

MANAGE GRAPEVINE PRUNING DISEASES

As Seen In CAPCA Adviser

Diseases such as ESCA are imminent threat to grapevines, especially immediately after pruning is completed. While growers have a number of options to “cover” the wound, a highly effective biofungicide is available featuring a proven combination of two species of beneficial *Trichoderma* fungi that are active against the pathogens across a wide range of environmental conditions.

ESCA is a grapevine wood disease that affects vine yield and longevity, particularly troublesome in vineyards with a history of grapevine pruning disease. The main causal agents are the deuteromycetes fungi *Phaemoniella chlamydospora* and *Phaeoacremonium* spp, and the basidiomycete *Fomitiporia mediterranea*. The pathogens most relevant to California growers include *Eutypa lata*, *Neofusicoccum parvum* and *Phaeoacremonium minimum*. Recent studies show excellent control of these three using a new viticultural tool.

“The advantage to our product Bio-Tam® 2.0 is that the two species of *Trichoderma* fungi colonize the pruning wounds and form a shield that prevents pathogenic fungi from spreading within the plant,” according to Duane Canfield, marketing manager for SePRO Ag, based in Carmel, IN.

TREATMENT OF GRAPEVINES

Pruning of grapevines should be conducted after the peak of low temperatures has passed. A single, directed application of

Bio-Tam® 2.0 is used at a rate of 1/lb/acre diluted in 25 to 50 gallons of water. A dye in the tank-mix will help ensure thorough coverage of all susceptible tissue, including cordons, spurs and all cut surfaces. Application should be made within 24 hours of pruning, and a respray is needed if rain occurs within six hours of treatment.

The combination of two active species works in a broader temperature range.

T. gamsii starts working at 44.6°F and *T. asperellum* at 53.6°F, allowing for a wide application window across varying environmental conditions. These strains were selected for high activity against fungi responsible for pruning diseases.

A second application of Bio-Tam® 2.0 is recommended when:

- Pruning high risk vineyards:
 - Vineyards with a history of grapevine pruning disease

- New vines replanted over a highly infested area
- Where high disease pressure from the surrounding area is present
- Rainfall or high humidity persist resulting in environmental conditions favorable to disease development.

Double pruning is another common activity, and it is recommended to wait until the second pruning pass if environmental conditions do not favor disease development into tissue beyond where the final pruning cuts will occur. Under this scenario, apply Bio-Tam® 2.0 within 24 hours of the second pruning cuts.

SAFETY PROFILE

“Safety is key for this biofungicide,” Canfield said. “These fungi strains are safe for the vines, organic or conventional, but also safe for workers with a four-hour REI. This is key to ensure continued pruning operations.”

Additionally, Bio-Tam® 2.0 meets NOP standards, is OMRI-Listed, has a zero-day PHI and offers no limitations on exports.

Excerpts* from UC Davis | Studies 2019-2020

	Location/yr	Bio-Tam	Conventional Industry Standard	Control (Inoculated)
Mean % infection of <i>Eutypa lata</i>	Davis/'19	7.69%	92.31%	100.00%
	Elk Grove/'20	5.00%	10.00%	75.00%
	Kern Co./'20	0	5.00%	25.00%
Mean % infection of <i>N. parvum</i>	Davis/'19	70.51%	64.10%	100.00%
	Elk Grove/'20	0.00%	10.00%	75.00%
	Kern Co./'20	10.00%	10.00%	45.00%
	Yolo Co./'20	0.00%	0.00%	40.00%
Mean % infection of <i>P. minimum</i>	Yolo Co./'20	5.00%	20.00%	70.00%

*For complete summaries and research details visit https://ucanr.edu/sites/eskalenlab/Fruit_Crop_Fungicide_Trials/

A UNIQUE PRODUCT

“With grapevine pruning so important, Bio-Tam® 2.0 has been marketed primarily as a biofungicide to address those economically devastating diseases,” according to Duane Canfield, marketing manager for SePRO Ag.

“But globally including in the U.S., Bio-Tam® 2.0 is widely used to control soil-borne diseases in vegetable, fruit, row, and ornamental crops, as

well as to protect cuttings and bare-root transplants.”

Bio-Tam® 2.0 aggressively colonizes the soil rhizosphere and outcompetes pathogens for nutrients and space, surrounding soil to form a living barrier that is antagonistic to disease infection from major disease-causing fungi including *Pythium*, *Phytophthora* and *Rhizoctonia*. Inoculating early enables the crop to establish quickly, weather in season abiotic

stresses and increase yields. This disease protection actively grows along with the crop.

The unique blend of two highly active *Trichoderma* strains provides consistent performance across a wider range of environmental conditions (soil temperature, soil pH, organic matter) when compared with single species formulations.

