



Arkansas Plant Health Clinic Newsletter

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Boxwood Blight

By Ava Wait
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Boxwood Blight, an emerging and devastating foliar disease, has been identified in Arkansas as of this year. The fungal pathogen *Calonectria pseudonaviculata* (previously called *Cylindrocladium pseudonaviculatum* or *Cylindrocladium buxicola*) is the causal agent of this disease. Boxwood blight causes rapid defoliation and dieback. All plants in the *Buxaceae* family are hosts, and it is a serious threat to boxwood for both for businesses and the homeowner.

First described in the UK in the 1990's, *C. pseudonaviculata* has since spread all over Europe. In 2011 its presence was reported in the United States and has been reported in 21 states to date. Symptoms begin as brown leaf spots, which develop into dark water-soaked lesions on the leaves. When inspected closely, one can see white mycelial growth, a sign of the fungus. Long, dark lesions on the stems are also observed as the disease progresses. The tell-tale symptom of this disease is rapid defoliation, usually beginning in the lower canopy, and can

help one differentiate this disease from others or drought and freeze damage.

The main means of spread for this fungus are conidia, or spores, that can survive for 3 weeks independently. These spores can infect all above-ground parts of the plant and will travel short distances by splashing water from rain and wind. Long distance travel happens through the movement of infected plant material, soil, or equipment. Even Christmas wreaths or other decor made from infected material may spread this disease. The fungus can also survive in dead plant matter or in the soil. Extreme heat or cold will greatly reduce chances of the pathogen's survival, however in most cases, the pathogen may persist in the soil for years. In the moderate climate of Arkansas, replanting boxwood where blight was found is not recommended, as infection will likely occur in the same place.

Warm and humid weather is conducive for disease, particularly between 64- and 81-degrees Fahrenheit. Long wet summers, like what we are experiencing now, are prime times for the spread of this disease. Infection can happen almost immediately, and symptoms may develop in as little as a week. Often, secondary infections can occur once the plant has been weakened, such as Volutella blight of boxwood. With Volutella blight, the leaves are dead but still attached, in contrast to boxwood blight. A plant may have both diseases, but the symptoms will indicate which the primary concern is. These should not be confused



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because method of treatment is different. Boxwood Blight is far more aggressive and proper identification and treatment is needed to prevent further spread of the disease.

Because this disease is so detrimental, exclusion and strict sanitation should be the primary mode of management. In a nursery setting, inspection of incoming plant material is crucial to prevent infecting the entire stock. Adequate air flow and clean tools are also a method of prevention. Fungicides can help protect the plant but will not do any good if the plant is already infected. If boxwood blight is identified, it's important to carefully remove infected plant material, and possibly apply fungicides on nearby boxwood to prevent the spread of the fungus. If you believe you may have boxwood blight but are not sure, send a sample of symptomatic plant tissue to the Plant Health Clinic in Fayetteville, Arkansas to be diagnosed and to receive further recommendations.

Boxwood Blight Stem Lesion- *Calonectria pseudonaviculata* (previously called *Cylindrocladium pseudonaviculatum* or *Cylindrocladium buxicola*)

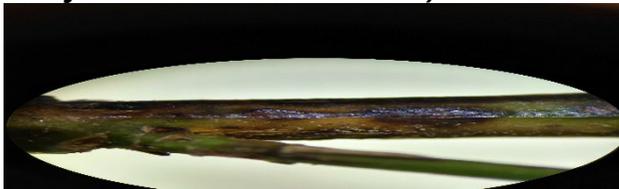


Photo by Ava Wait, M.S. Student Plant Pathology
University of Arkansas

Boxwood Blight Lesion- *Calonectria pseudonaviculata* (previously called *Cylindrocladium pseudonaviculatum* or *Cylindrocladium buxicola*)

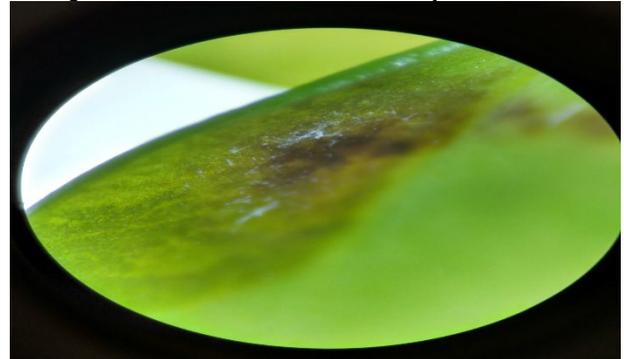


Photo by Ava Wait, M.S. Student Plant Pathology
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Boxwood Blight Spores- *Calonectria pseudonaviculata* (previously called *Cylindrocladium pseudonaviculatum* or *Cylindrocladium buxicola*)



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Boxwood Blight-*Calonectria pseudonaviculata* (previously called *Cylindrocladium pseudonaviculatum* or *Cylindrocladium buxicola*)



Photo by S.M. Douglas, CAES, University of Kentucky

Boxwood Volutella Blight-*Pseudonectria buxi*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

GRAY LEAF SPOT OF ST. AUGUSTINE GRASS

By Samantha R. Segalin
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Gray leaf spot is a fungal disease caused by *Pyricularia grisea* that occurs most commonly on St. Augustinegrass (*Stenotaphrum secundatum*) but attacks many other grass species as well. It is an extremely effective



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pathogen, as it can reproduce both sexually and asexually.

