

Boxwood Blight: A New Ornamental Disease Threat

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Introduction

Boxwood blight is a disease of boxwood that is caused by the fungus *Cylindrocladium pseudonaviculatum* (syn. *C. buxicola*). Other common names of this disease are box blight, boxwood leaf drop and *Cylindrocladium* box blight. Boxwood blight was first described in the United Kingdom in the mid-1990s and in New Zealand in 2002. Since these initial reports, the disease has become widespread throughout the United Kingdom and Europe. This ornamental disease was first officially reported in the U.S. in October 2011 in North Carolina. Shortly afterwards, the disease was reported in Connecticut. To date, this fungus disease has now been confirmed in 10 states in the U.S. (North Carolina, Connecticut, Virginia, Maryland, Rhode Island, Massachusetts, Oregon, New York, Pennsylvania and Ohio) and 2 Canadian provinces (British Columbia and Ontario). It is not known how this fungus disease was introduced into the North Carolina nurseries.

At the time of this writing, boxwood blight has not been reported in Arkansas. Currently, this ornamental disease appears to be concentrated

primarily in the northeastern United States where boxwood is common in the landscape. Arkansas producers and consumers should be aware of this disease in the event it occurs in the state.

To date, all boxwood species (*Buxus* spp.) are considered susceptible to some extent; however, some species appear to be more susceptible than others. Both English and American boxwood appear highly susceptible. Although the complete host range for boxwood blight pathogen is not known, a recent discovery in Connecticut reported that *Pachysandra terminalis*, a common groundcover in the boxwood family, was naturally infected from diseased boxwoods being grown nearby in the landscape. Those plants developed small, necrotic leaf spots surrounded by faint yellow halos followed by defoliation. Thus, this fungus may infect other members of the boxwood family grown in Arkansas.

The fungus produces copious microscopic spores on diseased tissues. Spores can be dispersed by wind or windblown rain over short distances. Rainfall and overhead irrigation practices play an important

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role in disease spread in commercial plant nurseries, where large quantities of plants are grown in close proximity to each other. Long distance spread is believed to occur by movement of infected plant material, contaminated equipment and clothing and animals. The fungus does not require a wound to infect, since it can infect directly through the leaf cuticle or through stomata. Infection can occur very quickly in mild (64 to 77 degrees F), humid conditions. High humidity or the presence of free water on plant surfaces is sufficient for infection to occur. Reports from the United Kingdom indicate that the fungus can survive at least five years on decomposing fallen leaves of infected American or Common boxwood (*Buxus sempervirens*).

Symptoms and Signs

The disease causes rapid and severe defoliation accompanied by twig dieback. Young seedlings may be killed. The boxwood fungus can infect all above-ground portions of boxwood, but it does not appear to affect the roots. Dark or light brown leaf spots are the initial symptoms of infection (Figure 1). These spots often have dark borders and can coalesce, often with a concentric pattern or zonate lines. Infected leaves become brown or straw colored. Defoliation follows, often within a few days following the appearance of the leaf spot phase (Figure 2). Although the plant attempts to regrow, repeated infections and defoliation often weaken the plant and can lead to death. Dark brown to black stem lesions are also symptoms of infection (Figure 3). These lesions can be found occurring anywhere from the soil line to the twig tips. Under high humidity conditions, masses of white fruiting bodies are produced on the underside of infected leaves (Figure 4). These white structures are readily visible with a hand lens and are useful in distinguishing boxwood blight from another boxwood disease, *Volutella* blight. The *Volutella* blight fungus (*Volutella buxi*) produces salmon-colored fruiting bodies on leaf undersurfaces (Figure 5). Symptoms of *Volutella* blight and *Phytophthora* root rot are sometimes confused with boxwood blight. In addition, boxwood can be infected by more than one of these disease organisms at the same time.



Figure 1. Leaf spot symptoms of boxwood blight (Courtesy of S. M. Douglas)



Figure 2. Severe defoliation resulting from boxwood blight (Courtesy of M. K. Inman)



Figure 3. Black twig lesion symptoms (Courtesy of P. Trenchard)



Figure 4. White spore masses of *Cylindrocladium pseudonaviculatum*
(Courtesy of S. M. Douglas)



Figure 5. Salmon-colored spore masses of *Volutella buxi*
(Courtesy of S. M. Douglas)

Management

At this point, to limit spread and movement of this fungus, sanitation is a vital component in the management of boxwood blight. Infected plants should be removed and destroyed immediately. For commercial operations, new plants and cuttings

should be inspected and isolated from existing inventory for at least one month. Currently, fungicides may prevent spread of the pathogen but have not been shown to manage the disease after onset.

Since boxwood blight can be confused with other diseases of boxwood, it is very important for the grower or homeowner to obtain an accurate plant disease diagnosis from the Plant Health Clinic at the University of Arkansas. Contact your local county Extension office for further information.

If you suspect you have boxwood blight, please notify the **Arkansas State Plant Board** (501-225-1598 or www.plantboard.org/) or the **State Plant Health Director's Office of USDA, APHIS, PPQ** (501-324-5258).

References

- Douglas, S. M., Boxwood Blight – A New Disease for Connecticut and the U.S., 2012. Connecticut Agricultural Experiment Station, Department of Plant Pathology and Ecology. 9 pages.
- Dart, N., M. A. Hansen and E. Bush, Boxwood Blight: A New Disease of Boxwoods Recently Found in the Southeastern U.S. 2012. Virginia Department of Agriculture and Consumer Sciences, Virginia Tech University. 4 pages.
- Ivors, K., and A. LeBude, A New Pest to the U.S. Ornamental Industry: The “Box Blight” pathogen *Cylindrocladium pseudonaviculatum*= *Cylindrocladium buxicola*. 2011. North Carolina State University. Pest Alert. 9 pages.

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