Esca & Petri disease are caused by the same fungi

**Older plants = esca**
- apoplexy
- black measles

**Young plants = Petri disease**
- black goo
- young vine decline
- young esca
Esca
Petri disease
Cause of Petri disease/esca in the US

*Phaeomoniella chlamydospora*

*Togninia minima* (*Phaeoacremonium aleophilum*)

*T. fraxinopennsylvanica* (*P. mortoniae*)
*T. viticola* (*P. viticola*)
*P. parasiticum*
*P. inflatipes*
*P. angustius*
*P. scolyti*
*P. alvesii*
*P. rubrigenum*

Teleomorph (perfect stage)
Anamorph (imperfect stage)
Disease cycle of Petri disease and Esca

**Fall**

Fruiting bodies form

**Winter**

Pruning wounds

**Spring**

Infection of wood & toxin production

**Decline**

After W. D. Gubler, *et al.*, UC Davis

J. Úrbez-Torres
Fruiting bodies of *Diplodia*
Other diseases & poor vine performance

Black foot disease (vines to 8 yrs)

“Cylindrocarpon” species

Closely related to:
- poor nursery stock
- overcropping
- water stress
- wounding at planting.....
Symptoms resemble water stress
“Cylindrocarpon”
Management

Prevention!

- Sort nursery stock – leave questionable material.
- Delay fruiting. Cropping several tons in the 2\textsuperscript{nd} year after planting has been associated with these diseases.
- Use of grow tubes also has been associated with these diseases.
- Irrigate new plantings for a few years before switching to dryland production.
- Soak dormant cuttings 30 min in hot water (122 F). This has not always been effective and must be combined with other methods.
Other diseases & poor vine performance

Phytophthora root rot – various species
Other diseases & poor vine performance

Armillaria root rot
– “A. mellea”
Botryosphaeria

Eutypa
"Cylindrocarpon"

Esca

J. Úrbez-Torres
Fungi found in Oregon on diseased grapevines

<table>
<thead>
<tr>
<th>Fungi</th>
<th>Fungi</th>
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<tbody>
<tr>
<td>Armillaria sp.</td>
<td>Phytophthora sp.</td>
</tr>
<tr>
<td>Aspergillus niger</td>
<td>Phaeoacremonium spp.</td>
</tr>
<tr>
<td>Bionectria ochroleuca</td>
<td>Phaeomoniella chlamydospora</td>
</tr>
<tr>
<td>Botryosphaeria spp.</td>
<td>Phoma spp.</td>
</tr>
<tr>
<td>“Cylindrocarpon” destructans</td>
<td>Phomopsis spp.</td>
</tr>
<tr>
<td>“C.” obtusisporum</td>
<td>Roesleria subterranea (=R. hypogaea)</td>
</tr>
<tr>
<td>Diplodia sp.</td>
<td>Seimatosporium spp.</td>
</tr>
<tr>
<td>Eutypa lata</td>
<td>Verticillium sp.</td>
</tr>
</tbody>
</table>
“Bot” and “Eutypa” cankers
- Neighboring trees?

Petri disease
- Weeds?
Diseases look similar

Management may not be

We don’t know what is in OR

Early detection is important

Unnoticed disease = lost $
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