



## Grapevine Pruning Diseases



### Effective Management of ESCA

Bio-Tam® 2.0 is a highly effective biofungicide for **conventional and organic production**.

Bio-Tam 2.0 is a proven combination of two species of beneficial *Trichoderma* fungi used in the **management of grape vine trunk and/or pruning diseases** in a wide range of environmental conditions for **maximum flexibility and efficacy**.

### Features and Benefits

#### The Great Value of Bio-Tam 2.0

- IPM option for the peace of mind of sustainably managing ESCA disease in the vineyard.
- Worker friendly product allows continued pruning operations scheduling with 4 hour REI.
- Delivers stable great performance in a wide range of environmental conditions.

#### Combination of two active *Trichoderma* species that work in a broader temperature range.

- *T. gamsii* starts working at 44.6°F and *T. asperellum* at 53.6°F.
- Wide application timing window.
- Active across varying environmental conditions.
- Strains selected for high activity against fungi responsible for grape vine trunk and pruning diseases.

#### Highly effective, naturally occurring active ingredients offer a tool to help manage maximum residue levels (MRL)

- Meets National Organic Production (NOP) standards and OMRI-Listed
- No limitations on exports
- Fits both conventional and organic production
- Excellent IPM partner
- Four hour REI and zero day PHI
- No disruption of crop production labor schedules



Colonized the pruning wound



*Trichoderma* forms a shield

### How Bio-Tam 2.0 works

By colonizing the pruning wounds, *Trichoderma* forms a shield that prevents pathogenic fungi from spreading within the plant.



## ESCA disease complex symptoms

ESCA comprises symptoms inside the trunk and larger branches, on the shoots, on the leaves, and on the berries.

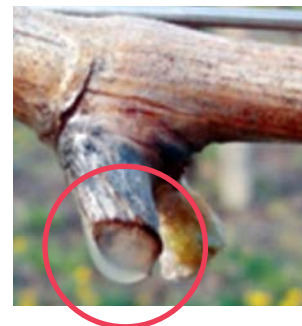


ESCA is a grapevine wood disease that seriously affects vine yield and longevity. The main causal agents are the deuteromycetes fungi *Phaeoconiella aleophilum*, *Phaeoconiella chlamydospora* and *Phaeoacremonium* spp, and the basidiomycete *Fomitiporia mediterranea*.

For use on grapes for control of vine pruning diseases (*Phaeoconiella chlamydospora*). And for use on grapes for control of vine pruning diseases (*Esca-Phaeoconiella aleophilum* and *Phaeoconiella chlamydospora*) in the State of Oregon and Washington under 2(ee) Recommendation.

## Effective Management of ESCA

- Pruning should be done after the peak of low temperatures has passed.
- Perform a single broadcast application of Bio-Tam 2.0 at a rate of 1 lb/acre diluted in 25 - 50 gallons of water within 24 hours of pruning (when bleeding occurs).
- Avoid rain immediately following application.
- A second application of Bio-Tam 2.0 is recommended approximately 14 days later 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 surrounding area is present
  - Rainfall or high humidity persist resulting in environmental conditions favorable for disease development.



Stem bleeding

For more information contact a SePRO Technical Specialist at **1-800-419-7779**



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