Bartlett Tree Research Laboratories

PLANT HEALTH CARE REPORT

Coast Live Oak

Coast live oak (*Quercus agrifolia*) is a highly prized landscape tree native to coastal areas of California. It is ideally suited for specimen planting on large residential properties, commercial sites, and parks where there is ample space to accommodate the massive, spreading crown. Leaves are retained throughout the winter, hence the name live oak. The crown tends to be dense and rounded providing shade for most of the year.

Interior crown

New growth and catkins (male flowers)

Coast live oak naturally grows on dry, upland slopes. Soils must be well drained in order to avoid root diseases. On fertile sites with ample soil moisture, growth of young trees is moderate to fast. Trees are healthiest when growing in full sun.

Sudden oak death (SOD), a canker disease caused by *Phytophthora ramorum*, has killed thousands of coast live oak outright or predisposed them to lethal attacks by ambrosia and bark beetles. Early in the disease cycle, infected trees exude thick, reddish brown sap from the bark, referred to as bleeding cankers. These cankers eventually girdle the stem and kill the tree. Rapid removal of dead oaks and

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proper disposal—not storage—of beetle-infested wood are keys to reducing future losses. Quarantine regulations and restrictions for coast live oak are in effect for certain California and Oregon counties; refer to the California Department of Food and Agriculture for more information. Proximity of coast live oak to California bay laurel (*Umbellularia californica*) is the most significant factor impacting likelihood of SOD infection.

Root disease is prevalent on old trees and those stressed by drought and root disturbances, such as construction damage. Trees with fill soil or mulch against the root collar or trees that have irrigation water directed at its base are particularly prone to root disease.

Twig blight diseases have become prevalent on live oak in recent years. Several fungi are capable of invading twigs through wounds causing dieback and decline. Trees stressed by drought, age, root disturbances, and shading are particularly prone to twig blights.

Coast live oak is susceptible to several insect pests that periodically occur at damaging levels. Oak moth larvae feed in spring and may reach population numbers that cause significant defoliation. Pit scale infests twigs and weakens plants by removing sap. Several species of gall wasp, which infest twigs and leaves, occasionally reach damaging levels in many California locales. Wasp larvae feed in galls that form on twigs and foliage and may cause leaf scorching or twig dieback. Wounds created by scale and gall wasps are prone to infection by fungi that cause branch disease (cankers) and dieback.

Monitoring and Treatment Considerations for Coast Live Oak

Mid-winter

Apply preventative or therapeutic bark treatments for SOD. Expose and inspect root collar for problems; add mulch as needed. *Remove dead, dying, diseased, and broken branches. *Reduce or remove branches to promote appropriate structure. Sample soil for nutrient and pH levels.

Late winter

Apply first bark treatment to prevent ambrosia and bark beetles, particularly in SOD areas. Inspect stems for oozing SOD cankers and signs of beetle attack. Monitor for scale insects; apply dormant treatment as needed. *Fertilize, adjust pH, and amend soil according to soil analysis.

Early spring

Apply first fungicide treatment to suppress twig blight if there is a history of this disease. Inspect stems for oozing SOD cankers and signs of beetle attack. Monitor for oak moth larvae and other defoliators; treat as needed.

Mid-spring

In areas with high disease pressure, apply second treatment for SOD. Apply second fungicide treatment to suppress twig blight if there is a history of this disease. Inspect stems for oozing SOD cankers and signs of beetle attack. Monitor for oak moth larvae, other defoliators, and gall wasps; treat as needed.

Late spring

Apply third fungicide treatment to suppress twig blight if there is a history of this disease. Inspect stems for oozing SOD cankers and signs of beetle attack. Monitor for defoliators, scale insect crawlers, and aphids; treat as needed. Monitor irrigation and recommend additional soil moisture (directed away from the root collar) as needed. Sample new, hardened-off growth if nutrient deficiency is suspected; treat as recommended.

Summer

Apply second bark treatment to prevent ambrosia and bark beetles, particularly in SOD areas. Inspect stems for oozing SOD cankers and signs of beetle attack. Monitor for scale insects and aphids; treat as needed. Monitor irrigation and increase or decrease as needed.

Fall

Apply fourth fungicide treatment to suppress twig blight if the tree has been severely damaged by this disease. Inspect stems for oozing SOD cankers and signs of beetle attack. If scales, aphids, and gall wasps were problematic this past growing season, consider treating with an appropriately timed systemic product.

*Fertilization and pruning may be done during other seasons if necessary.