSAL

Pesticide Storage: Store product in original container only. Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Store in a cool, dry place.

Pesticide Disposal: Do not contaminate water, food, or feed by disposal. Waste resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

Container Handling:

[if product is in fiber drum with liner]

Nonrefillable container. DO NOT use or refill this container. Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into formulation equipment. Then offer for recycling, if available, or dispose of liner in a sanitary landfill or by incineration, or other procedures approved by State and local authorities. If drum is contaminated and cannot be reused, dispose of it in the manner required for its liner.

[if product is in foil bag]

Nonrefillable outer bag. Do not reuse or refill the outer bag. Completely empty bag into application equipment then offer for recycling if available or dispose of empty bag in a sanitary landfill or by incineration, or other procedures approved by State and local authorities.

[if product is in plastic containers]

Nonrefillable 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 dispose of empty container in a sanitary landfill or by incineration, or other procedures approved by State and local authorities.

WARRANTY DISCLAIMER

The EPA approved directions for use of this product must be followed carefully. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, (1) THE GOODS DELIVERED TO YOU ARE FURNISHED AS IS BY MANUFACTURER OR SELLER AND (2) MANUFACTURER AND SELLER MAKE NO WARRANTIES, GUARANTEES, OR REPRESENTATIONS OF ANY KIND TO BUYER OR USER, EITHER EXPRESS OR IMPLIED, OR BY USAGE OF TRADE, STATUTORY OR OTHERWISE, WITH REGARD TO THE PRODUCT SOLD, INCLUDING, BUT NOT LIMITED TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, USE, OR ELIGIBILITY OF THE PRODUCT FOR ANY PARTICULAR TRADE USAGE. UNINTENDED CONSEQUENCES, INCLUDING BUT NOT LIMITED TO INEFFECTIVENESS, MAY RESULT BECAUSE OF SUCH FACTORS AS THE PRESENCE OR ABSENCE OF OTHER MATERIALS USED IN COMBINATION WITH THE GOODS, OR THE MANNER OF USE OR APPLICATION, INCLUDING WEATHER, ALL OF WHICH ARE BEYOND THE CONTROL OF MANUFACTURER OR SELLER AND ASSUMED BY BUYER OR USER. THIS WRITING CONTAINS ALL OF THE REPRESENTATIONS AND AGREEMENTS BETWEEN BUYER, MANUFACTURER AND SELLER, AND NO PERSON OR AGENT OF MANUFACTURER OR SELLER HAS ANY AUTHORITY TO MAKE ANY REPRESENTATION OR WARRANTY OR AGREEMENT RELATING IN ANY WAY TO THESE GOODS.

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LIMITATION OF LIABILITY

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL MANUFACTURER OR SELLER BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, OR FOR DAMAGES IN THEIR NATURE OF PENALTIES RELATING TO THE GOODS SOLD, INCLUDING USE, APPLICATION, HANDLING, AND DISPOSAL. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, MANUFACTURER OR SELLER SHALL NOT BE LIABLE TO BUYER OR USER BY WAY OF INDEMNIFICATION TO BUYER OR TO CUSTOMERS OF BUYER, IF ANY, OR FOR ANY DAMAGES OR SUMS OF MONEY, CLAIMS OR DEMANDS WHATSOEVER, RESULTING FROM OR BY REASON OF, OR RISING OUT OF THE MISUSE, OR FAILURE TO FOLLOW LABEL WARNINGS OR INSTRUCTIONS FOR USE, OF THE GOODS SOLD BY MANUFACTURER OR SELLER TO BUYER. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, ALL SUCH RISKS SHALL BE ASSUMED BY THE BUYER, USER, OR ITS CUSTOMERS. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BUYER'S OR USER'S EXCLUSIVE REMEDY, AND MANUFACTURER'S OR SELLER'S TOTAL LIABILITY SHALL BE FOR DAMAGES NOT EXCEEDING THE COST OF THE PRODUCT.

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