

PLANT HEALTH CARE REPORT



Beech

Beeches (*Fagus* spp.) are among the most stately and prized landscape trees. American beech, *Fagus grandifolia*, is a key component of eastern hardwood forests. This species is commonly retained in landscapes when developments are built into forested areas. European beech, *Fagus sylvatica*, is often nursery grown and planted in the landscape as a feature tree, shade tree, or hedge.

Beeches are esteemed for their broad-spreading dense crown, massive horizontal branching habit, silver-gray bark, and dense shade. Fall color can vary from yellow to red. In winter, tan leaves persist on beech creating seasonal interest. Many cultivars of European beech have been selected with red, purple, variegated and cut-leaf foliage, weeping and fastigate branching habits, and other traits. The growth rate of beeches is slow-to-medium. While American beech can live more than 100 years with proper care, recent studies have found that European beech seldom reaches this age in the United States.

European beech grows best in northern climates (zones 4 to 7) while American beech grows well over a wider geographic area, including the warmer climate of the Southeast (zones 3 to 9). Although they prefer full sun, beeches will tolerate shade better than most large tree species. Beeches are very demanding in terms of soil



American beech
Photo courtesy of Wikimedia



Cut leaf European beech

quality. Soils must be organic, well-drained, acidic, and fertile to maintain the health of this tree. Beeches also have a shallow root system and are intolerant of site changes. In new developments, American beech usually declines and dies unless precautions are taken to prevent soil disturbance beneath its crown. Due to shallow roots and dense shade, turf grows poorly beneath beech species. Organic mulches are recommended instead of ground covers or turf.

Beeches are host to a variety of insect pests. Heavy populations of woolly beech aphid can cause leaf browning and defoliation. This insect produces copious amounts of honeydew that supports growth of sooty molds. This should not be confused with the beech blight aphid, which causes little damage to beech. The beech blight aphid is known for its association with sooty mold fungus, which form large, crusty black growths on branches where the aphid feeds. Other leaf-feeding pests include caterpillar defoliators, such as spongy moth and leaf beetles, and eriophyid mites.

Beech bark scale, an exotic insect, weakens the tree and predisposes it to infection with beech bark disease. This disease is caused by the fungus *Nectria* that invades the sapwood through wounds created by beech bark scale. Disease cankers coalesce and girdle the stem. American beech is highly susceptible to beech bark disease, but European beech shows considerable resistance.

Old trees and those stressed by drought, defoliation, and root disturbance are prone to attacks by the two-lined chestnut borer. This *Agrilus* borer typically attacks small diameter branches in the upper crown and eventually

Monitoring and Treatment Considerations for Beech

Early to mid-winter

Monitor for scale, beech bark disease, and bleeding cankers; treat as needed. Inspect roots, stem and crown for any structural defects that could lead to failure. Expose and inspect root collar and correct root collar disorders. Reduce or remove branches to promote appropriate structure. Remove dead, dying, diseased, and interfering branches. Sample soil for nutrient and pH levels. Submit stem or root samples for *Phytophthora* testing.

Late winter to early spring

Apply dormant treatment to suppress mites, aphids and scale. On mature beech, apply treatment to prevent/suppress *Phytophthora* bleeding canker as needed. Fertilize, adjust pH, and amend soil according to soil analysis.

Mid-spring

Monitor for aphids, eriophyid mites, caterpillar defoliators, and beech leaf disease; treat as needed.

Late spring

Monitor for aphids and defoliators; treat as needed. Assess new growth for deficiency symptoms and other indications of stress.

Early summer

Monitor for aphids and defoliators; treat as needed. Inspect mulch levels and adjust as needed. Monitor irrigation and soil

invades larger branches and the stem. Larval galleries girdle branches causing dieback and decline.

Beech bark disease and bleeding canker—caused by the water mold *Phytophthora*—are the principal diseases affecting beech. *Phytophthora* kills localized areas of the bark and sapwood, particularly on the root flare and lower stem. Reddish-brown liquid exudes from the lesions giving rise to the common name “bleeding canker.” Beech is also prone to wood decay and root rot. Old and stressed trees are most susceptible to these diseases.

Beech leaf disease is an emerging concern for healthy American and European beeches from Ontario through the Mid-Atlantic and Northeast. A foliar-feeding nematode,

Litylenchus crenatae *mccannii*, infests leaves causing striping, distortion, galls, thickening, and chlorosis. Successive years of nematode



infestation depletes carbohydrate stores, kills buds, and makes beeches more susceptible to secondary pests.

moisture to minimize water stress and prevent root disease.

Mid to late summer

Monitor for beech bark scale crawlers, aphids, and defoliators; treat as needed. Monitor irrigation and soil moisture to minimize water stress and prevent root disease.

Fall

On mature beech, apply treatment to prevent/suppress *Phytophthora* bleeding canker as needed. Monitor for beech bark scale crawlers; treat as needed. Fertilize, adjust pH, and amend soil according to soil analysis.