

## EnoViti

### Grapevine Trunk Diseases--- Botryosphaeria Dieback

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This is the third blog on Grapevine Trunk Diseases. The previous blogs include the following:

- [Grapevine Trunk Diseases---Eutypa Dieback](#)
- [Grapevine Trunk Diseases---Esca](#)

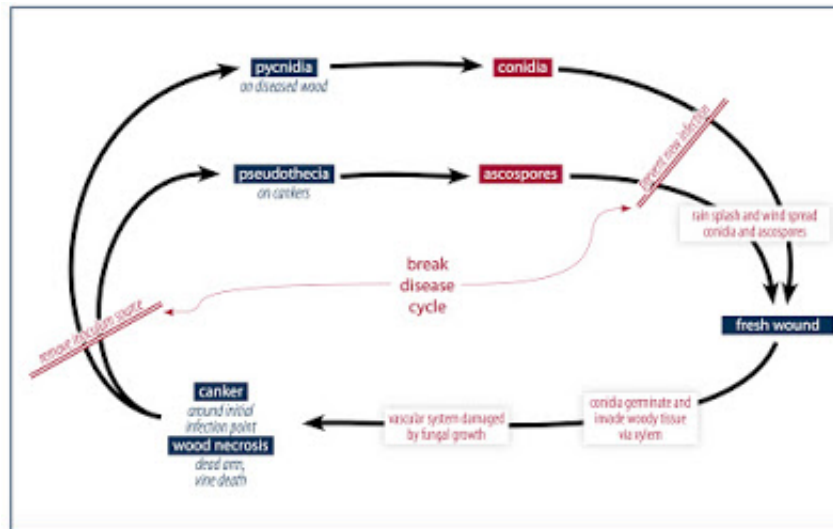
#### Botryosphaeria Dieback

##### General Information<sup>1</sup>

Botryosphaeria dieback was formerly called bot canker. The disease is caused by species of fungi within the family Botryosphaeriaceae. These fungi infect a wide range of hosts, they are most commonly associated with diseases of woody plants, such as acacia and eucalyptus.

##### Fungi Implicated<sup>2</sup>

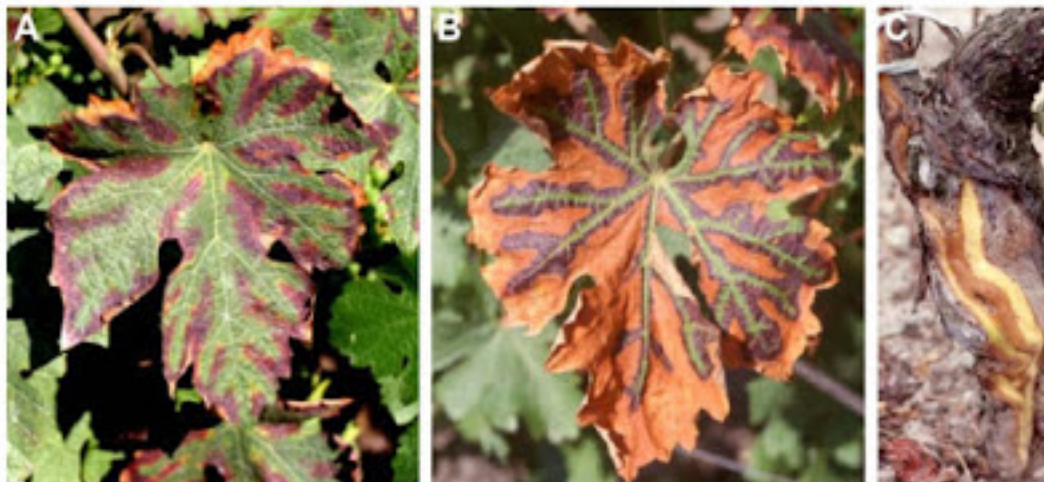
- The most common fungal species isolated from grapevine-growing regions worldwide implicated in causing Botryosphaeria dieback are:
  - Diplodia seriata* (teleomorph *Botryosphaeria obtusa*)
  - Diplodia mutila* (teleomorph *Botryosphaeria stevensii*)
  - Neofusicoccum parvum* (teleomorph *Botryosphaeria parva*)
  - Neofusicoccum australe* (teleomorph *Botryosphaeria australis*)
  - Neofusicoccum luteum* (teleomorph *Botryosphaeria lutea*)
  - Botryosphaeria dothidea* (anamorph *Fusicoccum aesculi*)
  - Lasiodiplodia theobromae* (teleomorph *Botryosphaeria rhodina*)
- Lifecycle:<sup>1</sup>
  - The fungus over-winters as pycnidia (small dark 'pimple-like' structures) on the outside of diseased wood producing and releasing conidia (spores) throughout the growing season
  - Conidia are spread by wind and rain splash, disseminating the fungi from vine to vine, and from one part of the vine to another
  - The disease develops when conidia land on freshly cut or damaged wood from fresh pruning wounds or mechanical damage
  - The conidia germinate and invade the woody tissue via xylem vessels and damage the vascular system
  - Cankers form around the initial infection point
  - Damage to the vascular system causes wood necrosis and dieback
  - In some species, pseudothecia form on the outside of cankers and produce ascospores. Like conidia, ascospores are disseminated by wind and rain splash and enter the plant via fresh pruning wounds



