Bartlett Tree Research Laboratories

PLANT HEALTH CARE REPORT

Pin Oak

Pin oak (*Quercus palustris*) is a fast-growing, largematuring shade tree with a pleasing oval-pyramidal shape. The deeply-lobed leaves are glossy, dark green during the summer. Fall color is highly variable ranging from red to brown. Its fine, dense branch structure is featured during the dormant season.

Pin oak grows best in full sun. Trees growing in shade are slow to mature and often die prematurely. Pin oak will grow in most types of acidic soils and is tolerant of heavy clay soil. Flooding during the winter and early spring is easily tolerated.

Pin oak is not tolerant of high pH or alkaline soils. It often becomes deficient in iron and manganese, resulting in slowed growth and reduced vigor. Symptoms of micronutrient deficiencies are yellowing or browning between the leaf veins and eventual decline of the tree. Micronutrient deficiencies may be corrected either by managing the soil pH or by injecting iron and manganese into the stem. Avoid planting pin oak in areas with alkaline soils.





Semi-mature pin oak



Mature pin oak

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Oak wilt is the most destructive disease of oaks, especially those in the red oak group like pin oak. It is caused by the fungus *Bretziella fagacearum*. The fungus is introduced by sap beetles (nitidulids) or through underground root grafts. Mature landscape trees can be protected from oak wilt with preventive injection treatments. It is important to avoid pruning during the time of year when sap beetles are most active.

Other diseases of pin oak that result in branch dieback and decline include bacterial leaf scorch, cankers, and root rot. Bacterial leaf scorch (Xylella fastidiosa) is transmitted by sucking insects in the leafhopper group. Symptoms start as marginal browning of the leaves, sometimes with a yellow halo between the brown and healthy leaf tissue. The scorching symptom progresses in a random pattern in the crown and will eventually result in branch dieback and death of the tree. Numerous canker fungi attack twigs, branches, and the stem of trees that are stressed by the lack of water, root damage, or nutrient deficiency. Root rot and bleeding cankers caused by *Phytophthora* species are difficult to detect in early stages but can lead to tree death during hot, dry periods in the summer.

Leaf spot, anthracnose, and leaf blister diseases may cause premature defoliation. To promote overall tree health, proper mulching, pest management, fertilization, and irrigation are required.

Monitoring and Treatment Considerations for Pin Oak

Winter to early spring

Apply treatment to prevent anthracnose and leaf spot disease if needed. Monitor for scale, cankers, spongy moth egg masses and twig galls; treat as needed. Remove dead, dying, diseased, and broken branches. Expose and inspect root collar for problems. Add mulch as necessary. Sample soil for nutrient and pH levels. Fertilize and amend soil according to soil analysis. *Inject flare roots to treat iron/manganese deficiency or adjust soil pH as needed on a 3-year schedule.

Mid-spring

Apply treatment to prevent anthracnose and leaf spot disease if needed. At full leaf expansion, inject flare roots to suppress bacterial leaf scorch if needed. Inject flare roots to protect trees from oak wilt if needed. Apply bark treatment to prevent ambrosia/bark beetles if needed.

Late spring

Apply treatment to prevent anthracnose and leaf spot disease if needed. Monitor for leaffeeding pests; treat as needed. Apply bark treatment to prevent ambrosia/bark beetles if needed. Take soil and foliar nutrient sample if micronutrient deficiency is suspected.

Early summer

Monitor for leaf-feeding pests, scale and mites; treat as needed. Adjust soil pH as needed.

Midsummer

Monitor for leaf-feeding insects and obscure scale crawlers; treat as needed. Apply bark treatment to



Many insects feed on pin oak. Most target trees under stress from root damage, lack of water, or nutrients. Obscure scale (*Melanapsis obscura*) is a small armored scale insect that feeds on twigs, branches and stems. From under its bark-colored cover, it removes sugars produced by the leaves. Lecanium scales are a type of soft scale that can quickly build up in populations in stressed pin oaks. Heavy infestations lead to copious amounts of honeydew and sooty mold as well as a general decline of the tree.

Ambrosia and bark beetles are attracted to stressed trees. These beetles bore into trees where they lay eggs in the vascular tissue. Maturing beetles girdle the xylem, phloem, cambium, or a combination of these tissues. Many will introduce a fungal symbiont that can cause cankers or wilt disease.

Horned oak gall (*Callirhytis cornigera*) and gouty oak gall (*Callirhytis quercuspunctata*) are caused by small wasps. Large numbers of these galls result in dieback, decline and an unsightly appearance. Defoliating caterpillars, such as spongy moth, orange-striped oakworm, cankerworms and oak leaf skeletonizers can lead to a general stress and decline after repeated seasons of infestations. Spider mites are often more problematic on drought-stressed trees in the heat of the summer. prevent ambrosia/bark beetles if needed. Sample for bacterial leaf scorch, if needed. Monitor irrigation and soil moisture to minimize water stress, especially if bacterial leaf scorch is confirmed.

Early fall

If sucking insects were problematic this past growing season, consider treating with an appropriately timed systemic product. *Inject flare roots to treat iron/manganese deficiency or adjust soil pH as needed on a 3-year schedule.

*Systemic injections are available to treat iron/manganese deficiency. This treatment can be applied at any time except when the tree is frozen, during drought, or on trees with severe root damage. Fall treatment rates are higher than spring. Treatment should not be repeated more than once every three years.