

Getting the most out of your copper fungicide

Nufarm's Bob Bruss shares the science behind why copper fungicides work and how to incorporate them for maximum performance in your specialty crops

Copper is one of the most widely used bactericides available. It is a strong and viable tool for managing bacteria and fungi in crops including fruits, vegetables, hops and tree nuts.

Used best in a preventative manner, copper can be a highly economical and effective option for safeguarding and protecting your specialty crops, says Bob Bruss, Director of Technical Services for Crop Protection for Nufarm.

Understanding copper's unique properties

"Bacterial diseases are usually most prevalent when it's wet," Bruss says. "That's also when you can get copper working better."

Effective copper products should achieve preventative or early control of key diseases including bacterial canker, blights, leaf spot and more.

"Copper ions are strongly charged and bound to each other. The trick is, you want to get those copper ions inside of a bacterial cell, or inside a germinating spore."

He says some forms of copper are very water soluble and can get into the plant too quickly, causing copper burn.

"You want a product and application method that will release all of the copper but will do so slowly to minimize injury."

Bruss emphasizes using copper as a preventative protectant measure, so the plant can be safeguarded against bacterial or fungal spores as they develop.

Conditions and timing are key

"Weather is the single most important factor when it comes to the value and performance of your copper product," Bruss says. "You need moisture present for copper ions to be available for disease control. In intermittent wet and dry conditions, sufficient moisture may be available for diseases to develop, but it is important to use a quality copper formulation that readily releases soluble ions."



Early applications will often be made in high-value crops such as apples and grapes, as producers are trying to catch the diseases early and prevent infection before they have to start using other fungicides. In many cases, early application is how you will get the most out of your copper, as it works better on germinating spores instead of when the disease is farther along, Bruss says.

Get covered with the right formulation

All Nufarm formulations currently sold for agricultural use are based on copper hydroxide as the active ingredient, and two products are OMRI® (Organic Materials Review Institute) listed for use in certified organic production.

“Copper hydroxide is a good compromise between a product that will readily release all of the copper ions in the presence of moisture, but won’t do it too quickly,” Bruss says. “You’ll get full availability, but you won’t get it so quickly that you get plant injury.”

Champ® WG Champ® WG is an effective copper hydroxide formulation that is cost effective, easy and efficient to use. As a water dispersible granule, this formulation provides good surface area coverage and disease protection. Champ WG has OMRI approval.

ChampION⁺⁺ ChampION⁺⁺™ Fungicide/Bactericide has the smallest, most consistent copper particles of any water-dispersible (WG) granule copper formulation. This results in better coverage and better disease control, all with less environmental load than high-dose copper products. ChampION⁺⁺ has OMRI approval.

CONCLUSION

Not all copper formulations are created equal, and it’s important to understand the unique properties of copper in order to truly maximize its benefit for your fields and orchards. Choose a product that provides uniform coverage of small, consistent copper particles in a form that readily releases copper ions for better disease control.



Figure 1: Untreated wine grapes with powdery mildew infection.

Figure 2: Wine grapes treated with a fungicide program of ChampION⁺⁺™, Stylet Oil and Luna.

Champ® Dry Prill Champ® Dry Prill is the only dry prill copper product on the market. Unlike dry flowable formulations, Champ Dry Prill is made using a unique polymer process that forms particles that are resistant to attrition – so Champ Dry Prill is virtually dust-free. This dry prill formula enables Champ Dry Prill to mix faster and more easily.

Champ® Formula 2 Flowable

Champ® Formula 2 Flowable is an advanced copper hydroxide formulation that is easy to handle and offers superior mixing characteristics. Champ Formula 2 Flowable provides broad-spectrum disease control, excellent tenacity and plant protection efficacy. This liquid formulation features a unique needle-shaped crystal structure that offers greater surface area coverage, as well as layers of protective covering.

 **Nufarm**
Grow a better tomorrow



For specific application rates, directions, mixing instructions and precautions, read the product label. | © 2018 Nufarm. Important: Always read and follow label instructions. Champ® is a trademark of Nufarm. OMRI® is a trademark of Organics Materials Review Institute. ©Luna is a registered trademark of the Bayer Group.