

Guarda® Offers Extended Residual Activity Without Restrictions or Limitations



Eric Smith, National Horticulture Sales Manager, BioSafe Systems

Growers are enthusiastic about Guarda®, the first U.S. EPA-registered crop protection tool with botanical thyme oil as the active ingredient. The fungicide/bactericide from BioSafe Systems fits seamlessly into the company's line of sustainable products, says Eric Smith, BioSafe Systems' National Horticulture Sales Manager.

"Guarda has filled a gap in our portfolio," Smith adds, explaining that the product is a soft residual chemistry that offers extended performance for up to 14 days. "It has a much better environmental profile than other residual chemistries, which is something we've wanted to have in our portfolio."

In 2021, BioSafe Systems began a partnership with Lidan Inc., a New York City-based biopharmaceutical company, to exclusively manufacture, market, and distribute Guarda. Smith says Guarda's unique formulation, which is standardized by its reactive compounds — thymol and to a lesser degree carvacrol — ensures that the antimicrobial and antifungal qualities of the thyme oil function consistently and uniformly.

Guarda is distinguished by HOLDit®, a lignin-based polymer technology that protects thyme oil from degrading over time. HOLDit allows the active ingredient to be released slowly, extending performance on crops without any restrictions or limitations, Smith explains.

Guarda's active ingredient is essentially strengthened by HOLDit, allowing it to kill pathogenic bacteria and fungi over several days. Without HOLDit, thyme oil is inefficient because the thymol would volatilize in the environment, never allowing for sufficient contact time to destroy microorganisms. Because of HOLDit, Guarda also requires only 3% active ingredient, whereas other products contain 25% thyme oil or more.

"HOLDit is the difference maker," Smith says. "It's what sets Guarda apart from other products. This is a novel formulation."

Growers Impressed

In the short time it has been available, Smith says BioSafe Systems has received feedback from large growers touting "tremendous results" of Guarda on downy mildew and foliar disease in roses, and anthracnose and leaf spot on hydrangeas. Since adding Guarda to their treatment programs, Smith says the growers have experienced "the cleanest crops with the highest sell-through ever."

Guarda's mode of action is cell wall destruction, telomerase inhibition, and cell membrane damage. But its mode of action is different from an oxidizing product that physically tears cell walls apart en masse, Smith says.

"While it doesn't work by oxidation, the final result is close to that because it tears the cells apart," Smith says. "It's very physical. It's not a metabolic interruption like there is with many systemic or synthetic chemistries. It's a tearing of the cell wall to destroy the



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pathogen spores and cells. Then the disease organism can't replicate and proliferate in the crops."

The physical nature of the product also means there is low to no risk of mutational resistance, Smith adds.

Guarda can be used throughout the year, anytime when disease pressure is a threat. Smith advises growers to spray preventatively at 1% solution in a two- to three-week rotation when it's needed.

Guarda can be used on nursery crops and ornamentals including woody ornamentals, perennials, trees, and shrubs. It's labeled for almost every crop in horticulture.

"Guarda is tank-mix compatible with many fungicides, bactericides, insecticides, and fertilizers that growers are using," Smith adds.

Smith noted that some growers are concerned that spraying oil-based products during hot weather could lead to phytotoxicity on certain crops. "They don't spray them because the UV (ultraviolet radiation) can heat up the oil and burn the crop," he adds.

But because Guarda contains only 3% thyme oil, it's "lighter and softer" than other oil-type applications, Smith says. "We are seeing efficacy with it. Growers in the Deep South are spraying it on hydrangeas, for instance, in the sweltering heat and having no issues with phytotoxicity," he adds. "Oil-based sprays can cause phytotoxicity in some instances, but not this product."

Guarda fits in well with BioSafe Systems' sustainable crop protection, sanitation, and water treatment products for many reasons. Guarda, which is manufactured in the U.S., has no use restrictions, no restricted-entry interval (REI), and is maximum residue level (MRL)/tolerance exempt. It also carries the lowest-level signal word: "Caution."

"It checks all the boxes for the type of products we want in our portfolio," Smith says.

For more information about Guarda, visit [BioSafeSystems.com](https://www.BioSafeSystems.com).