Trunk Diseases in Grapes

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Grapevine Trunk Diseases (GTDs)

Biology and Complexity of GTDs.
Identification of GTDs.
Damage Potential of GTDs.
Prevention and Management of GTDs.
SCALE: 1 (most important) - 5 (not important): How important are trunk diseases to you?
<table>
<thead>
<tr>
<th><strong>Trunk Diseases</strong></th>
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<tbody>
<tr>
<td><strong>Type of Pathogen</strong></td>
<td>Fungal</td>
</tr>
<tr>
<td><strong>Lethal to vine</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Plant Age</strong></td>
<td>Mature; young (ESCA)</td>
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<tr>
<td><strong>Resistance/Tolerance</strong></td>
<td>Not found</td>
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<td><strong>Can come with nursery stock?</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Transmitted?</strong></td>
<td>Open wounds, Rain, Pruning Tools</td>
</tr>
<tr>
<td><strong>Systemic</strong></td>
<td>No</td>
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<tr>
<td><strong>Severity in NC</strong></td>
<td>?</td>
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GTDs = Complex Diseases

- Eutypa Dieback
- Esca Disease Complex (‘Petri Disease’)
- Botryosphaeria Dieback
Grapevine Trunk Diseases
Eutypa Dieback

- Main organism: *Eutypa lata*

- *Other organisms described in association with Eutypa Dieback*

- Common in areas with more than **10 Inches of rainfall/year**
  (Yadkinville: 45 Inches/year; Hendersonville: 55 Inches/year)

- Often associated with stunted growth and dead arms
Grapevine Trunk Diseases
Bortyospheria Dieback

- 21 different species of *Bortyopsphaeia*

*Many other fungi as well.*

- Wood Symptoms
- Sudden death
- Apoplexy!
Grapevine Trunk Diseases
ESCA Disease Complex

• Main organisms: *Phaeomoniella chlamydospora* (PC); *Phaeoacromonium aleophilum* (PA);

• Many other fungi are described in association ESCA

• PC spore liberation → linked to rainfall; PA spore liberation → not linked to rainfall
Grapevine Trunk Diseases
ESCA Disease Complex

- Brown Wood Streaking
- Petri Disease
- Young Esca
- Esca (Leafstipe)
- Esca Proper

- Wood Symptoms
- Sudden death
- Stunned growth, leaf chlorosis
- Black Measels
- Tiger Stripes
- Apoplexy!
Grapevine Trunk Diseases
ESCA Disease Complex

Grapevine Trunk Diseases

Effects

- Reduced Growth
- *Dieback / Death of Vine*
- Reduces time span of a vineyard
- Dead Arm
- Reduced Yield
Often Dead Arm Disease Management starts too late!
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Grapevine Trunk Diseases
Latency is a problem

**vineyard:**
- High latency period
- Symptoms not always evident
- Cultural methods and climate
- GTD pathogens presence in other hosts

**nursery:**
- High latency period
- Asymptomatic plants in production process;
- High contamination risk;

**In North Carolina specific:** No access to detection and assessment services

- Unaware of GTD spread
- Loss of yield quality and quantity
- Death/Dieback

- Economic loss (unsellable material)
- GTD asymptomatic plants
Grapevine Trunk Diseases
Problems: understand your enemy!

- Cold Damage
- Pruning
- Re-Training

Environment (other hosts)
Weather (Rain, Humidity)

Latent for many years!
Grapevine Trunk Diseases
Prevention and Management

General rules:

(1) Start Early  
(2) Stay on top of things  
(3) Plan ahead
Grapevine Trunk Diseases
Prevention and Management

Start Early:

• Don’t accept nursery material with bad grafting units!!!
• Establish a personal Relationship with your nursery!!
• Ask questions about trunk disease management in nursery
Grapevine Trunk Diseases
Prevention and Management

Stay on top of things

- Monitor vines from the very beginning
- Especially after Cold Damage!!!
- Retrain rather than leave old wood
- Don’t allow cordons to establish dead areas
- Use Topsin, VitiSeal, B-Lock
Plan ahead

- Retraining can be planned!
- Order plants early!!!
- Train your crew
- Talk to Extension!!! We help!
Grapevine Trunk Diseases
Prevention and Management

Integrated Management Practices:

Prevention
Sanitation
Pruning (Cane vs. Spur)
Control (Chemical)
Grapevine Trunk Diseases
Prevention and Management

• Having good soil drainage
  • Double Pruning
• Sanitize, remove infected wood after pruning
• Pruning wound protectants
Pruning!

- Double Prune: Leave a long spure/cane and come back shortly before bud break and prune again.

- Think about cane vs. spur pruning systems
Grapevine Trunk Diseases
Prevention and Management

Pruning Wound Protectants!

- 0.75-1.5 lbs/A
Grapevine Trunk Diseases
Prevention and Management

Pruning Wound Protectants!

- 4 oz/A in 33 gpa
- 5 oz/A in 42 gpa
- 6 oz/A in 50 gpa

- Spray soon after pruning.
- 1-2 weeks of protection (if it doesn’t rain!!!)
- REI 24hrs.
- Can be sprayed with standard vineyard sprayer
Grapevine Trunk Diseases Prevention and Management

Pruning Wound Protectants!

- B-Lock
- Paint!
- 5% Boric Acid
- Apply on fresh pruning wounds
- NOT a Fungicide!
- Physical Barrier
Grapevine Trunk Diseases Prevention and Management

Pruning Wound Protectants!

- **VitiSeal**
  - Is also a barrier
  - Is organic
  - Can be Tank mixed

Contact Viti Seal Corporate
3251 Third Street
San Diego, CA 92103
619-239-0321,
info@vitiseal.com
Grapevine Trunk Diseases
Prevention and Management

Prevention! Retrain a trunk!

• Cut back the healthy looking wood as well
• **NO COSMETIC SURGERY!**
• Train your crew!
• ONLY cut in dormant season!
• Take the wood out of the vineyard
Prevention! Retrain the whole vine (scion)!

- Retrain a sucker (1-2 years)
- NO COSMETIC SURGERY!
- Cut out the old vine until you don’t see the pie canker
- Make sure you use plenty wound protectant and often
Grapevine Trunk Diseases

Conclusions

GOOD DEADARM MANAGEMENT:

Vineyard Economic Sustainability Guarantees the longevity of a vineyard Lower Labor Costs eventually
On a scale from 1 (very) - 5 (not), how important are trunk diseases for you?
Thank you for your attention