



# Beech

Beeches (*Fagus* spp.) are among the most stately and highly prized landscape trees. American beech, *Fagus grandifolia*, is a common component of eastern hardwood forests. This species is commonly incorporated into landscapes when developments are built into forested areas. European beech, *Fagus sylvatica*, is the species most commonly grown in nurseries and planted in the landscape.

Beech is highly prized for its broad spreading, dense crown, massive horizontal branching habit, silver-grey bark and dense shade. Fall color can vary from yellow to red. In winter, tan leaves persist on American beech in the understory that creates 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 beech 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 4-6) whereas American beech grows well over a wider geographic area including the warmer climate of the Southeast (zones 3-9). Although they prefer full sun, Beech will tolerate shade better than most large tree species. Beech is very demanding in terms of soil quality. Soils must be organic, well-drained, acid and fertile to maintain health of this tree. Beech has a very shallow root system and is very intolerant of site changes. Beeches on new developments usually decline and die unless precautions are made to prevent soil disturbance beneath their crown. Due to the shallow roots and dense shade, turf grows poorly beneath these species. Organic mulches are recommended instead of ground covers or turf.

Beech is host to a variety of insect pests. Heavy populations of woolly beech adelgid can cause leaf browning and defoliation. This insect produces copious amounts of honeydew that supports growth of sooty molds. Other leaf feeding pests include caterpillar defoliators such as gypsy moth, leaf beetles, and eriophyid mites.

Beech bark scale weakens trees and predisposes them to beech bark disease. This disease is caused by the fungus *Nectria* that invades the sapwood through wounds created by the scale. Cankers caused by this fungus can 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 *Agilus* borer typically attacks small diameter branches in the upper crown and eventually invades larger branches and the trunk. Larval galleries girdle branches causing dieback and decline.

Beech bark disease and bleeding canker caused by the fungus *Phytophthora* are the principal diseases affecting beech. *Phytophthora* kills localized areas of the bark and sapwood especially on the root flare and lower trunk. Reddish-brown liquid issues from the lesions thus giving rise to the common name "bleeding canker." Beech is also prone to wood decay and root rot. Old and stressed trees are most sensitive to these diseases.

### **Recommended Monitoring of Beech**

<b>Timing</b>	<b>Treatment</b>
Winter	Inspect roots, stem and crown for any structural defect that could lead to failures. Correct as needed. Corrective prune to remove dead, dying diseased and interfering limbs. Inspect root collar and correct any disorders as needed take soil sample. Inspect for scale and cankers. Submit plant tissue for Phytophthora analysis as needed.
Late winter /Early spring	Apply horticultural oil to suppress mites, aphids and scale.
Mid spring	Monitor woolly adelgid, eriopyid mite and caterpillar defoliators. Treat as needed.
Late spring	Monitor aphids and defoliators and treat as needed. Assess new growth for deficiency symptoms and other indications of stress. Apply soil amendments or sample as needed.
Early summer	Monitor for adelgid and defoliators and treat as needed. Monitor soil moisture. Assess mulch level; add mulch if needed.
Summer	Monitor soil moisture. Inspect for and treat leaf-feeding insects. Monitor for beech bark scale crawlers, and woolly adelgid and treat as needed.
Fall	Fertilize as needed. Apply mycorrhizae treatments to stressed trees, new plantings and those growing in infertile soil. Monitor for beech bark scale crawlers and treat as needed. Apply soil in next year.