

MESSENGER-INQUIRER

	University of Kentucky College of Agriculture, Food and Environment Cooperative Extension Service
	extension.ca.uky.edu HORTICULTURE EDUCATION Annette Meyer Heisdorffer, PhD Daviness County Extension Office

August 5, 2023

Boxwoods Affected by Weather, Disease, and Insect

A common question received at the office has been why are there brown sections in my boxwood (*Buxus spp.*) shrub? Boxwood is a popular shrub because it grows in full sun to partial shade, is used as a border or foundation plant, and is evergreen.

Currently, Volutella blight has been the most common reason for brown leaves. It is a common disease of boxwoods caused by an opportunistic fungal pathogen, *Pseudonectria buxi*, according to Dr. Nicole Gauthier, University of Kentucky Extension Plant Pathologist. The stress-related pathogen enters through unhealthy and/or damaged plant tissue, such as winter injuries, or wounded stems. Thinking back to last December, the injury may have occurred to boxwoods with the quick drop into below-zero temperatures. The spring also had freezing temperatures. Mature leaves are more resistant to infection than young leaves, and vigorous plants often resist major disease problems compared to stressed plants. All species and cultivars of boxwood are susceptible.

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

MESSENGER-INQUIRER

infected branches. Leaves of affected branches turn light green-yellow, change to red/ bronze, and finally become straw or yellow-tan in color. 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 develop on lower surfaces of affected leaves and stems.

Winter injury due to drying winter winds may be confused with *Volutella* because this is where the fungal infection usually develops. The presence of the fruiting bodies on the leaves distinguishes this disease from environmental damage such as winter injuries and other diseases.

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. *Volutella* blight is spread primarily by movement of infected plants, cuttings, and on contaminated hands/gloves and tools. In addition, water can spread the disease. Movement of nursery plants and use of contaminated tools are the main routes for long distance spread.

Critical measures for disease management include promoting healthy plants, managing plant stresses that we can, and raking and destroying fallen leaves and other infected plant parts.

After pruning a diseased plant, sanitize pruning tools with 70% isopropyl rubbing alcohol or 10% bleach solution before going to the next shrub. Fungicides are typically only used on plants at the nursery. The products are only preventative.

MESSENGER-INQUIRER

A less common reason for brown spots on boxwood leaves is the boxwood leafminer. This insect feeds between the top and bottom layers of the leaf on the inside. According to Dr. Jonathan Larson, University of Kentucky Cooperative Extension Entomology specialist, the female leafminer inserts eggs into leaves where they are protected. The female adult looks like an orange mosquito. She becomes active in late April to early May and inserts her eggs in the leaves. Yellow maggots emerge and create blister-like mines that cause the leaf to “puff up”. If the blister is torn open, the maggots can be found. This insect overwinters as mature larvae inside the leaf and pupate in the spring. There is only one generation per year.

To manage leafminer, apply a systemic drench around the base of the plant, such as imidacloprid or dinotefuran in April after the tiny flowers have fallen off. Foliar sprays of carbaryl, Spinosad, or malathion to the leaves would manage the adult flies during flight when they are active. Follow all label instructions on the insecticide.

A disease that we do not want introduced into the area is called boxwood blight. It is caused by the fungus *Calonectria pseudonaviculata*. This disease results in rapid defoliation and plant dieback. This fungal disease is particularly devastating to American boxwood cultivars, which can defoliate a plant within a week; weakened plants can die within one growing season. It produces fungal resting propagules that enable it to remain dormant for 1 year buried in soil and up to 3 years in plant debris. It was first reported in central Kentucky in 2014. This disease continues to spread within the nursery trade and in landscapes.

Boxwood blight affects leaves and branches. The earliest symptoms include light or dark brown circular leaf spots with darker borders on the leaves. However, because plants can

MESSENGER-INQUIRER

defoliate soon after leaf spots develop, this symptom often goes unnoticed. Elongated, dark brown or black streak-like lesions appear on the stems.

The symptoms of boxwood blight are different from some of the more 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.

For more information about the boxwood diseases and insect, contact the Daviess County Cooperative Extension Service at 270-685-8480 or annette.heisdorffer@uky.edu. Publications are available on Volutella Blight of Boxwood <http://plantpathology.ca.uky.edu/files/ppfs-or-w-26.pdf>, Boxwood Blight <http://plantpathology.ca.uky.edu/files/ppfs-or-w-20.pdf> and Bugs of Boxwoods at <https://kentuckypestnews.wordpress.com/?s=bugs+of+boxwoods&submit=Go>.

Annette's tip:

Visit the farmers' market to celebrate National Farmers' Market Week from August 6 through 12. The Owensboro Regional Farmers' Market is open on Tuesdays and Saturdays from 8:00 a.m. to noon and on Thursday evenings through August 31 from 4:00 – 7:00 pm.

The Martin-Gatton College of Agriculture, Food and Environment is an Equal Opportunity Organization with respect to education and employment and authorization to provide research, education information and other services only to individuals and institutions that function without regard to economic or social status and will not discriminate on the basis of race, color, ethnic origin, national origin, creed, religion, political belief, sex, sexual orientation, gender identity, gender expression, pregnancy, marital status, genetic information, age, veteran status, physical or mental disability or reprisal or retaliation for prior civil rights activity.

MESSENGER-INQUIRER