

SUDDEN OAK DEATH (SOD)

(*Phytophthora ramorum*)

DESCRIPTION

Sudden Oak Death (SOD) is the common name for a fatal tree disease caused by *Phytophthora ramorum*, a species of oomycetes that are similar to fungi. SOD is one of 59 species of Phytophthora, all of which cause disease in plants. Many Phytophthora species attack roots in poorly drained or anaerobic soils. The primary hosts are coast live oak, California black oak, Shreve oak, tan oak, and canyon live oak. Many more cultivated species are likely susceptible to *P. ramorum*. Symptoms in other species are often expressed as leaf blight. *P. ramorum* can cause foliar disease in Douglas-fir, coast redwood and California bay laurel. Unlike many Phytophthora species that infect roots, *P. ramorum* is mainly a foliar pathogen.

SYMPTOMS

Leaves will appear drought-stressed, sometimes turning dull green, yellow, red or purple as they wilt. Infected bark will be water-soaked, with red-brown discoloration and a disagreeable odor. Bleeding cankers form at the base of the trunk and eventually lead to death. *P. ramorum* infection is usually followed by beetle infestation and/or an alternate pathogen infection.

SOD symptoms are very similar to other common fungal infections. A positive identification of the disease requires sending a tissue sample to a qualified lab.

TREATMENT

Arborjet recommends the use of PHOSPHO-jet, a systemic fungicide for treatment of Sudden Oak Death. Arborjet recommends a two pronged approach.

1. Micro-injection of PHOSPHO-jet into susceptible host trees.
2. Amend the soil around the tree with humates (high quality organic matter). Phytophthora thrives in poorly drained and anaerobic soils. The addition of humates will help to increase soil aeration and make the root environment less conducive to disease development. Arborjet recommends a product such as Biostarter which includes beneficial bacteria that will create a less hospitable environment for Phytophthora.

PHOTOS

A: Bleeding canker caused by *Phytophthora ramorum*.

B: Bleeding canker caused by *Phytophthora cinnamomi*.

Photo A and B taken by: Joseph O'Brien, USDA Forest Service, Bugwood.org



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WHEN TO TREAT

Best outcomes are in susceptible trees treated proactively. When treating for SOD, it is best to treat in fall to minimize the risk of spreading the infection. Disinfect drill bits and injection needles between trees.

Generally, the best seasons for injection are fall and spring, as uptake occurs when trees are transpiring. The environmental conditions that favor uptake are adequate soil moisture and relatively high humidity. Soil temperature should be above 40°F for trunk injection. Hot weather or dry soil conditions will result in a reduced rate of uptake, so trees should be watered if applications are made when the soil is extremely dry. If treating trees in the summer, inject in the morning for the quickest uptake. Tree health will also affect treatment efficacy, so assess tree health prior to treating. For example, a declining tree (>50% canopy dieback) is a poor candidate for treatment.

WHAT TO EXPECT AFTER TREATMENT

Tree recovery will be dependent upon the severity of the Sudden Oak Death infection at the time of trunk injection. PHOSPHO-jet acts as a fungicide and, as an added benefit, stimulates new root growth. The addition of humates will create a soil environment that favors root growth over disease development.

WORLD CLASS FORMULATIONS

For treatment of Sudden Oak Death, use PHOSPHO-jet.

PHOSPHO-jet is a systemic fungicide and plant health elicitor formulated for the suppression of various plant diseases including anthracnose, black spot, phytophthora (including Sudden Oak Death), stem canker, apple scab, fireblight, root rot, bud rot and powdery mildew.

Our products can be purchased at your local Arborjet distributor. For a distributor near you visit arborjet.com/distributor



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