

Forest Health Pest Alert

Beech Leaf Disease

July 2016

Hosts and Distribution

Beech leaf disease (BLD) affects American beech (*Fagus grandifolia*) and possibly European beech (*Fagus sylvatica*) and no causal agent has yet been identified. BLD was discovered in Lake County, Ohio in 2012. It seems to have spread quickly, especially to the east, and has been documented in the northeastern Ohio counties of Lake, Ashtabula, Geauga, Cuyahoga, Portage, and Trumbull as well as Crawford County Pennsylvania. BLD has also been reported from other areas of Ohio, NW Pennsylvania, and SW New York.

Symptoms

Symptoms of BLD have only been noted on leaves and buds. Striping or banding on several leaves on an otherwise healthy-appearing tree is the first noticeable symptom. The striping is formed by a darkening between leaf veins giving the leaf a distinctive striped appearance. This striping is often most apparent when viewing from below, looking upwards into the canopy. The darkened leaf area is raised and slightly thicker than the rest of the leaf tissue. Eventually, lighter, chlorotic striping may also occur. This striping is present upon leaf-out in the spring. Most leaves will remain on the tree until autumn. Very little premature leaf drop occurs.

Later stages result in heavily shriveled, discolored, deformed leaves clustered near the branch tips as well as reduced leaf and bud production. Buds that are produced are small and weakly attached to the twig. Mortality has been noted, mainly in saplings.

Disease progression varies with tree size. In sapling-sized trees, the progression from a few striped leaves to severe decline is rapid and may only take one to two years. In larger overstory trees, disease progression has been slower, usually moving from lower branches upwards. Some foliage and branches that appear to be unaffected may persist on an otherwise heavily affected tree.



Top photo: early leaf striping symptoms of BLD

Bottom photo: later stages of BLD resulting in leathery, curled leaves

Biology and Spread

BLD appears to spread rapidly. Incidence of BLD does not appear to be influenced by slope, aspect, or soil conditions. In established areas, the proportion of American beech showing symptoms has been nearly 100%.

Symptomatic trees may show a wide variety of other insects and pathogens, including beech blight aphid (*Grylloprociphilus imbricator*), European beech scale (*Cryptococcus fagisuga*), erineum patches produced by eriophyid mites (*Acalitus fagerinea*), and leaf fungi such as anthracnose (*Discula umbrinella*). All appear to be independent of BLD.



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Clockwise from top left: advanced stages of BLD showing deformed leaves, loss of leaves and lack of bud production, and branch dieback resulting in a more open understory

