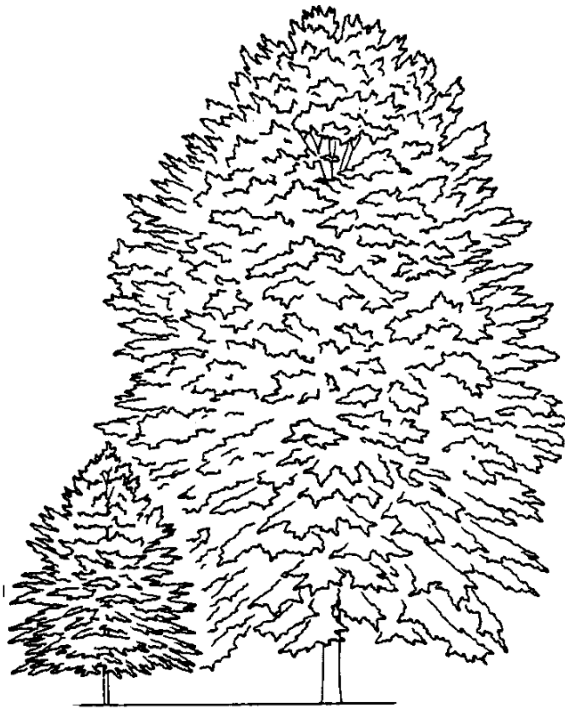


Plant Health Care Recommendations for Pin Oak

Pin oak (*Quercus palustris*) is a fast growing, large maturing shade tree which has a pleasing oval-pyramidal shape. Leaves are a deeply lobed, glossy dark green during the summer. Fall color is highly variable, ranging from red to brown. During the dormant season, the unique fine dense branch structure can be seen.



Growth of pin oak is best in areas of 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 it is known for its tolerance to heavy clay soil. Flooding during the winter and early spring is easily tolerated. Soils which are saturated for more than a few weeks during the growing season may be detrimental to tree growth.

One of the most common problems with this species is chlorosis which develops when soil pH is over 6.5 to 7. This results in yellowing or browning between the leaf veins and eventual decline of the tree. This problem may be corrected either by treating the soil or by injecting iron into the trunk.

There are many insects which feed on pin oak. Many prefer trees which are under stress from root damage, lack of water or nutrients. Obscure

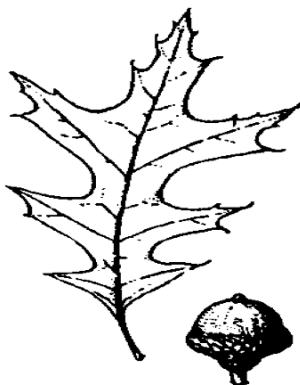
scale (*Melanapsis obscura*) is a very small insect which feeds on twigs and branches. From under its bark colored cover, it removes food produced by the leaves and intended for other parts of the tree. Horned oak gall (*Calirhytis cornigera*) and gouty oak gall (*Calirhytis quercuspunctata*) are caused by a small wasps. Large numbers of these galls result in dieback, decline and an unsightly appearance. Caterpillars which are occasional problems include gypsy moth, orange striped oak worm, cankerworms and oak leaf skeletonizers.

Common diseases which cause dieback and decline include bacterial leaf scorch, cankers and root rot. Leaf scorch (*Xylella fastidiosa*) is transmitted by several common sucking insects. Symptoms start as marginal browning separated from the green leaf blade by a thin yellow line and end as severe branch dieback. Numerous canker fungi attach twigs and the trunk of trees stressed by lack of water, root damage or nutrient deficiency. Root rot fungi are difficult to detect in these early stages. In final stages trees often totally collapse during hot, dry periods in the summer.

Leaf spot, anthracnose and leaf blister disease all may cause premature defoliation. To promote overall tree health, proper mulching, pest management, fertilization and irrigation are required. Some of these treatments can be applied at any time, others require very specific timing. An ideal plant health care system for pin oak is as follows:

Recommended Monitoring for Pin Oak

Timing	Treatment
Winter-Early Spring	Prune to remove dead, dying, diseased and interfering limbs. Inspect root collar. Soil sample. Apply sulfur and iron chelate as needed. Inspect for scale, cankers, gypsy moth egg masses and twig galls. Scale spray if needed.
Mid Spring	Anthracnose and leaf spot disease suppression treatment, if needed. Trunk inject iron as needed on a 3 year schedule.
Late Spring	Same as above without iron treatments. Monitor leaf feeding insects.
Early Summer	Same as above. Monitor leaf feeding insects and obscure scale. Horned oak gall sprays (if needed). Apply sulfur and iron chelate.
Mid Summer	Monitor soil moisture, leaf feeding insects and obscure scale crawlers.
Early Fall	Monitor bacterial leaf scorch, iron deficiency. Soil treat iron deficiency, gall and scale insects.



Systemic injections are available to treat iron deficiency. This treatment can be applied at any time, except when the tree is frozen, during droughts or on trees with severe root damage. Treatment should not be repeated more than once every three years. Soil applied systemic treatments are also available for sucking insects.