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Forest Focus

Beware of Beech Leaf Disease



Beech leaf disease (BLD) is a disease complex associated with a newly recognized foliar nematode subspecies, *Litylenchus crenate mccannii*, and was first identified on American beech in Ohio in 2012. BLD is now found in nine other states including CT, MA, ME, MI, NH, NJ, NY, PA, RI, and Ontario. BLD was first detected in Pennsylvania in 2016 in Erie and Crawford counties and has quickly expanded to now occupy 65 of 67 counties. BLD damages beech leaves, reduces vigor, and eventually leads to tree mortality.

Observed symptoms of BLD include leaf striping (bands of thickened, dark green tissue between the leaf veins) and curling, which may be accompanied by a leathery texture. These symptoms are visible from leaf-out until fall and are best observed by looking up into the canopy. Some branches may be affected while others are not. Leaf and bud production diminish, and premature leaf loss results as the disease progresses.

BLD spreads very quickly, indicative of an invasive pathogen. Research on how the BLD nematode is spread is ongoing. However, other nematodes are known to be spread by mites, insects, animals, and in infected plant material. Researchers are also looking into the possibility of whether other organisms such as fungi, bacteria, viruses, and phytoplasmas are playing a role in disease development, or whether the nematode is the sole cause of disease. Disease spread does not appear to be influenced by topography, slope, aspect, or soil conditions.

Where BLD is established, most of the American beech trees show symptoms. However, there may be a possibility of putative resistance in beech to BLD just as resistance was found in beech to the scale insect phase of beech bark disease.

Although silvicultural management steps have yet to be identified, other recommendations include:

- Disinfect shoes after working in BLD infected areas.
- Pruning infected landscape trees may decrease foliar surface moisture and thus BLD symptom severity.
- Avoid moving soil, beech material, or other organic material from infected areas.

Chemical trials have been ongoing since 2017 using the fertilizer PolyPhosphite 30 and has shown promise in the halting of leaf symptoms and progression. This is applied either as a soil drench or injected into the soil. However, this treatment will be relegated to high-value beech since it would be impossible to do a forest-wide application. Other chemical trials by means of foliar application are also underway.

Forest Health Division Chief Rosa Yoo said, "If your beech tree appears ill, be advised that BLD infection can produce symptoms that look similar to other forest health conditions." Common look-a-likes include:

- **Erineum patch:** caused by eriophyid mites, creates light green or yellowish to orange patches on the upper side of the leaf but rarely covers enough of the leaf to impact overall tree health.
- **Beech leaf curl aphid:** their feeding causes curling and puckering of the leaf, but the damage usually isn't harmful to tree health.
- **Anthraxnose:** affects a variety of tree species. It creates small brown or black spots on beech leaves that eventually cause dead areas. New leaves may curl. Fungi infect leaves and stems and are most active in cool, wet growing seasons. Has a limited impact on tree health.
- **Powdery mildew:** affects many trees and shrubs. It causes beech leaves to turn yellow and may cause defoliation but does not kill beech trees.



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