Grapevine Trunk Diseases: What do We Know of Them in Oregon?

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What are the diseases?
What causes them?
What are the symptoms?
What do they mean for Oregon growers?
Botryosphaeria
J. Úrbez-Torres
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Overwintering spores

Fruiting bodies form

Fungus Grows 10-12”/yr

2 m water splash/ fresh wounds

Photo: Ed Hellman
Fungi associated with “Bot” canker in the US

Botryosphaeria dothidea
B. australis (*Neofusicoccum australe*)
B. lutea (*N. luteum*)
B. obtusa
B. parva (*N. parvum*)
B. rhodina (*Lasiodiplodia theobromae*)
B. sarmentorum
B. stevensii
B. viticola (*Spencermartinsia viticola*)

Diplodia corticola, D. seriata

Dothiorella americana

Lasiodiplodia crassispora, L. missouriana, L. viticola

Neofusicoccum mediterraneum, N. ribis, N. vitifusiforme

Teleomorph (perfect stage)
Anamorph (imperfect stage)
Anamorph (imperfect, clonal)

Teleomorph (perfect, sexual)
Fungi associated with “Bot” canker in the US

*Botryosphaeria dothidea*
*B. australis (Neofusicoccum australe)*
*B. lutea (N. luteum)*
*B. obtusa*
*B. parva (N. parvum)*
*B. rhodina (Lasiodiplodia theobromae)*
*B. sarmentorum*
*B. stevensii*
*B. viticola (Spencermartinsia viticola)*

*Diplodia corticola, D. seriata*

*Dothiorella americana*

*Lasiodiplodia crassispora, L. missouriana, L. viticola*

*Neofusicoccum mediterraneum, N. ribis, N. vitifusiforme*
Impact

Perennial cankers
Shoot dieback
Reduced fruit yield
Reduced vine longevity
Increased management costs
Eutypa lata disease cycle in California (from W.D. Gubler, et al., UC Davis)

1. Ascospores released
2. Wounds
3. 3-4 yrs later
4. 6 yrs later

Images: Wounds, ascospores, and vineyard.
Fungi associated with “Eutypa” canker in the US

*Eutypa lata*, *E. leptoplaca*
*Cryptosphaeria pullmanensis*
*Cryptovalsa ampelina*
*Diatrype oregonensis*, *D. stigma*, *D. whitemanensis*
*Diatrypella verrucaeformis*
*Diatrypella sp.*
*Eutypella vitis*, *Eutypella spp.*
Washington:
~ 20-50% yield loss for moderate disease
~ 60-95% yield loss for severe disease

California:
30-60% yield loss for moderate disease
80+% yield loss for severe disease

Fewer fruit clusters
Smaller clusters
Reduced vine longevity
California:

Bot/Eutypa canker is #1 cause of reduced vineyard longevity

$260 million

Oregon:

???
Eutypa Management:

• Mark vines in spring for removal.

• Remove diseased wood 4 - 6 inches below the canker, and train a new, healthy shoot into position.

• Avoid large pruning cuts, avoid pruning during and before wet weather.

• When making large cuts during wet weather, leave a stub, prune later during dry weather.

• Remove and destroy all large trunk or cordon pieces from the vineyard.
Fungicides sprayed onto cuts within 24 hours of pruning, & second spray 2 weeks later.

- Mettle
- Rally 40 WSP
- Topsin M WSB. May also be applied as a paint to cut or pruned surfaces.

**Oregon only** (SLN OR-100003)
Other fungi associated with grapevine cankers in the US

*Aspergillus niger, A. carbonarius*

*Diaporthe eres*

*Pestalotiopsis sp., P. uvicola*

*Phaeomoniella chlamydospora*

*Phomopsis fukushii, P. viticola*

*Toginina minima* (*Phaeoacremonium aleophilum)*

*Schyzophyllum commune*

and on and on…

Teleomorph (perfect stage)

Anamorph (imperfect stage)