Beech Leaf Disease in Rhode Island

Beech Leaf Disease (BLD) was found in southwestern Rhode Island in June 2020, and in coastal MA. First identified on American beech (*Fagus grandifolia*) in Ohio in 2012, it has been found in Pennsylvania, New York, Connecticut, and Ontario, Canada. The disease affects the leaves and, after several years, can be severe enough to cause tree decline and mortality.

The disease was <u>recently confirmed</u> as being caused by a nematode, *Litylenchus crenatae mccannii*. Currently, there is no defined treatment as nematodes are difficult to control in the forest environment. Research is underway to identify possible treatments for landscape trees.

BLD mainly affects American beech, however it has been found on European (*Fagus sylvatica*) and Oriental beech (*Fagus orientalis*), as well as Ohio nursery stock.



All ages and size of beech are affected, although the rate of decline can vary based on tree size. In larger trees, disease progression is slower, beginning in the lower branches of the tree and moving upward. The disease also appears to spread faster between beech trees that are growing in clone clusters, as it is able to spread through their connected root systems. Most mortality occurs in saplings within 2-5 years. Where established, BLD mortality of sapling-sized trees can reach more than 90%.



www.dontmovefirewood.org/pest_pathogen/beech-leaf-disease/

Symptoms

Early BLD symptoms are dark striping on the leaves, parallel to the leaf veins, best seen by looking upward into the backlit canopy. The striping is caused by thickening of the leaf. Lighter, chlorotic striping may also occur. Both fully mature and very young "emerging" leaves show symptoms. Eventually the affected foliage withers, dries, and yellows. Drastic leaf loss occurs for heavily symptomatic leaves during the growing season, as early as June, but asymptomatic and mildly symptomatic leaves show no or minimal leaf loss. Bud and leaf production are also affected.



Photos: Fern Graves, RIDEM-DFE



What you can do

- 1. Help prevent the spread of invasive pests, learn more at Don't Move Firewood.
- 2. While there is no restriction on planting beech trees, do not dig beech trees from the forest to plant elsewhere.
- 3. While research continues for controls for this pest, it is unlikely that any control treatments that are developed or approved will be cost effective to apply in the forest. However, they may help landscape trees. Although there are no controls of this pest at this time, some research has shown that there is a treatment that can help beech trees withstand the stress. The University of Rhode Island has provided a summary of the latest information (2022)

Ohio researchers have had encouraging results using a phosphite product 2x per year, after a 5year treatment regime. This is a fertilizer and can be applied by landowners (<u>MSDS</u>)

- *Polyphosphite 30* (potassium fertilizer 0-0-27) applied as a soil drench or injected into the soil with soil injection equipment.
- The amount of product depends on the size of the tree: 2 oz of *Polyphosphite 30* per 1-inch DBH (diameter at breast height) [Divide the circumference by 3.14 for diameter.]
- Dilute the product in water: 14 oz of water for every 2 oz *Polyphosphite 30* (e.g. a 6-inch diameter tree would receive 12 oz of product, diluted into 84 oz of water);
- Apply 2x during the growing season, June & July, one month apart
- To apply as a drench, dig a shallow trench into the soil around the base of the tree and pour the solution into the trench.
- Remember that watering also helps reduce tree stress tree should have 1" of water a week over their root area whether natural or irrigated, deeply watered.





Dig shallow trench at base of tree.

Pour into trench (Polyphosphite 30 isn't blue)

More information:

Ohio DNR: <u>https://ohiodnr.gov/wps/portal/gov/odnr-core/divisions/division-forestry/related-resource/beech-leaf-disease</u>

CT fact sheet: <u>https://portal.ct.gov/-</u> /media/CAES/DOCUMENTS/Publications/Fact Sheets/Plant Pathology and Ecology/2019/Beech-Leaf-Disease-v2.pdf?la=en

Don't Move Firewood: www.dontmovefirewood.org/pest_pathogen/beech-leaf-disease/

Look-alike diseases: <u>https://forestinvasives.ca/Meet-the-Species/Pathogens/Beech-Leaf-Disease#86227-signs--symptoms</u>