

## TECHNICAL EDUCATION FAQ

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### A new level of confidence for burndown control in grapes

Gamma™ is a next-generation burndown herbicide that quickly eliminates weeds resulting in cleaner vineyards for maximum yield potential and return on investment.

The following are Frequently Asked Questions about new Gamma and its novel active ingredient. To learn more about Gamma, go to [discoverhelm.com](http://discoverhelm.com).

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#### What is Gamma?

Gamma is breakthrough herbicide technology, offering a new and highly effective solution for non-selective contact burndown of emerged broadleaf and grass weeds in grapes.

Proven to control or suppress more than 50 weed species, key characteristics of the new herbicide include a novel active ingredient, broad tank mix compatibility, and an ultra-low use rate in comparison to many market standards.

#### What crops can Gamma be used on?

Gamma is currently registered for use in wine grapes, table grapes and raisin grapes.

#### What is the mode of action in Gamma?

Gamma's active ingredient is called Tergeo™, a PPO-inhibitor with a WSSA Group 14 classification. As a new pyrimidinedione herbicide, Tergeo shuts down chlorophyll production and photosynthesis resulting in a rapid build up of reactive oxygen species and lipid per oxidation of the cellular membrane followed by quick herbicidal effects.

#### How should Gamma be applied?

Gamma is to be used as a directed postemergence burndown application using conventional low-pressure ground sprayer equipment. Gamma may be applied at 0.5 to 1.5 ounces per acre at two week intervals. Always apply product with an effective tank mixture partner, if electing to use the low rate.

The maximum single application rate is 1.5 oz per acre (0.067 pound of active ingredient per acre). Do not exceed 4.5 ounces per acre per year (0.20 pound of active ingredient per acre per year).

#### Does Gamma need to be used with an adjuvant?

Gamma applications require the addition of an adjuvant applied at label recommended rates. Although the label allows for Methylated seed oil (MSO), non-ionic surfactants (NIS) and crop oil concentrate (COC) adjuvants to be used, MSO-based adjuvants are recommended to achieve the most consistent performance.

COC and NIS are not the preferred adjuvants for use with Gamma. However, research has shown that some premium COC and NIS products can achieve similar levels of performance to that of MSO products. For guidance on these premium COC and NIS products, contact your HELM Agro US representative. For specific instructions for adjuvant use, mixtures and spray volume, always reference the Gamma label.

#### How does Gamma perform on resistant weed species?

In product development trials and regulatory studies, the active ingredient in Gamma has demonstrated high performance ratings in burndown of the most troublesome and resistant broadleaf weeds including filaree, hairy fleabane, mallow and prickly lettuce.



### How quickly does Gamma work?

Gamma is described as being fast-acting with foliar effects occurring within 24 hours after application. Its active ingredient is rapidly absorbed by plants and within a few hours the foliage of susceptible weeds show signs of desiccation. In subsequent days, tissue necrosis occurs followed by weed death.

### How safe is Gamma on label designated crops?

In field trials, the active ingredient in Gamma shows no signs of crop injury or phytotoxicity when used according to label guidelines. Application instructions clearly state to avoid direct or indirect spray contact to foliage and green bark (non-barked vines, with the exception of undesirable suckers). If applied during the period after bud break through final harvest, use shielded application equipment to ensure spray drift will not come in contact with crop fruit or foliage.

### What weeds does Gamma control?

Gamma will control or suppress more than 50 broadleaf and grass weeds including:

Annual bluegrass	Filaree	Mallow	Prostrate knotweed
Barnyardgrass	Giant foxtail	Marestail	Purslane
Carpetweed	Green foxtail	Mayweed chamomile	Ragweed species
Chickweed	Hairy fleabane	Morningglory species	Shepherd's purse
Crabgrass	Henbit	Mustard	Sowthistle
Dandelion	Johnsongrass (seedling)	Nightshade species	Velvetleaf
Downy brome	Kochia	Pigweed species	Wild buckwheat
Evening primrose	Lambsquarters	Prickly lettuce	Wild oats
Field bindweed	Little barley	Prickly sida	Willowweed

### What are some of the unique benefits of Gamma?

- Novel active ingredient never used before in the U.S.
- Fast and effective control of broadleaf and grass weeds
- Resistance management weed control tool
- Convenient formulation with ultra-low use rate

### What is the formulation of Gamma?

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

### Who developed Gamma's active ingredient?

Tergeo, a novel proprietary active ingredient, was discovered by Farm Hannong, a Korean company, and was developed by Ishihara Sangyo Kaisha, Ltd., (ISK) of Osaka, Japan, as a co-development with Farm Hannong.

### When will Gamma be available for commercial use?

Gamma has received federal registration approval from the U.S. Environmental Protection Agency and will be available for use on grapes in 2020. Specific to California and New York, regulatory approval in these states are anticipated in 2022 or early 2023. Additional crop registrations are to be expected.



For more information, visit [discoverhelm.com](https://discoverhelm.com).

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