The fungus can produce prolific numbers of conidia (asexual spores), thereby causing a devastating loss of turf in relatively short periods of time. Conidia are cone-shaped or bowling-pin-shaped and usually two to three-celled spores.

The initial leaf spots are small and brown, but they expand rapidly into large, oval, or elongate, tan to gray leaf spots, which are surrounded by purple or brown borders. A yellow halo may surround some of the spots, or a general leaf yellowing may occur.

During warm, humid weather the fungus produces a grayish mycelium and numerous spores on dying foliage, which gives a grayish appearance to the spots.

Gray leaf spot is favored when temperatures are between 77 and 86 °F during the day and above 65 °F at night, and is most severe during rainy, humid periods. The fungus survives dry summer conditions as fungal mycelium and spores on dead foliage and in the thatch layer. When favorable conditions of moisture and high humidity return during the summer, the fungus produces an abundance of spores that are spread by wind, splashing rainfall or irrigation, and the movement of lawn equipment on wet grass.

MANAGEMENT TIPS

- Reduce thatch layer.
- Irrigate deeply, but infrequently. This generally means one time per week with one inch of water. Always irrigate in the morning, which promotes quick drying of the foliage.

- Avoid using post-emergent weed killers on the lawn while the disease is active.
- Avoid medium to high nitrogen fertilizer levels.
- Improve air circulation and light level on lawn. Limb up over-hanging trees and prune back nearby shrubs.
- Mow at the proper height and only mow when the grass is dry. Bag and dispose of grass clippings if disease is present.
- Control chinch bug infestations.
- Use fungicide treatments as needed along with proper turfgrass culture. See MP154, Arkansas Plant Disease Control Products Guide, <https://www.uaex.edu/publications/pdf/mp154/MP154completebook.pdf>

Gray Leaf Spot spores-*Pyricularia grisea*

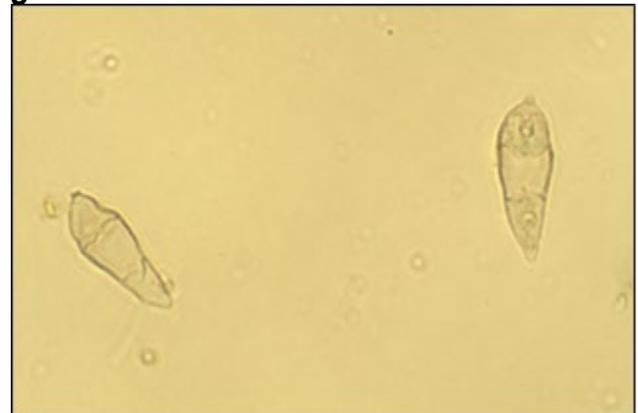


Photo by Samantha R. Segalin Ph.D. Student Plant Pathology, University of Arkansas



Gray Leaf Spot lesions-*Pyricularia grisea*



Photo by Samantha R. Segalin Ph.D. Student Plant Pathology, University of Arkansas

Blueberry *Phytophthora* Root Rot

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Phytophthora root rot is caused by various species of soilborne fungi belonging to the genus *Phytophthora*. It can be very destructive disease on susceptible cultivars where the conditions for disease are favorable. Infected plants are weak and stunted. They are susceptible to winter injury.

Phytophthora is most common in heavy soil or portions of the field with slowest drain like drain ends of rows, dips in the field, etc. The disease causes general lack of vigor and poor plant stand. There is sudden decline in the healthy canes and collapse during the late spring or summer. Initially, the leaves yellow, red or orange color or scorching at the edges. But, as the disease progresses, the affected canes wilt and die. It is important to examine the root of the infected plant to diagnose the disease. The suspect plants are dug up and the epidermis are scraped off the main roots and crown. The tissue beneath the epidermis will be white on the healthy plants but the plant with the *Phytophthora* root rot has diagnostic brick red color which will eventually turn brown after the tissue decays. Also, there is often a distinct margin present at the interface of the diseased and the healthy tissues. Similarly, when the necrosis extends up to the crown region, the margin is mostly present.

Phytophthora spp. persists as mycelium in the freshly infected tissue or as dormant oospores in the soil. Oospores can be viable for number of years without the host. However, the most common source of infection is the zoospores within the sporangia. The discharge and dispersal of zoospores are optimum in the soil completely saturated with water.

Phytophthora spp. can be largely excluded from using greenhouse-propagated plants from meristem tip culture. Also, the avoidance of movement of the soil from the symptomatic to asymptomatic regions can also exclude the pathogens. Moreover, management of the



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rapid drainage of the excess away from the root is very efficient in controlling the disease. Similarly, the cultivars like Meeker, Chilliwack and Summer show some degree of field resistance. Regarding the chemical control, Fosphite at 1 to 3 quarts/Acre provides good control. See MP154, Arkansas Plant Disease Control Products Guide for complete recommendations.

<https://www.uaex.edu/publications/pdf/mp154/MP154completebook.pdf>

Blueberry Phytophthora Root Rot-*Phytophthora* spp.



**Photo by Nawaraj Dulal, M.S. Student Plant Pathology
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This bulletin from the Cooperative Extension Plant Health Clinic (Plant Disease Clinic) is an electronic update about diseases and other problems observed in our lab each month. Input from everybody interested in plants is welcome and appreciated.

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