

# Boxwood Blight

Nicole Ward Gauthier  
*Extension Plant Pathologist*

## IMPORTANCE

Boxwood blight is a disease of boxwood (*Buxus* spp.), causing rapid defoliation and plant dieback. The fungal disease is particularly devastating to American boxwood cultivars, which can defoliate within a week and die within one growing season. Plants are eventually weakened by repeated defoliation and dieback, and resulting plant stress and consequent colonization by secondary invaders result in plant death.

This invasive disease originated in the United Kingdom in 1994 and is currently distributed throughout Europe and New Zealand. Boxwood blight was first reported in the U.S. in 2011 and is currently reported in several eastern and northeastern states. In October 2014, boxwood blight was confirmed in a residential landscape in Central Kentucky.

## SYMPTOMS

Boxwood blight affects leaves and branches; root rot has not been reported to be an issue in the field but laboratory experiments have demonstrated roots can be infected.\* The earliest symptoms include light or dark brown circular leaf spots with darker borders (FIGURE 1). However, because plants can defoliate soon after leaf spots develop, spots often go unnoticed. Elongated, dark brown or black streak-like lesions appear on infected stems (FIGURE 2).



**FIGURE 1.** EARLY SYMPTOMS OF BOXWOOD BLIGHT INCLUDE LEAF SPOTS, BUT BECAUSE LEAF DROP OCCURS SOON AFTERWARD, THIS PHASE OFTEN GOES UNNOTICED.

Symptoms of boxwood blight are different from some of the most commonly observed boxwood problems. For example, stem blight, freeze damage, and drought damage result in bright bronze or straw-colored foliage that remains attached to branches. Boxwood blight, in contrast, results in rapid defoliation of plants (FIGURE 3).



FIGURE 2



FIGURE 3

FIGURE 2. DARK STEM LESIONS ARE ONE OF THE MOST DISTINGUISHING SYMPTOMS OF BOXWOOD BLIGHT.

FIGURE 3. DEFOLIATION OF THE LOWER PLANT CANOPY IS OFTEN THE FIRST OBVIOUS SYMPTOM OF BOXWOOD BLIGHT.

## CAUSE AND DISEASE DEVELOPMENT

Boxwood blight is caused by the fungus *Cylindrocladium buxicola*. The pathogen produces resting propagules (microsclerotia) that enable it to survive several years in the absence of a host plant or during extreme weather conditions. The pathogen can remain dormant in plant debris for at least 6 years. During warm, humid weather, the fungus produces spores from infected plant material or debris. These spores can be spread short distances via splashing water, wind, and wind-driven rain. Sticky spores may also “hitchhike” on garden tools, clothing, or wet hands. Long distance spread occurs when infected plants or infested soil (debris) and equipment are moved from one location to another.

## DISEASE MANAGEMENT

- Infected **NURSERY** stock should be destroyed immediately to prevent spread. A rigid sanitation program is recommended, including destruction of infected plant material and leaf debris where fungal spores reside. Surrounding healthy plant material should be protected with fungicides (see the bullet point on Fungicides, page 3). For more details regarding clean-up, refer to the UK Extension fact sheets, *Landscape Sanitation* (PPFS-GEN-04) and *Greenhouse Sanitation* (PPFS-GH-04).

- Infected plants or plant parts should be removed from **LANDSCAPES** immediately to prevent spread. A rigid sanitation program is recommended, including destruction of infected plant material (whole plants or plant parts) and leaf debris where fungal spores reside. In landscapes, gardeners may choose to prune partially or minimally infected plants and then employ a fungicide regime, especially during wet seasons (see the bullet point on Fungicides, page 3). For more information on landscape sanitation, refer to the UK Extension fact sheet, *Landscape Sanitation* (PPFS-GEN-04).

- Avoid purchasing or receiving unhealthy plants. Homeowners should examine plants carefully before purchase, avoiding plants with leaf or stem lesions or an unhealthy appearance. Growers should carefully inspect incoming plants and liners before introducing them into production areas. Quarantine new plants for at least 3 weeks (with substantial periods of leaf wetness and temperatures ranging between 60°F and 75°F) before introducing stock into nursery areas or before interplanting with established or valuable boxwood specimens.

- Use of resistant boxwood cultivars may also be used as a protective measure, although there

are no immune cultivars. Resistant cultivars may serve as sources of infection if subtle symptoms go unnoticed. Such instances can contribute to long-distance movement of boxwood blight. Refer to the NC State Extension publication, *Susceptibility of Commercial Boxwood Varieties to *Cylindrocladium buxicola** (see Resources) for cultivar ratings.

- Cultural practices can help prevent conditions that are conducive for the fungal pathogen. For example, promote rapid drying of leaves by widely spacing plants for increased air circulation. Overhead irrigation should be minimized. This helps reduce disease progress in the event that the disease is introduced.
- Fungicides can protect plants from infection and suppress disease development, but **fungicides do not cure boxwood blight**. If disease is detected, surrounding healthy plants should be protected with fungicides such as chlorothalonil, chlorothalonil + thiophanate-methyl, tebuconazole, or fludioxonil. Refer to the NC State publication, *The Most Effective Products for Preventing Boxwood Blight, caused by *Cylindrocladium buxicola** (see Resources) for detailed fungicide recommendations.
- Report suspected cases of boxwood blight immediately to your local Extension agent or specialist, or to the UK Plant Disease Diagnostic Lab.

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\*Norman Dart, VDACS, Personal Communication

## ADDITIONAL RESOURCES

Greenhouse Sanitation, PPFs-GH-04 (University of Kentucky)

[http://www2.ca.uky.edu/agcollege/plantpathology/ext\\_files/PPFShtml/PPFS-GH-4.pdf](http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-GH-4.pdf)

Landscape Sanitation, PPFs-GEN-04 (University of Kentucky)

[http://www2.ca.uky.edu/agcollege/plantpathology/ext\\_files/PPFShtml/PPFS-GEN-04.pdf](http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-GEN-04.pdf)

Susceptibility of Commercial Boxwood Varieties to *Cylindrocladium buxicola* (North Carolina State University)

[http://americanhort.theknowledgecenter.com/library/Americanhort/docs/government%20relations/boxwood%20blight/NCSU\\_boxblight\\_tolerance.pdf](http://americanhort.theknowledgecenter.com/library/Americanhort/docs/government%20relations/boxwood%20blight/NCSU_boxblight_tolerance.pdf)

The Most Effective Products for Preventing Boxwood Blight, caused by *Cylindrocladium buxicola* (North Carolina State University)

<http://americanhort.theknowledgecenter.com/Library/Americanhort/docs/government%20relations/boxwood%20blight/7.22.13-BB.pdf>

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