

# BLUEBERRY DISEASE FAST FACTS

## Canker Diseases

Dena Fiacchino<sup>1</sup>, Cathy Heidenreich<sup>2</sup>, and Wolfram Koeller<sup>2</sup>



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6

**What:** There are two significant canker diseases found throughout New York State on highbush blueberries: Phomopsis canker/twig blight and Fusicoccum (Godronia) canker. Each of these cankers is caused by a fungus; *Phomopsis vaccinii* and *Fusicoccum putrefaciens*, respectively.

Phomopsis canker first appears as a twig infection of one year old stems that have flower buds (Figure 1). Single canes or whole section of plants wilt or die back (Figure 2). Circular lesions, gray and flat in appearance form around fruit buds, producing fungal fruiting bodies called pycnidia (Figure 3). Under favorable weather conditions, the pycnidia produce fungal spores (conidia) throughout the growing season. The fungus enters the flower buds and moves into the stem. Infected stems wilt and die, or young stems die back from the canker.

Fusicoccum canker appears as individual stems exhibit 'flagging' or wilting during the summer (Figure 4). Dark red or brown infected areas form at the base of canes, become covered with pycnidia (Figure 5). Older dead canes develop the sexual fruiting bodies (apothecia) (Figure 6). This is the Godronia stage of the disease. Both Fusicoccum and Phomopsis canker can appear separately; however in some cases these cankers may occur simultaneously.

**When:** Symptoms of Phomopsis and Fusicoccum canker are most evident during the summer months. However, the infection period begins much earlier at bud swell and continues until leaf drop. Conidia are disseminated by splashing rain to flower buds where it grows rapidly through blossoms into stems. Winter and mechanical damage greatly increase susceptibility to infection; conidia may directly infect winter-injured wood.

<sup>1</sup> Cornell Cooperative Extension of Oswego County, Mexico, NY

<sup>2</sup> Department of Plant Pathology, Cornell University's New York State Agricultural Experiment Station, Geneva, NY

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(continued)

**Where:** Phomopsis canker has been reported on highbush blueberries in Michigan, Illinois, Indiana, North Carolina, New Jersey, Massachusetts, and New York. Fusicoccum canker occurs in the northern United States and southern Canada. It is a serious disease in Michigan and New York.

**How:** The fungi over winter on 1-, 2-, or 3-year-old wood, producing sunken cankers encircling the stems. A mass of black tiny fruiting bodies, (pycnidia) are produced on canker surfaces the first year. During the spring to summer months pycnidia continue to produce conidia that infect susceptible tissue, spreading by rain or water contact. As little as 0.15" of rain will trigger conidia release for Phomopsis canker infections. When the temperature is warm and fruit is present, leaves on cankered stems wilt. Precise environmental conditions for infection have not been determined, but the greatest activity for Fusicoccum canker is at temperatures between 50 – 72°F, and for Phomopsis canker between 70 – 80°F.

**Control Strategies:** Cultural practices designed to avoid winter injury and pruning out dead wood are more important than sprays in controlling these diseases. That said, dormant applications of lime sulfur or copper hydroxides have shown some control of cankers. Applications of fungicides during bloom may also be beneficial as temperatures are most conducive during that period for spread of the disease.

- Plant resistant cultivars, or cultivars that are less susceptible. For Fusicoccum canker 'Rancocas' is resistant; moderately susceptible cultivars are 'Coville', 'Berkeley', 'Blueray', 'Burlington', and 'Rubel'; very susceptible cultivars are 'Jersey', 'Earliblue', and 'Bluecrop'. For Phomopsis canker there are currently no known resistant cultivars; 'Coville' and 'Jersey' are moderately susceptible cultivars. Weymouth, Earliblue, and Berkeley are particularly susceptible cultivars.
- Avoid planting on sites with frost pockets or other areas prone to spring frosts or provide frost protection.
- Minimize mechanical injuries to plants, especially those from mechanical harvesters.
- Employ fertilization, irrigation, and weed control practices that discourage late season growth and promote early hardening.
- Prune out and destroy dead twigs and canes before bud break; cut as deeply into the crown as possible to ensure removing the canker.

For more information see *Cornell Pest Management Guidelines for Berry Crops*. Apply all pesticides according to label rates and instructions.

### References:

1. Caruso, F.L., and Ramsdell, D.C. (eds.) 1995. Compendium of Blueberry and Cranberry Diseases. APS Press, St. Paul Minn.
2. DeMarree, J.B., and Wilcox, M.S. 1947. Fungi Pathogenic to Blueberries in the Eastern United States. *Phytopathology* 37: 487-506.
3. Pritts, M.P. and Hancock, J.F. (eds.) 1992. Highbush Blueberry Production Guide. Northeast Regional Engineering Service, Ithaca, NY.

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