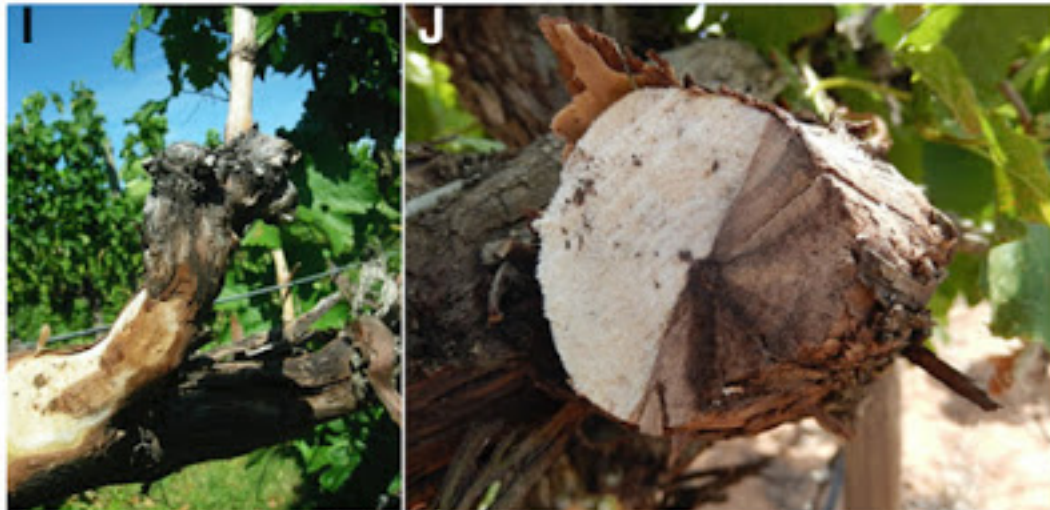
The life cycle of botryosphaeria dieback in grapevines showing the key points for management options to break the disease cycle.

### Disease<sup>3</sup>

- Botryosphaeria dieback often presents as lack of spring growth from affected spurs with shoot dieback, bud and xylem necrosis
- The main wood symptom of Botryosphaeria dieback is wedge-shaped perennial cankers, indistinguishable to that of Eutypa dieback or circular to nonuniform central staining of the wood observed in cross-sections of affected wood
- Botryosphaeria dieback shows exterior symptoms similar to esca, only by cutting the trunk is it possible to diagnose the disease
- Botryosphaeria dieback symptoms can appear in the field only 1 or 2 years after infections have occurred, but are mainly observed in mature vineyards (<8 years old)
- Cankers, dieback, and plant death have been recorded in 3- to 5-year-old table-grape vines



(A) Starting and (B) advanced leaf discoloration including necrotic parts between veins and at the edge. (C) Orange-brown discoloration on the trunk under the bark.<sup>4</sup>



(I) Dieback along with lack of spring growth can be observed in vines affected with *Botryosphaeria dieback* (J) Wedge-shaped canker and *Botryosphaeria dieback*.<sup>3</sup>

References:

1. **Botryosphaeria Dieback---identification and management**, Charles Sturt University.
2. C. Bertsch M. Ramírez-Suero M. Magnin-Robert P. Larignon J. Chong E. Abou-Mansour A. Spagnolo C. Clément F. Fontaine, ***Grapevine trunk diseases: complex and still poorly understood***, *Plant Pathology*, Volume62, Issue 2, April 2013, Pages 243-265.
3. Disease P, Gramaje D., **Managing Grapevine Trunk Diseases With Respect to Etiology and Epidemiology: Current Strategies and Future Prospects**, *The American Phytopathological Society* 2018;102(1):12-39.
4. **WineSicence, Fungi in the grapevine, that's rotten!**, September 7, 2019.

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