

Glyphosate Damage on Tomatoes

Tomatoes are easily the favorite vegetable grown in South Carolina home gardens. However, when their potential diseases, insect pests and physiological disorders are considered, it's understandable that growing tomatoes can present some challenges. While some of these problems cannot be prevented, glyphosate damage can usually be avoided completely by taking some precautions.



Photo 1. Initial symptoms of glyphosate herbicide injury on tomatoes are characteristically seen as white/yellow discoloration at the base of the youngest leaflets. David B. Langston, University of Georgia, Bugwood.org

Glyphosate is a broad-spectrum, non-selective, systemic herbicide that is the active ingredient in a number of products (e.g. Roundup Original, Eraser Systemic Weed & Grass Killer, Quick Kill Grass & Weed Killer, Bonide Kleenup Grass & Weed Killer, Hi-Yield Super Concentrate Killzall Weed & Grass Killer, and Green Light Com-Pleet 41% Systemic Grass & Weed Killer, among others) available for use by home gardeners. Once it enters a plant, it moves preferentially to actively growing areas. Glyphosate kills plants by interfering with a plant chemical that is necessary for the production of

amino acids (building blocks of protein) required for new growth.

Damage by glyphosate usually results from spray drift, either from an application by the home gardener or a neighbor or from glyphosate residue in a multi-use pesticide sprayer. The amount of damage to tomatoes varies depending on several factors including the amount of exposure, growing conditions, cultivar affected, and stage of growth.

In addition to the diagnostic initial symptoms seen in Photo 1, other symptoms include cupped, crinkled and small leaflets with or without mottling similar to that from virus infections. Glyphosate-injured tomato fruits are often smaller and irregularly shaped. Depending on the amount of damage sustained, plants may recover from glyphosate injury. Over time, damaged areas may turn brown and die (Photo 2). With lethal doses, necrosis (death) typically starts at the top of the plant and moves downward.



Photo 2. Later stage symptoms of glyphosate injury at the base of a leaflet Paul Bachi, University of Kentucky REC, Bugwood.org

Glyphosate Use Precautions

As mentioned previously, glyphosate damage to tomatoes is completely avoidable so long as certain precautions are taken. For weed control in tomatoes, allow at least 3 days between application of glyphosate and planting. Hooded or shielded spray applications between rows of tomatoes are not recommended. Herbicides (and all other pesticides) should never be sprayed when even slightly breezy conditions exist. As much as possible, avoid using glyphosate near vegetable gardens. If an application of glyphosate is necessary for weed control around other vegetables in the garden, utilize a shield such as a bottomless cardboard box that is placed over the target weed to prevent drift to non-target plants. When applying glyphosate near or in the garden, adjust the applicator to form large droplets rather than a mist so as to reduce drift. When using a pump sprayer, pump it up to only about half normal pressure. In addition, keep the spray nozzle close to target plants when applying the herbicide. Finally, sprayers used for glyphosate should not be used for applying other pesticides, such as fungicides and insecticides. If tomatoes are started in a hobby greenhouse, do not use glyphosate to control weeds on the greenhouse floor, as small amounts of spray drift can severely injure tomatoes and other crops in the greenhouse. Only spray glyphosate in an empty greenhouse.

Alternative Herbicides for Tomatoes

Please Note: The following products are labeled for weed control around tomatoes in the home vegetable garden, but may not be labeled for use around all vegetables. As with all pesticides, read and follow all label instructions and precautions.

Herbicidal Soap: Herbicidal soap (ammoniated soap of fatty acids) can be used for post-emergence general weed control. Shield tomato plants to prevent contact with spray. Examples include Weed-Aside Herbicidal Soap from Gardens Alive and Monterey Herbicidal Soap from Planet Natural. Similar products containing herbicidal soaps are labeled for use in the vegetable garden, but only prior to planting the crop. These products include Natria Grass & Weed Killer RTU by Bayer and Schultz Garden Safe Brand Weed & Grass Killer. All products listed have “caution” as the signal

word on the label except Monterey Herbicidal Soap, which has “warning.”

Sethoxydim: Some products containing the active ingredient, sethoxydim, can be used for post-emergence grass weed control around tomato plants in a vegetable garden. Products include Bonide Grass Beater Over-the-Top Grass Killer Concentrate (13% sethoxydim), Ferti-lome Over-the-Top II (18%), Hi-Yield Grass Killer Post-emergence Grass Herbicide (18%), and Poast Herbicide (18%). All products listed have “warning” as the signal word on the label.

Pelargonic Acid: Pelargonic acid is a naturally-occurring fatty acid found in many plants. Herbicides containing pelargonic acid are labeled for post-emergence, non-selective, weed control. As such, non-target plants, such as tomatoes, must be shielded to prevent spray contact and potential injury. Scythe Herbicide utilizes pelargonic acid and related fatty acids as its active ingredients. This product has “warning” as the signal word on the label.

Corn Meal Gluten: Corn meal gluten is the active ingredient for several pre-emergence herbicides available for use within the garden. These natural products may have to be repeated at 4- to 6-week intervals, and are a source of additional nitrogen for the crop. Examples include Espoma Organic Weed Preventer, Preen Organic Vegetable Garden Weed Preventer, and Original WOW! Pre-emergence Weed Control from Gardens Alive.

Treflan: Treflan (trifluralin) is used for pre-emergence general weed control for tomato plantings (and some other vegetables). Products containing trifluralin are applied prior to transplanting into the garden, and are mixed into the top 1 to 3 inches of garden soil. Examples of products are Miracle Gro Garden Weed Preventer, Preen Garden Weed Preventer, Tiger Brand Garden Weed & Grass Preventer, American Brand Herbicide Granules Weed & Grass Stopper, and Hi-Yield Herbicide Granules Containing Treflan. These products have “caution” as the signal word on the label.

For information on the best conditions for growing a healthy tomato plant, see [HGIC 1323, Tomato](#). For non-chemical weed control options in the

garden, see [HGIC 1253, *Controlling Weeds by Cultivating & Mulching*](#). To learn about other tomato problems, see [HGIC 2217, *Tomato Diseases*](#); [HGIC 2218, *Tomato Insect Pests*](#); [TYK, July 2008, *Tomato Spotted Wilt Virus*](#); [Gardening Hot Topic, May 2008, *Tomato Leaves Rolling*](#); and [Gardening Hot Topic, August 2009, *Blossom End Rot – An Update*](#).

Prepared by J. McLeod Scott, HGIC Horticulture Extension Agent, and Joey Williamson, HGIC Horticulture Extension Agent, Clemson University. (New 7/10.)

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