



Volutella Blight of Boxwood

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IMPORTANCE

Volutella blight (also called *Pseudonectria* canker) is the most common disease of boxwood in Kentucky landscapes and nurseries. This disease is caused by an opportunistic fungal pathogen that attacks leaves and stems of damaged or stressed plants. Winter injury, poor vigor, and stem wounds increase risk for Volutella blight. All species and cultivars of boxwood are susceptible.

SYMPTOMS

Volutella blight symptoms become apparent in early spring when growth of individual branches is delayed or plants show poor vigor (FIGURE 1). The Volutella blight pathogen causes stem cankers (sunken lesions), which girdle stems and result in dieback. Bark may be loose and discolored around cankers on infected branches (FIGURE 2).



Leaves of affected branches turn light green-yellow, change to red/bronze, and finally become straw or yellow-tan in color (FIGURE 3). Dead leaves cup upward and remain attached to branches even after branch death, although leaves may eventually drop.

During periods of high humidity, salmon-colored fruiting structures (sporodochia) develop on lower surfaces of affected leaves and stems (FIGURE 4). These fruiting structures are often visible with or without a hand lens.

FIGURE 1. BRANCHES AFFECTED BY VOLUTELLA BLIGHT SHOW POOR VIGOR.



FIGURE 2. STEM CANKERS OFTEN RESULT IN LOOSE BARK AND GIRDLED BRANCHES.

FIGURE 3. LEAVES AFFECTED BY VOLUTELLA BLIGHT EVENTUALLY BECOME STRAW-COLORED AND MAY REMAIN ATTACHED TO BRANCHES.

FIGURE 4. SALMON-COLORED SPOROCHIA DEVELOP ON UNDERSIDES OF LEAVES DURING WET WEATHER OR HIGH HUMIDITY.

DISTINGUISHING VOLUTELLA BLIGHT FROM OTHER BOXWOOD PROBLEMS

Other common boxwood problems can be confused with Volutella blight, and in some cases, may even occur together.

Boxwood blight (*Cylindrocladium buxicola*) causes rapid defoliation during warm summer weather accompanied by periods of rain or high humidity. In contrast, Volutella blight symptoms develop in early spring on previous year's growth before new growth begins. A distinguishing symptom of boxwood blight is the presence of black streaks along green stems, a symptom absent from Volutella blight. In addition, boxwood blight results in rapid defoliation, while dead leaves tend to remain attached to plants for long periods when Volutella blight is the cause.

Winter injury may also be confused with Volutella blight. Death of foliage and branches due to winter injury occurs on portions exposed to harsh, drying winter winds, while protected branches are unaffected. However, because Volutella blight often develops on winter-injured tissues, it may be present as well. The presence of salmon-colored fruiting bodies on symptomatic tissue (FIGURE 4) can aid in distinguishing Volutella blight from environmental damage and from other diseases.

CAUSE & DISEASE DEVELOPMENT

Volutella blight is caused by the fungus, *Pseudonectria buxi* (formerly *Volutella buxi*). The stress-related pathogen enters through unhealthy and/or damaged plant tissue, such as winter injuries or wounded stems. Mature leaves are more resistant to infection than young leaves, and vigorous plants often resist major disease problems as compared to stressed plants.

Primary infection and spread occur in spring under favorable conditions. Optimal

temperatures for infection and disease development are 68°F to 77°F with relative humidity above 85%. The pathogen overwinters in boxwood branches, leaves, and other plant debris that were infected the previous season. Emerging spores enter plant tissue at the base of small dead shoots, branch crotches where leaves accumulate, pruning wounds, and winter-damaged areas.

Spores of *Pseudonectria buxi* have a wet, sticky texture and, therefore, only travel short distances by wind. Volutella blight is spread primarily by movement of infected plants, cuttings, and on contaminated hands/gloves and tools. In addition, untreated water can be a major source of disease spread through overhead irrigation, flood water, runoff water, or wind-driven rain. Movement of nursery plants and use of contaminated tools are the main routes for long distance spread.

DISEASE MANAGEMENT

Promoting plant vigor, managing plant stresses, and maintaining a sanitation program are critical for disease management.

- Prune diseased branches when foliage is dry to avoid spreading sticky spore masses.
- Sanitize pruning tools after working with diseased plants. Use 70% isopropyl rubbing alcohol, 10% bleach solution, or a commercial sterilant to sanitize equipment.
- Prevent wounding, including improper pruning cuts.
- Maintain plant health with proper nutrition and irrigation practices. Avoid excess water and excess fertilizer.
- Maintain good air circulation by sufficiently spacing plants and pruning dense growth.
- Rake and destroy fallen leaves and other infected plant parts.
- Avoid or prevent winter damage by protecting plants from drying winds and extreme exposures. Select cold-tolerant species or cultivars for hardiness when possible.

- Fungicides are typically only used on nursery plants or commercial propagation stock. If fungicides are used, they should be applied preventively beginning in spring. Fungicides do not cure branch infections. Applications should begin just before new growth emerges in spring and continue every 7 to 10 days if conditions are favorable for infection. Contact a local county Extension office for information on currently recommended fungicides. Always follow label directions when utilizing fungicides.

ADDITIONAL RESOURCES

- Boxwood Blight (PPFS-OR-W-20)
<http://plantpathology.ca.uky.edu/files/ppfs-or-w-20.pdf>
- Fungicides for Management of Landscape Woody Ornamental Diseases (PPFS-OR-W-14)
<http://plantpathology.ca.uky.edu/files/ppfs-or-w-14.pdf>
- Homeowner's Guide to Fungicides (PPFS-GEN-07)
<http://plantpathology.ca.uky.edu/files/ppfs-gen-07.pdf>
- Landscape Sanitation (PPFS-GEN-04)
<http://plantpathology.ca.uky.edu/files/ppfs-gen-04.pdf>
- Woody Plant Disease Management Guide for Nurseries and Landscapes (ID-88)
<http://www.ca.uky.edu/agc/pubs/id/id88/id88.pdf>

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