



# Boxwood Blight

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## Introduction

Boxwood blight is one of the major aggressive and economically important diseases of boxwood plants. The disease was first reported in Connecticut and North Carolina in 2011 and has spread to over 20 US states, including Maryland (Ivors *et al.*, 2012). Boxwood blight is a fungal disease caused by two closely related fungi species, *Calonectria pseudonaviculata* and *Calonectria henricotiae* (Malapi-Wight *et al.*, 2014; Kramer *et al.*, 2020).

The pathogens have spread from initially infected nurseries through the long-distance transport of infected, yet symptomless, plant material, as well as via infected boxwood cuttings used in evergreen Christmas wreaths. In Maryland, the disease is regulated due to its significant and immediate threat to nursery production and landscape boxwoods.

## Symptoms and Signs

Boxwood blight pathogens infect all above-ground parts of the plant. Symptoms may vary with the boxwood species or cultivar, and with environmental conditions. However, early symptoms appear as dark leaf spots (Figure 2) that eventually coalesce to form brown blotches. On infected plants, rapid defoliation usually starts on the lower branches and moves upward in the canopy (Figure 1).

A distinguishing symptom of boxwood blight, differentiating it from other boxwood diseases, is the appearance of narrow black streaks (cankers) on green stems (Figure 2). Under high humidity, white, fuzzy spore masses often emerge on infected leaves' abaxial (undersides of leaves) and stems (Figure 3). These spore clusters can be seen on infected stems and leaves using a hand lens. Although the pathogens do not attack roots, rapid defoliation and

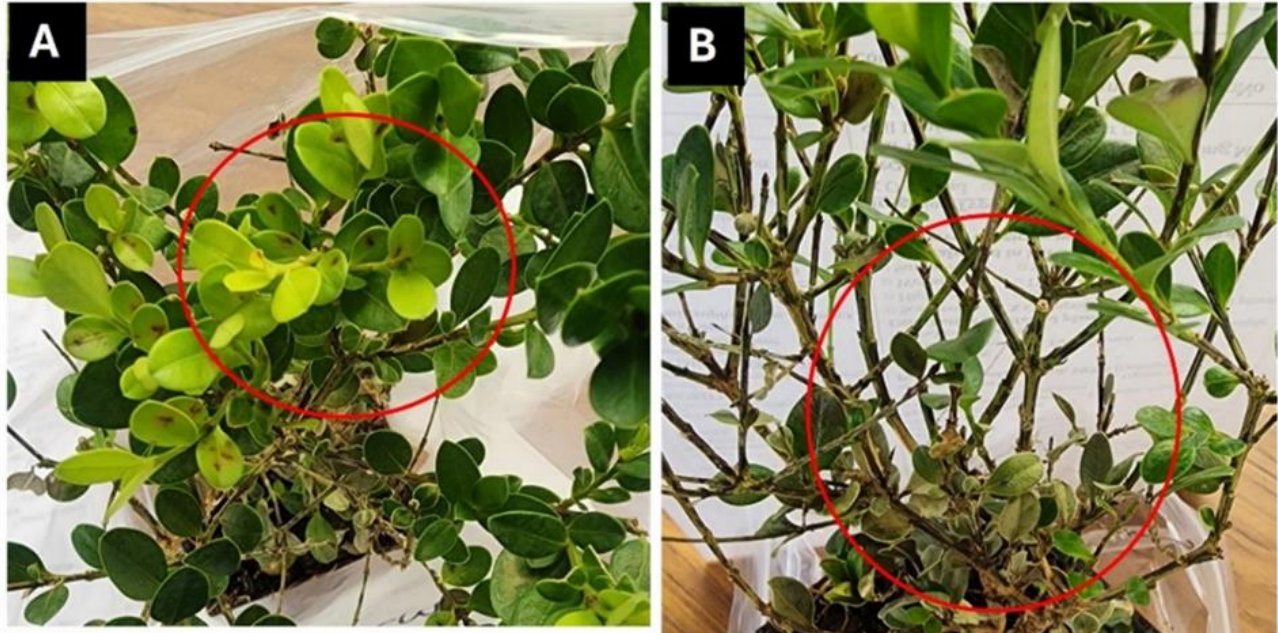


**Figure 1.** Blighted brown leaves on boxwood blight-infected boxwood plants



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dieback from stem cankers can be fatal to young plants in nurseries, while larger plants lose their aesthetic value.



