Online Guide To
GRAPEVINE DISEASES
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Botryosphaeria canker

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Introduction: Botryosphaeria canker, is also known as Black Dead Arm, 'Bot' canker, Excoriose, Grapevine decline syndrome, and Diplodia cane dieback and bunch rot. First described in Hungary in 1974, Botryosphaeria canker has been reported in Australia, Italy, the United States, and Canada. The causal agent produces cankers on a wide range of woody plants. Vineyard examinations of Maryland and Virginia vineyards conducted in 2003 found the causal fungus associated with wood-rotting cankers on grapevines greater than 10 years of age. 'Bot' canker affects spurs, cordons, and trunks causing dieback of the grapevine.

Symptoms and signs: Symptoms can be seen on young vines, but the impact of the disease is greater on mature vines. Foliar symptoms may be observed as mild chlorosis or wilting due to inhibition of water transport. Berries of infected white fruited varieties may develop small (1 – 4 mm), flat lesions with pycnidia, with berries turning light brown. Color change is barely noticeable in red grape varieties. Berries become black, shrivel, and become sticky with the development of black spores on the surface. Infected berries may mummify and drop from the vine.

Narrow black streaks develop in the xylem of infected wood (Fig. 1). Longitudinal expansion of streaks is most rapid and cross-sections of affected trunks and cordons often reveal a wedge of necrotic tissue (easily confused with Eutypa dieback). The black tissue and bark over the diseased xylem stops to function and dies. Cankers are most commonly seen around large (nickel-sized) pruning wounds typically at the juncture of a spur outlet and the cordon. From the infection site at the pruning wound, the pathogen moves toward the ground, growing in vascular elements as well as in adjacent cells.

Fig. 1

Pycnidia develop in natural splits in the outer bark of dormant canes. Diseased vines fail to break dormancy or suddenly wilt during the following growing season.

Pathogen life cycle and conditions of development: *Botryosphaeria* species, the causal fungi of Botryosphaeria canker and bunch rot, overwinters as pycnidia on diseased wood. Pycnida release spores whenever they are wetted throughout the growing season. The spores are spread through water splash and wind. The pathogen invades the tissue primarily through pruning wounds. The spores germinate at temperatures between 59-98°F and grow between 41-98°F. Infection is favored by conditions such as drought, frost damage, hail damage, poor nutrition and poor pruning practices, and other conditions that cause vine stress.

Cultural control: Based on removing infected wood.

- Remove infected wood from the vine and the vineyard. Make the pruning cut 12-inches or more below the point of infection (this may mean removing the entire vine).
- Burn or bury the 2-year-old or older wood.
- Practice multiple trunk training systems to compensate for trunk losses.
- Avoid pruning/wound damage in warm, wet weather.

Chemical control: Based on applying a prophylactic fungicide or physical barrier to pruning woods. See Viticulture Notes Dec 2003 (2003 Dec).

- At this time there is no fungicide labeled for wound protection.
- Use tree wound dressing, a soap solution, or anti-mildew paint on large wounds (nickel size or larger).

Notes: For more detailed information on Botryosphaeria canker and bunch rot see Viticulture Notes: 2003 Dec

Additional information is available at:
http://www.ext.vt.edu/news/periodicals/viticulture/03january/03january.html

References: see Viticulture Notes Vol Dec 2003

Pearson, R. C. and Goheen, A. C. 1988. Compendium of Grape Diseases. APS Press pg. 35.

Savacchia, Sandra. 2004. Botryosphaeria canker and bunch rot. Viti-Notes 2005. Cooperative Research Centre for Viticulture, http://www.crcv.com.au/viticare/vitinotes/Viti-Notes/Pests%20and%20Diseases/Botryosphaeria.pdf.