**Figure 2:** A, Spots and lesions on the leaves. B, Black streaks on the stems (stem canker).

### Transmission and Disease Cycle

Boxwood blight pathogens thrive in temperature ranges from 64°F to 77°F and can overwinter on infected plants and plant debris. Also, in adverse conditions, the pathogen produces resting structures that can survive in the soil for >5 years, and during favorable conditions, it produces spores to infect healthy plants. The spores produced on infected leaves and stems during the growing season are dispersed within a plant or to nearby boxwood through splashes from irrigation or rainfall. Dispersal over greater distances primarily involves moving non-symptomatic infected plants through nursery trade, using contaminated tools and transport vehicles that contain infected plant debris

### Host

Currently, all commercially available American, English, and Korean boxwood cultivars or varieties are susceptible to boxwood blight with varying disease severity (Shishkoff *et al.*, 2014). Also, all plant species in the *Buxaceae* family, including *Pachysandra* (Japanese spurge) and *Sarcococca* (sweetbox), can serve as an alternative host for boxwood blight, posing a threat to nearby boxwood plants.



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**Figure 3:** C- D, Sporulation on the underside of infected leaves, E Under high humidity, infected stems produce sporodochia. Photo credit: Castroagudín *et al.*, 2020

### Disease Management

Preventing the introduction of boxwood blight-infected plant material to a nursery or landscape is the most effective management strategy for this disease. Here are some best

management practices to help prevent introducing the boxwood blight fungus:

- a. Purchase boxwood plants from reputable nurseries that participate in a boxwood blight compliance agreement.
  - New plant stock should be separated from existing nursery stock to facilitate easy quarantine if they are infected
  - Do not spray the new stock with fungicides for one month before installation to observe any typical symptom development. Fungicides do not cure infected plants but mask symptom development in infected but non-symptomatic plants, creating a false healthy status.
  - Scout and remove any pachysandra and sweetbox in your nursery.
- b. Do not shear boxwoods when they are wet to reduce the chance of spreading disease.
  - Clean and disinfect shearing tools with bleach, ethanol, or Lysol between plants.
- c. Remove and destroy pruned infected plants and plant debris (**DO NOT COMPOST**)
- d. Reduce humidity and ensure adequate plant spacing to improve air flow
- e. Avoid introducing new boxwood plants to established landscapes or landscapes with historical reported boxwood blight infection

Once the described symptoms are observed and the disease is suspected, accurate diagnosis and sanitation are critical for management.





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**Contact the Maryland Department of Agriculture, Plant Protection and Weed Management Section at 410-841-5920. Our inspectors will reach out to you.**

Quarantine symptomatic plants while you wait for the diagnosis report. If the plants test positive for boxwood blight, remove, bag every symptomatic and diseased plant and plant debris, and bury them.

Do not compost infected plants or plant debris. The fungal pathogens that cause boxwood blight can persist in the soil for more than five years, which means any replacement boxwood planted in the same site is likely to become infected.

Fungicides can help protect plants from boxwood blight, but will not cure those already infected. The primary purpose of chemical treatments is prevention. For best results, apply fungicides when temperatures rise above 60°F and rain is forecasted.

### For More Information Visit,

Horticultural Research Institute.  
<https://www.boxwoodhealth.org/>

Boxwood Blight Task Force (Virginia Cooperative Extension)  
<https://ext.vt.edu/agriculture/commercial-horticulture/boxwood-blight.html>

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